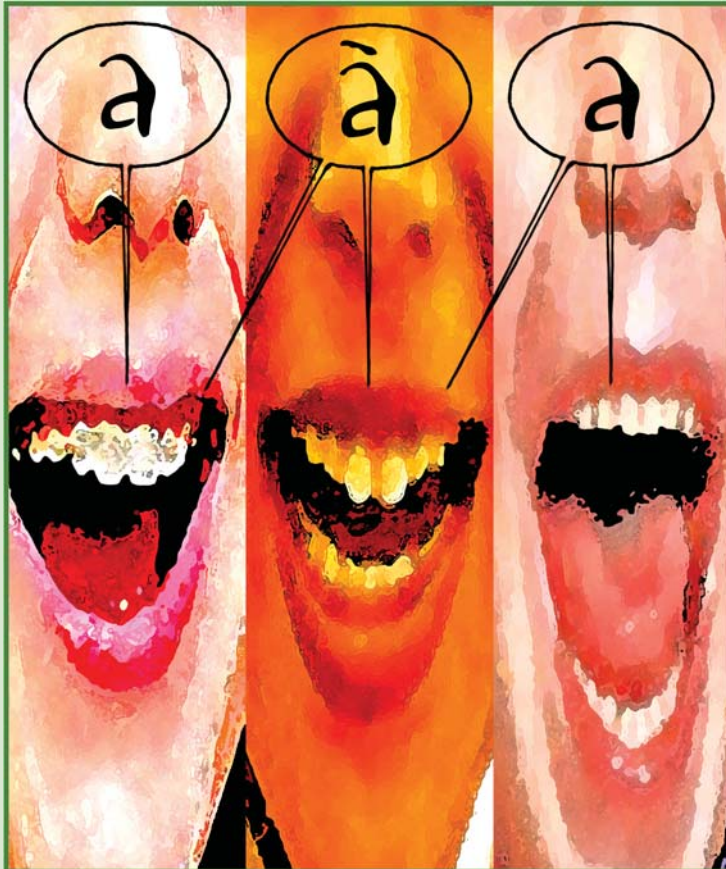


CJSLPA ● RCOA

Volume 32, No. 1

Spring • Printemps 2008



**Canadian Journal of
Speech-Language Pathology
and Audiology**

**Revue canadienne
d'orthophonie et
d'audiologie**



CASLPA-ACOA

Published by the Canadian
Association of Speech-Language
Pathologists and Audiologists

Publiée par l'Association
canadienne des orthophonistes et
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- ▶ *Language Learning in Four Bilingual Children with Down Syndrome: A Detailed Analysis of Vocabulary and Morphosyntax*
Elizabeth Kay-Raining Bird and Krista Feltmate
- ▶ *The Promise of Nonword Repetition as a Clinical Tool*
Lisa M.D. Archibald
- ▶ *Pediatric Cochlear Implantation in Canada: Results of a Survey*
Elizabeth Fitzpatrick and Lynne Brewster
- ▶ *CASLPA Position Paper on the Professional Doctorate Degree in Audiology*

Purpose and Scope

The Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) is the recognized national professional association of speech-language pathologists and audiologists in Canada. The association was founded in 1964, incorporated under federal charter in 1975 and is committed to fostering the highest quality of service to communicatively impaired individuals and members of their families. It began its periodical publications program in 1973.

The purpose of the Canadian Journal of Speech-Language Pathology and Audiology (CJSLPA) is to disseminate contemporary knowledge pertaining to normal human communication and related disorders of communication that influence speech, language, and hearing processes. The scope of the Journal is broadly defined so as to provide the most inclusive venue for work in human communication and its disorders. CJSLPA publishes both applied and basic research, reports of clinical and laboratory inquiry, as well as educational articles related to normal and disordered speech, language, and hearing in all age groups. Classes of manuscripts suitable for publication consideration in CJSLPA include tutorials, traditional research or review articles, clinical, field, and brief reports, research notes, and letters to the editor (see Information to Contributors). CJSLPA seeks to publish articles that reflect the broad range of interests in speech-language pathology and audiology, speech sciences, hearing science, and that of related professions. The Journal also publishes book reviews, as well as independent reviews of commercially available clinical materials and resources.

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Spring 2008

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Cover illustration

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Review of translation

Benoît Jutras, PhD
Université de Montréal

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Smartcom Inc.

ISSN 1913-200X

Canada Post

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L'Association canadienne des orthophonistes et audiologistes (ACOA) est l'association professionnelle nationale reconnue des orthophonistes et des audiologistes du Canada. L'Association a été fondée en 1964 et incorporée en vertu de la charte fédérale en 1975. L'Association s'engage à favoriser la meilleure qualité de services aux personnes atteintes de troubles de la communication et à leurs familles. Dans ce but, l'Association entend, entre autres, contribuer au corpus de connaissances dans le domaine des communications humaines et des troubles qui s'y rapportent. L'Association a mis sur pied son programme de publications en 1973.

L'objet de la Revue canadienne d'orthophonie et d'audiologie (RCOA) est de diffuser des connaissances relatives à la communication humaine et aux troubles de la communication qui influencent la parole, le langage et l'audition. La portée de la Revue est plutôt générale de manière à offrir un véhicule des plus compréhensifs pour la recherche effectuée sur la communication humaine et les troubles qui s'y rapportent. La RCOA publie à la fois les ouvrages de recherche appliquée et fondamentale, les comptes rendus de recherche clinique et en laboratoire, ainsi que des articles éducatifs portant sur la parole, le langage et l'audition normaux ou désordonnés pour tous les groupes d'âge. Les catégories de manuscrits susceptibles d'être publiés dans la RCOA comprennent les tutoriels, les articles de recherche conventionnelle ou de synthèse, les comptes rendus cliniques, pratiques et sommaires, les notes de recherche, et les courriers des lecteurs (voir Renseignements à l'intention des collaborateurs). La RCOA cherche à publier des articles qui reflètent une vaste gamme d'intérêts en orthophonie et en audiologie, en sciences de la parole, en science de l'audition et en diverses professions connexes. La Revue publie également des critiques de livres ainsi que des critiques indépendantes de matériel et de ressources cliniques offerts commercialement.

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Benoît Jutras, PhD
Université de Montréal

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Andrew Young

Traduction
Smartcom Inc.

ISSN 1913-200X
Postes Canada

La RCOA est publiée quatre fois l'an par l'Association canadienne des orthophonistes et audiologistes (ACOA). Numéro de publication: #40036109. Faire parvenir tous les envois avec adresses canadiennes non reçus au 1, rue Nicholas, bureau 920, Ottawa (Ontario) K1N 7B7. Faire parvenir tout changement à l'ACOA au courriel pubs@caslpa.ca ou à l'adresse indiquée ci-dessus.

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From the Editor

Spring Issue



It is my great pleasure to introduce a new editorial team to the readers of the Canadian Journal of Speech-Language Pathology and Audiology. Dr. Jeff Small of the University of British Columbia will serve as the associate editor for submissions in the area of language (English), Dr. Jana Rieger of the University of Alberta will be the associate editor for speech (English) and Dr. Elizabeth Fitzpatrick of the University of Ottawa will oversee audiology submissions (English). Papers submitted in French will be handled by Dr. Joël Macoir of the Université Laval (speech and language) and Dr. Benoît Jutras of the Université de Montréal (audiology). Ms. Candace Myers of CancerCare Manitoba will oversee the review of therapy materials and resources, and Dr. Glen Nowell of Hamilton Health Sciences will be responsible for book reviews. I would like to express my sincere gratitude to Dr. Phyllis Schneider and the previous editorial team for preparing the journal for a smooth transition. I would also like to thank Ms. Judith Gallant and Ms. Angie d'Aoust who oversee the production of the journal and who do all the heavy lifting behind the scenes.

The English writer Charles Caleb Colton (1780-1832) summarized the pitfalls of publishing in the following statement: "To write what is worth publishing, to find honest people to publish it, and get sensible people to read it, are the three great difficulties in being an author." The Canadian Journal of Speech-Language Pathology and Audiology has established itself as a solid peer-reviewed journal with high quality submissions. The new editorial team will certainly strive to serve as the 'honest people' to scrutinize and publish your work. The recent CASLPA survey has shown that the journal is appreciated as a benefit of membership, so we know that there are 'sensible people to read it'. While the journal has changed its name in 2007 to reflect the focus on speech-language pathology and audiology in Canada, it has also quietly expanded its international reach and visibility. It is now indexed in many major bibliographical services, including the increasingly popular Scopus data base (www.scopus.com). We will continue to work to increase the international readership of the journal and to boost the number of citations.

The first paper in the current issue by Krista Feltmate and Elizabeth Kay-Raining Bird assesses vocabulary and morphosyntax in four bilingual children with Down syndrome. The authors found that the children showed a delay in language development but that there were no consistent adverse effects of the bilingualism.

Lisa Archibald evaluates the usefulness of non-words as a tool in the assessment of children with Specific Language Impairment (SLI). The author argues that non-word repetition can be used to effectively discriminate children with SLI from typically developing children.

Elizabeth Fitzpatrick and Lynne Brewster present the results of a survey of pediatric cochlear implantation in Canada. The survey was conducted to determine the number of pediatric patients who received cochlear implants in Canada between 1995 and 2005. The paper also discusses current trends in pediatric implantation.

Finally, Patrica L. Cleave reviews the Treatment Protocols for Language Disorders in Children, by M.N. Hedge (2006).

Tim Bressmann
Editor
tim.bressmann@utoronto.ca

Mot du rédacteur en chef

Numéro de printemps



J'ai le grand plaisir de présenter une nouvelle équipe de rédaction aux lecteurs de la Revue canadienne d'orthophonie et d'audiologie. Pour les manuscrits français, Joël Macoir, Ph.D., de l'Université Laval, agira comme rédacteur en chef adjoint en orthophonie et Benoît Jutras, Ph.D. de l'Université de Montréal, en audiologie. Pour les manuscrits anglais, Jeff Small, Ph.D., de l'université de la Colombie-Britannique, assumera le rôle de rédacteur en chef adjoint dans le domaine du langage, Jana Rieger, Ph.D., de l'université de l'Alberta, dans le domaine de la parole et Elizabeth Fitzpatrick, Ph.D., de l'Université d'Ottawa, en audiologie. Candace Myers, de *CancerCare Manitoba*, supervisera l'examen par les pairs du matériel et des ressources liés à la thérapie, tandis que Glen Nowell, Ph.D., de *Hamilton Health Sciences*, sera responsable des comptes rendus de livre. Je tiens à exprimer toute ma reconnaissance à Phyllis Schneider, Ph.D., et à l'équipe de rédaction précédente qui ont préparé la Revue pour que la transition se fasse en douceur. Je souhaite aussi remercier Judith Gallant et Angie D'Aoust, qui supervisent la production de la Revue et qui se chargent de tout le travail en coulisse.

L'écrivain anglais Charles Caleb Colton (1780–1832) résumait en ces mots les embûches de la publication : « Écrire ce qui vaut la peine d'être publié, trouver d'honnêtes gens pour le publier et rejoindre le lectorat visé pour le lire sont trois des grandes difficultés que doit surmonter un auteur. » La Revue canadienne d'orthophonie et d'audiologie s'est taillée une place solide comme journal révisé par des pairs dont les soumissions sont de grande qualité. La nouvelle équipe de rédaction s'efforcera de servir « d'honnêtes gens » pour scruter et publier vos travaux. Une enquête récente de l'ACOA a montré que la revue constituait un avantage apprécié de l'adhésion à l'association, ce qui fait que nous savons qu'il y a des « gens réceptifs » pour la lire. Même si la revue a changé de nom en 2007 pour refléter l'accent qu'elle met sur l'orthophonie et l'audiologie au Canada, elle a aussi élargi discrètement sa portée et sa visibilité à l'échelle internationale. Elle est maintenant répertoriée dans bien des grands services de bibliographie, y compris la base de données toujours plus populaire Scopus (www.scopus.com). Nous continuerons à travailler pour accroître notre lectorat à l'étranger et faire augmenter le nombre de références.

Le premier article dans le présent numéro, signé par Krista Feltmate et Elizabeth Kay-Raining Bird, évalue le vocabulaire et la morphosyntaxe chez quatre enfants bilingues atteints du syndrome de Down. Les auteures ont trouvé que ces enfants montraient un retard au plan du développement du langage, mais pas d'effets négatifs cohérents attribuables au bilinguisme.

Ensuite, Lisa Archibald évalue l'utilité des non-mots comme outil d'évaluation des enfants ayant un trouble spécifique du développement du langage (TSDL). L'auteure suggère que la répétition de non-mots peut servir à distinguer efficacement les enfants atteints d'un TSDL de ceux ayant un développement typique.

Puis, Elizabeth Fitzpatrick et Lynne Brewster présentent une enquête sur l'implantation cochléaire pédiatrique au Canada. Cette enquête visait à déterminer le nombre d'enfants qui ont reçu un implant cochléaire au Canada entre 1995 et 2005. Cet article aborde aussi les tendances de l'implantation pédiatrique.

Enfin, Patrica L. Cleave fait un compte rendu du livre *Treatment Protocols for Language Disorders in Children* de M.N. Hedge (2006).

Tim Bressmann
Rédacteur en chef
tim.bressmann@utoronto.ca

■ **Language Learning in Four Bilingual Children with Down Syndrome: A Detailed Analysis of Vocabulary and Morphosyntax**

■ **L'apprentissage du langage chez quatre enfants bilingues atteints du syndrome de Down : une analyse détaillée du vocabulaire et de la morphosyntaxe**

Krista Feltmate
Elizabeth Kay-Raining Bird

Abstract

Bilingualism in children with Down syndrome (DS) is an under-studied topic. Some professionals counsel families to restrict input to a single language for children with DS because there are delays present even when only one language is being learned. The purpose of the current study was to provide more information about the ability of children with DS to learn two languages. Such evidence is important for guiding clinical decisions. The morphosyntactic and vocabulary skills in English and French of four bilingual children with DS were analyzed and compared individually to that of a typically developing bilingual child and a monolingual child with DS. The children in each triad were matched on nonverbal mental age and exposure to a second language. While language delays were evidenced in both languages for the bilingual children with DS, no consistent effect of bilingualism was seen. All four bilingual children with DS were developing functional second language skills. Current input accounted for much of the variability in English versus French language skills. These findings provide families and professionals with information that will assist them in making appropriate decisions for children with DS.

Abrégé

Le bilinguisme chez les enfants atteints du syndrome de Down a fait l'objet de très peu d'études. Compte tenu du peu de données, certains professionnels conseillent aux familles de ne parler qu'une seule langue aux enfants trisomiques parce que ces derniers accusent un retard même s'ils apprennent seulement une langue. La présente étude vise à offrir de l'information sur la capacité des enfants trisomiques à apprendre deux langues. Ce genre d'information est important pour éclairer les décisions cliniques. Cette étude a permis d'analyser les habiletés en morphosyntaxe et au plan du vocabulaire de quatre enfants bilingues atteints du syndrome de Down et de les comparer chacune à celles d'un enfant bilingue au développement typique et d'un enfant trisomique monolingue. Les enfants de chaque triade ont été jumelés selon l'âge mental non verbal et l'exposition à une langue seconde. Bien que les enfants trisomiques bilingues accusent un retard linguistique dans les deux langues, cette étude n'a relevé aucun effet conséquent du bilinguisme. Les quatre enfants trisomiques bilingues ont tous acquis des habiletés fonctionnelles dans leur langue seconde. L'intrant dans le processus d'acquisition de la langue seconde semble expliquer la majeure partie de la différence entre les compétences en anglais par opposition à celles en français. Ces résultats fournissent aux familles et aux professionnels de l'information qui les aidera à prendre des décisions adaptées pour les enfants atteints du syndrome de Down.

Key words: Down syndrome, bilingual, language development, language disorders

Krista Feltmate, MSc
Community Rehab
Cambridge, Ontario Canada

Elizabeth Kay-Raining Bird, PhD
School of Human
Communication Disorders
Dalhousie University
Halifax, Nova Scotia Canada

Bilingualism in children with Down syndrome (DS) is a topic of considerable clinical interest. Some speech-language pathologists and other professionals believe that children with DS should not be exposed to two languages because they exhibit delays in their first language (Thordardottir, 2002). Evidence regarding the degree to which a child with DS can learn two languages is limited. This study contributes to the literature by providing a detailed analysis of the semantic and syntactic abilities of four bilingual children with DS, in comparison to individually matched monolingual children with DS and bilingual children with typical development (TD).

Monolingual Language Development in Children with Down Syndrome

Children with DS often have language abilities that are more delayed than would be expected given their nonverbal mental age (Chapman, 1995, 2006). Indeed, nonverbal mental age is a better indicator of language development in children with DS than chronological age. Expressive language is particularly impaired in this population (Miller, 1995). In contrast, receptive vocabulary is a strength for these individuals, often being on par or even in advance of nonverbal mental age. Hesketh and Chapman (1998) studied verb use in the narrations of individuals with DS and found that they produced fewer grammatical or lexical verbs per utterance and fewer verbs of communication of mental state, but exhibited higher verb diversity than matched TD controls. Morphosyntax is a consistently identified as a weakness for this population (Chapman, Schwartz, & Kay-Raining Bird, 1991), with expressive syntax being most delayed (Thordardottir, Chapman, & Wagner, 2002). Intelligibility is also often compromised, as a result of a variety of factors including hypotonia, oral structure differences, and phonological delays (Dodd & Thompson, 2001; Kumin, 1994, 1996, 2001; Leddy, 1999).

Bilingualism in Typically Developing Children

Although the terms are somewhat contentious in the literature, bilingual individuals have been dichotomized as simultaneous or sequential learners. In simultaneous bilingualism, the two languages are learned at the same time, usually from birth, whereas in sequential bilingualism, a person becomes proficient in one language before learning the second language (Hoff, 2001). The bilingual children participating in the present study were exposed to two languages beginning early in life so they might best be described as simultaneous bilingual learners. Regardless of the timing of exposure, it is usually the case that intensity of exposure to each language is not equivalent. Thus, one language will often be more advanced than the other (Hoff, 2001), although their relative strength can change over time.

Learning two languages is just as "normal" as learning one (Nicoladis & Genesee, 1997). In general, bilingual children learning two languages simultaneously tend to reach language milestones, such as saying their first

words or attaining a productive vocabulary of 50 words, at approximately the same time as their monolingual peers. There is evidence that bilingual children learning two languages simultaneously will have smaller vocabularies in each of their languages compared to monolingual peers. However, if the vocabularies of both languages are combined, bilingual children often have as large or larger vocabularies than monolingual peers (Pearson, Fernandez, Lewedag, & Oller, 1997; Pearson, Fernandez, & Oller, 1993). For this reason, when diagnosing a language disorder in a bilingual child, it is important to consider their abilities in both languages (Pearson, 1998).

Bilingualism in Children with Down Syndrome

The research into bilingualism in children with DS is limited (Kay-Raining Bird, 2006). Two case studies (Vallar & Papagno, 1993; Woll & Grove, 1996) have been published. In 1993, Vallar and Papagno studied a 23 year old Italian woman (FF) with DS who had been exposed to English, French and Italian since childhood. At the time of testing, FF's Italian vocabulary skills were well developed. She was able to converse in all three languages as well as understand English television shows. Her French abilities were weaker, largely because French was the language she spoke least often (Vallar & Papagno, 1993). This study demonstrated that it is possible for individuals with DS to learn a second and even a third language.

Another published example of children with DS learning two languages is the case of twins with DS born to deaf parents (Woll & Grove, 1996). The children acquired both English and British Sign Language (BSL) to the point that they could communicate in both of these languages effectively. Although they were able to learn both English and BSL, the twins, who were approximately 10 years old at the time of the study, showed impairments in both languages relative to monolingual children. Also, the children seemed to show a preference for English, which was demonstrated by the fact that they used only English when speaking with each other, even in the home where BSL was the primary language (Woll & Grove, 1996). Note that the sign language experience of these children with DS was qualitatively and quantitatively different from the therapeutic use of total communication provided to many young children with DS to support spoken language development.

Kay-Raining Bird et al. (2005) published the only study of bilingualism in children with DS that used a group design. In this study they compared the language abilities of children with DS being raised bilingually with those of children in three control groups (monolingual DS, monolingual and bilingual typically developing). Bilingual children were English dominant or balanced bilinguals (i.e., better English skills or relatively equivalent skills in both languages). Groups were matched on developmental level: chronological age for the typically developing children and nonverbal mental age for the children with DS. Assessments included both standardized and non-standardized measures of language, collected in both languages for the

bilingual children. It was found that the monolingual and bilingual children with DS did not differ significantly on any task of English language proficiency. However, both the monolingual and the bilingual children with DS displayed receptive vocabulary equivalence and expressive morphosyntactic delays relative to typically developing controls. These results suggested to the authors that there was no evidence for a detrimental effect of bilingualism on English language learning in these children with DS. Nonetheless, there was considerable variability in second language abilities among the children with DS, which suggested that some children with DS may have more difficulty than others in acquiring two languages. Analyses also revealed that chronological age, mental age and second language vocabulary comprehension were all significantly related to mean length of utterance (MLU) in the second language of the bilingual children with DS.

The purpose of the current study was to expand our understanding of the ability of children with DS to become bilingual by examining their semantic and syntactic skills using a variety of language sample measures. Four triads of children, matched on mental age, were studied. Each triad included one bilingual child with DS, one monolingual child with DS and one bilingual child with TD. The specific questions asked were:

1. Do individuals in the four triads differ on their semantic and/or morphosyntactic ability?
2. Is the pattern of differences observed within triads replicated across triads?
3. Is the pattern of differences observed in English replicated in the second language (French)?

Methods

Participants

A total of 12 children, 8 bilingual and 4 monolingual, were selected as participants from two larger studies conducted by Kay-Raining Bird and colleagues (Kay-Raining Bird et al., 2005). Four triads were studied, each consisting of one bilingual child with DS (DSB), one typically developing bilingual child (TDB), and one monolingual child with DS (DSM). The children in each triad were individually matched on nonverbal mental age, consistent with previous work (e.g., Chapman et al., 1991, 2000; Kay-Raining Bird et al., 2005). Matching on nonverbal mental age is frequently done when studying the language abilities of individuals with DS and allowed us to compare our findings to the profile of language abilities that are typically seen in this population in the literature. Monolingual and bilingual children with DS in each triad had similar ages, differing by no more than 10 months within any triad. All parents had at least a high school education (Table 1).

An inclusion criterion for all children was that language development was in the early stages, with no less than 100 reported productive words (MacArthur Communication Development Index, Fenson et al., 1993) and an MLU no greater than a 3.5. For the bilingual children, additional

Table 1
Subject Characteristics

	Gender	Parent Education	CA	MA
<u>Triad 1</u>				
DSB1	Male	22	66	34
TDB1	Female	20	36	38
DSM1	Male	14	75	36
<u>Triad 2</u>				
DSB2	Female	14	93	46
TDB2	Female	18	41	41.5
DSM2	Female	16	97	45
<u>Triad 3</u>				
DSB3	Female	22	59	29
TDB2	Male	18	29	38
DSM3	Female	14	62	30
<u>Triad 4</u>				
DSB4	Female	12	81	44
TDB4	Female	20	42	44.5
DSM4	Male	12	91	43.5

Notes. CA = chronological age in months; MA = mental age in months; Parent education is highest of mother or father (living in the home), expressed in years.

inclusion criteria were: English dominance or balanced bilingualism, raised in a bilingual environment with intensive, sustained exposure to two languages over much of their life, and an ability to use both languages expressively at least at the one-word level. All bilingual children were exposed to two languages from at least 5 months of age.

TD was established through parent report and scores on standardized tests of cognition and language. All TD children scored within 1½ standard deviations of the mean on all administered standardized tests (Table 2). As well, parents reported no past or current difficulties with hearing, speech, language, reading (if applicable) or general learning.

Procedure

Data for the bilingual children with DS and TD were collected in Montreal. Data for the monolingual children with DS were collected in Nova Scotia. Data were collected as part of two larger studies, one involving the monolingual children with DS and the other involving the bilingual children with DS and TD. Both studies were designed to include comparable measures of English collected in comparable ways, with the exception that the *Peabody Picture Vocabulary Test-Revised* (PPVT-R; Dunn & Dunn, 1981) was not administered to the monolingual children

Table 2

English (PPVT-R) and French (EVIP) vocabulary comprehension abilities for bilingual children with Down Syndrome (DS) or typical development (TD)

	PPVT-R Raw / SS / AE	EVIP Raw / SS / AE	PLS-3 Total Raw / SS / AE	PLS-3, R Raw / SS / AE
<u>Triad 1</u>				
DSB1	22/53/34	23/68/32	51/50/33	28/56/34
TDB1	18/81/32	26/99/35	--	29/109/35
DSM1	NA	NA	51/50/33	27/50/33
<u>Triad 2</u>				
DSB2	33/<40/42	12/40/24	58/<50/38	31/<50/37
TDB2	52/121/54	41/113/53	83/136/57	39/121/50
DSM2	NA	NA	55/<50/35	32/<50/39
<u>Triad 3</u>				
DSB3	13/41/29	9/60/23	40/50/25	21/50/25
TDB2	16/99/30	18/95/36	45/110/29	21/101/25
DSM3	NA	NA	43/50/28	22/50/27
<u>Triad 4</u>				
DSB4	16/40/30	9/44/23	44/50/28	25/50/30
TDB4	18/81/32	17/79/27	65/106/41	32/100/39
DSM4	NA	NA	58/<50/38	35/<50/43

Notes: PPVT = Peabody Picture Vocabulary Test-Revised; EVIP = Echelle de vocabulaire en images Peabody; the PPVT-R and EVIP were not administered to the monolingual children with DS; raw = raw score, SS = standard score; AE = age-equivalent score; NA = not available because not administered; -- = not calculated because the expressive portion of the PLS was not completed.

described for English (Table 2). In addition, a parent completed a language exposure and history questionnaire in which they were asked which language their child understood and produced better, and when, where, and for how long their child was exposed to both English and French. No direct measure of phonological ability was obtained for the children. However, the percentage of complete and intelligible utterances produced in the English language samples was measured and ranged from 64 to 97% suggesting that intelligibility was compromised (Table 2).

Data Analysis

Standardized tests were scored using procedures outlined in the manuals. The English samples were transcribed using *Systematic Analysis of Language Transcripts* (SALT; Miller & Chapman, 2001) conventions. French language samples were transcribed using SALT conventions modified for French (Kay-Raining Bird, Boghen, Chiasson, Cotnoir, & Trudeau, 2006). All data sets except one (DSB4, French) contained a total of 100 utterances from each child; the data sets varied in the number

of complete and intelligible utterances they contained (Table 3).

The following measures of morphosyntax and semantics were calculated using both French and English conversational samples unless otherwise specified. When a measure was not completed for a language it was because not all measures were available for both languages.

a) General measures of syntax:

- i. Mean length of utterance (MLU) was calculated in both morphemes and words.
- ii. Index of Productive Syntax (IPSyn; Scarborough, 1990) scores were calculated. To calculate an IPSyn score, up to two exemplars of sixty different morphosyntactic structures (e.g., nouns phrases, verb phrases, articles, prepositional phrases) were identified. 0, 1 or 2 points were given for each structure identified in the language sample, to a maximum of 120. The IPSyn was developed for analysis of English morphosyntactic structures and was therefore not applied to the French data.

with DS. Testing was in English for the monolingual children and in both English and French for the bilingual children. Testing in English and French was on two different days, with the order counter-balanced across the bilingual participants. In an effort to decrease the frequency of code-switching, different examiners spoke to the child in each language.

For all children, measures of cognition and English language ability were administered. These included the *Bead Memory and Pattern Analysis subtests of the Stanford-Binet Intelligence Scale* (4th edition; S-B; Thorndike, Hagan, & Sattler, 1986), the *Preschool Language Scale* (3rd edition; PLS-3; Zimmerman, Steiner, & Pond, 1992), and the collection of a language sample. The language sample was 20 minutes long and was collected using age-appropriate toy sets designed to elicit talk about either nouns or verbs. The noun samples were analysed in this study. Toys included plastic animals, a wooden structure, blankets and food troughs. The bilingual children also completed the *Peabody Picture Vocabulary Test-Revised*, Form L (PPVT-R; Dunn & Dunn, 1981), the *Echelle de vocabulaire en images Peabody, Form A* (EVIP; Dunn, Theriault-Whelan, & Dunn, 1993), and a French language sample using the same toy set as

Table 3

Percent complete and intelligible utterances (% C&I), mean length of utterance in words (MLU-W) and morphemes (MLU-M) and IPSyn scores.

		%C&I	MLU-W	MLU-M	IPSyn
<u>Triad 1</u>					
DSB1	E	65	1.62	1.85	24
	F	76	1.38	1.82	
TDB1	E	79	2.7	2.99	56
	F	74	2.36	3.28	
DSM1	E	97	3.06	3.29	59
<u>Triad 2</u>					
DSB2	E	84	2.33	2.58	45
	F	53	1.68	1.94	
TDB2	E	93	3.61	3.94	63
	F	84	3.2	4.75	
DSM2	E	72	1.61	1.69	26
<u>Triad 3</u>					
DSB3	E	76	1.36	1.36	18
	F	60	1.3	1.47	
TDB2	E	68	2.35	2.41	38
	F	61	1.8	2.43	
DSM3	E	74	1.3	1.39	19
<u>Triad 4</u>					
DSB4	E	64	1.61	1.64	22
	F	18	1.33	1.5	
TDB4	E	85	2.4	2.52	47
	F	57	1.86	2.4	
DSM4	E	70	1.81	2.01	43

Notes. Complete and intelligible utterances out of 100 total utterances (exception, DSB4, F); E = English; F = French; IPSyn computed for English only\

- iii. Number and type of multiclausal sentences was determined using the classification system developed by Lund & Duchan (1988).

b) Noun Phrases:

- i. Number of noun phrases. Proper names, pronouns and noun phrases included in calls for attention (i.e., "Look mom") were not included. Noun phrases that contained an unintelligible portion (e.g., "the xx dog", "xx dog", "the dxx" and "the dog xxx") were also excluded.
- ii. The number and proportion of noun phrases with 1, 2, 3, or 4 elements. Elements of a noun phrase could be articles, determiners, modifiers or the noun. If a noun phrase contained

code-mixing (e.g., "le black dog") credit was given for only those elements produced in the target language.

c) Verbs:

- i. Number of lexical and copula verbs. Lexical verbs were identified as main verbs that specified an action or state and were differentiated from copular "to be" verbs. The total number (i.e., tokens) of lexical and copula verbs were tallied.
- ii. Percent lexical verbs. The percentage lexical verbs was calculated by dividing the total number of lexical verbs by the total number of main verbs.
- iii. Number of different lexical verbs. The number of types of lexical verbs was tallied.
- iv. Number of transitive versus intransitive verbs. Each lexical verb was classified further as transitive or intransitive.
- v. Total and number of different verbs of (a) communication (e.g., "say") and (b) internal state (i.e., cognition, "know", volition, "want", sensation, "see"). These were analyzed because children with DS have been reported to have difficulty with these verb types (Chapman & Hesketh, 2000).

d) Grammatical morphology:

- i. Use of English grammatical morphemes such as present progressive, regular past-*ed*, third person singular, irregular past, plural -s, possessive -s, articles *a* and *the*, auxiliary verbs, and copula verbs. The percentage of correct usage in obligatory contexts was calculated for each morpheme. No analogous analysis in French was performed.

e) Vocabulary:

- i. Total number of words and number of different words. Each of these was tallied using 50 consecutive complete and intelligible utterances.

Reliability

Reliability was assessed by comparing the coding for the above measures completed by three trained graduate students in speech-language pathology on one DSB and one TDB transcript. The coding of the first author was

compared to that of either a native French speaker (French measures) or a native English speaker (English measures).

Percent inter-rater agreement (agreements / (agreements + disagreements) X 100) was computed for each of the measures separately for the two children in each language, and then averaged across children and languages. Three measures (# of transitive verbs, # of intransitive verbs, and % correct third person singular use) had low agreement (44%, 70% and 50% respectively) and were consequently dropped from further analysis. Reliability for the remaining measures varied from 75 – 100% agreement, with an average of 94.5%.

Results

For each measure, we were interested in determining whether differences existed between (a) monolingual and bilingual children with DS; (b) children with DS and TD; and (c) English and French transcripts. Because of the small number of participants, the results were analyzed qualitatively according to a set of criteria described further below. Comparisons were made within each triad. Each speaker was compared to the other two speakers in order to evaluate whether he or she differed from them according to the specified criteria. If a consistent pattern was found for three or four of the triads, it was assumed that there was a systematic, meaningful difference. The qualitative criteria were determined by the authors and were defined as follows:

- A MLU difference of 0.5 or greater
- An IPSyn difference of 10
- A percentage difference of 10% or greater.
- A number difference of 10 or greater for all such measures except total verbs for which a difference of 5 was required

Standardized Test Scores

PPVT-R and EVIP

Age-equivalent receptive vocabulary scores were higher for the TDB participants than matched DSB participants in Triad 2 only for the PPVT-R but in Triads 2 and 3 for the EVIP. Since the DSM children were not administered these measures, no comparisons were available between DSB and DSM matched participants. Performance on English (PPVT) and French (EVIP) vocabulary measures did not differ for

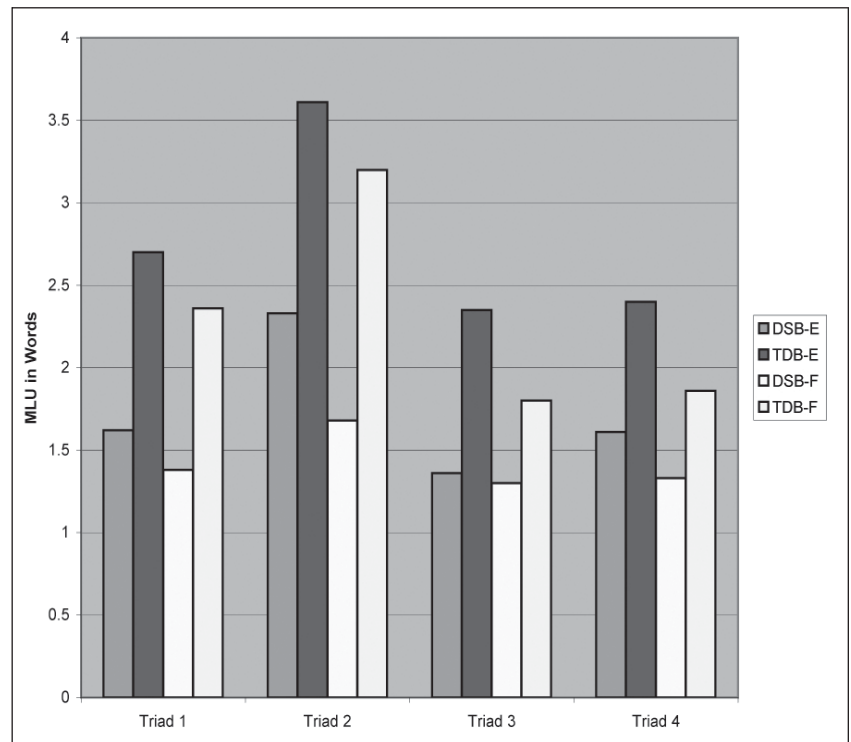


Figure 1. MLU in words in English and French for DSB, TDB, and DSM children in four triads.

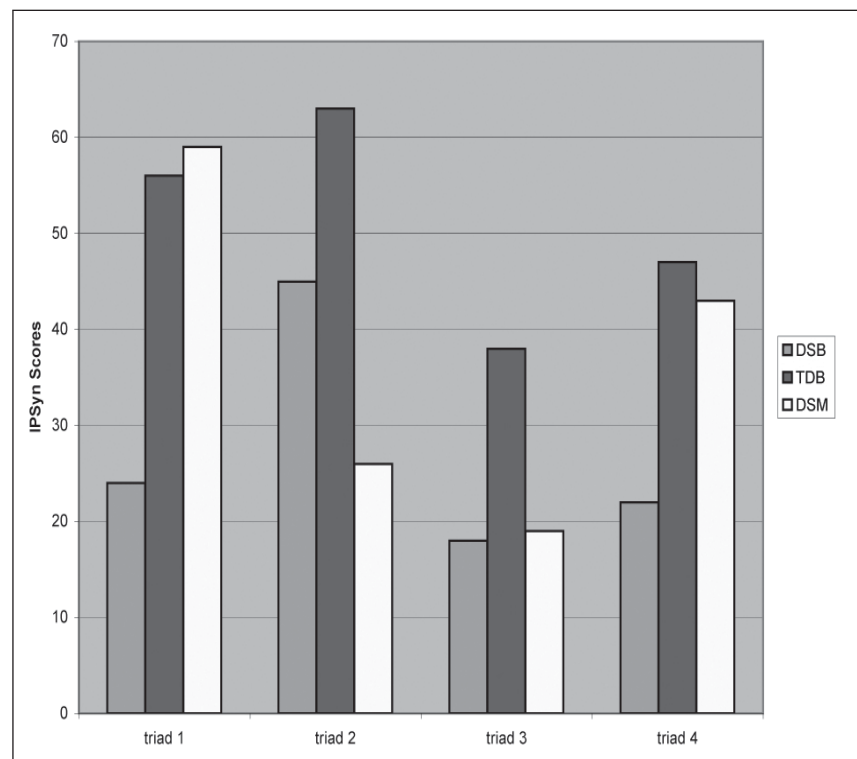


Figure 2. IPSyn scores in English for DSB, TDB, and DSM children in four triads.

any bilingual child except DSB1 who exhibited better English than French vocabulary abilities.

PLS-3

The total scores were not considered because one child with TD did not have an available score. Age-equivalent scores for the receptive part of the PLS-3 revealed no differences between DS and TD participants with the exception of Triad 2 where the TDB child scored higher than either of the matched DSB and DSM children. When DSB and DSM children in a triad were compared, there were no differences in 3 of the 4 triads.

Language Sample Measures

MLU and IPSyn

MLU in words and morphemes for English and French transcripts and IPSyn scores for English transcripts are presented in Table 3 and Figures 1 and 2 depict MLU in words in English and French for the bilingual participants and IPSyn scores respectively. As would be expected, MLU in words (range: 1.3 to 3.6) was consistently smaller than MLU in morphemes (range: 1.36 to 4.75) in both languages, indicating that all these children were producing at least some bound morphemes in their samples. IPSyn scores ranged from 18 to 63 (out of 120).

DS versus TD. In English, both monolingual and bilingual children with DS had lower MLUs in morphemes compared to their typically developing matches, with the exception of the monolingual child with DS in Triad 1 (DSM1) who had a higher MLU than the typically developing member of the triad. In French, the TDB children performed better than the DSB children in all four triads. In terms of IPSyn scores, TDB children had higher scores than both the children with DS in two triads and higher scores than the DSB children only in the two additional triads.

Monolingual versus bilingual DS. When comparing monolingual and bilingual children with DS on English MLU in morphemes, mixed results emerged. In triad 1 the DSB child had a lower MLU than the DSM child while in Triad 2 the opposite was true, and in Triads 3 and 4 differences did not reach criterion. With regard to IPSyn scores, mixed results were also evident. In Triads 1 and 4, the DSM children had higher scores, in Triad 2 the DSB child had higher scores and in Triad 3 there was no difference.

English versus French. When comparing French and English transcripts, MLU in words was no different for 3 of 4 DSB children and 2 of 4 TDB children. When MLU differed across languages, it was always higher in English.

Multiclausal Sentence Use

Multiclausal sentences were produced a total of eight times. All the TDB children and one DS child (DSM1) produced a multiclausal sentence in English, and two of the TDB children produced one in French as well. No child produced more than one type. The types of multiclausal utterances used were: object clause (2), infinitive (1),

embedded question (2), compound clause (2), and adverbial (1).

Noun Phrases

Seventy-nine percent of the utterances analyzed contained a single noun phrase with a noun. TDB1 was the only child who produced any utterances that contained three noun phrases and this occurred once. Table 4 presents the number and percentage of NPs containing 1, 2, 3 and 4 elements in both languages. Figure 3 presents the percentage produced by each child in English.

DS versus TD. The percentage of NPs with one element only (i.e., bare nouns) ranged from 12 to 83% across children. In all four triads the DS children produced a higher percentage of NPs with only one element in English and French than did the TDB children. All the TDB children used two or more elements in their NPs most often. In contrast, all the children with DS used bare nouns most often in their NPs. When NPs were elaborated, they usually included two elements for all children. Only TDB2 produced a NP with four elements, once in English.

Monolingual versus bilingual DS. In two triads, monolingual and bilingual children with DS did not differ in their percentage use of one-element NPs. In Triad 2, the monolingual child produced more bare nouns while in Triad 3 the bilingual child produced more.

English versus French. In general, a higher percentage of NPs tended to be elaborated in French than English reflecting the fact that children were more likely to produce an article or determiner with nouns in French than in English. In Triads 1 and 3, the TDB and DSB children produced a higher percentage of bare nouns in English than French. In Triad 2, the TDB child did as well, but the DSB child produced comparable percentages of NPs with bare nouns in both languages. However, in Triad 4, both the TDB and DSB children produced a higher percentage of bare nouns in French.

Verb Usage

Table 5 presents the total number of copula and lexical verbs, the proportion of different to total lexical verbs, and the percentage of lexical to total verbs used by the children. Between 1 and 48 verbs were produced in these 100 utterance samples, indicating that a majority of utterances in all samples did not contain a verb. In general, lexical verbs were usually used more frequently than copulas with the percentage of lexical verb use ranging from 0 to 100%. The number of different lexical verbs ranged from 0 to 19, constituting verb type-token ratios ranging from .15 to 1.00.

DS versus TD. With the exception of DSM4 in English, TDB children produced more verbs in their samples than did the matched children with DS. In terms of the percentage of lexical verbs, DS children produced more than the TDB children in Triads 1 and

Table 4
Number of elements contained in each noun phrase

		1 element		2 element		3 element		4 element		Total
		#	%	#	%	#	%	#	%	
<u>Triad 1</u>										
DSB1	E	12	57%	9	43%					21
	F	10	45%	12	55%					22
TDB1	E	5	20%	10	40%	10	40%			25
	F	4	12%	26	76%	4	12%			34
DSM1	E	24	52%	12	26%	10	22%			46
<u>Triad 2</u>										
DSB2	E	15	54%	13	46%					28
	F	18	58%	13	42%					31
TDB2	E	17	25%	44	66%	5	7%	1	2%	67
	F	8	14%	50	83%	2	3%			60
DSM2	E	27	66%	14	34%					41
<u>Triad 3</u>										
DSB3	E	10	83%	1	8%	1	8%			12
	F	17	68%	8	32%					25
TDB2	E	17	45%	21	55%					38
	F	11	31%	24	67%	1	3%			36
DSM3	E	25	64%	14	36%					39
<u>Triad 4</u>										
DSB4	E	13	59%	8	36%	1	5%			22
	F	8	80%	1	10%	1	10%			10
TDB4	E	19	43%	20	45%	5	11%			44
	F	11	52%	10	48%					21
DSM4	E	25	62.5%	15	37.5%					40

Notes. E = English, F = French

English versus French. In 3 of 4 triads, DSB children produced verbs with equal frequency in both languages. In contrast, TDB children in all four triads produced verbs more often in English. In terms of the percentage of lexical verb use and lexical diversity, there was no consistent pattern for the DS or the TD children.

Verbs of Communication and Internal State

The use of verbs of communication and internal state in French and English are presented in Table 6. Only three verbs of cognition and one verb each of volition, sensation and communication were used in either language by any of the children. All children except DSM2 and DSB4 produced at least one of these verbs. When the verb “know” was used, it was usually in the idiomatic construction “I don’t know”, and therefore was not used productively.

Grammatical Morphology

The use and mastery of nine grammatical morphemes was analyzed, in English only. The data are presented in Table 7. Mastery of a grammatical morpheme was defined as 90% correct usage in obligatory contexts (Brown, 1973). However, mastery was not identified unless four or more obligatory contexts for a particular morpheme were present. Children produced from three to eight of the grammatical morphemes at least once in their transcripts. DS and TD children did not differ noticeably in this regard. Articles, copulas and plural -s were produced at least once by most of the children. Three TDB, one DSB and one DSM child had mastered between 1 and 3 of the 9 grammatical morphemes analyzed. Only the TD children evidenced mastery of more than one morpheme. There was no notable difference in morpheme use between DSM and DSB children.

Vocabulary

Table 8 shows the Total Words (TW) and Number of Different Words (NDW) produced in 50 consecutive complete and intelligible utterances. Total words ranged from 24 to 173 across samples and NDW ranged from 20 to 76.

2, but in Triad 3 the DSM child produced a smaller percentage of lexical verbs than either matched child and in Triad 4 the percentage of lexical verbs was roughly equivalent across the three children. The diversity of lexical verbs varied with more diversity displayed by the TD children in two triads and less displayed relative to both children with DS in Triad 3 and less than the DSB child only in Triad 4.

Monolingual versus bilingual DS. No consistent pattern of differences was noted when comparing monolingual and bilingual children with DS on the number of verbs produced. Once a bilingual child with DS produced more verbs in their sample, twice monolingual children did and once there was no difference. For the percent of lexical verbs in the samples, DSB children produced a higher percentage of lexical verbs than the DSM children in two triads and equivalent percentages in two triads. In terms of verb diversity, the DSM children demonstrated greater verb diversity in English than the DSB children in three triads with the opposite evident in one triad.

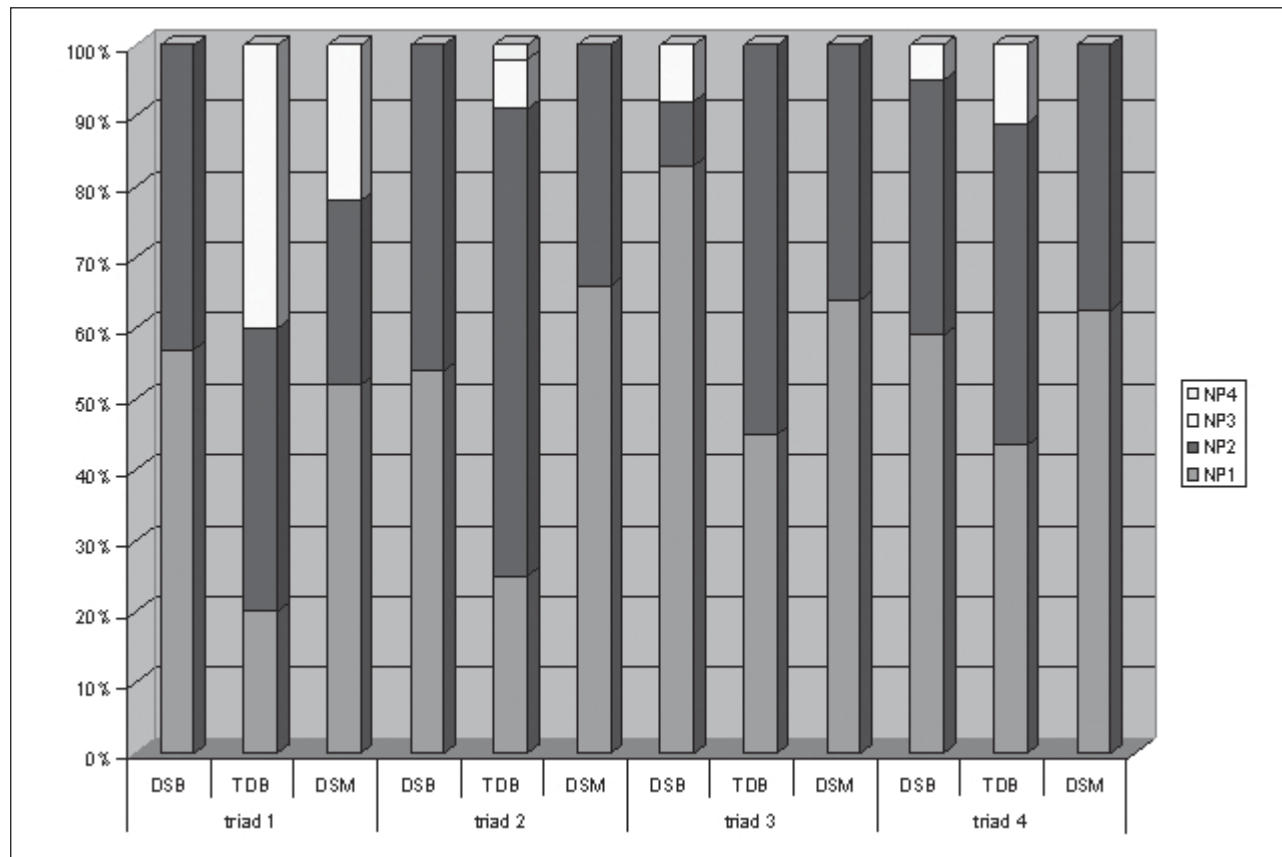


Figure 3. Percent English noun phrases with 1, 2, 3, and 4 elements for DSB, TDB and DSM children in four triads.

DS versus TD. Not surprisingly given the MLU results, the children with DS produced fewer words in 50 utterances than did the TD children in both French and English, with the exception of DSM1 in Triad 1 who produced more words than the matched TDB child in English. As well, all children with DS showed less lexical diversity (lower NDW) than did the matched TD children. These observations held in French as well as English.

Monolingual versus bilingual DS. When comparing the monolingual and bilingual children with DS, no discernible pattern of differences was evident for either TW or NDW, with the DSM child producing more TW and NDW than the DSB child in Triad 1, the opposite pattern present in Triad 2 and equivalent use of both TW and NDW by the children with DS in Triads 3 and 4.

English versus French. Two DSB children produced more total words in English than French samples while two others produced a comparable number of words in their two samples. In terms of NDW, DSB children in three triads exhibited greater vocabulary diversity in English than French. TDB children produced more words and more different words in their English than French samples with the exception of TDB3 who exhibited comparable NDW in English and French.

Summary

A summary of the results for each measure that could be compared across children is provide in in Tables 9 and 10.

Discussion

This study was designed to analyze in detail the morphosyntactic and vocabulary skills of bilingual children with DS. Children were considered bilingual for inclusion in this study if they were being raised in a bilingual environment and had had intensive and sustained exposure to two languages over most of their life. All bilingual children spoke both English and French, and their language skills were rated by parents as either English dominant or balanced between French and English. Data from four triads were examined. That is, four bilingual children with DS were each individually matched with one typically developing bilingual child and one monolingual child with DS, on the basis of non-verbal MA.

Are the language skills of the bilingual children with Down syndrome comparable to those of bilingual children with typical development matched for mental age?

No. The TDB children performed better than the

Table 5
Frequency and diversity of verb use.

		Total	# Copulas	# Lexical	% Lexical	# diff/ Total Lexical
<u>Triad 1</u>						
DSB1	E	14	3	11	79%	.64
	F	13	3	10	77%	.70
TDB1	E	36	13	23	64%	.70
	F	22	6	16	73%	.75
DSM1	E	28	13	15	54%	.80
<u>Triad 2</u>						
DSB2	E	32	9	23	72%	.43
	F	6	0	6	100%	.83
TDB2	E	48	20	28	59%	.67
	F	36	15	21	58%	.47
DSM2	E	17	4	13	76%	.15
<u>Triad 3</u>						
DSB3	E	4	0	4	100%	1.00
	F	3	1	2	67%	1.00
TDB2	E	25	0	25	100%	.40
	F	17	3	14	82%	.71
DSM3	E	7	4	3	43%	.67
<u>Triad 4</u>						
DSB4	E	7	1	6	86%	.67
	F	1	1	0	0%	0
TDB4	E	19	3	16	84%	.50
	F	14	2	12	86%	.83
DSM4	E	19	3	16	84%	.37

Notes. % Lexical = percentage of total verb use.

DSB children on all but two of the language sample measures in both French and English (Table 9). Individuals with DS were more likely than their TD controls to have lower MLUs, lower IPSyn scores, a higher use of bare nouns in expandable NPs, fewer verbs overall, fewer grammatical morphemes mastered, fewer total words and fewer different words in their language samples. These findings document expressive morphosyntactic and vocabulary difficulties in these these bilingual individuals with DS, both of which are well documented in the literature for monolingual children with DS (Chapman, 1995, 2003; Chapman & Hesketh, 2000). They also document a similar pattern of difficulty in English and French language sample measures.

Two measures revealed inconsistent differences between DSB and TDB individuals: percent of lexical to total verbs and verb diversity. It is suspected that the lack of consistent differences on these two measures was related to the fact that the children studied were in an early period of language development, producing

copular forms only infrequently and exhibiting a low level of verb diversity. To illustrate, copular forms were used less than six times in all but 4 of the 20 100-utterance samples. As well, an average of only 8.3 different lexical verbs was produced in the English and 7.0 in the French samples of these children.

DSB and TDB children matched on nonverbal MA did not differ on either receptive measure of English language, the PPVT-R and the Receptive scale of the PLS-3. This is also consistent with the literature on language development in children with DS (e.g., Chapman et al., 1991) which evidences stronger receptive than expressive abilities with particular strengths in receptive vocabulary.

Are the English skills of the bilingual children with Down syndrome comparable to those of monolingual children with Down syndrome matched on mental age?

The answer is: perhaps. Across measures a pattern of individual differences (i.e., mixed findings) prevailed. While both the monolingual and bilingual children with DS showed similar patterns of language deficits relative to TD controls and they showed

equivalent performance on the receptive PLS-3, they did not exhibit consistent similarities or differences when they were compared to each other on the language sample measures of English semantics and morphosyntax used in this study. The absence of a consistent pattern of difference on measures of expressive English vocabulary and morphosyntax when comparing monolingual and bilingual children with DS provides additional evidence that the introduction of a second language seems to have no detrimental effects on the development of the stronger language of a bilingual child with DS.

Given that these monolingual and bilingual children with DS matched on nonverbal MA did not differ systematically on language sample measures, any second language skills the bilingual children developed may serve to expand their language abilities beyond that of the monolingual children. That is, when both languages are taken into account, the total vocabulary knowledge of the DSB children, for example, may even surpass that of the DSM children in this study, as has been argued by Pearson and colleagues (Pearson, 1998; Pearson et

Table 6
Use of internal state (cognitive, volitional, sensory) and communication verbs

		Cognition	Volition	Sensory	Communication
<u>Triad 1</u>					
DSB1	E		want		
	F		veut		
TDB1	E	know			
	F	oublie			dis
DSM1	E	forget, remember, Know (2)	want (2)		
<u>Triad 2</u>					
DSB2	E	forgot	wanna		said, say
	F				
TDB2	E		want (2)	see	
	F				
DSM2	E				
<u>Triad 3</u>					
DSB3	E	know			
	F				dit
TDB2	E		wanna		says
	F				
DSM3	E			see	
<u>Triad 4</u>					
DSB4	E				
	F				
TDB4	E	know (4)	want		
	F		veux	voir	
DSM4	E		want		

Notes. () = number of times produced when greater than 1

al., 1997). It is possible to examine this hypothesis by analysing two additional measures that were collected for this study - English and French versions of the *MacArthur and Bates Communication Development Inventory* (Fenson et al., 1996; Trudeau, Frank, & Poulin-Dubois, 1999). When the same words tested in both forms were examined, the expressive vocabulary levels reported for the bilingual children surpassed those reported for the matched monolingual children in 3 of 4 cases.

Individual differences. Pronounced individual differences are a hallmark of DS (Chapman, 1995, 2003) and the findings of this study exemplify this as well. When performance across measures is compared for matched DSB and DSM pairs, it is interesting to note that DSM1 quite consistently outperforms DSB1 in Triad 1, DSB2 quite consistently outperforms DSM2 in Triad 2, and the DSB and DSM children in the remaining two triads performed similarly on most measures, although in Triad

4, the DSM child performed better on the three measures where differences did emerge (Table 10).

Why would some children perform consistently better than their mental-age matched controls? Research suggests that a variety of factors influence expressive language development in individuals with DS. These include mental age, hearing ability, chronological age, auditory verbal memory, parent education, and receptive vocabulary skill (e.g., Chapman, Schwartz, & Kay-Raining Bird, 1991; Chapman, Seung, Schwartz, & Kay-Raining Bird, 2000; Jarrold et al., 2002; Kay-Raining Bird et al., 2005). The children in this study were matched on mental age, so this is probably not contributing strongly to the individual differences observed. Unfortunately, we do not have measures of auditory verbal memory or hearing in these children although parents reported no diagnosed hearing problems. Receptive language, as measured by the PLS-3, is very similar for matched pairs of children in Triads 1 and 2 (Table 2), so this also does not seem to be predictive of the consistent differences in expressive language ability observed. Parent education is a positive predictor of language in typically developing children

(Hart & Risley, 1995). However, in Triad 1 it is the child of the less educated parents who is performing consistently higher, while in Triad 2 parental education is quite similar for the two children. Once again, this does not seem to be a predictor of the observed individual differences. Finally, while chronological age is often not a good predictor of language development in children with DS, in Triad 1 the DSM child is 14 months older than the DSB child and this may have contributed to the better performance observed in DSM1. However, CA differences exist in Triad 4 as well with no concomitant consistently better performance by the older child. Unfortunately, we have to conclude that these differences remain largely unexplained. It is interesting to note, however, that the bilingual child with the most advanced French skills was also the child in Triad 2 who consistently outperformed the monolingual control. Future studies need to address such issues.

Table 7
Grammatical morpheme use in obligatory contexts

	-ing	Past -ed	Irreg Past	plural -s
Triad 1				
DSB1	none	none	none	100% (3/3)
TDB1	100% (3/3)	none	100% (2/2)	100% (10/10) ¹
DSM1	100% (1/1)	none	100% (1/1)	
Triad 2				
DSB2	none	100% (1/1)	75% (3/4)	75% (3/4)
TDB2	100% (2/2)	none	100% (2/2)	100% (7/7) ¹
DSM2	none	none	none	100% (1/1)
Triad 3				
DSB3	none	none	none	0% (0/1)
TDB2	100% (3/3)	0% (0/1)	none	none
DSM3	none	none	none	100% (3/3)
Triad 4				
DSB4	none	none	100% (1/1)	none
TDB4	none	none	0% (0/1)	67% (2/3)
DSM4	100% (1/1)	none	none	100% (9/9) ¹
	possessive's	auxiliary	copula	article
Triad 1				
DSB1	none	100% (2/2)	43% (3/7)	44% (7/16)
TDB1	none	100% (3/3)	93% (13/14)	100% (12/12) ¹
DSM1	none	100% (1/1)	97% (33/34)	53% (16/30)
Triad 2				
DSB2	100% (2/2)	100% (9/9) ¹	91% (10/11)	36% (5/14)
TDB2	none	100% (5/5) ¹	100% (20/20)	100% (44/44) ¹
DSM2	100% (1/1)	none	75% (3/4)	25% (9/36)
Triad 3				
DSB3	none	100% (1/1)	none	50% (1/2)
TDB2	none	50% (1/2)	0% (0/2)	83% (20/24)
DSM3	none	none	57% (4/7)	36% (12/33)
Triad 4				
DSB4	none	none	100% (1/1)	31% (4/13)
TDB4	100% (1/1)	100% (4/4) ¹	50% (2/4)	54% (19/35)
DSM4	none	100% (2/2)	29% (2/7)	67% (5/15)

Notes: Percentages are of correct usage in obligatory contexts; ¹ mastered as defined by 90% or more correct use in 4 or more obligatory contexts.

Evidence for Bilingualism

To examine the relative strength of English and French in these children, performance on analogous language sample and test measures were compared (Table 9). With respect to vocabulary, all of the DSB children produced more words and more different words (in 50 utterances) in English than they did in French. In contrast, only one of the DSB children had a higher age-

equivalency score on the PPVT-R than on the EVIP while three had scores that did not differ at the criterion level. The vocabulary results suggest that at least 3 of the 4 DSB children in this study seemed to be English dominant in expressive but not receptive vocabulary abilities. When equivalent measures of morphosyntax were examined, English dominance was less evident: (a) Only 1 of 4 DSB children exhibited a higher than criterion MLU in words in English than French; (b) 2 of 4 DSB children produced more than the criterion number of total verbs in English than French; and (c) 2 of 4 DSB children produced a higher than criterion percentage of 1-element NPs in English than French. It is interesting to note that this latter finding suggests better development in French than English on noun phrase elaboration in two of the children. Further, the MLU and number of verbs measures identified different children as having English dominance. In part, the disparity in findings between vocabulary and morphosyntactic measures might be explained by the well established finding that children with DS have particular difficulty with the development of expressive morpho-syntax (e.g., Chapman, 1995), a finding that has been replicated in the present study for these bilingual children with DS. Given the observed delays in morphosyntax relative to vocabulary, it may be that development in morphosyntax in either language was not high enough yet for differences in ability across languages to be consistently revealed. IPSyn scores for these DSB children are low (18 to 45) as are MLU in words in both languages. It is important to note as well that morphosyntactic development across languages is not directly comparable given the language-specific nature of the structures. Thus, relative abilities in the two languages cannot be easily revealed through comparison

of the present measures. A better test of how well these DSB children have developed French would require comparison to monolingual French speakers with DS, a sample which was not available in the present study. It would be useful in future studies to include both monolingual French and English controls. Regardless, it is the case that all the DSB children have developed some ability to speak

Table 8
Total words (TW) and number of different words (NDW) in 50 complete and intelligible utterances

		TW	NDW
<u>Triad 1</u>			
DSB1	E	73	36
	F	65	30
TDB1	E	128	69
	F	113	44
DSM1	E	147	60
<u>Triad 2</u>			
DSB2	E	122	61
	F	80	36
TDB2	E	173	76
	F	138	53
DSM2	E	81	28
<u>Triad 3</u>			
DSB3	E	71	35
	F	65	23
TDB2	E	103	45
	F	88	52
DSM3	E	70	37
<u>Triad 4</u>			
DSB4	E	81	41
	F	24	20 ¹
TDB4	E	121	58
	F	95	39
DSM4	E	86	43

Notes. ¹ DSB4 did not have 50 utterances

and understand both languages of exposure and that this development has taken place without disadvantaging them relative to English monolingual controls.

What factors might be impacting the bilingual development of children with DS?

An obvious candidate is input. Two parents reported relatively balanced French and English input both in the home and at school, for their children (DSB1 and DSB3). As well, a strong bilingual presence was reported throughout these children's lives. Equivalent French and English language sample measures were also more similar for these two DSB children than for the other two DSB children in this study. Balanced bilingualism, then, appears to be possible for children

Table 9
Summary of observed differences across morphosyntactic measures

	Criterion	DS versus TD	E versus F
PPVT, EVIP; a-e	10	TD = DS, E; Ø, F	DSB & TDB: =
Rec. PLS-3, a-e	10	TD = DS	NA
MLU	0.5	TD > DS, E & F	DSB: =; TDB: Ø
IPSyn	10	TD > DS, E	NA
1 Element NPs	10%	TD > DS, E & F	DSB: E < F; TDB: Ø
Total Verbs	5	TD > DS, E & F	DSB: =; TDB: E > F
% Lexical Verbs	10%	Ø, E & F	DSB & TDB: Ø
Verb diversity	.10	Ø, E & F	DSB & TDB: Ø
Number of Words	10	TD > DS, E & F	DSB: Ø; TDB: Ø
# Different Words	10	TD > DS, E & F	DSB & TDB: E > F

Notes. < or > indicate that 3 or 4 individual comparisons reached criterion differences in the indicated direction; = indicates that 3 or 4 individual comparisons did not differ at the criterion level; Ø indicates that there was no consistent pattern; Rec. = Receptive; a-e = age-equivalent score; NP = noun phrase; F = French, E = English; NA = not applicable

with DS, at least at these early developmental levels, and similar input intensity across languages seems related to the achievement of balanced bilingualism.

DSB4 had the least developed French language abilities although her English language development was either better than or equivalent to two of the other DSB children. Her frequency of exposure to French and English probably accounts for much of the gap between her French and English skills and her low performance in French. DSB4 experienced English about 90% of the time in the home throughout her life. From 5 months to 5 years of age she attended a French daycare while her parents worked full time. A year and a half prior to data collection, she had entered an English school where she also attended an English afterschool program, resulting in a considerable decline in her French language exposure. This child was the second oldest child with the second highest MA of the DSB participants, so age and MA do not seem to explain her pattern of language abilities.

The child who exhibited the greatest French language ability on language sample measures was DSB2. Her English skills also exceeded those of the other DSB children. As well, her English language abilities considerably outstripped her French skills on equivalent language sample measures. DSB2 had attended a French immersion program for 2 years prior to data collection. In the home, English was usually spoken and had been throughout her life. This suggests that children with DS can develop a second language through French immersion, at least when they live in a bilingual family and are raised in a bilingual city. DSB2 was also the oldest and most cognitively advanced DSB child which could explain her advanced language skills

Table 10

Comparison of performance MA-matched pairs of bilingual (DSB) and monolingual (DSM) children with Down syndrome

Measure	Triad 1	Triad 2	Triad 3	Triad 4	Difference?
Receptive PLS-3	B = M	B = M	B = M	B < M	=
MLU	B < M	B > M	B = M	B = M	∅
IPSyn	B < M	B > M	B = M	B < M	∅
1 element NPs	B = M	B > M	B < M	B = M	∅
Total verbs	B < M	B > M	B = M	B < M	∅
% lexical verbs	B > M	B = M	B > M	B = M	∅
Verb diversity	B < M	B > M	B < M	B < M	B < M
TW, 50 utterances	B < M	B > M	B = M	B < M	∅
NDW, 50 utterances	B < M	B > M	B = M	B = M	∅

Notes. NP = noun phrase; TW = total words; NDW = number of different words; B = bilingual; M = monolingual.; = indicates that 3 or 4 individual comparisons did not differ at the criterion level; ∅ indicates that there was no consistent pattern

present study, our future understanding of the French language abilities of French-English bilingual children with DS would be enhanced by comparisons with French monolinguals with DS.

The results of this study relate to our understanding of bilingualism in young children with DS (5-8 years) who are learning French and English and have nonverbal mental ages between 2 ½ and 4 years. Given the growing body of positive evidence for bilingualism in children with DS, it seems appropriate for professionals to work with families to support bilingualism in children with DS. Nonetheless, given the considerable individual variability in this population, decisions around how best to provide language learning supports must be made on an individual basis and after careful consideration of the needs and goals of the family and their child and the context in which they live.

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relative to the other children

Conclusions

This study conducted detailed semantic and syntactic analyses of language samples for children in four triads matched on nonverbal mental age. These detailed language sample analyses provided evidence that bilingual children with Down syndrome develop in both of their languages at the semantic and syntactic level. Many of the expressive semantic and syntactic measures revealed difficulties in the language abilities of bilingual children with DS relative to mental age matched bilingual TD children. However, no consistent differences were revealed between bilingual and monolingual children with DS on English measures, with the exception of a measure of verb diversity. Thus, findings support previous work showing that children with DS do become bilingual (Kay-Raining Bird et al., 2005; Vallar & Papagno, 1993; Woll & Grove, 1996) and that bilingual input does not disadvantage these children's acquisition of English in English dominant or balanced bilingual children. Our findings also extend such conclusions by providing support from finely detailed analyses of semantic and morphosyntactic ability. Not surprisingly, given the inclusion criteria for this study, French language abilities did not always keep pace with English language abilities on many of the language sample measures in the four bilingual children with DS. The current frequency of exposure to each language appears to be an important factor in explaining relative strengths in the two languages. Although beyond the scope of the

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Author Note

Funding for this research was provided by SSHRC, research grant 410-2000-1409 to the second author. The authors wish to sincerely thank the participants for their support of this project, and the Mackay Centre and l'Hôpital Sainte Justine, Centre de Réadaptation, Marie-Enfant for their assistance. Also, warm appreciation is extended to Patricia L. Cleave, Natacha Trudeau, Ann Sutton, Elin Thordardottir and the many research assistants that have participated in various aspects of this research work.

Correspondence should be addressed to: Elizabeth Kay-Raining Bird, School of Human Communication Disorders, Dalhousie University, 5599 Fenwick Street.

Received: October 18, 2006

Accepted: December 12, 2007



■ The Promise of Nonword Repetition as a Clinical Tool

■ La répétition de non-mots comme outil clinique prometteur

Lisa M.D. Archibald

Abstract

Nonword repetition requires the immediate recall of novel word forms such as *woogalamic*. The task mimics the learning of the phonological form of a new word as one aspect of vocabulary acquisition. Individuals with language learning difficulties typically are poor at repeating nonwords. Children with Specific Language Impairment (SLI) show marked and pervasive deficits on nonword repetition tasks; this deficit is highly heritable and linked to chromosome 16. Even children with a history of SLI but who score in the average range on language measures continue to have difficulty recalling novel words accurately. Nonword repetition effectively discriminates children with SLI from typically developing monolingual groups, and children learning a second language. The nonword repetition task is a simple, practical tool that can be scored online and easily adapted to the clinic environment. It is likely that the SLI impairment in nonword repetition arises in part due to deficits in phonological knowledge and retention impairing the transfer of new phonological material to the lexicon. Intervention strategies may be aimed either at enhancing the encoding or retention of new phonological sequences.

Abstré

Pour répéter des non-mots, il faut arriver à se rappeler instantanément d'un mot inventé qui n'a pas de sens, tel que *woogalamic*. Cette tâche imite l'apprentissage de la forme phonologique d'un mot nouveau, ce qui constitue un aspect de l'acquisition du vocabulaire. Les personnes ayant un trouble d'apprentissage du langage ont généralement de la difficulté à répéter des non-mots. Les enfants ayant un trouble spécifique du développement du langage (TSDL) montrent un déficit marqué et envahissant aux tâches de répétition de non-mots : ce déficit est hautement héréditaire et est lié au chromosome 16. Tous les enfants ayant des antécédents de TSDL, mais qui obtiennent un résultat dans la moyenne aux mesures du langage continuent à éprouver de la difficulté à se rappeler les mots nouveaux correctement. La répétition de non-mots distingue efficacement la distinction entre les enfants atteints d'un TSDL de ceux monolingues au développement typique et des enfants apprenant une langue seconde. La tâche de répétition de non-mots est un outil simple et pratique qui peut être notée en ligne et facilement adaptée au milieu clinique. Il est probable que le TSDL se manifeste lors d'une répétition de non-mots en raison des lacunes au plan des connaissances phonologiques et de la mémorisation, ce qui compromet le transfert de nouveau matériel phonologique à sa représentation mentale. Les stratégies d'intervention pourraient viser l'amélioration soit de l'encodage ou de la mémorisation de nouvelles séquences phonologiques.

Key words: specific language impairment, nonword repetition, phonological processing, short-term memory, assessment, intervention

The term 'nonword repetition' refers to a task in which individuals are required to repeat novel phonological forms such as *woogalamic* or *noitauf*. Despite its apparent simplicity, the task mimics one of the most basic and important language-learning mechanisms: immediate repetition of unfamiliar words. Children spontaneously imitate new words thereby initiating the process by which that word may become a part of the mental lexicon (Tomasello, 2001). Repeated exposures to the word paired with rich contextual information result in the long-term learning of the new

Lisa M.D. Archibald, PhD
School of Communication
Sciences and Disorders
Elborn College, University of
Western Ontario
London, Ontario Canada

item. This item becomes incorporated into the existing semantic and phonological network in the child's mental lexicon. Results of extensive research have confirmed the link between nonword repetition and language abilities in both proficient and impaired language users. Nonword repetition has been proposed as a clinical marker for children with Specific Language Impairment (SLI) (Bishop, North, & Donlan, 1996) and dyslexia (Brady, 1997). Findings related to nonword repetition have sparked much theoretical debate, summaries of which are provided elsewhere (e.g., Coady & Evans, in press). The purpose of this article is to provide a brief review of current research related to nonword repetition in Specific Language Impairment (SLI), and to consider the clinical utility of the measure. It should be noted that the present discussion does not represent an endorsement of the clinical use of nonword repetition. Indeed, there are many questions that are yet to be answered, as the present review will outline, but there are also several interesting, clinically relevant findings of interest to the practising clinician.

SLI is a relatively common communication impairment affecting approximately 7% of kindergarten children (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997). Although SLI can be succinctly characterized as an unexplained difficulty acquiring language, its clinical presentation varies considerably. The heterogeneity in SLI has frustrated attempts to develop broadly applicable assessment instruments, and to understand the disorder more generally. Highly consistent findings, however, have been reported for groups of children with SLI on one measure, nonword repetition. In a recent systematic review of 23 studies, children with SLI exhibited significant impairments in nonword repetition, performing on average 1.27 standard deviations below children without SLI (Graf-Estes, Evans, & Else-Quest, 2007). The nonword repetition deficit characterizes children with SLI of all ages, from preschool (Gray, 2003) through to adolescence (Conti-Ramsden, Botting, & Faragher, 2001; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998). Even children with a history of SLI whose oral language is no longer distinguishable from age peers continue to perform poorly on tests of nonword repetition (Bishop, North, & Donlan, 1996; Conti-Ramsden, et al., 2001).

Nonword repetition effectively discriminates children with SLI from typically developing groups. In one important study, no overlap in performance between children receiving language intervention and typically developing children was found on the Nonword Repetition Test (NRT) consisting of four nonwords each of 1, 2, 3, and 4 syllables and excluding late developing sounds, lax vowels, and consonant clusters (Dollaghan & Campbell, 1998). Poor NRT performance was 25 times more likely to occur in the SLI group, and the diagnostic accuracy of the NRT surpassed that of the Spoken Language Quotient of the Test of Language Development-2 (Newcomer & Hammill, 1988). While most studies have found an overlap between children with and without SLI, significant group

differences have been reported consistently (see Graf-Estes et al., 2007). Even in a large population-based sample of school age children, extremely low NRT scores were four times more likely to occur in children with language impairment although poor nonword repetition was not exclusive to children with SLI (Ellis Weismer, Tomblin, Zhang, Buckwalter, Gaura Chynoweth, & Jones, 2000). Conti-Ramsden and colleagues included the Children's Test of Nonword Repetition (CNRep; Gathercole & Baddeley, 1996) consisting of 10 nonwords each of 2, 3, 4, and 5 syllables and standardized for children aged 4 to 9 years in an evaluation of potential clinical markers of SLI in a group of 5-year-old children (Conti-Ramsden, 2003), a group of 11-year-old children with a previous history of SLI (Conti-Ramsden et al., 2001), and a preschool group at risk for SLI (Conti-Ramsden & Hesketh, 2003). Results indicated that nonword repetition provided a useful clinical marker, although the more difficult task of sentence repetition was a more useful marker in the older age group.

There are several advantages to nonword repetition over traditional language measures such as standardized language tests. Traditional language tests rely heavily on prior knowledge of events, vocabulary, or language structures. In contrast, nonword repetition tests the ability to process new information. In theory, such processing-based measures should tap the underlying differences that presumably predispose the child to have significant difficulty acquiring language, and to be less biased by experience than knowledge-based measures. This conjecture is supported by several findings related to nonword repetition: Nonword repetition is less culturally biased than typical standardized language tests in that scores have not been found to distinguish typically-developing European-American from African-American children (Campbell, Dollaghan, Needleman, & Janosky, 1997; Rodekohr & Haynes, 2001). As well, nonword repetition scores are reported to be largely independent of performance IQ in children with both typical and atypical language development (Conti-Ramsden et al., 2001; Gathercole, Willis, Emslie, & Baddeley, 1994). For example, Ellis Weismer et al. (2000) found no differences in nonword repetition for groups of children with typically developing language skills and either low or normal IQ scores. Importantly, results from one study suggest that nonword repetition may assist in the assessment of language impairment in bilingual children (Kohnert, Windsor, & Yim, 2006). This population is especially difficult to assess as their language output may reflect either slow language learning, an underlying language impairment, first-language interference on second-language learning, or a combination of these. In the Kohnert et al. study, good nonword repetition was sufficient to rule out language impairment in bilingual children although poor nonword repetition did not necessarily rule language impairment in.

In keeping with findings that SLI has a strong genetic component (see Leonard, 1998, for a review), the severe

deficits in nonword repetition that accompany SLI are highly heritable. Bishop and colleagues have reported several twin studies (Bishop, North, & Donlan, 1995; Bishop et al., 1996; Kovas, Hayiou-Thomas, Dale, Bishop, & Plomin, 2005) comparing nonword repetition accuracy of monozygotic and dizygotic twin pairs with a prior diagnosis of language impairment in at least one co-twin (Gathercole & Baddeley, 1996). Results of these studies have demonstrated that the characteristic nonword repetition deficit in SLI is highly heritable. The pattern of findings has led to the suggestion that the CNRep provides an effective marker of the phenotypic expression (behavioural manifestation) of SLI (Bishop et al., 1996). Findings from two large-scale studies aimed at understanding the chromosomal basis of the nonword repetition deficit in SLI have identified abnormalities on chromosome 16 (SLI Consortium, 2002, 2004). Further twin studies have established that the SLI impairment in nonword repetition is distinguishable from both the auditory temporal processing difficulties (Bishop, Bishop, Bright, James, Delaney, & Tallal, 1999) and the verb tense marking problems (Bishop, Adams, & Norbury, 2006) that are also characteristic of children with the disorder. In a related twin study of reading ability, reading heritability was high only when at least one co-twin also had poor nonword repetition, suggesting that poor nonword repetition may be an indicator of a distinct subgroup in this population (Bishop, Adams, & Norbury, 2004). These findings are important because they indicate that nonword repetition may be related to a core component of SLI worthy of clinical attention, and may even lead to the identification of subgroups within the realm of developmental language impairments.

To summarize, the vast majority of children with SLI have difficulty repeating nonwords. Nonword repetition is an effective clinical marker that discriminates children with SLI or very young children at risk for SLI from typically developing children. Nonword repetition appears to be a culture- and IQ-fair task that also may assist in ruling out language impairment in children learning more than one language. The nonword repetition deficit in SLI is highly heritable and persists even when other measures are no longer sensitive to a language difference. It is clear that nonword repetition has some promising diagnostic utility making it worthy of consideration for clinical use. The following section addresses questions and challenges relevant to the clinician considering adopting nonword repetition in practice.

Is nonword repetition a practical tool? Nonword repetition is a simple task to administer that can be completed by children as young as 2 years of age (Roy & Chiat, 2004). The CNRep (Gathercole & Baddeley, 1996) can be administered in less than 10 minutes, and is scored online at the item level (40 items). Most researchers have preferred phoneme level scoring both for the CNRep (Gray, 2003) and other measures of nonword repetition (Dollaghan & Campbell, 1998; Sahlen, Reuterskiold-Wagner, Nettelbladt, &

Radeborg, 1999). Although phoneme level scoring must be considered a richer coding method, phoneme scoring lacks clinical utility in that it necessitates time-consuming offline review of recorded files. We compared online item level scoring of the CNRep to item level scoring derived from phonetic transcriptions of recorded files available from our previously published study of 12 children with SLI aged 7 to 11 years, 12 age-matched, typically developing children, and 12 children matched for receptive vocabulary ability (Archibald & Gathercole, 2006a). There was a 0.17 mean difference (95% confidence interval: -0.80 to 1.14) in raw scores (items correct) and -0.33 mean difference (95% confidence interval: -2.90 to 2.24) in standard scores. The correlations between the two sets of raw and standard scores were $r=0.90$ and $r=0.95$, respectively ($p<.001$, both cases). This very high agreement between online and offline scoring points to the effectiveness of the more practical (online) outcome measure. However, it should be noted that these data were established for the 40 items of the CNRep and scoring errors on nonword repetition tests employing fewer items may have a greater impact on the overall score. The clinician should be cognizant as well of any unusual patterns of performance that may unduly influence item over phoneme level scoring such as a refusal to attempt many or longer nonwords. A review of the data for both the children with SLI and typically developing language in our study (Archibald & Gathercole, 2006a) revealed that both groups rarely refused to attempt repetition, and attempts rarely involved syllable omissions.

Is nonword repetition a reliable measure? Gray (2003) evaluated the CNRep scored at the phoneme level in distinguishing between groups of typically developing preschool children and those with SLI. Acceptable test-retest reliability and excellent sensitivity (identifying impaired individuals as impaired) and specificity (identifying only impaired individuals as impaired) were reported.

What does nonword repetition test? It follows from a discussion of the reliability of nonword repetition to question the validity of the measure. However, in order to determine whether the task is testing what it purports to test (i.e., it is valid), we must know what nonword repetition measures. The question of how poor nonword repetition should be interpreted continues to be hotly debated. Although there is agreement that nonword repetition distinguishes impaired from typical language learners, the underlying cognitive mechanisms tapped by nonword repetition are not well understood. There is considerable interest and research effort aimed at developing this knowledge as understanding the cognitive processes constraining an ability linked to language impairment such as nonword repetition may provide important clues as to the nature of language impairment itself.

One reason that nonword repetition has proven difficult to pin down is that the task involves several

steps including hearing, perceiving, and segmenting the phonological form, encoding and retaining the phonological representation, and planning, programming, and executing the output. Children with language deficits have been found to be impaired in several of these areas including speech perception (e.g., Stark & Tallal, 1981), phonological processing (e.g., Bird, Bishop, & Freeman, 1995), and speech motor coordination (Goffman, 1999, 2004). Perhaps it is no wonder that nonword repetition is sensitive to the broad spectrum of language impairments as it taps so many of the processes involved in language. It has been suggested that nonword repetition consistently identifies SLI despite the heterogeneity inherent in the disorder because the ability to repeat novel phonological forms is constrained by multiple processes at least one of which may be impaired in any particular child with SLI (Archibald & Gathercole, 2006a; Ellis Weismer & Edwards, 2006).

Nevertheless, researchers have attempted to examine the role of individual component processes in nonword repetition. One important line of inquiry has explored the memory demands of nonword repetition. Evidence that nonword repetition relies critically on short-term memory for phonological information comes from a number of sources. First, longer nonwords are more difficult to repeat correctly (Baddeley, Thomson, & Buchanan, 1975; Cowan, Saults, Winterowd, & Sherk, 1991). Longer nonwords take more time to perceive and to repeat, and thus their phonological representations may decay before they can be repeated or rehearsed in the mind. Second, recall accuracy is greater for words than nonwords, indicating that lexical knowledge supports retention (e.g., Hulme, Maughan, & Brown, 1991). This support is unavailable or reduced in the case of nonwords, forcing increased reliance on phonological short-term memory. Third, performance on nonword repetition tasks is highly correlated with scores on standard measures of short-term memory such as digit span (e.g., Baddeley, Gathercole, & Papagno, 1998; Gathercole et al., 1994). Thus, one interpretation of poor nonword repetition is that it reflects a phonological short-term memory deficit (Gathercole, 2006; Gathercole & Baddeley, 1990). Consistent with this suggestion, SLI groups show the greatest repetition decrement for the lengthiest nonwords (see Graf-Estes et al., 2007, for a review of 23 studies). As well, children with SLI also perform poorly on standard measures of short-term memory such as digit recall and word list recall (Archibald & Gathercole, 2006c).

Another important area of inquiry has considered the extent to which prior word knowledge supports nonword repetition. According to this view, nonwords or even parts of nonwords activate existing lexical and sublexical units, which in turn support retention (Snowling, Chiat, & Hulme, 1991). Vocabulary growth leads to progressive segmentation such that abstract phonological representations become established separately from the lexicon. As the child develops even the phonemes within nonwords activate existing phonological knowledge

supporting temporary storage. Children with slower vocabulary growth such as those with a language impairment will be at a disadvantage in nonword repetition due to a delay in the development of their phonological knowledge. Munson, Kurtz, and Windsor (2005) compared the performance of children with SLI, typically developing children matched for age, and younger children matched for receptive vocabulary on the repetition of nonwords differing in phonotactic probability, a measure of the frequency with which a sequence of sounds occurs in the lexicon of a language. In English, high-probability sequences such as [ft] occur in many real words such as after and fifty, whereas low-probability sequences such as [fk] occur rarely. It would be expected that children with larger vocabularies and more robustly abstracted phonological representations would be at an advantage in repeating nonwords with low-probability sequences. Results revealed that while the SLI group performed at lower levels overall than the age-match group and equivalent to the receptive-vocabulary match group, the SLI group was further disadvantaged relative to the age-match group when repeating the nonwords with low-probability sequences. It was suggested that the SLI deficit in nonword repetition particularly for low-probability phoneme sequences reflects the smaller vocabularies and less robust phonological representations of the SLI group. It should be noted that children with phonological impairments have not been found to be further disadvantaged in repeating nonwords with uncommon phonological sequences (Munson, Edwards, & Beckman, 2005). This finding suggests that children with phonological impairment are able to develop abstract phonological representations as expected for their age.

Several additional factors are known to influence nonword repetition. For example, phonological awareness (Metsala, 1999) or a more general phonological processing factor (Bowey, 1996, 2001) have been found to explain unique variance in nonword repetition performance. Bowey (2006) has argued that phonological processing is involved in each step of nonword repetition including recognizing, segmenting, and encoding the novel phonological form, and assembling the output. It may be, too, that the reduced recall accuracy for longer nonwords is due to the greater phonological processing demands imposed by the longer nonwords (Snowling et al., 1991) rather than the increased memory demands as described above. An additional factor that appears to be problematic for children with SLI is the articulatory complexity of the nonword. Children with SLI have more difficulty repeating nonwords associated with greater articulatory demands such as those that include consonant clusters (Archibald & Gathercole, 2006a; Bishop et al., 1996). Children with SLI may have subtle speech motor output deficits that contribute in part at least to their difficulties in nonword repetition.

Will nonword repetition assist with differential diagnosis? The answer to this question must be no, at the present time. Nonword repetition consistently

discriminates those with language impairment from those who are typically developing (e.g., Conti-Ramsden, 2003; Conti-Ramsden & Hesketh, 2003). Results from one study also suggest that nonword repetition may be useful in differentiating typical from impaired development in children learning a second language (Kohnert et al, 2006). The question that nonword repetition appears destined to fail is whether recall performance can distinguish those with different types of language impairment, for example, differentiating specific language impairment from general (non-specific) language impairment (NLI), or from a language impairment secondary to a syndrome such as autism. At this point in time, poor nonword repetition has been reported for a variety of groups in addition to SLI including nonspecific language impairment (Ellis Weismer et al., 2000), specific reading disabilities (Brady, 1997), autism (Bishop, Maybery, Wong, Maley, Hill, & Hallmayer, 2004), learning disability (Jarrod, Baddeley, Hewes, Leeke, & Phillips, 2004), Down's syndrome (e.g., Cairns & Jarrod, 2005; Laws, 2004), children with cochlear implants (Carter, Dillon & Pisoni, 2002), and children with fluency disorders (Hakim & Ratner, 2004). Only a few studies have provided direct comparisons between disorder groups. Nonword repetition performance has not been found to distinguish SLI and Down's syndrome groups (Laws & Bishop, 2003), or SLI and NLI groups (Ellis Weismer et al., 2000). A similar magnitude of the nonword repetition deficit was reported for groups of children with either SLI or a sensorineural hearing loss, although the scores of the SLI group were lower on phonologically complex nonwords (Briscoe, Bishop, & Norbury, 2001). In two older studies, lower nonword repetition accuracy was reported for SLI compared to reading impaired groups (Kamhi & Catts, 1986; Kamhi, Catts, Mauer, Apel, & Gentry, 1988). The question of differential diagnosis is an important one, and one that is sure to be addressed in future research. It may be that qualitative differences between groups can be identified that will assist in differential diagnosis in future clinical practice.

What test of nonword repetition should be administered? It is tempting to remark that there are as many nonword repetition tasks as there are research groups investigating the topic; however, this would be somewhat of an exaggeration. There are two tests that are most commonly employed, the Children's Test of Nonword Repetition (CNRep; Gathercole & Baddeley, 1996) and the Nonword Repetition Test (NRT; Dollaghan & Campbell, 1998). In an independent study (Archibald & Gathercole, 2006a) and a review (Graf-Estes et al., 2007), the effect size for the SLI group deficit was greater for the CNRep. As well, the CNRep contains 40 items rather than the NRT's 16, providing a greater sampling of the skill and a more robust measure for item level scoring. The CNRep is a published test with 10 nonwords at each of 2-, 3-, 4-, and 5-syllable lengths presented in a fixed random order by prerecorded audiocassette. There are some problems

with the measure, however. The test is standardized on a UK sample for ages 4 to 8 years of age, and the norms appear to have a negative bias (i.e., even typical children receive low standard scores), making the normative data suspect for a Canadian population. A number of the items are similar to real words (e.g., trumpetine) or have real words in them (e.g., pennel), and half the items contain consonant clusters. As a result, the CNRep may rely on vocabulary knowledge and articulatory production to a greater extent than other tests of nonword repetition.

The NRT has been found to be highly consistent in identifying children with language impairment across a number of studies. The design of the items was carefully controlled to simplify articulatory demands (i.e., no consonant clusters or late developing consonants), improve acoustic salience (i.e., use of tense vowels only), and reduce wordlikeness (e.g., equal stress across syllables unlike English words). The test is available in the original article (Dollaghan & Campbell, 1998), which contains the phonetic transcriptions of the four nonwords at each of 1-, 2-, 3-, and 4-syllable lengths. The items were presented from an audiorecording in the order listed, and the child's responses were recorded for offline phoneme level scoring. The chief disadvantages of this test include the small number of items, the absence of normative data for either phoneme or item level scoring, and the lack of availability of prerecorded items for standard administration.

It should be noted that nonword repetition is a subtest included in the Comprehensive Test of Phonological Processing (CTOPP; Wagner, Torgensen, & Rashotte, 1999). The test was designed to provide a comprehensive assessment of phonological abilities, and was normed in the United States for individuals aged 5 to 24. The nonword repetition subtest includes 18 nonwords, 15 of which are test items ranging in length from 1- to 7-syllables. The non-words are administered by audiocassette recording roughly in order of length beginning at the shortest length.

How should a nonword repetition test be administered? Most researchers employ recorded stimuli when administering nonword repetition tasks to participants. Recorded lists clearly have the advantage of presenting identical stimuli to each child. It may be argued that spoken presentation is more clinically relevant (Chiat & Roy, 2007; Roy & Chiat, 2004); however, spoken presentation also introduces a certain degree of variability in the administration. Individuals vary their speech pattern when they are speaking to children, the elderly, or to someone they perceive to be less competent in the language. Clinicians may unwittingly influence the nonword repetition performance of their clients by hyperarticulating more difficult or longer nonwords, or when clients are doing poorly.

To whom should nonword repetition be administered? A nonword repetition test can be administered to persons of any age. It will be the clinical question at hand that drives task selection. Obviously, there is the issue of

identification of children with language impairment as discussed throughout this paper. Nonword repetition has been successful in discriminating language deficits across the life span from children as young as 2 years of age (Chiat & Roy, 2007) to adolescents with a history of language impairment (e.g., Conti-Ramsden et al., 2001). Thus, a nonword repetition test may be a useful screening tool in identifying young children at risk for language impairment (Conti-Ramsden & Hesketh, 2003). In addition, nonword repetition may provide important information in the assessment of older children referred due to language difficulties but whose deficits are not captured by standardized language tests. While the evidence-base is strongest for use of nonword repetition in the identification of language impairment, qualitative analysis of recall performance may provide clues as to the ability of the repeater to represent and retain phonological information. Frequent phoneme errors may reflect difficulties in either encoding or maintaining material whereas consistent loss of syllables especially from the final positions of longer nonwords may point to a particular difficulty remembering phonological information.

How severe is the nonword repetition deficit in SLI?

In a review of 23 studies, Graf-Estes et al. (2007) reported an effect size for the nonword repetition deficit in SLI of 1.27 standard deviations. It appears, then, that although children with SLI consistently have difficulty repeating novel phonological forms, the magnitude of the deficit is not great. Given the fairly modest group differences, it is important to remember that not all individuals with SLI will receive low scores on a test of nonword repetition (Smith, 2006).

How might a nonword repetition deficit reflect a language learning impairment? Nonword repetition is closely and specifically linked to one particular aspect of language learning, vocabulary acquisition in typically developing children. Nonword repetition is highly associated with vocabulary knowledge of both the native language (e.g., Gathercole & Baddeley, 1989; Gupta, 2003) and non-native languages (e.g., Cheung, 1996; Masoura & Gathercole, 1999). Typically, the association is strongest during the early stages of language acquisition. For example, in a longitudinal study of vocabulary development in 4 to 8 year old children conducted by Gathercole et al. (1992), there was a marked decrease in the link between nonword repetition and vocabulary skills for the 8 as compared to 4 year olds. In foreign language learning as well, once individuals gain some facility with the foreign language, there is a diminished relationship with memory skills (Cheung, 1996; Masoura & Gathercole, 2005). This pattern of findings has led to the suggestion that two resource pools support vocabulary development (Baddeley, Gathercole, & Papagno, 1998; Gathercole, 2006). According to Gathercole (2006), in the early stages of learning when there is little available support from existing lexical knowledge, the ability to briefly store phonological forms plays an important role in new word learning. In later stages, however, the amassed lexical store supports vocabulary

learning; novel phonological forms activate similar lexical and sublexical units within long-term memory, thereby facilitating acquisition. This proposal is supported by evidence linking nonword repetition with the speed of learning the phonological forms of new words, but not the acquisition of semantic features (e.g., Gathercole, Hitch, Service, & Martin, 1997; Gupta, 2003).

What are the clinical implications of a nonword repetition deficit? It is important to recall that the underlying cause of a nonword repetition deficit is as yet poorly understood. Studies have implicated phonological processing abilities including the abilities to recognize and segment phonemes, develop abstract phonological representations, and hold phonological information in mind for brief periods of time. It would follow, then, that appropriate intervention strategies would include those aimed at improving phonological knowledge and short-term memory for phonological material. In recent years, treatment methods targeting phonological awareness have proved effective in developing phonological knowledge (e.g., Gillon, 2000; Laing & Espeland, 2005; Segers & Verhoeven, 2004). The majority of intervention strategies aimed at improving short-term memory, however, are based on sound theoretical principles and clinical expertise. Much work remains in order to establish a solid evidence base for these methods, and clinicians must employ these techniques with some healthy scepticism and a view to carefully monitoring effectiveness for each individual with whom they are employed. Montgomery (2002) has compiled a list of assessment and intervention suggestions based on the assumption that deficits in temporary memory systems are causally linked to SLI. The intervention strategies aimed at improving phonological encoding and retention include engaging the child in repetition tasks that encourage children to notice the sound patterns in the language (i.e., phonological awareness activities), increasing the use of verbal rehearsal, and teaching chunking or paraphrasing strategies. We have assembled learning support strategies for use in classroom situations that either focus on enhancing retention or encouraging compensation for memory deficits (Archibald & Gathercole, 2006b). For example, when introducing new or arbitrary information, the emphasis should be on storing (or learning) the information, rather than on manipulation or processing of the information. Strategies that will facilitate the transfer of new information to long-term memory in a 'quality-rich' state should be adopted such as heightening awareness of the individual phonemes in the new word, and pairing repeated repetitions with rich contextual information. Thus, teaching of new vocabulary should focus on the words themselves initially, and tasks requiring more complex use of these words such as sentence creation or following multi-step directions should be introduced once the new material becomes familiar. Conversely, compensatory strategies are necessary when the memory and processing components are inherent in the task and cannot be minimized such as in reading comprehension or word problems in math.

Accommodations include reducing memory demands by using highly familiar vocabulary, or by providing external aids to make retention unnecessary.

Nonword repetition is a deceptively simple task that mimics native language learning. Individuals with difficulties in learning language typically are poor at repeating novel phonological forms. Children with SLI, at risk for SLI, and with a history of SLI are distinguished by their impaired nonword repetition from typically developing monolingual groups, and from children who are learning a second language. Therefore, nonword repetition may be a practical clinical tool to aid in the identification of individuals with SLI and other language impairments.

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Author Note

Preparation of this paper was supported in part by a postdoctoral fellowship from the National Science and Engineering Research Council.

Correspondence concerning this article should be sent to: Lisa Archibald, School of Communication Sciences and Disorders, Elborn College, University of Western Ontario, London, Ontario, N6G 1H1
E-mail: larchiba@uwo.ca.

Received: December 4, 2006

Accepted: November 1, 2007



■ Pediatric Cochlear Implantation in Canada: Results of a Survey

■ Résultats d'une enquête sur l'implantation cochléaire pédiatrique au Canada

Elizabeth Fitzpatrick, PhD
Lynne Brewster, PhD

Abstract

This paper presents the results of a survey of Canadian pediatric cochlear implant centres. The survey was conducted in 2006 to determine the number of children who received cochlear implants and to examine trends in pediatric implantation in Canada between 1995 and 2005. All 12 Canadian programs, including nine surgical and three non-surgical centres, returned the questionnaire. The results showed that there has been significant growth in pediatric cochlear implantation since the previous survey was completed in 1995. A total of 1,406 children received implants in Canadian centres in the 11-year time period covered by this survey, with an average of 174 children being implanted annually from 2001 to 2005. Two major trends in recent years include the implantation of children at younger ages and the implantation of children with complex developmental disabilities. Primary issues of interest for clinicians included candidacy issues, outcome measures and bilateral implantation. These data provide baseline information about pediatric cochlear implant service provision that may assist in program planning and resource allocation.

Abrégé

Cet article présente les résultats d'une enquête sur les centres pédiatriques canadiens d'implants cochléaires. Cette enquête a été menée en 2006 pour déterminer le nombre d'enfants qui ont reçu un implant cochléaire et pour examiner les tendances d'implantation chez les enfants au Canada de 1995 à 2005. Le personnel de douze programmes au Canada, soit les neuf centres de chirurgie et les trois centres qui ne pratiquent pas de chirurgie, a rempli le questionnaire. Les résultats montrent qu'il y a eu une croissance significative de l'implantation cochléaire pédiatrique depuis l'enquête précédente menée en 1995. Au total, 1 406 enfants ont reçu un implant dans les centres canadiens au cours de la période de 11 ans couverte par la présente enquête, avec en moyenne 174 enfants ayant reçu un implant cochléaire annuellement de 2001 à 2005. Deux grandes tendances des dernières années comprennent l'implantation chez des enfants de plus en plus jeunes et l'implantation chez des enfants ayant des déficiences complexes du développement. Les questions d'intérêt pour les cliniciens sont l'admissibilité des candidatures, les indicateurs de résultats et l'implantation bilatérale. Ces données fournissent des renseignements de base sur les services pédiatriques d'implantation cochléaire pouvant contribuer à la planification de programmes et à l'affectation des ressources.

Key words: cochlear implant, pediatric, survey, services

Cochlear implant technology has dramatically impacted the management of children with severe to profound hearing loss. Pediatric cochlear implantation was first approved by the Federal Drug and Administration Agency (FDA) in 1990 and has rapidly become a standard intervention in much of the world for children with significant hearing loss whose families choose spoken communication. A Canadian survey reported that 168 children from Canada had received cochlear implants by 1994 (Brewster & Fitzpatrick, 1995). As funding

Elizabeth Fitzpatrick, PhD
Faculty of Health Sciences,
University of Ottawa
Ottawa, Ontario Canada

Lynne Brewster, PhD
Saskatchewan Pediatric
Auditory Rehabilitation
Center (SPARC)
Saskatoon, Saskatchewan
Canada

allocations increased and cochlear implant candidacy criteria expanded, the number of cochlear implants provided annually as well as the number of Canadian centres has grown. Although cochlear implantation has become standard care, the availability and practice of providing pediatric cochlear implants has varied throughout Canada with different programs being introduced and funded at different times in the past 10 to 15 years. In the absence of a national database, little systematic information is available about the number of children receiving cochlear implants in Canada, the growth in cochlear implantation in the past 10 to 15 years and the trends in cochlear implant candidacy.

A survey of pediatric cochlear implant centres was undertaken in 2006 to update a previous Canadian survey published in 1995 (Brewster and Fitzpatrick, 1995). The objectives of the survey were to provide 1) a profile of pediatric cochlear implantation in Canada including the numbers and ages of children receiving implants, 2) a description of cochlear implant teams and services provided in Canada, 4) a description of changes and trends in cochlear implantation and 5) current concerns and issues for clinicians providing pediatric implant services.

Method

The current survey of Canadian cochlear implant centres was undertaken in 2006. Using the 1995 survey as a guideline, questions were developed with input from and reviewed by the Canadian Working Group on Cochlear Implants in Children, a group assembled by the Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) in 2003 to update the 1995 Position paper on cochlear implants in children (Canadian Association of Speech-Language Pathologists and Audiologists, 2006; Durieux-Smith, Delicati, Brewster, Fitzpatrick, & Phillips, 1995).

For the purposes of this survey, a cochlear implant centre/program was defined as a hospital program that provided cochlear implantation including candidacy evaluation, surgery and follow-up or a program that provided cochlear implant services without on-site surgery. Although it was recognized that several other programs in Canada provide educational management services for children with cochlear implants, a decision was made to limit the survey to those non-surgical centres that were specifically responsible for cochlear implant evaluation and management, in an effort to avoid duplication in the information collected. Prior to undertaking the survey, we identified nine cochlear implant programs located in six provinces that provided a surgical component and three additional cochlear implant programs where surgery was accessed in other provinces. These 12 centres constituted the sample for this study.

The final questionnaire, entitled, "CASLPA Pediatric Cochlear Implant Survey", was a five-page survey that

requested information from each centre on the cochlear implant team composition, numbers of children implanted per year from 1995 to the end of 2005, the age categories of patients, the number of children with additional disabilities, and services provided by the implant program. In addition, the survey contained questions that probed concerns, issues and topics of interest in pediatric cochlear implantation. The research received ethics approval from the Children's Hospital of Eastern Ontario Research Ethics Board. The survey was sent to the 12 program coordinators (or designated individuals) in May 2006 followed by two reminder notices.

Results

A total of 12 centres returned the survey resulting in a response rate of 100%. All but two of the provinces reported that pediatric cochlear implants are provided through one provincial cochlear implant centre. Ontario has three regional centres in Toronto, London and Ottawa and Alberta has two centres located in Edmonton and Calgary. Four provinces, Prince Edward Island, New Brunswick, Manitoba, and Saskatchewan, do not provide surgical services within the province. However, all provinces except Prince Edward Island identified a dedicated cochlear implant service. There are no known cochlear implant centres in Canada's three northern territories. The nine surgical centres and three non-surgical centres are detailed in Table 1, along with the number of children implanted from 1995 to 2005.

All nine hospital surgical programs are publicly funded through their respective provincial ministries of health. Surgeries performed out of province are funded through reciprocal funding agreements. Two non-surgical programs also reported that services are partially funded through other agencies and/or private fundraising. As shown in Table 1, the majority of the nine surgical centres reported that implants are allocated on a quota system. In some cases, the quota system was reported as a total number of implants for both adults and children. The four pediatric only centres all reported that a specific annual quota system is applied. Newfoundland and Saskatchewan identified a specific provision for the upgrading of equipment through public funding sources. In addition, Ontario provides partial financial assistance for speech processor upgrades. Other centers indicated that families were referred to charitable organizations or were provided financial support on a case-by-case basis.

Team Composition and Services

Cochlear implant programs reported the provision of a wide range of services including candidacy evaluation, surgery, speech processor programming, therapy services and consultation services to schools and other intervention programs. As detailed in Table 2, the cochlear implant teams continue to consist of a wide range of professionals. In addition to the surgeon and on-site audiologist, all hospital programs included a family/social worker and/or psychologist with seven of the nine surgical centres

Table 1*Description of Canadian Cochlear Implant Centers and number of pediatric implants*

Center	Total Implants to 1995 ¹	Pediatric Implants 1995- 2005	Annual Quota
B.C. Children's Hospital	13	126	Yes
Glenrose Rehabilitation Hospital	33	61	No
Alberta Children's Hospital	9	64	Set annually
London Health Sciences Centre	18	75	Yes
Hospital for Sick Children	20	483	Yes
Children's Hospital of Eastern Ontario	8	207	Yes
L'Hotel Dieu de Quebec	49	260	Quota for children/adults
Nova Scotia Cochlear Implant Program	0 ²	42	Yes
Newfoundland Health Care Corporation	0 ²	11	Yes
Saskatchewan Cochlear Implant Program	6 ³	77 ³	No quota
Central Speech and Hearing Clinic	2 ⁴	36 ⁴	No quota
New Brunswick Cochlear Implant Program	0 ⁵	0 ⁶	No quota

Notes. ¹ Extracted from 1995 survey (Brewster & Fitzpatrick, 1995); ²Program established in 2001; ³Surgeries were performed at other centres but were not reported in other centres' numbers; ⁴Surgeries were performed at other centres and included in other centres' numbers; ⁵Program established in 2005; ⁶Surgeries performed at other centres and were not reported separately.

including both of these disciplines as part of the cochlear implant centre team. All programs reported that specific resources were allocated to coordination of the cochlear implant program and all identified some level of administrative support consisting of program assistance or administrative personnel; one program identified technical support personnel. Three programs specifically reported dedicated research personnel although in some cases, this appeared to be funded outside the cochlear implant program budgets, for example, through a university. The three non-surgical programs in Saskatchewan, Manitoba, and New Brunswick all included an audiologist and administrative support. Saskatchewan also reported additional psychosocial support services. New Brunswick did not report therapy services. The time allocated per professional varied greatly across clinics and did not seem to reflect the number of annual implants and/or total number of children serviced. This may be because the frequency of the therapy varies as a function of the time since implantation and because various components of service are provided through other resources, for example, the educational system.

As indicated by several respondents, cochlear implant services now extend well beyond the specific provincial cochlear implant centres to include service provision in the community and school system particularly with

respect to rehabilitation/therapy. For example, while early implant programs assumed the major responsibility for the rehabilitation of children with implants, in the current survey, several programs reported that children were primarily managed through community and school resources. Seven of the 12 centres reported that pre-school rehabilitation is primarily managed through the implant center. However, rehabilitation for school age children is managed primarily outside the clinical program either through the school system or in conjunction with school services. In two programs, a specific 2-year time period for post-implant rehabilitation at the clinic was identified. The Quebec program reported that it provides a 12-week intensive rehabilitation service for all recipients, following which services are provided by the various rehabilitation and school resources.

Patient Selection Criteria

Patient selection criteria were provided by 8 of the 12 centres. Two of these centres indicated that they followed device manufacturers' candidacy criteria. The primary change in selection criteria from the 1995 survey involved lower age at implantation and the implantation of children with more residual hearing. The majority of centres reported the following common criteria: 1) age 12 months to 18 years, 2) severe to profound (or profound hearing loss for younger children) bilateral sensorineural

Table 2
Composition of Pediatric Cochlear Implant Teams

Center	Surgeon	Audiologist	Therapist ¹	Social Worker	Psychologist	Other ²
B.C. Children's Hospital	✓	✓	✓	✓	✓	Admin Support
Glenrose Rehabilitation Hospital	✓	✓	✓	✓	✓	- Program Assistant - Parent Liaison
Alberta Children's Hospital	✓	✓	✓	✓	✓	Program Assistant
London Health Sciences Centre	✓	✓	✓	✓	✓	-Admin Support -Psychiatrist
Hospital for Sick Children	✓	✓	✓	✓		- Program Assistant - Admin Support - Researcher
Children's Hospital of Eastern Ontario	✓	✓	✓	✓	✓	-Program Assistant - Nurse - Researcher
L'Hotel Dieu de Quebec	✓	✓	✓	✓	✓	-Technical Support Researcher
Nova Scotia Cochlear Implant Program	✓	✓	✓	✓		Admin Support
Newfoundland Health Care Corporation	✓	✓	✓		✓	- Admin Support
Saskatchewan Cochlear Implant Program		✓	✓	✓	✓	Program Assistant
Central Speech and Hearing Clinic		✓	✓			- Program Assistant - Admin Support
New Brunswick Cochlear Implant Program		✓				- Program Assistant

Notes. ¹The term therapist is used to identify professionals involved in providing rehabilitation services (other than programming of the speech processor) and may include auditory-verbal therapists, teachers/educators of the hearing-impaired, and speech-language pathologists. ²In this survey, the term program assistant was used to refer to specific support in audiology or speech-language pathology, the term 'admin support' includes administrative support service, coordination, and management (e.g., director).

hearing loss, 3) minimal progress with conventional amplification, 4) no medical/radiologic contraindications, and 5) appropriate family and child (where applicable) expectations and motivation. There was some variation in other criteria; for example, two programs specified that children were required to enroll in an auditory-verbal therapy program post-implantation and to attend an educational program with a focus on auditory development. Three programs specifically stated that older children (e.g., 6 years) who used sign language as their primary communication mode were not eligible for implantation. Other centres elaborated on the functional ability of the child in some detail. For example, one centre reported that it had identified and was refining a list of specific criteria with indicators in order to develop consistent evidence-based criteria for candidate selection.

Growth in Pediatric Cochlear Implantation

The number of children who received cochlear implants in Canada from 1995 to 2005 are displayed in Figure 1 for the entire country and grouped by four regions: Atlantic provinces (Newfoundland, Nova Scotia, and New Brunswick programs), Quebec, Ontario and Western Canada (Manitoba, Saskatchewan, Alberta and British Columbia). These data reflect the number of children who received cochlear implants, rather than the number of cochlear implant devices. It is important to note that at the time this survey was developed, bilateral cochlear implantation was not typically available in the Canadian clinical context and therefore data were not collected on bilateral implant surgeries. Amalgamating the data from the 1995 survey (Brewster & Fitzpatrick, 1995), 1,562 children had received cochlear

implants in Canada by the end of 2005 (156 surgeries to 1994 and 1406 surgeries from 1995 to 2005). At least 12 additional children as reported in the 1995 survey have received implants outside Canada. No additional data were captured in the current survey on the number of children undergoing surgery outside Canada.

As seen in Figure 1, while there was significant and steady annual growth in the total numbers of surgeries from 1995 through 2001, the number of children implanted in the last 5 years appears to have stabilized between 163 to 184 (median, 174) children annually. The most significant growth was in the period 1998 to 2001 when the number of annual surgeries more than doubled from 72 in 1997 to 165 in 2001.

Changes in age at cochlear implantation

Figure 2 displays the number of children implanted in Canadian centres between 1995 and 2005 by age and year of implantation. Consistent with expanded FDA/Health Canada criteria for age of implantation, important differences are apparent in the age at implantation over the past 11 years captured in this survey. Prior to 2000, no children under the age of 12 months received cochlear implants in Canada. About 25 to 30% of the population (e.g., 36 of 118 in 1999) was implanted before the age of 3 years. In contrast, since 2000, children under age 12 months have been implanted at four different Canadian centers. Almost 50% of the children implanted between 2000 and 2005 received their implants by 3 years of age. Despite the trend towards earlier age at implantation, each year an additional 30 to 40% of children receive cochlear implants after 5 years of age. Since 2000, 50 to 65 of the children implanted annually are in the 5 to 18 year age range. Children over age 11 account for 9 to 17% of the children implanted annually since 2000. This may reflect the change in selection criteria to include children with more residual hearing.

Children with additional disabilities

The questionnaire specifically requested centers to report the number of children with disabilities, defined for this survey as a disability, in addition to hearing impairment that would interfere with typical communication development. Between 1995 and 2005, 77 children (5.5%) of the children implanted in Canada presented with additional disabilities. One centre reported having implanted no children with additional disabilities and one centre did not provide this information. The number of children with additional disabilities as a proportion of the total number of children implanted varied across centres, ranging from 4 to 36%. Two centres reported the first implantations of children with

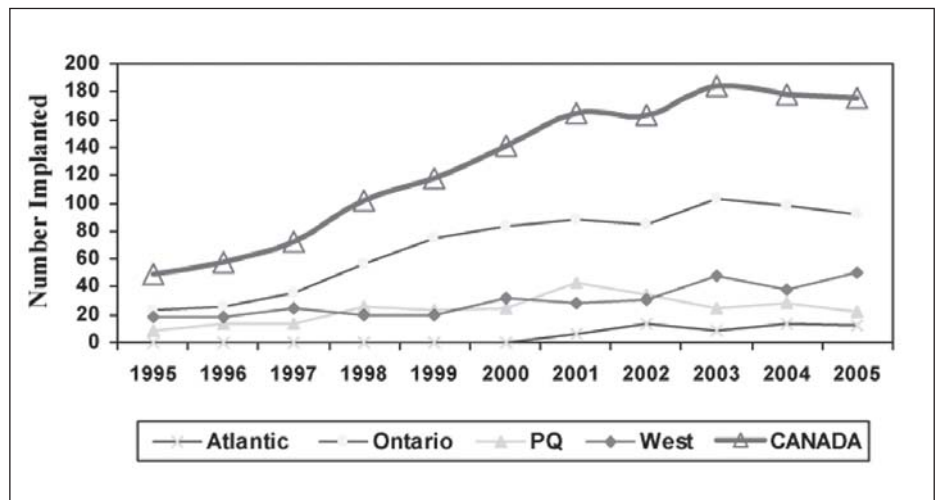


Figure 1. Pediatric cochlear implant surgeries in Canada by region (1995-2005)

other disabilities prior to 2000; however, in most centres, there seemed to be a trend towards implantation of children with additional disabilities in 2000 to 2001 with the number increasing in subsequent years as shown in Figure 3. In 2005, a total of 16 children with additional disabilities were reported to have been implanted in 8 centres, representing 9.1 % of the total number of children receiving implants. Overall, children with additional disabilities represented a diverse group, the largest numbers being children with 1) cerebral palsy accompanied by developmental delay, 2) CHARGE syndrome, and 3) developmental/cognitive delays. Other disabilities included blindness, autism and a variety of other syndromes.

Clinical Considerations

Several questions on the survey looked at the centres' practices with respect to recommendations for immunizations, FM technology, and changes or new developments in cochlear implant technology generally. All but one cochlear implant program (which strongly recommended it) required specific immunization against meningitis pre-surgery. The use of FM technology is routinely recommended by all centers, the majority identifying the personal FM system as the system of choice; however, two centres reported that they recommend a personal and soundfield FM system, while others prescribe one or the other depending on the particular situation. The majority of centres prioritized the selection of an FM device based on the following three factors: auditory sophistication of child, educational setting, and age of child. Cost did not seem to be an important consideration in the choice of FM devices. The centres' views on important device changes or developments were classified into three main categories: 1) improved troubleshooting capabilities capabilities for clinician and parent (e.g., built-in

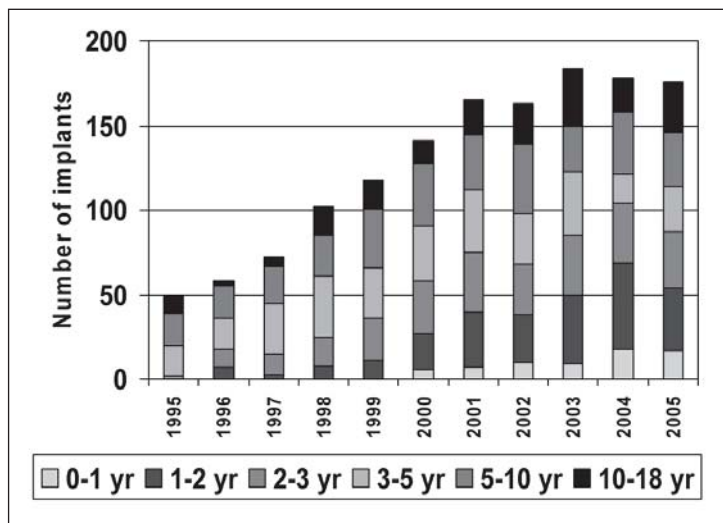


Figure 2. Age of implantation by year (n=1,406)

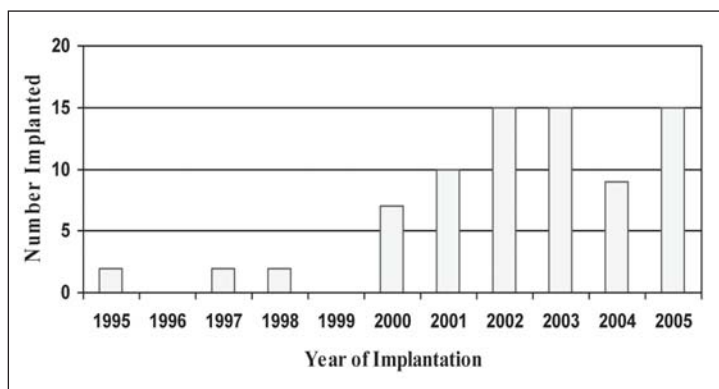


Figure 3. Cochlear implants: children with additional disabilities (n=77)

telemetry, alarms, etc.), 2) esthetic changes (e.g., smaller behind-the-ear speech processor), and 3) improved battery technology (e.g., smaller and longer battery life).

A final component of the questionnaire probed clinicians' perspectives on current clinical issues and concerns for Canadian centres. Specifically, respondents were asked to list topics which could be addressed in a Canadian discussion forum. Four primary topic areas emerged: 1) evidence-based outcome, 2) candidacy issues, 3) bilateral implantation, and 4) equipment/technical issues. Outcome issues related to outcome for various populations including complex cases, non-users, and outcome in children who use sign language. As well, respondents identified broader definitions of outcome as well as quality of life outcomes as areas of interest. Candidacy issues included the following: candidates with 'borderline' hearing, children with additional disabilities, choice of ear to ear implant, and the implantation of older children who sign. Bilateral implantation was

identified as a topic of interest, particularly regarding the selection of appropriate candidates. Finally, a variety of technical issues were raised including objective speech processor programming and FM systems with cochlear implants. In addition to these main topics, other items of interest included transitioning to adult rehabilitation and university programs.

Discussion

This paper summarizes the results of a survey that examined the status of pediatric cochlear implantation in Canada. Building on an early Canadian survey reported in 1995 (Brewster & Fitzpatrick, 1995), the questionnaire collected information from 12 Canadian cochlear implant centres in nine provinces. The survey was intended to provide a snapshot of service provision in pediatric implantation from 1995 to 2005. Currently pediatric cochlear implant surgical services are available in nine centres and three other programs provide candidacy evaluation, and/or cochlear implant management. The majority of centres were already providing services prior to 1995 but two new surgical centres in Nova Scotia and Newfoundland and one satellite program in New Brunswick were established since 2001. In addition to the 156 children who had received cochlear implants in Canada by 1994 (Brewster & Fitzpatrick, 1995), 1,406 children were implanted in the 11-year period covered by this survey, resulting in a total of 1,562 children in the 0 to 18 year old age range who had undergone cochlear implantation in Canadian centres by 2005. Currently, about 174 children are implanted annually in Canada.

Two trends emerged in the data: 1) the implantation at an earlier age including an increasing number of children under age 12 months in recent years and 2) the implantation of an increasing number of children with additional disabilities since 2000. Despite the increase in earlier age of implantation, it is noteworthy that a significant number of children over age 5 continue to be implanted in all centres. This may reflect a lack of access to cochlear implantation at earlier ages, changes in criteria (e.g., implantation of children with residual hearing) or a significant number of children with progressive or later onset of profound hearing loss. Program changes consisted primarily of a broadening out to the larger community of care for children with hearing impairment such that rehabilitation services are frequently provided outside the specific cochlear implant centres.

An important limitation of this research is that given the time required to collect and analyze the information, new issues and practices in cochlear implantation have not been captured in this questionnaire, which documents services to the end of 2005. A particularly noteworthy fact is that certain

Canadian centres are now providing bilateral implantation either as standard clinical care or through research programs. Finally, the questionnaire was completed by program coordinators who are audiologists, and therefore may not reflect fully the views and concerns of other team members.

Notwithstanding, as the only survey of its type in Canada, we believe the data presented here reflect a fairly accurate picture of the Canadian situation and highlight issues and concerns raised by clinicians working in pediatric implantation in a publicly funded context. Although this survey is limited by the rapid changes in cochlear implantation technology, candidacy criteria, and standards of practice, we suggest that the findings will be of interest to service providers and to those who make health policy decisions. This information provides a baseline of Canadian pediatric cochlear implant services to the year 2005, against which future program development and growth can be measured. The insights from this survey are a starting point for informed discussions and can be used to identify key areas of clinical and research needs in pediatric cochlear implantation.

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Author Note

We appreciate the review and helpful comments of the individual members of the Canadian Working Group on Cochlear Implants in Children in developing this survey: Penelope Bacsfalvi, Stephanie Demmons-O'Brien, Dan Paccioretti, Kathy Packford, Vicky Papaioannou, and Sue Wastie. As well, we thank Chantal Lalonde of CASLPA for her comments and for her assistance with sending the survey to the centers. We are extremely grateful to the cochlear implant centres for taking the time to complete this questionnaire. This survey was completed during E. Fitzpatrick's doctoral studies and support is therefore acknowledged from the Social Sciences and Humanities Research Council of Canada and from Advanced Bionics.

Correspondence concerning this article should be sent to: Elizabeth Fitzpatrick, Faculty of Health Sciences, University of Ottawa, Faculty of Health Sciences, 451 Smyth Road - Room 3017, Ottawa, Ontario K1H8M5 E-mail: elizabeth.fitzpatrick@uottawa.ca.

Received: August 1, 2007

Accepted: December 20, 2007

Material and Resource Review/ Évaluation des ressources

Treatment Protocols for Language Disorders in Children
Volume I: *Essential Morphological Skills*
Volume II: *Social Communication*
M.N. Hedge (2006)

Publisher: Plural Publishing Inc., San Diego, CA
Cost: \$169.00 (CAD)
Reviewer: Patricial L. Cleave, Ph.D., S-LP(C)
Affiliation: School of Human Communication Disorders,
Dalhousie University, Halifax, Nova Scotia

T*reatment Protocols for Language Disorders in Children* is a two volume set of therapy resource materials. Volume One focuses on teaching morphological skills and Volume Two focuses on conversational and narrative skills. Each volume is divided into sections. In Volume One, the two sections are 1) Functional Words, Phrases and Sentences, and 2) Morphologic Features, which includes such structures as tense markers, prepositions, plural and possessive markers. In Volume Two, the sections are 1) Adjectives, 2) Adverbs, 3) Demands and Commands, 4) Negative Sentence Forms, 5) Passive Sentences, and 6) Conversational Skills, which includes a number of targets such as topic initiation, turn taking, and conversational repair.

In the preface to Volume One, Hedge characterizes language treatment as “a set of scenarios in which the clinician and the client play out their roles” and the protocols provided in the manuals as “scripts they follow to achieve improved patterns of communication” (p. vii). For each therapy target, there is a protocol for establishing a base rate, for teaching the skill and for generalized production. A recording sheet is also provided for each stage. In addition to the paper templates, which can be photocopied, there is an accompanying CD that contains the base rate, treatment and probe recording sheets. In the overview of treatment procedures, Hedge notes that the clinician “presents a stimulus picture or object for both base rate and treatment protocols.” However, this resource does not provide these items. The manuals are largely a list of sentences, or for conversational skills, a list of suggested conversational topics. There are also suggested scripts for the speech-language pathologist to use in therapy. The script for training the plural morpheme goes as follows:

Clinician: *This is a dog. These are two dogs. What are these? Say ‘two dogs’*

Child: *two dog*

Clinician: *No. That is not correct. What are these? Say ‘two dogs’*

Child: *Two dogs.*

Clinician: *Very good! You said two dogs, not dog.*

The same script is continued for each structure taught. Under each protocol, treatment moves from imitated to spontaneous productions in these highly structured contexts. It is recommended that the child achieve 10 consecutive correct, non-imitated responses for each exemplar. Thus, when training *two dogs* as an exemplar of the plural morpheme, treatment continues on *two dogs* until child says the phrase 10 times in a row at which time another plural phrase is introduced. When 6-8 phrases have met criterion, training is then moved up to the sentence level. Generalization probes are administered when the child has met criterion at the sentence level. Generalization probes involve untrained exemplars (e.g., *These are two trees*). When the child reaches 90% accuracy on the generalization probe for a target structure, it is suggested that the speech-language pathologist train a new structure or shift training to the target structure in conversation. However, there are no suggestions on how to move a structure from the prompted sentence level to conversation.

Hedge does cite some research literature in support of his approach but the vast majority of it is over 10 years old. Furthermore, not all of the studies cited are consistent with this approach - a highly structured program, based on behavioural principles taught in an apragmatic drill format. For example, a number of the citations are for articles on milieu teaching. Milieu teaching does incorporate behavioural techniques in its approach but one of its guiding principles is that language is taught through natural conversations, which follow the child’s focus of interest (see Hancock & Kaiser, 2006, for a discussion of milieu teaching).

The use of a highly structured, didactic approach to language therapy may be appropriate at times (e.g., depending on the child’s learning styles, to introduce a new structure). However, I do not believe that these manuals would be particularly helpful if one wanted to use a clinician directed approach as part of therapy. The range of contexts in which each structure is presented is very narrow. For example, the plural marker is always presented in the context of two items. The preposition *behind* is always presented in the sentence frame *NOUN is behind the NOUN*. Training a language structure in only one context will not teach the child how to use the structure in all its possible contexts. Secondly, as noted above, the manuals consist of a collection of forms with sentences and there is a recommendation that a speech-language pathologist use pictures or objects as support. It is invariably more difficult to gather pictures that provide the appropriate nonverbal support for a target linguistic structure than to write target sentences. A third concern I have is with the scripts for therapy provided in the manual. For many of these, following the script would result in a violation of basic pragmatic rules. For example, the proposed script for teaching auxiliary is to say “*The girl is writing. What is the girl doing? Say ‘the*

girl is writing.” The manual notes that if a child responds “*writing*”, this is wrong. However, the pragmatically appropriate response to “*What is the girl doing*” is “*writing*”. Providing a complete sentence is not pragmatically appropriate. A fourth weakness in these manuals is that they do not address the challenge of generalization to spontaneous conversation. Structured approaches, such as described here, can be effective at eliciting a language target but functional use in conversation is rarely the result. The protocols presented do not include suggestions for moving from discrete trials to conversation, which is generally the most difficult step when using behavioural approaches. For children who need this type of structure in their language intervention, generalization is often a particular problem. Finally, there are ways to make imitation drills more functional: Acting out the target utterances with objects rather than using pictures as nonverbal support, or using utterances that are connected in a narrative.

I have a number of reservations about these manuals and would not recommend them. In conducting language intervention, it is always important to examine the therapy to determine how it supports functional communication development. There may be times when a highly didactic approach is an appropriate part of language intervention. However, by providing only written sentences without items to provide the necessary nonverbal support and giving scant attention to the issue of generalization to conversation, *Treatment Protocols for Language Disorders in Children* would be of little value for conducting therapy in my opinion.

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The Canadian Association of Speech-Language Pathologists and Audiologists

Position Paper on the Professional Doctorate Degree in Audiology

A position paper represents the direction CASLPA has taken on a particular topic or provides guidelines for particular areas of practice. These positions are time-bound, representing the thinking at a particular point in time.

Position

The Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) supports the concept of the professional doctoral degree in audiology (AuD) in Canada for future professionals and commits to further investigation of this issue.

Rationale

A survey of Canadian audiologists regarding the subject of the AuD was conducted by CASLPA in conjunction with the development of the 2004 position paper. A similar survey was repeated in 2006 as recommended in the original position paper. The 2006 survey was completed by 397 audiologists (response rate of 29.6%) while the 2003 survey received a comparable number of responses with 435 audiologists participating. Demographic information was similar for both surveys.

The table below presents the results in percentages from both the 2003 and 2006 surveys on key questions targeting “best option for entry level into the profession of audiology”.

	2003	2006	Difference +/-
Support implementing the AuD as entry level	37.2%	51.5%	+14.3%
Support improving current Masters programs	48.6%	40.3%	-8.3%
Support keeping current Masters programs as they are	14.2%	7.7%	-6.5%
Respondents currently pursuing an AuD (at the time of the survey)	4.9%	15.2%	+10.3%

The 2006 survey results indicate that 51.5% of respondents support implementing an AuD as the entry level to the profession in Canada (allowing current Master’s degree holders to continue to practice without obtaining an AuD). This represents an increase of 14.3% since 2003. The option of improving current programs (but keeping the Master’s degree as the entry to practice) has decreased in support since 2003 to 40.3% as well as maintaining the Master’s programs in their current form (7.7%).

Results indicate that 34.5% of respondents believe the current Master’s degree programs provide graduates with adequate preparation to enter the profession. However, 41.1% feel that current programs only somewhat prepare students. Similar results were found in 2003.

Of the 20.6% who feel that the current programs do not provide adequate preparation, 35.8% think an increase in clinical practicum would be an appropriate solution while 23.7% recommend extending the current programs.

When asked if current Canadian audiology programs should offer the AuD instead of the Master’s level program, 47.3% responded “yes” and 51.9% responded “no”. A similar split was found when survey participants were asked if Canadian audiology programs should offer the AuD in addition to the already existing Master’s level program (51.5%

responded “yes” and 46.7% responded “no”). Interestingly, while 36.6% do not think implementing the AuD as the entry level to practice will have much effect on the number of applications to audiology programs, 41.2% believe this would result in a decrease and 21.7% believe this would result in an increase in the number of applications.

The motivation to pursue an AuD was quite varied, with the highest ranked reason (27.6%) being “the opportunity to formally upgrade knowledge and skills” followed by “better preparation for the job” at 12.7%. Of the respondents holding an AuD, the majority indicated that the AuD did not increase their salary (71.4%). In fact, the majority of all respondents indicated that they do not believe holding an AuD would increase their income (61.8%). This belief has slightly increased since the 2003 survey (59.7%). Half of respondents (49.6%) indicated that if the AuD became the entry-to-practice, they would consider distance learning to pursue the AuD to enhance their education. Financial constraints were reported by 58.1% of respondents as a reason for not seeking an AuD at this time.

Recommendations

Recommendation 1

The profession of audiology should be acknowledged as the leader in assessing changes in its entry-to-practice credentials. This process, however, should involve broad consultation, impact analysis, and strong collaboration with stakeholders such as the Canadian Council of University Programs in Communication Sciences and Disorders (CCUP-CSD) and the Council of Accreditation of Canadian University Programs in Audiology and Speech-Language Pathology (CACUP-ASLP).

Recommendation 2

Increase communication and collaboration among the professional associations, provincial/territorial regulatory bodies representing audiologists and the existing university training programs to support student preparation for practice. The universities should continue to revise their audiology curriculum to ensure that the content is consistent with the recent review of the foundational knowledge, skills and practice competencies that CASLPA considers to be essential for audiologists. The universities should work together with audiologists in the profession to expand practicum opportunities for students in order to tightly link clinic-based to classroom-based education which would then be evaluated against clearly stated learning objectives. The universities, audiologists and other stakeholders should work together to define an educational model for the AuD and the type of professional that it would train.

Recommendation 3

Enhance dissemination of information to Canadian audiologists and audiology students on advanced educational choices such as the academic doctorate degree (PhD) and the professional doctorate degree (AuD). Audiologists require such information in order to be aware of the options that would best meet their needs, the needs of the profession and the needs of individual students. Universities must attract more audiologists to take academic doctorates to produce an adequate supply of researchers and academic educators. Such information dissemination can be accomplished through publications, educational sessions at conferences as well as internet websites.

Recommendation 4

Enhance dissemination of information to Canadian audiologists and audiology students regarding the implications that entry level to practice in Canada will have on the mutual recognition agreement (MRA) between CASLPA and the American Speech-Language and Hearing Association (ASHA). Almost two-thirds of the current survey respondents (61%) felt this MRA is important to them therefore prior to this position paper being reviewed again in 2 years, audiologists should be well informed of its impact.

Background

Canadian audiologists have experienced significant expansion in their scope of practice over the past few decades. This expansion has partially been a consequence of the evolution of technology in diagnostic tools, rehabilitative instruments and intervention strategies. These advancements provide audiologists better tools to deliver comprehensive services to clients but also require that audiologists have an ever-increasing knowledge and experience base. There are also increased responsibilities resulting from the expanded role of audiology in areas such as newborn hearing screening, selection and prescription of hearing aids and cochlear implants. With advanced diagnostic capabilities, audiologists are becoming even more involved in the delivery of service to special populations including individuals with auditory processing disorders, auditory dys-synchrony, vestibular disorders, tinnitus and hyperacusis. The results of such developments have led to greater autonomy in the profession of audiology as well as increased requirements for further specialized knowledge.

In October 2004, federal, provincial and territorial Ministers of Health approved a new process to manage proposals to change entry-to-practice credentials for medical and health professions. A new process was necessary as Deputy Ministers of Health had concerns that previous changes to entry-to-practice credentials had proceeded without a full appreciation of the potential impact on the supply of various medical and health professionals. As well, they realized that medical and health professions are evolving in response to changes and advancements in the delivery of health care which may result in revisions to their entry-to-practice requirements. Any professions wanting to change their entry-to-practice credentials will have to follow this new process. At the present time, the minimum entry level of education to practice audiology in Canada is a Master's degree in audiology (or equivalent).

Some provinces/territories have developed statements on the use of the title doctor (Dr.) for those audiologists who have earned a doctoral degree. For example, two provincial associations, Alberta and Ontario, have position statements on the use of the title Doctor as it relates to audiologists. The Alberta College of Speech Language Pathologists and Audiologists (ACSLPA) reviews applications to use the title 'doctor' on an individual basis. They have criteria and a process for both the academic (e.g. PhD) and professional (e.g. AuD) doctoral degrees.

In Ontario, members of the College of Audiologists and Speech-Language Pathologists of Ontario (CASLPO) may refer to their formal training or degrees, e.g. AuD, PhD, or other doctorates, on business cards and reports in the course of providing health care. However, they are precluded from calling themselves "Dr. Smith", when they are providing health care regardless of their qualifications. Members may consult the appropriate regulatory body or provincial/territorial association for further information.

To supplement the CASLPA position paper review, all five audiology programs in Canada participated in an informal university survey conducted by telephone and e-mail in 2006. The survey included questions regarding:

- the university programs' perceptions of entry level qualifications for the profession of audiology in Canada
- the need for an AuD program in Canada
- whether or not Canadian audiology programs were exploring the possibility of developing an AuD program
- whether or not such programs were being planned in the near future

With regard to the question on best option for entry level to the profession of audiology, four of the five programs indicated that the Master's degree was adequate however all four agreed that there was a need to improve current programs. One university stated that the AuD should become the necessary training for entry to practice. Another program felt that there was a need for a clinical doctorate which would be taken in addition to the Master's degree.

Two of the five programs felt that there was value in considering the AuD due to the need to improve current training programs in Canada and because of the changes in entry to practice in the United States. Two of the five programs indicated that they were exploring the implementation of an AuD program within the next five years. Both of these programs indicated that they planned on retaining their Master's program while offering the clinical doctorate to their Master's students. A third university program also stated it will explore the need for a clinical doctoral program.

All university programs were unanimous in stating that if the AuD became the entry level to practice audiology in Canada, all current Master's degree clinicians should be entitled to continue to practice without having to complete the AuD. Some felt, however, that these clinicians should pursue continuing education courses (e.g. internet courses).

Regarding the development of future educational programs, Canadian universities suggested a coordinated approach to address the educational needs of future audiologists by applying similar standards for all programs across the country. The Council of Accreditation of Canadian University Programs in Audiology and Speech-Language Pathology (CACUP-ASLP) should be involved if standards are developed for new clinical doctorate programs. Collaboration with the Canadian Council of University Programs in Communication Sciences and Disorders (CCUP-CSD) would also be beneficial.

In summary, while the results of the current survey indicate that there is a trend toward revising current training programs, there is no consensus regarding the model(s) that should be adopted. It is clear from the survey and discussions with professionals in the field that decisions regarding future programs should include input from current professionals, professional associations, university training programs, regulatory bodies and other identified stakeholders. The current survey indicates an increase in support for the AuD as entry level to the profession of audiology as long as existing professionals maintain their right to practice with the Master's degree.

The committee responsible for the development of this position paper recommends that the position be reviewed in 2 years.

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Committee Members

Isabelle Cabot, M.A. – Québec

Marshall Chasin, AuD, M.Sc., Aud (C) – Ontario

Charlotte Douglas, M.Sc., Aud (C) – Saskatchewan

Jillian Drake, M.Sc. Aud (C) – New Brunswick

Gayle Faiers, AuD, MCI Sc., Aud (C) Chair – Ontario

Cheryl Galloway, M.A., Aud (C) – British Columbia

Kathy Packford, M.Sc., Aud (C) – Alberta

Chantal Kealey, M.A., Aud (C) (CASLPA professional staff)

L'Association canadienne des orthophonistes et audiologistes

Énoncé de position sur le doctorat professionnel en audiologie

Un énoncé de position représente l'orientation adoptée par l'ACOA concernant un sujet particulier ou fournit des lignes directrices visant un aspect quelconque de la pratique. Ces énoncés ont une durée de vie limitée et représentent le raisonnement d'un moment précis.

Position

L'Association canadienne des orthophonistes et audiologistes (ACOA) est favorable au concept du doctorat professionnel en audiologie (AuD) au Canada pour les futurs professionnels et s'engage à approfondir cette question.

Fondement

L'ACOA a mené une enquête auprès des audiologistes canadiens concernant le doctorat professionnel en audiologie en vue de l'élaboration de l'énoncé de position publié en 2004. Elle a mené une nouvelle enquête en 2006, suivant les recommandations de l'énoncé de position original. Trois cent quatre-vingt-dix-sept audiologistes ont répondu à l'enquête de 2006 (taux de réponse de 29,6 %). L'enquête de 2003 avait permis de récolter un nombre de réponses comparable, 435 audiologistes y ayant participé. Les données démographiques des deux enquêtes sont similaires.

Le tableau ci-dessous présente les résultats en pourcentage des enquêtes de 2003 et de 2006 à la question clé portant sur la meilleure option comme exigence minimale de formation pour exercer l'audiologie.

	2003	2006	Différence +/-
Favorable au grade AuD comme exigence minimale	37.2%	51.5%	+14.3%
Favorable à l'amélioration des programmes de maîtrise actuels	48.6%	40.3%	-8.3%
Favorable au maintien des programmes de maîtrise dans leur forme actuelle	14.2%	7.7%	-6.5%
Répondants qui travaillent actuellement à obtenir le grade AuD (au moment de l'enquête)	4.9%	15.2%	+10.3%

Les résultats de l'enquête de 2006 indiquent que 51,5 % des répondants sont favorables au diplôme AuD comme titre d'admissibilité en audiologie au Canada (tout en permettant aux titulaires actuels d'une maîtrise en audiologie de continuer à pratiquer sans obtenir le diplôme AuD). Cela représente une augmentation de 14,3 % par rapport à 2003. L'option visant à améliorer les programmes actuels (et à maintenir la maîtrise comme exigence minimale pour pratiquer l'audiologie) a chuté depuis 2003 à 40,3 %, tout comme l'option de maintenir les programmes de maîtrise dans leur forme actuelle (7,7 %).

Les résultats montrent que 34,5 % des répondants sont d'avis que les programmes actuels de maîtrise offrent aux diplômés une préparation suffisante pour être admissible à la profession. Toutefois, 41,1 % sentent que les programmes actuels ne font que passablement bien préparer les étudiants. L'enquête de 2003 avait donné des résultats semblables.

Des 20,6 % de répondants qui jugent que les programmes actuels n'offrent pas une préparation adéquate, 35,8 % croient qu'une augmentation des stages cliniques serait une bonne solution, tandis que 23,7 % recommandent d'allonger les programmes.

À la question demandant si les programmes canadiens actuels de formation en audiologie devaient offrir le diplôme AuD au lieu de la maîtrise actuelle, 47,3 % ont répondu « oui » et 51,9 % ont répondu « non ». Une partition semblable des résultats est apparue à la question demandant si les programmes canadiens de formation en audiologie devaient offrir le diplôme AuD en plus de la maîtrise actuelle (51,5 % ont répondu « oui » et 46,7 % ont répondu « non »). Il est intéressant de noter que, même si 36,6 % des répondants ne croient pas que d'établir le diplôme AuD comme exigence minimale de formation pour exercer l'audiologie aura une grande incidence sur le nombre de demandes d'admission aux programmes de formation en audiologie, 41,2 % sont plutôt d'avis que cela aura pour effet de réduire les demandes et 21,7 %, que cela se traduira par une augmentation des demandes d'admission.

Les raisons qui motivent la volonté d'obtenir le diplôme AuD varient considérablement, la plus importante étant « la possibilité de mettre officiellement à jour ses connaissances et compétences » (27,6 % des répondants), suivie du fait d'avoir « une préparation améliorée pour le travail à accomplir » (12,7 %). Chez les répondants titulaires du diplôme AuD, la majorité ont indiqué que ce doctorat n'avait pas augmenté leurs salaires (71,4 %). En fait, la majorité de tous les répondants ont précisé qu'ils ne croyaient pas que le diplôme AuD augmenterait leurs salaires (61,8 %). Cette conviction a légèrement augmenté depuis l'enquête de 2003 (59,7 %). La moitié des répondants (49,6 %) ont indiqué que, si le diplôme AuD devenait l'exigence minimale pour pratiquer l'audiologie, ils songeraient à suivre une formation à distance pour l'obtenir. Chez 58,1 % des répondants, des contraintes financières les dissuaderaient de faire de même, pour l'instant.

Recommandations :

Recommandation 1

Faire reconnaître la profession d'audiologiste comme étant la mieux placée pour évaluer les changements nécessaires aux exigences de formation minimales d'exercice. Cette démarche doit cependant se fonder sur une consultation à grande échelle, sur une analyse d'incidence et sur une étroite collaboration avec les parties intéressées, telles que le Conseil canadien des programmes universitaires sur les sciences et les troubles de la communication et le conseil d'accréditation des programmes universitaires canadiens en audiologie et en orthophonie.

Recommandation 2

Améliorer la communication et la collaboration entre les associations professionnelles, les organismes provinciaux et territoriaux de réglementation représentant les audiologistes et les programmes actuels de formation universitaire de façon à aider à préparer les étudiants à exercer leur profession. Les universités doivent continuer à modifier leur programme d'audiologie pour s'assurer que le contenu reflète les dernières connaissances de base, aptitudes et compétences pratiques que l'ACOA juge nécessaires pour les audiologistes. Les universités doivent collaborer avec les audiologistes qui exercent cette profession afin d'offrir davantage de stages aux étudiants qui lient étroitement la formation clinique à la formation en classe et qui peuvent être évalués par des objectifs d'apprentissage clairement définis. Les universités, les audiologistes et d'autres parties intéressées doivent travailler de concert pour définir un modèle d'enseignement pour le diplôme AuD et le genre de professionnels qu'il formera.

Recommandation 3

Améliorer la diffusion d'information auprès des audiologistes et des étudiants en audiologie du Canada concernant les possibilités d'éducation postsecondaire, telles que le doctorat académique (PhD) et le doctorat professionnel (AuD). Les audiologistes ont besoin de cette information pour être au courant des options qui répondraient le mieux à leurs besoins, à ceux de la profession et à ceux des étudiants. Les universités doivent attirer davantage d'audiologistes intéressés à faire un doctorat théorique afin de former un nombre suffisant de chercheurs et de professeurs. Cette information peut être diffusée par l'entremise de publications scientifiques, de séances de formation à des congrès et de sites Web.

Recommandation 4

Améliorer la diffusion d'information auprès des audiologistes et des étudiants en audiologie du Canada concernant les incidences qu'aurait l'adoption du diplôme AuD comme exigence de formation minimale pour exercer la profession d'audiologie au Canada sur l'accord de reconnaissance mutuelle entre l'ACOA et l'*American Speech-Language and Hearing Association (ASHA)*. Près des deux tiers des répondants à la dernière enquête (soit 61 %) ont indiqué que cette entente avait de l'importance pour eux. Par conséquent, avant de revoir de nouveau le présent énoncé de position dans deux ans, il faudra que les audiologistes soient clairement informés des incidences afférentes.

Mise en contexte :

Les audiologistes du Canada ont connu un élargissement considérable de leur champ de pratique au cours des dernières décennies. Cet élargissement est attribuable en partie à l'évolution de la technologie des outils de diagnostic, des instruments de réadaptation et des stratégies d'intervention. Ces progrès technologiques fournissent aux audiologistes de meilleurs outils pour offrir des services complets aux clients, mais ils nécessitent aussi que les audiologistes possèdent un bassin de connaissances et expériences accrues. De plus, les responsabilités des audiologistes en raison du rôle élargi de l'audiologie dans des domaines tels que le dépistage chez les nouveau-nés ainsi que la sélection et l'ordonnance d'appareils auditifs et d'implants cochléaires. Avec le progrès des capacités de diagnostic avancé, les audiologistes offrent toujours davantage de services à des populations spéciales, y compris des personnes ayant des troubles de traitement auditif, une dyssynchronie auditive, des troubles vestibulaires, de l'acouphène et une hypoacousie. Les résultats de tels progrès ont accru l'autonomie des audiologistes, mais aussi des exigences à l'égard des connaissances spécialisées.

En octobre 2004, les ministres fédéral, provinciaux et territoriaux de la santé ont approuvé un nouveau protocole de gestion des demandes de modification des titres d'admissibilité aux professions reliées à la santé. Ce protocole a vu le jour après que les sous-ministres de la santé se sont inquiétés de certains changements apportés à des critères d'admissibilité sans pleinement tenir compte des incidences éventuelles sur le bassin d'effectifs dans les diverses professions reliées à la santé. Aussi, ils se sont rendu compte que les professions de la santé évoluent en réaction aux changements et aux percées dans la prestation de soins de santé, ce qui peut entraîner des révisions aux exigences d'admissibilité. Dorénavant, toute profession qui souhaite changer ses critères d'admissibilité doit suivre le nouveau protocole. En ce moment, le niveau minimal d'éducation nécessaire pour exercer l'audiologie au Canada est la maîtrise en audiologie (ou l'équivalent).

Des provinces et territoires ont élaboré des énoncés sur l'utilisation du titre « docteur » (Dr) pour les audiologistes qui ont obtenu leur doctorat. Par exemple, deux associations provinciales, soit celles de l'Alberta et de l'Ontario, ont des énoncés de position à ce sujet. L'*Alberta College of Speech Language Pathologists and Audiologists* passe en revue les demandes d'utilisation de ce titre au cas par cas. Elle dispose de critères et d'une démarche pour le grade académique (p. ex. : PhD) et pour le grade professionnel (p. ex. : AuD).

En Ontario, les membres de l'Ordre des audiologistes et orthophonistes de l'Ontario (OAOO) peuvent faire référence à leurs études ou leur titre – AuD, PhD ou autre titre du doctorat – sur leurs cartes d'affaires et leurs rapports dans le cadre de leur travail de prestation de soins de santé. Toutefois, il leur est interdit de s'appeler « Dr Untel », quelles que soient leurs qualifications, lorsqu'ils prodiguent des soins de santé. Les membres peuvent consulter l'organisme de réglementation pertinent ou leur association provinciale/territoriale pour de plus amples renseignements.

Dans le cadre de l'examen de l'énoncé de position de l'ACOA, les cinq programmes universitaires de formation en audiologie au Canada ont participé à une enquête officieuse menée par téléphone et par courriel en 2006. Cette enquête comportait des questions sur :

- la perception qu'ont les programmes universitaires des exigences minimales de formation pour exercer l'audiologie au Canada;
- la nécessité d'avoir un programme de doctorat professionnel en audiologie au Canada;
- la présence de discussions visant à mettre sur pied un programme de doctorat professionnel en audiologie;
- la possibilité qu'un tel programme soit mis en place prochainement.

En ce qui concerne la question de la meilleure option comme exigence minimale de formation pour exercer l'audiologie, quatre des cinq programmes ont indiqué que la maîtrise était satisfaisante, mais tous les programmes ont précisé que la maîtrise actuelle devait être améliorée. Une université a indiqué que le diplôme AuD devrait constituer le critère d'admissibilité obligatoire. Un autre programme a soutenu qu'il y avait besoin d'un doctorat clinique qui s'offrirait en supplément de la maîtrise.

Deux des cinq programmes ont jugé qu'il était utile de se pencher sur le diplôme AuD compte tenu de la nécessité d'améliorer les programmes de formation actuels au Canada et en raison des changements apportés aux critères d'admissibilité à la profession aux États-Unis. Deux des cinq programmes ont indiqué qu'ils songeaient à instaurer un programme de doctorat professionnel d'ici cinq ans. Ces deux programmes ont souligné qu'ils planifiaient conserver la maîtrise tout en offrant le doctorat clinique aux étudiants de la maîtrise. Une troisième université a aussi précisé qu'elle se penchait sur la question du doctorat clinique.

Toutes les universités étaient unanimes pour dire que, si le diplôme AuD devenait l'exigence minimale de formation pour pratiquer l'audiologie au Canada, tous les cliniciens actuels titulaires de la maîtrise devraient avoir le droit de continuer à exercer leur profession sans devoir obtenir le doctorat professionnel en audiologie. Cependant, certains programmes étaient d'avis que ces cliniciens devraient suivre des cours de formation continue (p. ex. : cours sur Internet).

Concernant l'élaboration de futurs programmes de formation, les universités canadiennes ont suggéré d'adopter une démarche coordonnée qui traiterait des besoins en matière d'éducation des futurs audiologistes en exigeant des normes similaires pour tous les programmes des quatre coins du pays. Selon elles, le conseil d'accréditation des programmes universitaires canadiens en audiologie et en orthophonie (CAPUC-AO) devait participer à cette démarche si des normes sont élaborées pour de nouveaux programmes de doctorat clinique. Elles ont aussi précisé qu'il serait utile que le Conseil canadien des programmes universitaires sur les sciences et les troubles de la communication collabore à une telle initiative.

En résumé, bien que les résultats de l'enquête actuelle indiquent qu'il y a une tendance vers la révision des programmes actuels de formation, il n'y a pas de consensus quant au(x) modèle(s) à adopter. L'enquête et les discussions avec les professionnels du domaine montrent clairement que toute décision concernant les futurs programmes doit inclure l'apport des professionnels actuels, des associations professionnelles, des programmes de formation universitaire, des organismes de réglementation et d'autres parties intéressées désignées. L'enquête révèle une augmentation du nombre de personnes favorables au doctorat professionnel comme exigence minimale de formation pour exercer l'audiologie en autant que les professionnels actuels puissent maintenir le droit d'exercer avec leur maîtrise.

Le comité responsable de l'élaboration du présent énoncé de position recommande de revoir le document dans deux ans.

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Membres du comité

Isabelle Cabot, M.A. – Québec
Marshall Chasin, AuD, M.Sc., Aud(C) – Ontario
Charlotte Douglas, M.Sc., Aud(C) – Saskatchewan
Jillian Drake, M.Sc. Aud(C) – Nouveau-Brunswick
Gayle Faiers, AuD, MCI Sc., Aud(C) Présidente – Ontario
Cheryl Galloway, M.A., Aud(C) – Colombie-Britannique
Kathy Packford, M.Sc., Aud(C) – Alberta
Chantal Kealey, M.A., Aud(C) - (personnel professionnel de l'ACOA)

CASLPA Conference 2008 Abstracts

Kananaskis, Alberta

April 16 - 19, 2008

Preconference Workshops

Innovative Interventions for Autism, Auditory Processing Disorders, and Apraxia – Part 1

Martha S. Burns, PhD, Northwestern University, and Evanston-Northwestern Hospital, Evanston, IL

This workshop will cover new information on the causes of autism and the differences between autism and other disorders of social learning. It will also cover auditory processing disorders and the differences between CAPD and ADHD. The workshop will begin with a brief overview of neuroimaging research clarifying these disorders.

Evidence-based Treatments for Word Retrieval Impairments in Aphasia

Anastasia Raymer, PhD, Old Dominion University, Norfolk, VA

Dr. Raymer will discuss evaluation and treatment focused on restoring semantic and phonologic processing for noun and verb retrieval, as well as implementing compensatory gestural methods that may be impacted by co-occurring limb apraxia. She will review constraint induced language therapy and provide an update on predictors of recovery of aphasia including neuroimaging correlates of word retrieval impairments for nouns and verbs.

Auditory Pathways: Development, Plasticity and Processing

Michael F. Dorman, PhD, National Institutes of Health, Tempe, AZ; Anu Sharma, PhD, University of Colorado at Boulder, and University of Colorado Health Sciences Center, and University of Texas at Dallas, Boulder, CO

This presentation will focus on cortical auditory evoked potentials (CAEPs) as measures of central auditory maturation. Discussion of how the CAEP markers may serve as clinical indicators of central auditory development in infants and young children using conventional amplification, cochlear implants, or a combination of technologies.

Speech-Language Pathology and Audiology Workshops

Risk Management and Liability Exposures to Speech-Language Pathologists and Audiologists

Brian Gomes, Aon Reed Stenhouse Inc., Ottawa, ON

This presentation for CASLPA members will focus on the risk management process and how this process can assist speech-language pathologists and audiologists in minimizing risk exposure while delivering professional services in a variety of environments. The presentation will provide a snapshot of the professional liability coverage available through CASLPA, how this differs from an employer's coverage, and why it is important. Brian will also address additional risk exposures and methods of protection. Actual claim scenarios will be presented with an opportunity for a question and answer period.

Audiology Workshops

Time and Timing in Hearing – Part 1

Dennis P. Phillips, PhD, Dalhousie University, Halifax, NS

Sounds unfold over time, so it is inescapable that the act of hearing sounds is going to involve 'temporal processing' of one sort or another. This session offers a partial survey of temporal processing in audition and how an understanding of the processes may lead to the development of a test battery to help identify temporal processing problems.

Time and Timing – Auditory Temporal Gap Detection – Part 2

Dennis P. Phillips, PhD, Dalhousie University, Halifax, NS

This presentation is designed for non-biologists who want Temporal gap detection is intended as a measure of auditory temporal acuity. The detection of gaps is mediated by different perceptual processes; these processes have different acuities and they have different relations to speech discrimination. This session will offer an overview of recent research on this topic.

Changes in the Central Auditory System

Jos Eggermont, PhD, University of Calgary, Calgary, AB

This presentation will centre around the statement, "Loudness recruitment, hyperacusis, temporal processing, and tinnitus are central auditory system phenomena that are altered/induced following sensorineural hearing loss. They result from plastic and homeostatic brain mechanisms. The implications are that hearing disorder is not static, despite an unchanging audiogram." It includes recommendations for audiological practice.

Bridge of Hope: Living...While Having Tinnitus

Deborah Lain, MSc, psychologist in private practice, Calgary, AB

This presentation will provide an overview of the steps that can empower clients experiencing tinnitus with a sense of mastery over their life, while having this condition. You will come away from this session with strategies that can reduce symptoms of distress felt from thinking that "nothing can be done." Understand the impact, Learn strategies, Reduce symptoms, Renew hope.

Update on Middle-Ear Assessment Techniques

Navid Shahnaz, PhD, University of British Columbia, Vancouver, BC

This presentation will attempt to answer questions and update you on the most recent advances in the status of middle-ear assessment in newborns and young children with direct implications for testing protocols in clinical practice.

Diagnosis of Dizziness/Balance Disorders

Beth Lange, MD, Rocky View Hearing and Balance Centre, Calgary, AB; Art Mallinson, MSc, Vancouver General Hospital, Vancouver, BC

Diagnosing the patient with dizziness and/or imbalance is a difficult task for a physician, as very often a patient presents with poorly described symptoms which may be complex, vague, and difficult to quantify. Vestibular assessment includes a number of different tests which can be extremely useful to a referring physician. This presentation will focus on both the medical and paramedical assessments involved in diagnosing, treating, and managing the dizzy patient.

Speech-Language Pathology Workshops

Innovative Interventions for Autism, Auditory Processing Disorders, and Apraxia – Part 2

Martha S. Burns, PhD, Northwestern University, and Evanston-Northwestern Hospital, Evanston, IL

This course will cover apraxia of speech in children and distinguish apraxia of speech from phonological processing disorders. Treatment approaches will be emphasized.

Assessment and Intervention of Children's Narratives

Ron Gillam, PhD, Utah State University, Logan, UT

The first half of this presentation will focus on the assessment of children's narrative development, with a review of nonstandardized assessment procedures and one standardized procedure (The Test of Narrative Language). During the second half, we will demonstrate a literature-based approach to improving narrative ability. This approach to intervention with school-age children begins and ends with children's books, but also includes subactivities that focus on specific language targets that are designed to affect narration.

Decision Making for the Severely Dysphagic Patient Who Aspirates

Susan Langmore, PhD, Boston University Medical Center, and Boston University, Boston, MA

Clinicians working with severely dysphagic patients who aspirate face the challenge of needing to make recommendations that may either compromise their health, safety, or quality of life. This seminar will bring the participants up to date on research that helps with decision-making and will address issues such as: How much aspiration can my patient tolerate? Will he get pneumonia? Are thick liquids really the best diet recommendation? Is aspiration of thin liquids dangerous? What are the best evaluation and monitoring tools?

Plain Language and Clear Communication

Elaine Cairns, BA, BEd, Linden, AB; Jane Clarke, ECE, Calgary, AB

Imagine a Canada where language is plain. Imagine a Canada where all people have access to information, services, and learning opportunities. This hands-on workshop will help you understand clear communication and the importance of plain language. Please bring a brochure, form, letter, handout, or any other written document to work on.

Programming in Word Finding: Deep Assessment and Comprehensive Intervention

Diane J. German, PhD, National-Louis University, Chicago, IL

This 5-part seminar will focus on assessment and intervention procedures in Child Word Finding, including an explanatory model of lexical processing, highlight the Test of Word Finding, Second Edition (TWF-2), a process for differential diagnosis, Retrieval Strategy Instruction using mnemonic strategies for vocabulary instruction, and Word Finding Accommodations in the classroom.

Prelinguistic Development and Interventions

Nancy Brady, PhD, Schiefelbusch Institute for Life Span Studies, Lawrence, KS

Dr. Brady will present a short summary of prelinguistic development in typical children and children with intellectual disabilities including autism and Down syndrome. Early interventions aimed at improving prelinguistic communication (gestures and vocalizations) will be described and results from recent studies of prelinguistic interventions will be presented. The implications for teaching prelinguistic communication on later language development will also be covered.

It's Just One Brain: Integrating Cognitive, Emotional, and Dispositional Interventions

Catherine Mateer, PhD, University of Victoria, Victoria, BC

Strategies to improve or manage cognitive impairments too often ignore the impact of emotions and beliefs on generalization of skills and changes in adaptive functioning. This workshop will describe research findings on the critical interplay of cognition, emotion, and metacognitive beliefs. It will describe approaches to and the value of integrating, within interventions, activities designed to increase awareness, overcome disuse of cognitive skills, and enhance cognitive self-efficacy.

Understanding Second Language Acquisition in Children and the Implications for Assessment

Johanne Paradis, PhD, University of Alberta, Edmonton, AB

Children whose first language is not English are increasingly represented in elementary school classrooms, and consequently, in the caseloads of speech-language pathologists. In order to set appropriate expectations and develop appropriate assessment techniques, S-LPs need more information about the characteristics of typical and atypical ESL development. The purpose of this seminar is to present a synthesis of current research on child ESL development aimed at the needs of practicing S-LPs.

Working with Children Who Stutter: Problem-Solving Challenges Successfully

Kristin A. Chmela, MA, CCC-SLP, BRSS-FD, Hawthorn Woods, IL

This presentation will focus on utilizing a problem-solving model in order to solve challenges when working with children of any age who stutter. A special emphasis will be placed on counseling skills and teaching speech modification strategies.

What Do We Mean When We Say, "We Know How to Treat That Problem"?

John (Jay) Rosenbek, PhD, University of Florida, Gainesville, FL

The emphasis of this presentation will be on making clinical treatment decisions for the adult neurogenic patient by selecting the most appropriate duration, frequency and timing of treatments. Consideration will be given to traditional notions of patient need supplemented by what we know or suspect about neural plasticity, and what drives both positive and negative plastic effects. Dr. Rosenbek will also discuss excitotoxic effects from applying the wrong treatment at the wrong intensity at the right time, or the possible negative effects of delaying treatments such as when a person is put on a feeding tube and not offered rehabilitation.

Speech-Language Pathology and Audiology Contributed Papers

Interprofessional Education for Collaborative Client/Patient-Centred Practice: A New Wave

Susan Wagner, Brian Simmons, Ivy Oandasan, Sylvia Langlois, University of Toronto, Toronto, ON

Interprofessional education and collaborative client/patient-centred practice (IECPCP) are hot topics in health care. Governments are increasingly emphasizing and funding this service delivery model for best practice. Current theory and practice will be shared and you will be engaged in reflection and discussion about your own context so you can ride the wave!

Do I Make the Leap to Private Practice?

Karen MacKenzie-Stepner, MHSc, Halton Hills Speech Centre, Georgetown, ON

In ever changing workplaces, many professionals are deciding to make the leap to become their own boss. However before making the leap, one should determine if they have the entrepreneurial traits and knowledge to make it a success. This presentation will discuss what is needed to go into business and succeed.

Evidence-Based Practice: How It Can Improve Your Practice*Rosemary Martino, MA, MSc, PhD, University of Toronto, Toronto, ON*

This workshop will introduce Cochrane reviews as a tool to keep current with the recent "information explosion" in most aspects of speech-language pathology and audiology. This workshop will review the process of systematic reviews, The Cochrane Library and teach the generic skills and methods to appraise reviews and journal articles.

Enhancing the Clinical Education Experience in Distance Placements*Lynn Ellwood, University of Toronto, Toronto, ON; Representatives from Canadian university programs in S-LP and Audiology*

A panel of university placement coordination representatives together with students and clinical educators experienced with distance placements will interact with audience participants to explore clinical education opportunities in settings that are distant from the university. Plans and recommendations for future placements will be generated.

Audiology Contributed Papers**Binaural vs Monaural Organization as Indexed by Auditory Evoked Potentials***Shannon MacLean, MSc, Lawrence Ward, PhD, University of British Columbia, Vancouver, BC*

We examined brain responses to tonal stimuli presented to monaural and binaural adult listeners. We hypothesized that neural dynamics for monaural listeners differ from those of binaural listeners because neural organization is fundamentally different when the auditory system receives consistent input from two ears as opposed to only one.

Electrophysiological Correlates of Auditory Temporal Processing: Implications for APD*Patricia Muir, BSc, MSc, Aud (C), Reg A, and PhD Candidate, University of Calgary, Calgary, AB*

Outcomes on a battery of behavioural auditory processing, language, reading, and temporal measures, and late auditory evoked potentials for speech and non-speech stimuli are compared for normal learning children vs. children with learning disabilities. Results are discussed with reference to the debate over the construct of auditory processing disorder (APD).

Speech-Language Pathology Contributed Papers**Making the Connection: Supporting Positive Relationships and Infant Language Development***Susan Rafaat, MSc, R SLP, S-LP (C), Evelyn Wotherspoon, MSW, RSW, Calgary Health Region, Calgary, AB*

Can a baby be depressed? Although we like to believe that youngsters are immune, unfortunately they do experience mental health concerns. This presentation will highlight the importance of parent-child attachment and how language facilitation strategies can build positive relationships. Training for in-home staff working with high risk populations will be discussed.

Thinking Outside the Therapy Room – Assessing the Impact of Change*Danielle Cutler, S-LP, The University of Sydney, Surrey, BC; Sarah Moloci, S-LP, State University of New York at Buffalo, Surrey, BC; Olga Haralabous, S-LP, University of Western Ontario, Vancouver, BC; Laurene Enns, University of Fraser Valley, Surrey, BC*

An analysis of two pediatric service delivery models revealed that group programs and a block system of service provision led to significant reductions in numbers of children waiting for service. Increases in service providers' productivity and job satisfaction were seen, as well as high levels of parent and client satisfaction.

Proposing an Evaluation Framework for Telehealth Applications in Speech Pathology*Melanie Campbell, Assistant Professor, University of Alberta, Edmonton, AB*

Persistent complaints about the lack of evaluation of telehealth applications appear repeatedly in the telehealth literature. The telehealth literature concerning applications in speech-language pathology mirrors those concerns. A detailed proposal will be presented for the speech-language community to give serious consideration to an evaluation framework advanced by Yawn (2000).

Let's Fly Together: Building TOR-BSST® Swallow Screening Teams for Stroke*Donelda Moscrip, MSc, S-LP(C) Royal Victoria Hospital, Barrie, ON; Alane Witt-Lajeunesse, MS CCC-SLP, MSc, R SLP(C), Chinook Health Region, Lethbridge, AB; Rosemary Martino, MA, MSc, PhD, University of Toronto, Toronto, ON*

Dysphagia is a common consequence for stroke survivors. This workshop will detail two concurrent projects on implementation of Heart & Stroke Foundation's best practice guidelines for dysphagia including dysphagia screening. Implementation models at a variety of urban and rural/remote hospital sites, including potential barriers and benefits will be discussed.

Oral Care Standards for the Dysphagic Patient

Stephen Fraser, MSc, S-LP(C), Reg CASLPO, St. Joseph's Healthcare, Hamilton, ON; Chantal Tessmer, BSc, University of Waterloo, Waterloo, ON

Oral hygiene has become a focus of dysphagia practice over recent years. This presentation will focus on oral care standards for adult dysphagic patients in hospital, including ICU and acute care. The standards, methods of implementation and results of research, to measure the reduction in aspiration pneumonia rates, will be presented.

Application of Choral Music in Voice Therapy for Parkinson's Disease

Merrill Tanner-Semple, BSc, MBA, MMus, SLP, Glenrose Rehabilitation Hospital, Edmonton, AB

Parkinson's disease presents unique voice, speech and swallowing problems. The similarity of accepted treatment techniques to vocalization therapy will be outlined. Choral singing provides unique therapy opportunities not found elsewhere and may be useful in solving treatment and treatment delivery problems.

ENNI Update: Comprehension Questions – Administration, Scoring and Interpretation

Denyse Hayward, PhD, Phyllis Schneider, PhD, University of Alberta, Edmonton, AB; Rita Dubé, PhD, Calgary, AB

In this session, we will present an update instrument for collecting information about storytelling skills from children aged 4-9, the Edmonton Narrative Norms Instrument (ENNI). We will review how the ENNI is used and findings using the ENNI in other languages. We will also present question sets designed to evaluate story comprehension of individual story parts and the story as a whole. Data for children with and without LI will be presented.

Cross-Cultural Influences Regarding Language Acquisition

Luella Bernacki Jonk, PhD candidate, University of Manitoba, Winnipeg, MB

The purpose of this study is to gather perspectives from Aboriginal caregivers regarding their beliefs and practices surrounding language development. Understanding more about how Aboriginal children learn language may promote further discussion on differences seen compared to mothers of Western origin. These potential language differences become important to speech-language pathologists.

Oral Health Concerns in Speech-Language Pathology

Minn Yoon, BSc, PhD, University of Toronto, Toronto, ON; Catriona Steele, PhD, S-LP(C), CCC-SLP, Reg CASLPO, Toronto Rehabilitation Institute, Toronto, ON

Speech-language pathologists have a vested interest in limiting aspiration pneumonia risk and are concerned about the role that poor oral hygiene plays in this context. This session will review the key literature regarding oral health for the elderly institutionalized population, especially related to aspiration pneumonia.

The Role of the S-LP on a FASD Diagnostic Team

Shelley Proven, MSc, S-LP(C), CCC-SLP, Winnipeg Children's Hospital, Winnipeg, MB

This presentation will examine the role of the S-LP as part of a multidisciplinary FASD diagnostic team in Winnipeg, Manitoba. The Canadian Guidelines for the Diagnosis of FASD (2005), recommended assessment tools, trends and follow-up will be discussed utilizing clinical experience from 400 assessments of children under 12 years of age.

Outcome Measures for Young Children with Severe Speech Disabilities: Lessons Learned

Robin Gaines, PhD, S-LP (C), CASLPO, CCC-SLP, Children's Hospital of Eastern Ontario, Ottawa, ON; Megan Hodge, PhD, R SLP, CCC-SLP, University of Alberta, Edmonton, AB

Outcome measures that describe functional changes in spoken language are needed to demonstrate treatment effectiveness. Results of several candidate measures obtained from 10 children (3 year-olds, with suspected CAS), measured serially during a 12-week intervention, will be reported and recommendations made about their relative value and clinical feasibility.

Assessment and Treatment of the Jaw - Putting It All Together

Sara Rosenfeld-Johnson, MS, CCC-SLP, Ithaca College and Columbia University, Tucson, AZ

In this presentation, Sara Rosenfeld-Johnson will explain how jaw stability is a necessary component of feeding safety and speech clarity emergence. Diagnostic as well as treatment strategies will be presented using video clips of children and adults with jaw instability. A hands-on practicum will follow.

POSTER SESSIONS

SPEECH-LANGUAGE PATHOLOGY CHILD LANGUAGE

Analyze This! Language Sample Analysis Practices of Ontario S-LPs

Richard Welland, PhD, Brock University, St. Catharines, ON; Jennifer McKeeman, BA, SUNY at Buffalo, Buffalo, NY

Most S-LP respondents reported that they collect but do not analyze language samples in any formal way. Few respondents were familiar with computer software for language sample analyses; others reported that this software was either too expensive or too time-consuming to use in their practice.

Auditory Skills Training in a Group Setting

Noëlla Basque, MSLP, Chantale Gallant, MOA, Chaleur Regional Hospital, Bathurst, NB

The comprehension of verbal messages is dependent on one's ability to complete and coordinate several auditory tasks. Many children who demonstrate difficulty processing auditory information require specific training in these receptive areas. Group settings afford unique and functional opportunities for learning to listen and understand.

Evaluating the Validity of the FOCUS: A Communication Outcome Measure

Nancy Thomas-Stonell, BSc, DSP, CCC-SLP, Reg CASLPO; Bernadette Robertson, LCST S-LP(C), Reg CASLPO, Bloorview Research Institute, Toronto, ON; Bruce Oddson, PhD, Laurentian University, Sudbury, ON; Peter Rosenbaum, MD, McMaster University, Hamilton, ON

The FOCUS is an outcome measure for preschool children that links speech-language treatment to a child's ability to participate in their world. Data collected to establish the validity of the FOCUS will be presented. FOCUS scores were compared to scores from the PEDS-QL, a health-related quality of life questionnaire.

Extending the Use of a Promising Early Intervention Format

Carolyn Cronk, Associate Professor (retired), Université de Montréal, Montreal, QC

Encouraging results from an intervention format for guiding parents towards perceiving and fostering communicative growth in the zone of proximal development in their very young Down syndrome child led to a trial extension with families with a motorically handicapped child. Conditions for success with this additional population will be discussed.

ABRACADABRA: An Evidenced-Based Software Tool to Teach Literacy Skills to Struggling Readers

Sue Wastie, MA, S-LP (C), Provincial Resource Program – Auditory Outreach, Vancouver, BC; Philip C. Abrami, PhD, Centre for the Study of Learning & Performance, Concordia University, Montreal, QC

ABRACADABRA is an online multimedia tool, available without charge, which contains interactive alphabetic, fluency, comprehension and writing activities linked to digital stories to promote basic literacy skills among emerging readers, especially those who are struggling and at-risk. We will discuss and illustrate the tool's usefulness with hearing-impaired children.

Remote S-LP Assessment of First Nations Children Using Videoconferencing

Alice Eriks-Brophy, PhD, University of Toronto, Toronto, ON; Deb Anderson, MA, S-LP(C)-CCC Reg CASLPO, Anderson Speech Consultants, Burlington, ON; Tina Nelson, MA, S-LP(C)-CCC Reg CASLPO, Children's Rehabilitation Centre Algoma, Sault Ste Marie, ON

This presentation will describe the results, inter-scorer reliability and potential sources of bias in conducting speech and language assessments with 20 First Nations children residing in three remote Ontario communities using videoconferencing. Results generally support the feasibility of using such technology to obtain unbiased S-LP assessments of these children.

Culturally and Linguistically Appropriate Speech-Language Assessments

Sharon Bond, S-LP, Northeast Community Health Centre, Edmonton, AB; Julie Coutu, S-LP, Alberta School for the Deaf, Edmonton, AB; Shanda Duggleby Wenzel, S-LP, North Central Public Health Centre, Edmonton, AB; Michelle Millson Kuefler, S-LP, Duggan Public Health Centre, Edmonton, AB

A committee of speech-language pathologists employed by Capital Health (Edmonton, Alberta) was formed to answer the following question: What measures are appropriate for obtaining valid and culturally sensitive speech and language diagnoses for school- and preschool-aged children who have limited exposure to English? The findings will be presented.

Speech and Language Development of a Toddler Adopted from China

Lillian Leung, S-LP Candidate 2008, Karen Pollock, Professor, University of Alberta, Edmonton, AB

Numbers of internationally adopted (IA) children are rapidly growing. Few studies have explored language development in older IA children (> 24 mos). Researchers followed a 26-month-old girl adopted from China over a period of 6 months, focusing on her rate of English acquisition and concomitant loss of Mandarin.

Language/Academic Skills of Children Adopted from China as Infants

Kathleen Urichuk, MSC-SLP, R SLP, S-LP(C), University of Alberta, and Peace Country Health Region, Peace River, AB

To determine whether experiencing international adoption creates risks for learning problems as academic language requirements increase for children adopted from China as infants, information from parents of 73 children, Kindergarten to Grade 6, with teacher report and student written story when possible, was examined. Standardized scores were compared to norms set for native born peers.

ADULT LANGUAGE

Crossed Non-Aphasia: Are Right-Handed Subjects Misleading Us?

Gopee Krishnan, Assistant Professor, Shivani Tiwari, Lecturer, Raj Shekar, Professor, Manipal University, Manipal, India

The case of a right-handed 60-year-old female (Ms. P) – who apparently showed normal language functions despite severe damage to the left hemisphere, classically sub-serving the linguistic functions – will be shown. The necessity for a revisit on language dominance in the seemingly homogenous right-handed subjects will be highlighted.

Can Social Validation Measure Conversational Abilities after Aphasia Therapy?

Jennifer Cupit, M.Sc., S-LP (C), Elizabeth Rochon, PhD, Laura Laird, BAH, University of Toronto, Toronto, ON; Carol Leonard, PhD, University of Ottawa, Ottawa, ON

This presentation will highlight the use of social validation as a measure of day-to-day communicative abilities, after aphasia treatment. The results reinforce the importance of assessing communication abilities using both objective language measures and assessment tools capable of measuring the social significance of change.

DYSPHAGIA

S-LP and Dental Hygiene Collaborate to Improve Oral Health in Long-Term Care

Shelley Irvine Day, S-LP, Monique Piatt, S-LP, Kelly Tye Vallis, S-LP, Deer Lodge Centre, Winnipeg, MB

Speech-language pathologists (S-LP) collaborated with dental hygienists to provide feeding and swallowing education to all front-line staff who are responsible for feeding residents in Personal Care Homes (PCH) within the Winnipeg Regional Health Authority (WRHA). This poster will examine the impact this collaboration has had on nursing knowledge, practice, and policy.

PROGRAM DEVELOPMENT

The Alberta Cancer Board's Community Cancer Rehabilitation Network

Susanne Lesniak, BSc OT, University of Alberta, Edmonton, AB; Vivian Collacutt, MSW, RSW, Dalhousie University, Edmonton, AB

The Alberta Cancer Board's Community Cancer Rehabilitation Network will help facilitate and improve the development and provision of rehabilitation services to all individuals living with cancer regardless of geographical location. The network will support chronic disease and survivorship models of care, as an innovative opportunity to meet clients' biopsychosocial needs.

SPEECH INTELLIGIBILITY

Impact of LiPS Instruction and Teacher Perception on Beginning Readers

Susan Protz, MEd, Prairie Spirit School Division; Laureen McIntyre, Ph.D., S-LP(C), CCC-SLP, University of Saskatchewan, Saskatoon, SK

The purpose of this study was to determine if: (1) phonemic awareness skills improved for first grade students of teachers who used the Lindamood Phoneme Sequencing Program (Lindamood & Lindamood, 1998); and (2) there was a relationship between reading improvement in decoding and teacher level variables (i.e., relevant demographic variables).

2D and 3D Ultrasound Imaging of Partial Glossectomy Patients' Tongues

Tim Bressmann, PhD, Orchid Rastadmehr, MSc, University of Toronto, Toronto, ON; Jonathan Irish, MSc, MD, FRCSC, FACS, Princess Margaret Hospital, Toronto, ON

Dynamic 2D ultrasound was used to visualize tongue movement in normal speakers and partial glossectomees. Tongue height and velocity increased after surgery, which was interpreted as a compensatory strategy. Static 3D ultrasound volumes of speech sounds demonstrated asymmetry and convexity in the glossectomees' tongues. Implications for therapy will be discussed.

CLINICAL EDUCATION

Optimizing Clinical Placements: An On-line Program for Students and Supervisors

Susan Schurr, MClSc, Reg CASLPO, Taslim Moosa, MClSc, S-LP(C) Reg CASLPO, University of Western Ontario, London, ON

An inter-professional, on-line, clinical education program was designed to provide a flexible, timely, and cost-effective way to support self-directed learning for students and professionals. Training modules will be demonstrated and the development of the program, including preliminary results and program sustainability, will be discussed.

The Learning Partnerships Program: Distance Mentorship

Jackie Hummelbrunner, MSc, S-LP (C), Northern Ontario School of Medicine, Kenora, ON

The Learning Partnerships Program, developed by the Rehabilitation Studies Program, Northern Ontario School of Medicine, is a formal 1:1 mentorship initiative for rehabilitation therapists practicing in Northwestern Ontario. This session will illustrate the model and process that was used as well as the outcome data collected.

AUDIOLOGY

Evaluation of a Novel Method for Predicting Behavioral Thresholds Using AutoNRT Thresholds

Imran Dhamani, MA, Manipal University, Manipal, India

AutoNRT, a new feature of the Nucleus® Freedom cochlear implant system, measures T-NRT levels automatically. The AutoNRT based behavioral threshold estimation is an effective and commonly used technique by clinicians for programming. The estimation is mainly based upon the assumptions of various correlation and regression studies done between NRT and behavioral threshold and comfort levels. There have been various studies correlating the NRT thresholds with behavioral thresholds and comfort levels at different stimulation rates in the literature. However, there is a dearth of studies correlating AutoNRT 'T' levels and behavioral 'T' levels across stimulation rates. The present study aims at correlating the AutoNRT and Behavioral thresholds at higher stimulation rates using a novel method of applying the correction factor.

Congrès de l'ACOA 2008

Abrégés

Kananaskis (Alberta)

du 16 au 19 avril, 2008

Ateliers antérieurs au congrès

Interventions novatrices contre l'autisme, les troubles de traitement auditif et l'apraxie – Partie 1

Martha S. Burns, Ph.D., Northwestern University et Evanston-Northwestern Hospital, Evanston (Illinois)

Cet atelier présentera des renseignements nouveaux sur les causes de l'autisme et sur les différences entre l'autisme et d'autres troubles de socialisation. Il abordera aussi les troubles de traitement auditif et les différences entre le trouble du traitement auditif central et l'hyperactivité avec déficit de l'attention. Il commencera par un bref survol de la recherche en neuroimagerie clarifiant ces troubles. La seconde partie de cet atelier aura lieu jeudi matin, séance TA1.

Traitements fondés sur des données probantes pour les défauts de recouvrement de mots chez les aphasiques

Anastasia Raymer, Ph.D., Old Dominion University, Norfolk (Virginie)

Mme Raymer, Ph.D., discutera d'évaluation et de traitement axés sur le rétablissement du traitement sémantique et phonologique nécessaire au rappel de noms et de verbes ainsi que de la mise en œuvre de méthodes gestuelles compensatoires qui pourraient être compromises en raison de l'apraxie simultanée des membres. Elle passera en revue l'orthophonie par contraintes induites et fera un compte rendu des indicateurs de récupération de l'aphasie, y compris les corrélats en neuroimagerie des troubles de recouvrement de noms et de verbes.

Voies auditives : développement, plasticité et traitement

Michael F. Dorman, Ph.D., National Institutes of Health, Tempe (Arizona); Anu Sharma, Ph.D., University of Colorado at Boulder, Health Sciences Center de l'University of Colorado, University of Texas at Dallas, Boulder (Colorado)

Cette communication mettra l'accent sur les potentiels évoqués auditifs caractéristiques de l'activité corticale comme mesure du développement auditif central. Elle abordera la façon dont ces potentiels peuvent servir d'indicateurs cliniques pour le développement auditif central chez les nourrissons et les jeunes enfants qui utilisent une amplification conventionnelle, des implants cochléaires ou une combinaison de ces technologies.

Ateliers en orthophonie et audiologie

Gestion du risque et responsabilité pour les orthophonistes et les audiologistes

Brian Gomes, Aon Reed Stenhouse, Ottawa (Ont.)

Cette présentation portera sur la méthode de gestion des risques et sur la façon dont elle peut aider les orthophonistes et les audiologistes à minimiser les risques qu'ils encourent en offrant des services professionnels dans divers milieux. Elle tracera un portrait de l'assurance-responsabilité civile offerte par le biais de l'ACOA, des différences de cette assurance par rapport à celle d'un employeur et de son importance. Brian abordera aussi les risques additionnels encourus et les méthodes de protection. Il présentera des exemples de réclamation et permettra aux participants de poser des questions.

Ateliers en audiologie

Temps et synchronisation : l'audition – Partie 1

Dennis P. Phillips, Ph.D., Dalhousie University, Halifax (N.-É.)

Les sons se propagent dans le temps. Pour cette raison, il est certain que l'audition sous-entendra un «traitement temporel» d'une forme quelconque. Cette communication offrira un survol partiel du traitement temporel durant l'audition et de la façon dont la compréhension de ce processus peut mener à l'élaboration d'une batterie de tests pour dépister les troubles de traitement temporel.

Temps et synchronisation : dépistage d'intervalles dans l'audition – Partie 2

Dennis P. Phillips, Ph.D., Dalhousie University, Halifax (N.-É.)

Le dépistage d'intervalles dans l'audition vise à mesurer l'acuité temporelle auditive. Les intervalles sont compensés par divers mécanismes de perception; ces mécanismes ont différentes acuités et différentes relations avec la discrimination de la parole. Cette séance offrira un survol des dernières recherches sur le sujet.

Changements au niveau du système auditif central

Jos Eggermont, Ph.D., University of Calgary, Calgary (Alb.)

Cette communication portera sur l'énoncé suivant : « L'hypersonie, l'hyperacousie, le traitement temporel et l'acouphène sont des phénomènes du système auditif central qui sont modifiés ou induits à la suite d'une perte auditive neurosensorielle. Ils résultent de mécanismes homéostatiques du cerveau. Ils font en sorte que le trouble auditif n'est pas statique, malgré un audiogramme sans changement. » La communication formulera des recommandations pour l'exercice en audiologie.

Lueur d'espoir : vivre avec l'acouphène

Deborah Lain, M.Sc., psychologue en exercice privé, Calgary (Alb.)

Cette communication offrira un survol des étapes pour renforcer l'autonomie des clients atteints d'acouphène et leur redonner le sentiment d'avoir la maîtrise de leur vie malgré leur état. Les participants repartiront avec des stratégies pour réduire les symptômes de détresse causés par le sentiment d'impuissance face à cet état. Comprendre l'incidence, apprendre des stratégies, réduire les symptômes et redonner espoir.

Mise à jour sur les techniques d'évaluation de l'oreille moyenne

Navid Shahmaz, Ph.D., University of British Columbia, Vancouver (C.-B.)

Cette communication tentera de répondre à des questions et de mettre les participants au courant des dernières percées de la science dans l'évaluation de l'oreille moyenne chez les nouveau-nés et les jeunes enfants. Ces percées ont des incidences directes sur les protocoles d'évaluation en clinique.

Diagnostic des troubles d'étourdissements et de déséquilibre

Beth Lange, M.D., Rocky View Hearing and Balance Centre, Calgary (Alb.); Art Mallinson, M.Sc., Vancouver General Hospital, Vancouver (C.-B.)

Il est difficile pour un médecin de diagnostiquer des troubles d'étourdissements ou de déséquilibre chez des patients puisque ceux-ci arrivent souvent mal à décrire leurs symptômes, qui peuvent être complexes, vagues et difficiles à quantifier. Une évaluation vestibulaire comporte un certain nombre de tests différents qui peuvent être extrêmement utiles à un médecin orienteur. Cette communication mettra l'accent sur les évaluations médicales et paramédicales ayant trait au diagnostic, au traitement et à la prise en charge de patients étourdis.

Ateliers en orthophonie

Interventions novatrices contre l'autisme, les troubles de traitement auditif et l'apraxie – Partie 2

Martha S. Burns, Ph.D., Northwestern University et Evanston-Northwestern Hospital, Evanston (Illinois)

Ce cours portera sur l'apraxie de la parole chez les enfants et fera la distinction entre cette forme d'apraxie et les troubles de traitement phonologique. Il mettra l'accent sur les traitements.

Évaluation et intervention visant les capacités narratives des enfants

Ron Gillam, Ph.D., Utah State University, Logan (Utah)

La première partie de cette communication portera sur l'évaluation du développement narratif des enfants et passera en revue des méthodes d'évaluation non standard et une méthode normalisée (Test of Narrative Language). Pour la seconde moitié, nous ferons la démonstration d'une méthode axée sur la littérature pour améliorer les capacités de narration. Cette démarche d'intervention auprès d'enfants d'âge scolaire débute et se termine par des livres pour enfants, mais comprend aussi des sous-activités qui ciblent des objectifs de langage particuliers et qui sont conçus pour influencer sur la narration.

Prise de décisions entourant les patients atteints d'une dysphagie sévère qui aspirent

Susan Langmore, Ph.D., Boston University Medical Center et Boston University, Boston (Massachusetts)

Les cliniciens qui travaillent auprès de patients atteints d'une dysphagie sévère qui aspirent pourraient devoir formuler des recommandations qui auront pour effet de compromettre la santé, la sécurité ou la qualité de vie de ces personnes. Ce séminaire fera connaître les dernières recherches qui facilitent la prise de décision et qui traitent de questions telles que : combien d'aspirations mon patient peut-il tolérer? Souffrira-t-il d'une pneumonie? Vaut-il vraiment mieux recommander une diète à base de liquides épais? L'aspiration de liquide à consistance légère est-elle dangereuse? Quels sont les meilleurs outils d'évaluation et de suivi?

Langage simple et communication claire

Elaine Cairns, B.A., B.Éd., Linden (Alb.); Jane Clarke, éducatrice de la petite enfance, Calgary (Alb.)

Imaginez un pays où le langage est simple. Imaginez un pays où tous les gens ont accès à de l'information, à des services et à des occasions d'apprentissage. Cet atelier pratique aidera les participants à comprendre ce qu'est la communication claire et à voir l'importance d'un langage simple. Veuillez apporter un dépliant, un formulaire, une lettre, un prospectus ou tout autre document écrit à partir duquel vous travaillerez.

Programmation dans Word Finding : évaluation en profondeur et intervention complète

Diane J. German, Ph.D., National-Louis University, Chicago (Illinois)

Cette communication en cinq parties portera sur les procédures d'évaluation et d'intervention dans le programme Child Word Finding, y compris un modèle explicatif de traitement lexical, et sur les points saillants du Test of Word Finding, deuxième édition (TWF-2), un processus de diagnostic différentiel, de l'enseignement d'une stratégie de rappel qui se fonde sur des stratégies mnémoniques d'enseignement du vocabulaire, et d'une stratégie de compensation si l'on ne trouve pas le mot en classe.

Développement prélinguistique et interventions

Nancy Brady, Ph.D., Schiefelbusch Institute for Life Span Studies, Lawrence (Kansas)

Nancy Brady, Ph.D., présentera un bref résumé du développement prélinguistique chez les enfants au développement caractéristique et chez les enfants ayant une déficience intellectuelle, y compris l'autisme ou le syndrome de Down. Elle décrira des interventions précoces visant à améliorer la communication prélinguistique (gestes et vocalisations) et présentera les résultats d'études récentes sur des interventions prélinguistiques. Elle abordera aussi l'incidence d'enseigner la communication prélinguistique sur l'acquisition linguistique ultérieure.

Il n'y a qu'un cerveau : intégrer les interventions cognitives, affectives et de disposition

Catherine Mateer, Ph.D., University of Victoria, Victoria (C.-B.)

Les stratégies pour améliorer ou prendre en charge des troubles cognitifs font trop souvent fi des incidences des émotions et des convictions sur la généralisation des compétences et des changements au niveau de l'apprentissage fonctionnel. Cet atelier décrira les résultats de recherche sur les interactions cruciales entre la cognition, les émotions et les convictions métacognitives. Il présentera des approches en vue d'intégrer, dans le cadre des interventions, des activités conçues pour accroître la sensibilité, pour surmonter l'abandon des capacités cognitives et pour améliorer l'auto-efficacité cognitive.

Comprendre l'acquisition d'une langue seconde chez les enfants et incidences sur l'évaluation

Johanne Paradis, PhD, University of Alberta, Edmonton, AB

Il y a de plus en plus d'enfants dont la langue maternelle n'est pas l'anglais dans nos écoles élémentaires et, par conséquent, de plus en plus qui sont vus par des orthophonistes. Pour établir des attentes réalistes et élaborer des techniques d'évaluation appropriées, les orthophonistes ont besoin de plus d'information sur les caractéristiques du développement typique et atypique des enfants apprenant l'anglais comme langue seconde. Ce séminaire vise à présenter une synthèse de la recherche actuelle sur le développement de ces enfants en vue de répondre aux besoins des orthophonistes.

Travailler auprès d'enfants qui bégaièrent : défis de la résolution de problème réussie

Kristin A. Chmela, M.A., CCC-SLP, BRSS-FD, Hawthorn Woods (Illinois)

Cette présentation mettra l'accent sur l'utilisation d'un modèle de résolution de problème pour relever les défis liés au travail auprès d'enfants de tout âge qui bégaièrent. Elle mettra particulièrement l'accent sur les compétences en counselling et sur l'enseignement de stratégies de modification de la parole.

Que signifie-t-on par « nous savons comment traiter ce problème »?

John (Jay) Rosenbek, Ph.D., University of Florida, Gainesville (Floride)

Cette communication mettra l'accent sur les décisions entourant le traitement clinique d'adultes ayant des troubles neurologiques, en particulier sur la durée, la fréquence et le moment des traitements. Elle s'attardera aux notions traditionnelles de besoin des patients et abordera ce que nous savons ou soupçonnons au sujet de la plasticité neuronale et de ce qui motive les effets positifs et négatifs de la plasticité. M. Rosenbek, Ph.D., traitera aussi des effets excitotoxiques de l'utilisation du mauvais traitement à la mauvaise intensité au bon moment ou des effets négatifs éventuels du report d'un traitement, comme dans les cas où une personne a une sonde alimentaire et ne profite pas de services de réadaptation.

Les présentations proposées en orthophonie et en audiologie

Formation interprofessionnelle pour un exercice collaboratif axé sur le patient/client : une nouvelle vague

Susan Wagner, Brian Simmons, Ivy Oandasan, Sylvia Langlois, University of Toronto, Toronto (Ont.)

Les gouvernements préconisent et financent de plus en plus un tel mode de prestation de services comme modèle à suivre. Cet atelier présentera la théorie et la pratique actuelles et invitera les congressistes à réfléchir à leur propre situation et à en discuter pour pouvoir être dans le coup!

Est-ce que je fais le saut au privé?*Karen MacKenzie-Stepner, Halton Hills Speech Centre, Georgetown (Ont.)*

Dans un monde du travail en pleine effervescence, bien des professionnels choisissent de faire le saut et de devenir leur propre patron. Avant de se lancer à son propre compte, il vaut cependant mieux déterminer si l'on a le sens des affaires et le savoir pour réussir. Cet atelier abordera ce qu'il faut pour se lancer en affaires et avoir du succès.

Les résultats probants : comment peuvent-ils améliorer votre exercice*Rosemary Martino, University of Toronto, Toronto (Ont.)*

Cet atelier présentera la base de données bibliographiques Cochrane comme outil pour se tenir à jour malgré la récente « explosion de l'information » qui s'est produite pour la plupart des aspects de l'orthophonie et de l'audiologie. Cet atelier passera en revue la démarche d'examen systématique et la bibliothèque Cochrane en plus d'enseigner les compétences de base et les méthodes nécessaires pour évaluer les comptes rendus et les articles de revues.

Améliorer la formation clinique pour les stages à distance*Lynn Ellwood, University of Toronto, Toronto (Ont.); représentants de programmes universitaires canadiens en orthophonie et en audiologie*

Un groupe de représentants des services universitaires de placement en stage accompagnés d'étudiants et de responsables de stage clinique qui ont l'expérience des stages à distance discuteront avec les participants des possibilités de formation clinique en milieu éloigné de l'université. Cet atelier permettra d'élaborer des plans pour de futurs stages et de formuler des recommandations.

Les présentations proposées en audiologie**Organisation binaurale par opposition à monaurale telle qu'elle est indexée par les potentiels évoqués auditifs***Shannon MacLean, Lawrence Ward, University of British Columbia, Vancouver (C.-B.)*

Nous avons examiné les réactions du cerveau à un stimulus sonore chez des auditeurs adultes ayant une audition monaurale et binaurale. Nous avons émis l'hypothèse que la dynamique neuronale de l'audition monaurale serait différente de l'audition binaurale parce que l'organisation neuronale est foncièrement différente quand le système auditif reçoit un signal continu des deux oreilles par rapport à une seule oreille.

Corrélat électrophysiologiques du traitement auditif temporel : incidences sur les troubles de traitement auditif*Patricia Muir, University of Calgary, Calgary (Alb.)*

Cet atelier compare l'issue d'une série de mesures du traitement auditif par l'observation du comportement, du langage, de la lecture et du traitement auditif temporel ainsi que les potentiels évoqués auditifs de latence longue pour les stimulus verbaux et non verbaux chez des enfants ayant une ouïe normale par rapport à des enfants ayant un trouble de l'apprentissage. On discute des résultats et aborde le débat sur le construit d'un trouble de traitement auditif.

Les présentations proposées en orthophonie**Faire des liens : favoriser des relations positives et le développement du langage***Susan Rafaat, Evelyn Wotherspoon, région sanitaire de Calgary, Calgary (Alb.)*

Un bébé peut-il être déprimé? Même si l'on veut bien croire que les petits ne sont pas affectés, il leur arrive malheureusement de souffrir d'ennuis de santé mentale. Cet exposé fera ressortir l'importance du lien entre les parents et l'enfant et la façon dont les stratégies de facilitation du langage peuvent bâtir des relations positives. On discutera de la formation pour le personnel qui travaille à domicile avec des populations à risque.

Sortir au sens figuré de la salle de thérapie – évaluer l'incidence du changement*Danielle Cutler, University of Sydney, Surrey (C.-B.); Sarah Moloci, State University of New York at Buffalo, Surrey (C.-B.);**Olga Haralabous, University of Western Ontario, Vancouver**(C.-B.); Laurene Enns, University of Fraser Valley, Surrey (C.-B.)*

Une analyse de deux modèles de prestation de services pédiatriques a montré que les programmes de groupes et un système de prestation de services groupés ont permis de réduire considérablement le nombre d'enfants en attente de services. On a aussi noté un accroissement de la productivité et une amélioration de la satisfaction au travail chez les fournisseurs de services ainsi qu'un niveau élevé de satisfaction chez les parents et la clientèle.

Proposition d'un cadre d'évaluation pour les applications de la télésanté en orthophonie

Melanie Campbell, University of Alberta, Edmonton (Alb.)

Les plaintes continues au sujet du manque d'évaluation des applications de la télésanté reviennent sans cesse dans les publications sur la télésanté. Ces préoccupations se font aussi sentir dans les publications traitant de ces applications en orthophonie. Cet atelier présentera une proposition détaillée pour que le secteur de l'orthophonie songe sérieusement à mettre en place le cadre d'évaluation avancé par Yawn (2000).

Allons-y : formons des équipes de dépistage des troubles de déglutition chez les victimes d'accident vasculaire cérébral à partir de l'outil TOR-BSST®

Donelda Moscrip, Royal Victoria Hospital, Barrie (Ont.); Alane Witt-Lajeunesse, région sanitaire Chinook, Lethbridge (Alb.); Rosemary Martino, University of Toronto, Toronto (Ont.)

La dysphagie est une conséquence fréquente d'un accident vasculaire cérébral. Cet atelier traitera de deux initiatives concomitantes visant la mise en œuvre des lignes directrices de la Fondation des maladies du cœur sur les pratiques exemplaires visant la dysphagie, y compris le dépistage de ce trouble. Il permettra d'aborder divers modèles de mise en œuvre dans des hôpitaux en milieu urbain, rural ou éloigné, y compris les obstacles éventuels et les avantages.

Normes de soins oraux pour les patients dysphagiques

Stephen Fraser, St. Joseph's Healthcare, Hamilton (Ont.); Chantal Tessmer, University of Waterloo, Waterloo (Ont.)

Au cours des dernières années, le traitement de la dysphagie a beaucoup mis l'accent sur l'hygiène bucco-dentaire. Cet exposé traitera des normes de soins bucco-dentaires chez les adultes dysphagiques à l'hôpital, y compris aux services de soins intensifs et de soins actifs. Il présentera les normes, les méthodes de mise en œuvre et les résultats de la recherche pour mesurer la réduction des taux de pneumonie par aspiration.

Utilisation de la musique pour chorale dans le traitement de la voix des personnes atteintes de la maladie de Parkinson

Merrill Tanner-Semple, Glenrose Rehabilitation Hospital, Edmonton (Alb.)

La maladie de Parkinson présente des troubles de la voix, de la parole et de la déglutition uniques. Cet exposé soulignera la similarité des techniques de traitement acceptées pour la thérapie de vocalisation. Le chant choral offre des occasions de thérapie particulières qui ne se retrouvent pas ailleurs et peut être utile pour résoudre les troubles de traitement et de prestation de traitement.

Mise à jour sur l'instrument ENNI : questions de compréhension – administration, notation et interprétation

Denyse Hayward, Phyllis Schneider, University of Alberta, Edmonton (Alb.); Rita Dube, Calgary (Alb.)

Cet atelier présentera un instrument mis à jour pour recueillir de l'information sur les habiletés de narration chez des enfants de 4 à 9 ans. Nous passerons en revue le fonctionnement de cet instrument, baptisé l'Edmonton Narrative Norms Instrument (ENNI), et les résultats qu'il a permis d'obtenir pour d'autres langues. Nous présenterons aussi une série de questions conçues pour évaluer la compréhension des parties et de la totalité d'une histoire. Enfin, nous présenterons des données pour des enfants avec ou sans trouble du langage.

Influences interculturelles entourant l'acquisition linguistique

Luella Bernacki Jonk, University of Manitoba, Winnipeg (Man.)

La présente étude vise à rassembler le point de vue de dispensateurs de soins autochtones concernant leurs croyances et leurs pratiques entourant l'acquisition du langage. Le fait de mieux comprendre comment les enfants autochtones apprennent une langue pourrait alimenter la discussion sur les différences perçues par rapport aux mères d'origine occidentale. Ces différences éventuelles de langage revêtent une importance pour les orthophonistes.

Problèmes relatifs à la santé bucco-dentaire en orthophonie

Minn Yoon, University of Toronto, Toronto (Ont.); Catriona Steele, Toronto Rehabilitation Institute, Toronto (Ont.)

Les orthophonistes cherchent à limiter les risques de pneumonie par aspiration et se préoccupent du rôle qu'une mauvaise hygiène bucco-dentaire peut avoir sur cette infection. Cet atelier passera en revue les principales publications sur la santé bucco-dentaire chez les aînés hospitalisés, particulièrement en ce qui concerne la pneumonie par aspiration.

Rôle de l'orthophoniste dans une équipe de diagnostic de l'ensemble des troubles causés par l'alcoolisation fœtale

Shelley Proven, Hôpital pour enfants de Winnipeg, Winnipeg (Man.)

Cet exposé se penchera sur le rôle de l'orthophoniste dans le cadre d'une équipe de diagnostic de l'ensemble de troubles causés par l'alcoolisation fœtale, à Winnipeg (Manitoba). On discutera des directives canadiennes de 2005 sur le sujet, d'outils d'évaluation recommandés, de tendances et de suivi. La discussion sera fondée sur 400 évaluations faites en clinique auprès d'enfants de moins de 12 ans.

Mesures de l'issue des jeunes enfants ayant une déficience sévère de la parole : leçons apprises

Robin Gaines, Centre hospitalier pour enfants de l'est de l'Ontario, Ottawa (Ont.); Megan Hodge, University of Alberta, Edmonton (Alb.)

Il faut des mesures de résultats qui décrivent les changements fonctionnels du langage parlé pour déterminer l'efficacité d'un traitement. Les résultats de plusieurs mesures de candidats obtenues de dix enfants (3 ans, soupçonnés d'être atteints de l'apraxie infantile de la parole) auprès desquels des mesures ont été prélevées durant une intervention de douze semaines consécutives seront présentés et des recommandations seront formulées sur leur valeur relative et leur faisabilité clinique.

Évaluation et traitement de la mâchoire : pour n'en faire qu'une bouchée

Sara Rosenfeld-Johnson, Ithaca College et Columbia University, Tucson (Arizona)

Sara Rosenfeld-Johnson expliquera en quoi la stabilité de la mâchoire est une partie essentielle d'une alimentation sécuritaire et de l'émergence de la clarté de la parole. Elle présentera des stratégies de diagnostic et de traitement à partir de vidéoclips d'enfants et d'adultes ayant une mâchoire instable. Sa présentation sera suivie d'une partie pratique.

COMMUNICATIONS AFFICHÉES**ORTHOHONIE****LANGAGE DE L'ENFANT****Analyse-moi ça! Pratiques d'analyses d'échantillons de langage menées par des orthophonistes de l'Ontario**

Richard Welland, Brock University, St. Catharines (Ont.); Jennifer McKeeman, SUNY at Buffalo, Buffalo (New York)

La plupart des orthophonistes ont répondu qu'ils recueillent, mais qu'ils n'analysent pas des échantillons de langage de manière formelle. Peu de répondants connaissaient le logiciel d'analyse d'échantillons de langage. D'autres ont signalé que ce logiciel était trop coûteux ou qu'il demandait trop de temps à utiliser dans leur exercice.

Acquisition d'habiletés auditives en groupe

Noëlla Basque, Chantale Gallant, Hôpital régional Chaleur, Bathurst (N.-B.)

La compréhension de messages verbaux dépend de la capacité d'effectuer au complet et de coordonner plusieurs tâches auditives. Bien des enfants qui manifestent des difficultés à traiter de l'information auditive ont besoin d'une formation spécifique visant les zones réceptives. Les situations en groupe offrent une occasion unique et fonctionnelle d'apprendre à écouter et à comprendre.

Évaluer la validité de FOCUS, une mesure de l'issue de la communication

Nancy Thomas-Stonell, Bernadette Robertson, Bloorview Research Institute, Toronto (Ont.); Bruce Oddson, Université Laurentienne, Sudbury (Ont.); Peter Rosenbaum, McMaster University, Hamilton (Ont.)

FOCUS est une mesure de résultats pour les enfants d'âge préscolaire qui fait le lien entre le traitement orthophonique et la capacité de l'enfant à participer à son monde. Cet atelier présentera la collecte de données pour établir la validité des résultats FOCUS. On a comparé les résultats de FOCUS avec ceux de PEDS-QL, un questionnaire sur la qualité de vie liée à la santé.

Élargir l'utilisation d'un format d'intervention précoce prometteur

Carolyn Cronk, Université de Montréal, Montreal, QC

Les résultats prometteurs d'un format d'intervention visant à guider les parents pour qu'ils perçoivent et favorisent l'amélioration de la communication dans la zone de développement proximal chez leur très jeune enfant atteint du syndrome de Down ont mené à l'élargissement des essais auprès des familles ayant un enfant atteint d'un handicap moteur. On discutera des conditions de réussite auprès de cette autre population.

ABRACADABRA : Un outil logiciel fondé sur des données probantes pour enseigner des habiletés en littératie aux lecteurs qui éprouvent de la difficulté

Sue Wastie, MA, O(C), Provincial Resource Program – Auditory Outreach, Vancouver (C.-B.); Philip C. Abrami, Ph.D., Centre d'études sur l'apprentissage et la performance, Université Concordia, Montréal (Qué.)

ABRACADABRA est un outil multimédia gratuit en ligne qui contient des activités sur l'alphabet, la fluidité verbale, la compréhension et l'écriture. Ces activités sont liées à des histoires numériques pour favoriser les habiletés de base en littératie chez les lecteurs émergents, surtout ceux qui ont de la difficulté et qui sont à risque. Nous discuterons de l'utilité de l'outil chez les enfants malentendants et montreront des exemples.

Utilisation de la vidéoconférence pour faire une évaluation orthophonique à distance d'enfants des Premières Nations

Alice Eriks-Brophy, University of Toronto, Toronto (Ont.); Deb Anderson, Anderson Speech Consultants, Burlington (Ont.); Tina Nelson, Children's Rehabilitation Centre Algoma, Sault Ste. Marie (Ont.)

Cet exposé décrira les résultats, la fidélité entre marqueurs et les sources possibles de biais des évaluations orthophoniques faites par vidéoconférence pour vingt enfants des Premières Nations qui habitent dans trois collectivités éloignées de l'Ontario. Les résultats corroborent généralement la faisabilité d'utiliser une telle technologie pour obtenir des évaluations orthophoniques non biaisées de ces enfants.

Évaluations orthophoniques adaptées à la culture et à la langue

Sharon Bond, Northeast Community Health Centre, Edmonton (Alb.); Julie Coutu, Alberta School for the Deaf, Edmonton (Alb.); Shanda Duggleby Wenzel, North Central Public Health Centre, Edmonton (Alb.); Michelle Millson Kuefler, Duggan Public Health Centre, Edmonton (Alb.)

Un comité d'orthophonistes à l'embauche de Capital Health (Edmonton, Alberta) a été formé pour se pencher sur la question suivante : quelles mesures sont appropriées pour arriver à un diagnostic orthophonique valide et adapté à la culture chez les enfants d'âges scolaire et préscolaire qui ont peu de contact avec l'anglais? Cet exposé présentera les résultats.

Développement de la parole et du langage chez un enfant adopté de Chine

Lillian Leung, Karen Pollock, University of Alberta, Edmonton (Alb.)

Le nombre d'enfants adoptés à l'étranger est en rapide progression. Or, peu d'études ont porté sur le développement du langage chez ces enfants adoptés à un âge plus avancé (> 24 mois). Des chercheurs ont suivi pendant six mois une fillette de 26 mois adoptée de Chine. Ils se sont attardés sur son rythme d'acquisition de l'anglais et à sa perte concomitante du mandarin.

Aptitudes linguistiques et scolaires d'enfants adoptés de Chine quand ils étaient nourrissons

Kathleen Urichuk, University of Alberta et région sanitaire de Peace Country, Peace River (Alb.)

On a examiné l'information fournie par les parents de 73 nourrissons adoptés de Chine, de la maternelle à la 6^e année, de même que les rapports des enseignants et, dans la mesure du possible, les histoires écrites par des élèves pour déterminer si le fait d'être adopté de l'étranger entraîne des risques d'avoir des problèmes d'apprentissage à mesure que les exigences linguistiques se rehaussent à l'école. On a comparé les résultats normalisés avec les normes pour les pairs nés au pays.

LANGAGE DE L'ADULTE

Non-aphasie croisée : les droitiers nous induisent-ils en erreur?

Gopee Krishnan, Shivani Tiwari, Raj Shekar, Manipal University, Manipal, Inde

Le cas d'une femme droitrière de 60 ans (Mme P) – qui semblait montrer des fonctions normales du langage malgré des dommages graves à l'hémisphère gauche, qui commande généralement les fonctions linguistiques – sera illustré. Cet atelier soulignera la nécessité de revoir le monopole linguistique chez des sujets droitiers homogènes en apparence.

La validation sociale peut-elle mesurer la capacité de soutenir une conversation après une thérapie pour corriger l'aphasie?

Jennifer Cupit, Elizabeth Rochon, Laura Laird, University of Toronto, Toronto (Ont.); Carol Leonard, Université d'Ottawa, Ottawa (Ont.)

Cet exposé traitera de l'utilisation de la validation sociale comme mesure des habiletés quotidiennes de communication après un traitement de l'aphasie. Les résultats renforcent l'importance d'évaluer les habiletés de communication à partir à la fois de mesures objectives du langage et d'outils d'évaluation capables de mesurer l'importance sociale du changement.

DYSPHAGIE

Orthophonistes et hygiénistes dentaires collaborent pour améliorer la santé bucco-dentaire à long terme

Shelley Irvine Day, Monique Piatt, Kelly Tye Vallis, Deer Lodge Centre, Winnipeg (Man.)

Des orthophonistes ont collaboré avec des hygiénistes dentaires pour fournir des instructions sur l'alimentation et la déglutition à tout le personnel de première ligne responsable de nourrir les résidents de foyers de soins personnels à l'Office régional de la santé de Winnipeg. Cette affiche examinera l'incidence d'une telle collaboration sur les connaissances, la pratique et les politiques des infirmières.

ÉLABORATION DE PROGRAMMES

Réseau communautaire de lutte contre le cancer de l'Alberta Cancer Board

Susanne Lesniak, University of Alberta, Edmonton (Alb.); Vivian Collacutt, Dalhousie University, Edmonton (Alb.)

Le réseau communautaire de lutte contre le cancer de l'Alberta Cancer Board contribuera à concevoir et à offrir des services de lutte contre cette maladie à toutes les personnes cancéreuses, peu importe où elles habitent. Le réseau appuiera des modèles de soins contre cette maladie chronique et de survie comme occasion novatrice de répondre aux besoins biopsychosociaux des clients.

Intelligibilité de la parole

Incidence de l'enseignement fondé sur le programme LiPS et perception qu'ont les enseignants des jeunes lecteurs débutants

Susan Protz, division scolaire de Prairie Spirit School Division; Laureen McIntyre, University of Saskatchewan, Saskatoon (Sask.)

Le but de cette étude consistait à déterminer si : (1) la sensibilité phonémique s'améliore chez les élèves de première année dont l'enseignant utilise le programme Lindamood de séquençage de phonèmes (Lindamood et Lindamood, 1998); (2) il y a un lien entre l'amélioration du décodage pour la lecture et les variables touchant l'enseignant (p. ex. : variables démographiques pertinentes).

Échographie en 2D et 3D de la langue de patients ayant subi une glossectomie partielle

Tim Bressmann, Orchid Rastadmehr, University of Toronto, Toronto (Ont.); Jonathan Irish, Princess Margaret Hospital, Toronto (Ont.)

On a utilisé l'échographie dynamique à deux dimensions pour visualiser le mouvement de la langue chez des locuteurs normaux et chez des locuteurs ayant subi une glossectomie partielle. La hauteur et la vitesse de la langue se sont améliorées après la chirurgie, ce que l'on a interprété comme étant une stratégie compensatoire. Les volumes des sons de la parole relevés par les échographies statiques à trois dimensions ont montré une asymétrie et une convexité de la langue des personnes glossectomisées. On abordera les conséquences pour la thérapie.

FORMATION CLINIQUE

Optimiser les stages cliniques : un programme en ligne pour les étudiants et les superviseurs

Susan Schurr, Taslim Moosa, University of Western Ontario, London (Ont.)

Un programme de formation clinique inter-professionnel en ligne a été conçu pour offrir un moyen souple, opportun et économique de soutenir l'apprentissage auto-dirigé des étudiants et des professionnels. On montrera les modules de formation et on discutera de l'élaboration du programme, y compris des résultats préliminaires et de la viabilité du programme.

Le programme de partenariat pour l'apprentissage : le mentorat à distance

Jackie Hummelbrunner, Northern Ontario School of Medicine, Kenora (Ont.)

Le programme de partenariat pour l'apprentissage, conçu par le programme d'études en réadaptation de l'École de médecine du Nord de l'Ontario, est une initiative individualisée dirigée par un mentor pour les thérapeutes en réadaptation du Nord-Ouest de l'Ontario. Cette séance illustrera le modèle et la démarche utilisés ainsi les données recueillies sur les résultats.

AUDIOLOGIE

Évaluation d'une méthode nouvelle pour prédire les seuils de comportement à partir des seuils de la fonction AutoNRT

Imran Dhamani, Manipal University, Manipal, Inde

AutoNRT, une nouvelle fonction du système d'implants cochléaires Nucleus® Freedom, mesure automatiquement les niveaux minimaux en temps non réel. L'estimation du seuil minimal du comportement avec l'AutoNRT est une technique efficace et courante utilisée par les cliniciens pour faire la programmation. Cette estimation se fonde principalement sur les postulats émis par différentes études de corrélation et de régression effectuées entre le seuil du temps non réel, le seuil du comportement et le degré d'aisance. Diverses études ont établi des liens entre les seuils du temps non réel et les seuils du comportement ainsi que les degrés d'aisance à divers taux de stimulation. Toutefois, il y a très peu d'études qui mettent en corrélation les seuils de l'AutoNRT et les seuils du comportement par rapport aux taux de stimulation. Cette étude vise justement cet objectif à des taux de stimulation plus élevés; elle utilise une nouvelle méthode pour mettre en pratique le facteur de correction.

Information for Contributors

The Canadian Journal of Speech-Language Pathology and Audiology (CJSLPA) welcomes submissions of scholarly manuscripts related to human communication and its disorders broadly defined. This includes submissions relating to normal and disordered processes of speech, language, and hearing. Manuscripts that have not been published previously are invited in English and French. Manuscripts may be tutorial, theoretical, integrative, practical, pedagogic, or empirical. All manuscripts will be evaluated on the basis of the timeliness, importance, and applicability of the submission to the interests of speech–language pathology and audiology as professions, and to communication sciences and disorders as a discipline. Consequently, all manuscripts are assessed in relation to the potential impact of the work on improving our understanding of human communication and its disorders. All categories of manuscripts submitted will undergo peer-review to determine the suitability of the submission for publication in CJSLPA. The Journal recently has established multiple categories of manuscript submission that will permit the broadest opportunity for dissemination of information related to human communication and its disorders. New categories for manuscript submission include:

Tutorials: Review articles, treatises, or position papers that address a specific topic within either a theoretical or clinical framework.

Articles: Traditional manuscripts addressing applied or basic experimental research on issues related to speech, language, and/or hearing with human participants or animals.

Clinical Reports: Reports of new clinical procedures, protocols, or methods with specific focus on direct application to identification, assessment and/or treatment concerns in speech, language, and/or hearing.

Brief Reports: Similar to research notes, brief communications concerning preliminary findings, either clinical or experimental (applied or basic), that may lead to additional and more comprehensive study in the future. These reports are typically based on small “*n*” or pilot studies and must address disordered participant populations.

Research Notes: Brief communications that focus on experimental work conducted in laboratory settings. These reports will typically address methodological concerns and/or modifications of existing tools or instruments with either normal or disordered populations.

Field Reports: Reports that outline the provision of services that are conducted in unique, atypical, or nonstandard settings; manuscripts in this category may include screening, assessment, and/or treatment reports.

Letters to the Editor: A forum for presentation of scholarly/clinical differences of opinion concerning work previously published in the Journal. Letters to the Editor may influence our thinking about design considerations, methodological confounds, data analysis and/or data interpretation, etc. As with other categories of submissions, this communication forum is contingent upon peer-review. However, in contrast to other categories of submission, rebuttal from the author(s) will be solicited upon acceptance of a letter to the editor.

Submission of Manuscripts

Contributors should send a file containing the manuscript, including all tables, figures or illustrations, and references in MS word or WordPerfect format via e-mail to the Editor at: tim.bressmann@utoronto.ca. Sending manuscripts by e-mail is the preferred method of submission. However, manuscripts may still be submitted by sending five (5) hard copies to:

Tim Bressmann, PhD
Editor in Chief,
Canadian Journal of Speech-Language Pathology and Audiology
Dept. of Speech-Language Pathology
University of Toronto
160 - 500 University Avenue
Toronto, Ontario M5G 1V

Along with copies of the manuscript, a cover letter indicating that the manuscript is being submitted for publication consideration should be included. The cover letter must explicitly state that the manuscript is original work, that has not been published previously, and that it is not currently under review elsewhere. Manuscripts are received and peer-reviewed contingent upon this understanding. The author(s) must also provide appropriate confirmation that work conducted with humans or animals has received ethical review and approval.

Failure to provide information on ethical approval will delay the review process. Finally, the cover letter should also indicate the category of submission (i.e., tutorial, clinical report, etc.). If the editorial staff determines that the manuscript should be considered within another category, the contact author will be notified.

All submissions should conform to the publication guidelines of the Publication Manual of the American Psychological Association (APA), 5th Edition. A confirmation of receipt for all manuscripts will be provided to the contact author prior to distribution for peer review. CJSLPA seeks to conduct the review process and respond to authors regarding the outcome of the review within 90 days of receipt. If a manuscript is judged as suitable for publication in CJSLPA, authors will have 30 days to make necessary revisions prior to a secondary review.

The author is responsible for all statements made in his or her manuscript, including changes made by the editorial and/or production staff. Upon final acceptance of a manuscript and immediately prior to publication, the contact author will be permitted to review galley proofs and verify its content to the publication office within 72 hours of receipt of galley proofs.

Organization of the Manuscript

All copies should be typed, double-spaced, with a standard typeface (12 point, noncompressed font) on high quality 8 ½ X 11 paper. All margins should be at least one (1) inch. An original and four (copies) of the manuscript should be submitted directly to the Editor. Author identification for the review process is optional; if blind-review is desired, three (3) of the copies should be prepared accordingly (cover page and acknowledgments blinded). Responsibility for removing all potential identifying information rests solely with the author(s). All manuscripts should be prepared according to APA guidelines. This manual is available from most university bookstores or is accessible via commercial bookstores. Generally, the following sections should be submitted in the order specified.

Title Page: This page should include the full title of the manuscript, the full names of the author(s) with academic degrees, each author's affiliation, and a complete mailing address for the contact author. An electronic mail address also is recommended.

Abstract: On a separate sheet of paper, a brief yet informative abstract that does not exceed one page is required. The abstract should include the purpose of the work along with pertinent information relative to the specific manuscript category for which it was submitted.

Key Words: Following the abstract and on the same page, the author(s) should supply a list of key words for indexing purposes.

Tables: Each table included in the manuscript must be typewritten and double-spaced on a separate sheet of paper. Tables should be numbered consecutively beginning with Table 1. Each table must have a descriptive caption. Tables should serve to expand the information provided in the text of the manuscript, not to duplicate information.

Potential Conflicts of Interest and Dual Commitment

As part of the submission process, the author(s) must explicitly identify if any potential conflict of interest, or dual commitment, exists relative to the manuscript and its author(s). Such disclosure is requested so as to inform C JSLPA that the author or authors have the potential to benefit from publication of the manuscript. Such benefits may be either direct or indirect and may involve financial and/or other nonfinancial benefit(s) to the author(s). Disclosure of potential conflicts of interest or dual commitment may be provided to editorial consultants if it is believed that such a conflict of interest or dual commitment may have had the potential to influence the information provided in the submission or compromise the design, conduct, data collection or analysis, and/or interpretation of the data obtained and reported in the manuscript submitted for review. If the manuscript is accepted for publication, editorial acknowledgement of such potential conflict of interest or dual commitment may occur when publication occurs.

Illustrations: All illustrations included as part of the manuscript must be included with each copy of the manuscript. All manuscripts must have clear copies of all illustrations for the review process. High resolution (at least 300 dpi) files in any of the following formats must be submitted for each graphic and image: JPEG, TIFF, AI, PSD, GIF, EPS or PDF. For other types of computerized illustrations, it is recommended that CJSPLA production staff be consulted prior to preparation and submission of the manuscript and associated figures/illustrations.

Legends for Illustrations: Legends for all figures and illustrations should be typewritten (double-spaced) on a separate sheet of paper with numbers corresponding to the order in which figures/illustrations appear in the manuscript.

Page Numbering and Running Head: The text of the manuscript should be prepared with each page numbered, including tables, figures/illustrations, references, and if appropriate, appendices. A short (30 characters or less) descriptive running title should appear at the top right hand margin of each page of the manuscript.

Acknowledgments: Acknowledgments should be typewritten (double-spaced) on a separate sheet of paper. Appropriate acknowledgment for any type of sponsorship, donations, grants, technical assistance, and to professional colleagues who contributed to the work, but are not listed as authors, should be noted.

References: References are to be listed consecutively in alphabetical order, then chronologically for each author. Authors should consult the APA publication manual (4th Edition) for methods of citing varied sources of information. Journal names and appropriate volume number should be spelled out and italicized. All literature, tests and assessment tools, and standards (ANSI and ISO) must be listed in the references. All references should be double-spaced.

Participants in Research Humans and Animals

Each manuscript submitted to CJSPLA for peer-review that is based on work conducted with humans or animals must acknowledge appropriate ethical approval. In instances where humans or animals have been used for research, a statement indicating that the research was approved by an institutional review board or other appropriate ethical evaluation body or agency must clearly appear along with the name and affiliation of the research ethics and the ethical approval number. The review process will not begin until this information is formally provided to the Editor.

Similar to research involving human participants, CJSPLA requires that work conducted with animals state that such work has met with ethical evaluation and approval. This includes identification of the name and affiliation of the research ethics evaluation body or agency and the ethical approval number. A statement that all research animals were used and cared for in an established and ethically approved manner is also required. The review process will not begin until this information is formally provided to the Editor.

Renseignements à l'intention des collaborateurs

La Revue canadienne d'orthophonie et d'audiologie (RCOA) est heureuse de se voir soumettre des manuscrits de recherche portant sur la communication humaine et sur les troubles qui s'y rapportent, dans leur sens large. Cela comprend les manuscrits portant sur les processus normaux et désordonnés de la parole, du langage et de l'audition. Nous recherchons des manuscrits qui n'ont jamais été publiés, en français ou en anglais. Les manuscrits peuvent être tutoriels, théoriques, synthétiques, pratiques, pédagogiques ou empiriques. Tous les manuscrits seront évalués en fonction de leur signification, de leur opportunité et de leur applicabilité aux intérêts de l'orthophonie et de l'audiologie comme professions, et aux sciences et aux troubles de la communication en tant que disciplines. Par conséquent, tous les manuscrits sont évalués en fonction de leur incidence possible sur l'amélioration de notre compréhension de la communication humaine et des troubles qui s'y rapportent. Peu importe la catégorie, tous les manuscrits présentés seront soumis à une révision par des collègues afin de déterminer s'ils peuvent être publiés dans la RCOA. La Revue a récemment établi plusieurs catégories de manuscrits afin de permettre la meilleure diffusion possible de l'information portant sur la communication humaine et les troubles s'y rapportant. Les nouvelles catégories de manuscrits comprennent :

Tutoriels : Rapports de synthèse, traités ou exposés de position portant sur un sujet particulier dans un cadre théorique ou clinique.

Articles : Manuscrits conventionnels traitant de recherche appliquée ou expérimentale de base sur les questions se rapportant à la parole, au langage ou à l'audition et faisant intervenir des participants humains ou animaux.

Comptes rendus cliniques : Comptes rendus de nouvelles

procédures ou méthodes ou de nouveaux protocoles cliniques portant particulièrement sur une application directe par rapport aux questions d'identification, d'évaluation et de traitement relativement à la parole, au langage et à l'audition.

Comptes rendus sommaires : Semblables aux notes de recherche, brèves communications portant sur des conclusions préliminaires, soit cliniques soit expérimentales (appliquées ou fondamentales), pouvant mener à une étude plus poussée dans l'avenir. Ces comptes rendus se fondent typiquement sur des études à petit « n » ou pilotes et doivent traiter de populations désordonnées.

Notes de recherche : Brèves communications traitant spécifiquement de travaux expérimentaux menés en laboratoire. Ces comptes rendus portent typiquement sur des questions de méthodologie ou des modifications apportées à des outils existants utilisés auprès de populations normales ou désordonnées.

Comptes rendus d'expérience : Comptes rendus décrivant sommairement la prestation de services offerts en situations uniques, atypiques ou particulières; les manuscrits de cette catégorie peuvent comprendre des comptes rendus de dépistage, d'évaluation ou de traitement.

Courrier des lecteurs : Forum de présentation de divergences de vues scientifiques ou cliniques concernant des ouvrages déjà publiés dans la Revue. Le courrier des lecteurs peut avoir un effet sur notre façon de penser par rapport aux facteurs de conception, aux confusions méthodologiques, à l'analyse ou l'interprétation des données, etc. Comme c'est le cas pour d'autres catégories de présentation, ce forum de communication est soumis à une révision par des collègues. Cependant, contrairement aux autres catégories, on recherchera la réaction des auteurs sur acceptation d'une lettre.

Présentation de manuscrits

On demande aux collaborateurs de faire parvenir par voie électronique un fichier électronique incluant leurs manuscrits, y compris tous les tableaux, figures ou illustrations et références, en format MS Word ou WordPerfect à : tim.bressmann@utoronto.ca. L'envoi des manuscrits par voie électronique est la méthode préférée pour la soumission, pourtant les manuscrits peuvent toujours être soumis en envoyant 5 copies imprimées à :

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On doit joindre aux exemplaires du manuscrit une lettre d'envoi qui indiquera que le manuscrit est présenté en vue de sa publication. La lettre d'envoi doit préciser que le manuscrit est une œuvre originale, qu'il n'a pas déjà été publié et qu'il ne fait pas actuellement l'objet d'un autre examen en vue d'être publié. Les manuscrits sont reçus et examinés sur acceptation de ces conditions. L'auteur (les auteurs) doit (doivent) aussi fournir une attestation en bonne et due forme que toute recherche impliquant des êtres humains ou des animaux a fait

l'objet de l'agrément d'un comité de révision déontologique. L'absence d'un tel agrément retardera le processus de révision. Enfin, la lettre d'envoi doit également préciser la catégorie de la présentation (i.e. tutoriel, rapport clinique, etc.). Si l'équipe d'examen juge que le manuscrit devrait passer sous une autre catégorie, l'auteur-contact en sera avisé.

Toutes les présentations doivent se conformer aux lignes de conduite présentées dans le publication *Manual of the American Psychological Association (APA)*, 5^e Édition. Un accusé de réception de chaque manuscrit sera envoyé à l'auteur-contact avant la distribution des exemplaires en vue de la révision. La RCOA cherche à effectuer cette révision et à informer les auteurs des résultats de cette révision dans les 90 jours de la réception. Lorsqu'on juge que le manuscrit convient à la RCOA, on donnera 30 jours aux auteurs pour effectuer les changements nécessaires avant l'examen secondaire.

L'auteur est responsable de toutes les affirmations formulées dans son manuscrit, y compris toutes les modifications effectuées par les rédacteurs et réviseurs. Sur acceptation définitive du manuscrit et immédiatement avant sa publication, on donnera l'occasion à l'auteur-contact de revoir les épreuves et il devra signifier la vérification du contenu dans les 72 heures suivant réception de ces épreuves.

Organisation du manuscrit

Tous les textes doivent être dactylographiés à double interligne, en caractère standard (police de caractères 12 points, non comprimée) et sur papier 8 ½" X 11" de qualité. Toutes les marges doivent être d'au moins un (1) pouce. L'original et quatre (4) copies du manuscrit doivent être présentés directement au rédacteur en chef. L'identification de l'auteur est facultative pour le processus d'examen : si l'auteur souhaite ne pas être identifié à ce stade, il devra préparer trois (3) copies d'un manuscrit dont la page couverture et les remerciements seront voilés. Seuls les auteurs sont responsables de retirer toute information identificatrice éventuelle. Tous les manuscrits doivent être rédigés en conformité aux lignes de conduite de l'APA. Ce manuel est disponible dans la plupart des librairies universitaires et peut être commandé chez les libraires commerciaux. En général, les sections qui suivent doivent être présentées dans l'ordre chronologique précisé.

Page titre : Cette page doit contenir le titre complet du manuscrit, les noms complets des auteurs, y compris les diplômes et affiliations, et l'adresse complète de l'auteur-contact. Une adresse de courriel est également recommandée.

Abrégé : Sur une page distincte, produire un abrégé bref mais informateur ne dépassant pas une page. L'abrégé doit indiquer l'objet du travail ainsi que toute information pertinente portant sur la catégorie du manuscrit.

Mots clés : Immédiatement suivant l'abrégé et sur la même page, les auteurs doivent présenter une liste de mots clés aux fins de constitution d'un index.

Tableaux : Tous les tableaux compris dans un même manuscrit doivent être dactylographiés à double interligne sur une page distincte. Les tableaux doivent être numérotés consécutivement, en commençant par le Tableau 1. Chaque tableau doit être accompagné d'une légende et doit servir à compléter les renseignements fournis dans le texte du manuscrit plutôt qu'à reprendre l'information contenue dans le texte ou dans les tableaux.

Conflits d'intérêts possibles et engagement double

Dans le processus de présentation, les auteurs doivent déclarer clairement l'existence de tout conflit d'intérêts possibles ou engagement double relativement au manuscrit et des auteurs. Cette déclaration est nécessaire afin d'informer la RCOA que l'auteur ou les auteurs peuvent tirer avantage de la publication du manuscrit. Ces avantages pour les auteurs, directs ou indirects, peuvent être de nature financière ou non financière. La déclaration de conflit d'intérêts possibles ou d'engagement double peut être transmise à des conseillers en matière de publication lorsqu'on estime qu'un tel conflit d'intérêts ou engagement double aurait pu influencer l'information fournie dans la présentation ou compromettre la conception, la conduite, la collecte ou l'analyse des données, ou l'interprétation des données recueillies et présentées dans le manuscrit soumis à l'examen. Si le manuscrit est accepté en vue de sa publication, la rédaction se réserve le droit de reconnaître l'existence possible d'un tel conflit d'intérêts ou engagement double.

Participants à la recherche – êtres humains et animaux

Chaque manuscrit présenté à la RCOA en vue d'un examen par des pairs et qui se fonde sur une recherche effectuée avec la

Illustrations : Toutes les illustrations faisant partie du manuscrit doivent être incluses avec chaque exemplaire du manuscrit. Chaque manuscrit doit contenir des copies claires de toutes les illustrations pour le processus de révision. Il faut envoyer un fichier électronique pour chaque image et graphique en format JPEG, TIFF, AI, PSD, GIF, EPS ou PDF, compression minimale 300 ppp. Pour les autres types d'illustrations informatisées, il est recommandé de consulter le personnel de production de la RCOA avant la préparation et la présentation du manuscrit et des figures et illustrations s'y rattachant.

Légendes des illustrations : Les légendes accompagnant chaque figure et illustration doivent être dactylographiées à double interligne sur une feuille distincte et identifiées à l'aide d'un numéro qui correspond à la séquence de parution des figures et illustrations dans le manuscrit.

Numérotation des pages et titre courant : Chaque page du manuscrit doit être numérotée, y compris les tableaux, figures, illustrations, références et, le cas échéant, les annexes. Un bref (30 caractères ou moins) titre courant descriptif doit apparaître dans la marge supérieure droite de chaque page du manuscrit.

Remerciements : Les remerciements doivent être dactylographiés à double interligne sur une feuille distincte. L'auteur doit reconnaître toute forme de parrainage, don, bourse ou d'aide technique, ainsi que tout collègue professionnel qui ont contribué à l'ouvrage mais qui n'est pas cité à titre d'auteur.

Références : Les références sont énumérées les unes après les autres, en ordre alphabétique, suivi de l'ordre chronologique sous le nom de chaque auteur. Les auteurs doivent consulter le manuel de l'APA (5^e Édition) pour obtenir la façon exacte de rédiger une citation. Les noms de revues scientifiques et autres doivent être rédigés au long et imprimés en italiques. Tous les ouvrages, outils d'essais et d'évaluation ainsi que les normes (ANSI et ISO) doivent figurer dans la liste de références. Les références doivent être dactylographiées à double interligne.

participation d'êtres humains ou d'animaux doit faire état d'un agrément déontologique approprié. Dans les cas où des êtres humains ou des animaux ont servi à des fins de recherche, on doit joindre une attestation indiquant que la recherche a été approuvée par un comité d'examen reconnu ou par tout autre organisme d'évaluation déontologique, comportant le nom et l'affiliation de l'éthique de recherche ainsi que le numéro de l'approbation. Le processus d'examen ne sera pas amorcé avant que cette information ne soit formellement fournie au rédacteur en chef.

Tout comme pour la recherche effectuée avec la participation d'êtres humains, la RCOA exige que toute recherche effectuée avec des animaux soit accompagnée d'une attestation à l'effet que cette recherche a été évaluée et approuvée par les autorités déontologiques compétentes. Cela comporte le nom et l'affiliation de l'organisme d'évaluation de l'éthique en recherche ainsi que le numéro de l'approbation correspondante. On exige également une attestation à l'effet que tous les animaux de recherche ont été utilisés et soignés d'une manière reconnue et éthique. Le processus d'examen ne sera pas amorcé avant que cette information ne soit formellement fournie au rédacteur en chef.



CALL FOR PAPERS

CASLPA Conference 2009
London, Ontario
April 29 - May 2, 2009

**Deadline for receipt of all program submissions:
September 15, 2008**

**Online abstract submissions at:
www.caslpa.ca/english/events/conference.asp**

The Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA) 2009 conference will be held in London, Ontario. CASLPA invites program submissions to the annual conference.

Clinicians from all practice settings are encouraged to share their insight, experience, methods and research. CASLPA invites submissions of papers, poster sessions, scientific exhibits, mini-seminars and videotapes. Multidisciplinary presentations will be considered. Sessions will be scheduled daily from April 30 to May 2, 2009.

SESSION TYPES

Paper Presentations: A paper presentation should be based on current research that has not been published, clinical experience, or case studies (45 minutes in duration).

Mini-seminars: These sessions are designed to provide opportunity for interactive discussion of clinical practice and professional issues (90 minutes in duration).

Poster Sessions: Poster presentations should stand alone in conveying information. Each display should contain title and author(s), statement of purpose, methodology, results and conclusions. Posters must be in landscape format, no larger than 2.4 m x 1.2 m. Authors are required to be present at designated times to respond to questions and discussion.

Scientific Exhibits: These sessions will be incorporated with the poster presentations. Exhibitors are required to be present at designated times to describe and discuss the exhibit. A table of approximately 1.8 m x .75 m and a poster board of approximately 2.4 m x 1.2 m will be available. Exhibitors are responsible for providing all equipment that will be required.

Videotape Presentations: Videotapes may be presented on clinical topics, case studies, agencies, therapy procedures or other topics. Videotapes must be on 1/2-inch VHS video cassette.

- Themes:**
- Evaluating and implementing new technologies/methods
 - Measuring outcome and efficacy
 - Best practice/clinical guidelines
 - Hard-to-serve populations
 - Mediator/facilitator training
 - Ethics in clinical practice
 - Multicultural considerations
 - Service delivery models
 - Transition issues
 - Designing and implementing clinical research
 - Other

The complete call for papers including conditions for acceptance, instructions and request for presentation form, can be downloaded from our website at: www.caslpa.ca/english/events/conference.asp You can submit online or contact nick@caslpa.ca to have a hard copy e-mailed, faxed or mailed to you.



APPEL POUR COMMUNICATIONS

Congrès de l'ACOA 2009

London (Ontario)

du 29 avril au 2 mai 2009

**Date limite de réception des propositions:
le 15 septembre 2008**

**Vous pouvez soumettre votre proposition de communication en ligne au:
www.caslpa.ca/francais/events/conference.asp**

Le congrès annuel 2009 de l'Association canadienne des orthophonistes et audiologistes (ACOA) se tiendra à London (Ontario). L'ACOA vous invite donc à soumettre vos propositions de communication pour son programme du congrès annuel 2009.

Les cliniciens de tous genres de pratique sont encouragés à partager leurs réflexions, leurs expériences, leurs méthodes et leurs recherches. L'ACOA souhaite recevoir des propositions de communications, de communications affichées, d'expositions scientifiques, de mini-séminaires de formation et de vidéocassettes. Les présentations multidisciplinaires seront également prises en considération. Les sessions se tiendront pendant le jour, du 30 avril au 2 mai, 2009.

TYPES DE SESSION

Présentation de communication: Une présentation de communication devrait être basée sur une recherche courante, une expérience clinique ou sur une étude de cas, être récente et ne pas avoir été publiée (durée de 45 minutes).

Mini-séminaires: Ces séances sont conçues de manière à susciter des discussions interactives au sujet de la pratique clinique et des problèmes professionnels (durée de 90 minutes).

Séances d'affichage: La présentation des affiches doit suffire, à elle seule, à fournir de l'information. Chaque présentoir doit contenir le titre et le nom du ou des auteurs, l'énoncé de principe, la méthodologie, les résultats et conclusions. Les affiches doivent être présentées sous format en largeur et selon des dimensions ne dépassant pas 2.4m par 1.2m. Lors de périodes établies à l'avance, les auteurs devront être présents pour répondre aux questions et participer aux échanges (discussions).

Expositions scientifiques: Ces activités seront incorporées aux sessions d'affichage. Lors de périodes établies à l'avance, les exposants devront être présents pour décrire et discuter de leur exposition. Une table mesurant approximativement 1.8 m par .75 m et un tableau d'affichage de 2.4 m x 1.2 m seront mis à la disposition des exposants. Les exposants doivent fournir tout autre équipement nécessaire.

Présentations de vidéocassette: Les vidéocassettes peuvent présenter des sujets cliniques, des études de cas, des agences, programmes, procédures de thérapie ou autres. Les vidéocassettes doivent être de type VHS (1/2 pouce).

- Themes:**
- Évaluation et mise en oeuvre de nouvelles technologies/méthodes
 - Mesure de performance ou de rendement (outcome) et efficacité
 - Ce qui fonctionne en pratique/ conseils à suivre en milieu clinique
 - Les services aux clientèles difficiles
 - Formation de médiateurs/facilitateurs
 - Éthique en milieu clinique
 - Effets du multiculturalisme
 - Modèles de prestation de services
 - Situations de transition (p. ex.: préscolaire-scolaire, soins intensifs-communauté)
 - La planification et la réalisation de recherche en milieu clinique.
 - Autre

Le formulaire pour soumettre les propositions de communications, les conditions et les instructions peuvent être téléchargés à partir du site Web de l'ACOA au www.caslpa.ca/francais/events/conference.asp. Vous pouvez soumettre votre demande en ligne ou en communiquant avec nick@caslpa.ca pour obtenir un formulaire et informations par envoi postal ou électronique ou par télécopieur.

School District No. 74 (Gold Trail)

PO Bag 250 Ashcroft, BC V0K 1A0
Phone: 250 453 9101 FAX: 250 453 2425
Toll Free Phone: 1 877 688 0033



COMMUNITY SPEECH LANGUAGE PATHOLOGIST

School District 74 (Gold Trail) is seeking a full time Speech-Language Pathologist, commencing as soon as possible, in the community of Lillooet. Lillooet is a fully serviced community within easy driving distance of Whistler, Kamloops and Vancouver. Gold Trail School District is located in the south-central interior region of British Columbia and embraces the communities of Clinton to the North, Lytton to the South, Lillooet to the West, and Ashcroft/Cache Creek to the East.

The position includes provision of services to pre-school and school aged children. Approximately 55% of our student population is of Aboriginal ancestry. Flexible service delivery options allow for direct, preventative and consultative intervention as well as collaborative and educational services to the pre-school, school district, and community. The Speech-Language Clinic is housed within a district school.

The school district is committed to professional development, building capacity, and team and leadership development in all employees. While this is a sole charge position, there is strong team support from community, school and district personnel to continually focus on instructional practices based in research.

Position Details:

Full time, sole charge, 12 month/year position, divided between school/preschool services.
Excellent benefits package including twelve weeks holiday per year.
\$2,500 per year Professional Development allowance.
\$3,500 per year Service Bonus
Well-equipped Speech-Language Clinic includes office, therapy space, generous resource budget.
A Speech Language Pathology Assistant is on staff.

Qualifications and Abilities:

Master's Degree in Speech Language Pathology.
Be a member, or eligible for membership of CASLPA and BCASLPA.
Knowledge and successful experience in working with children with Aboriginal ancestry.
Knowledge and successful experience in working with children who have unique learning challenges.
Ability to work collaboratively with teachers, parents, community and pre-school service providers.
Subject to satisfactory references.
Valid BC Drivers License, and use of own vehicle.

Salary: from \$43,696 to \$68,596 per annum, dependent upon experience. We offer mileage while on the job, and a relocation allowance.

Closing Date: Remains open until a suitable applicant is found

Send Applications to: PATRICIA PEARCE, Superintendent of Schools
School District No. 74 (Gold Trail)
PO Bag 250, Ashcroft, BC V0K 1A0
Phone: (250) 453-9101 Fax: (250) 453-2425
e-mail: sd74jobs@gw.sd74.bc.ca



Renfrew Educational Services is a not-for-profit, registered charity operating as an independent school. We are an acknowledged leader in program development for children with special needs and children who are typically developing. For 34 years Renfrew has offered a wide range of programs and services to children from Calgary and surrounding areas.

SPEECH-LANGUAGE PATHOLOGIST

We are currently looking for Speech-Language Pathologists interested in joining our dynamic, dedicated and innovative team of professionals.

Position: Speech-Language Pathologist (to start February, 2008)

Positions available in a variety of settings: our onsite preschool programs, our Community Services program and our Specialized Services Programs for Children with Motor Disabilities, Fetal Alcohol Spectrum Disorders and Autism. As a member of our team, you will provide assessment, intervention, and consultation services. Our professionals work collaboratively with families to provide for the individual needs of each child.

Location: **Calgary, Alberta**

Position Details: We specialize in providing innovative and highly specialized educational programs in a classroom setting. Our Community Services program represents excellence in community school based intervention services for children throughout Calgary.

We offer:

- Competitive salary and benefits package
- Excellent professional development opportunities
- Consistent work hours
- Supportive team and regular opportunities for collaboration
- Exemplary mentorship and leadership
- Safe and supportive workplace

Qualifications: The ideal candidate must be an enthusiastic professional who is passionate about working with children, teachers and families. A Master's Degree in Speech Language Pathology, proof of registration with ACSLPA, professional liability insurance, a valid driver's license and reliable vehicle are required.

Apply to: Renfrew Educational Services
Attention: Human Resources
Fax: 403-291-2499
humanresources@renfreweducation.org
Website: www.renfreweducation.org

DTHR CAREERS

Nestled in the heart of Alberta, the David Thompson Health Region stretches from the foothills of the Rocky Mountains to the Saskatchewan border and lies between Alberta's largest cities, Edmonton and Calgary. As a region, the DTHR delivers leading edge health care services and offers the most advanced technologies, thanks to years of continuing economic growth in Central Alberta. As an employer, we stand out from the crowd, offering extensive mentoring, training, education, and career advancement options to our staff. Call us and discover the opportunities that await you!

The David Thompson Health Region (DTHR) has four exciting Speech-Language Pathology career opportunities in Central Alberta.

Speech-Language Pathologist - Community, Wetaskiwin Community Health Centre, Bulletin #07-REH-1170

Wetaskiwin is a community of over 11,000 people situated less than 1 hour away from Edmonton and within 3 hours of Calgary and the Rocky Mountains. In this position you will become an integral part of the Speech-Language Pathology team at the Wetaskiwin Community Health Centre. You will travel to schools in and around Wetaskiwin to provide speech-language assessment and intervention to a wide range of clients.

Hours of work: This is a regular full time position.

Speech-Language Pathologist – Community Rocky Mountain House Health Centre, Bulletin #07-REH-1247

The Rocky Mountain House Health Centre is seeking a Speech-Language Pathologist to become an integral part of their team. You will travel to schools in and around Rocky Mountain House to provide speech-language assessment and intervention to a wide range of clients in a school setting. Rocky Mountain House is a town of approximately 7000 people within 1 hour of the Red Deer or the Rocky Mountains and less than 3 hours from either Calgary or Edmonton.

Hours of work: This is a regular full-time position.

Speech-Language Pathologist – Pediatric Rehabilitation Drumheller Health Centre, Bulletin #06-REH-3067

The successful candidate will provide services for the Big Country Outreach Program, while working as a member of a traveling team that includes health professionals in speech language pathology, occupational therapy, physical therapy, education consultation and psychology. You will provide assessment, consultation and therapy to children 0-16 years old who have complex medical health needs. This career opportunity is located in one of the most spectacular settings in Alberta - the Badlands - and is an easy drive to Calgary, Banff or Red Deer.

Hours of Work: This is regular full-time position.

Speech-Language Pathologist – Pediatric Rehabilitation Red Deer, Bulletin #07-REH-359

The DTHR is seeking a Speech-Language Pathologist to work as part of the Pediatric Rehabilitation Assessment & Consultation Services team based at the 49th Street Community Health Centre in Red Deer. You will be part of a team that includes health professionals in speech-language pathology, occupational therapy, and physical therapy. Your role will be to provide assessment, consultation, therapy, and assistant training for pre-school children enrolled in Early Childhood Services in the DTHR. This job is located in Red Deer, a city of over 80,000 people with less than a two-hour drive to Calgary, Edmonton and the Rocky Mountains, all providing access to world class cultural, shopping and recreational attractions.

Hours of Work: This is regular full-time position.

Application Procedure: Please submit one application for each position you are interested in. You may apply online by visiting our website at www.dthr.ab.ca/careers or send your application to:

**DTHR Regional Recruitment Centre,
P.O. Box 1000, Ponoka, AB, T4J 1R8
Fax: (403) 704-2580 Email: recruit@dthr.ab.ca
Job applications are also available at any DTHR facility.
Or call toll-free: 1-877-704-2562**

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