Report on Benchmark Wait Times for Pediatric Speech Sound Disorders

Rapport sur les temps d'attente repères pour l'orthophonie pédiatrique

KEY WORDS
SPEECH SOUND DISORDERS
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Abstract

The Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations has developed wait times benchmarks for diagnostic groupings relevant to speech-language pathology and audiology. This report presents the outcome of this endeavor for the Speech Sound Disorder (SSD) diagnosis. The purpose of a wait time benchmark is to provide a credible evidence-based recommendation for a given service (in this case, speech-language pathology assessment and intervention for SSDs), and to clarify the risk factors associated with waiting past the time when the patient's health is likely to be adversely affected according to clinical consensus and the best available scientific evidence. SSDs are characterized by a high frequency of speech sound errors relative to the child's age peers, impacting the intelligibility of the child's speech. SSD often co-occurs with oral and written language impairments. When the SSD persists past the age of school entry, long-term difficulties in the social, emotional, academic and vocational domains can become significant concerns. Fortunately standard interventions have been shown to be effective when provided with sufficient intensity and duration. The Alliance's Wait Times Project reviewed this literature and recommended wait times for assessment and intervention with the most critical period for rapid service being the two year window prior to school entry. This report provides an example of a collaborative enterprise between academia and clinical practitioners that serves to benefit both consumers and providers of speech, language, and hearing services across the country.

Abrégé

L'Alliance pancanadienne des associations d'orthophonistes et d'audiologistes a développé des balises relatives au temps d'attente pour des regroupements diagnostiques en orthophonie et en audiologie. Ce rapport présente les résultats de cet effort pour le diagnostic de troubles des sons de la parole. Le but de ces balises est d'offrir des recommandations crédibles basées sur les faits probants pour un service donné (dans ce cas-ci, l'évaluation orthophonique et l'intervention en matière de troubles des sons de la parole) et de clarifier les facteurs de risque associés au temps d'attente lorsque la santé du patient risque d'être affectée de façon négative, selon le consensus clinique et les meilleures preuves scientifiques disponibles. Les troubles des sons de la parole sont caractérisés par une fréquence élevée d'erreurs de phonèmes, comparativement à d'autres enfants du même âge, qui ont un impact sur l'intelligibilité de la parole de l'enfant. Les troubles des sons de la parole se présentent souvent avec des problèmes de langage oral et écrit. Quand les troubles persistent après l'âge d'entrée à l'école, ils peuvent occasionner des problèmes importants à long terme dans plusieurs domaines : social, émotif, académique et professionnel qu'on ne peut ignorer. Heureusement, les interventions standardisées se sont démontrées efficaces quand elles sont de durée et d'intensité suffisantes. Le projet « temps d'attente » de l'Alliance a effectué une analyse des écrits et recommande des temps d'attente pour l'évaluation et l'intervention : la période la plus critique étant la fenêtre de deux ans précédant l'entrée à l'école. Ce rapport est un exemple de collaboration entre les universitaires et les cliniciens en pratique, qui profitera aux consommateurs et à ceux offrant des services en orthophonie et en audiologie à travers le pays.

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Pan-Canadian Alliance of Speech-Language Pathology and Audiology Organizations

The Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations (hereinafter referred to as the Alliance) serves in a collaborative capacity on behalf of provincial, territorial, and national speech-language pathology and audiology professional associations (with a complete list of the participating organizations shown in Appendix A). A key objective of the Alliance has been to identify priority areas for advocacy and action and to collaborate on cross-sectorial matters that impact our professional bodies and the clients whom we serve.

The Alliance's *Wait Time Benchmarks Project* was initiated in the mid-2000s. The project was fashioned after the work of a national alliance of medical specialty societies known as the *Wait Time Alliance (WTA) for Timely Access to Health Care*. This group was formed out of concern over delayed access to care for patients. A full listing of the participating societies and the benchmarks developed to date can be found at http://www.waittimealliance.ca/index.htm

The speech-language pathology and audiology benchmarks developed to date have relied upon the volunteer contributions of both generalist and expert clinicians in their respective fields, and from academics working in the area of communication disorders. Currently, the benchmarks are available on the "members only" section of the SAC website and are not available for public dissemination. Given some initial lack of clarity regarding the process and evidence-base required to support benchmark development, the Alliance embarked upon a review of the project in 2012. It is our intention that a revised benchmark template (refer to Appendix B) will be used as required to revise the benchmarks developed to date, and to guide the development of any future benchmarks identified as a priority by the Alliance. Ultimately, our vision for the benchmarks is that they can stand as credible, evidence-based recommendations that provide members of the public and service providers alike with an understanding of the risks factors associated with waiting for assessment and intervention services.

The benchmark template developed in 2012 was fashioned after the Speech Sound Disorders (SSDs) benchmark originally approved by the Alliance in 2009. To follow is a description of the literature review, including considerations related to risk factors for SSDs, treatment efficacy, and ultimately the wait time recommendations based on this review.

Foundation for the Wait Times Recommendations

The wait time recommendations for Speech Sound Disorders (SSD) are founded on a review of the scientific literature pertaining to the following topics:

1. Nature of SSD
    a. SSD are a commonly occurring developmental impairment, arising from genetic and environmental factors
    b. Co-occurrence with other neurodevelopmental impairments is common
2. Time course and long-term consequences
    a. Persistence of SSD past the point of school entry increases the risk of long-term consequences
    b. Some children experience long-term difficulties in the social, emotional, academic and/or vocational domains
3. Efficacy of interventions for SSD
    a. Interventions that are provided at the appropriate time with sufficient cumulative intensity are usually effective
    b. Intervention that is delayed until the prekindergarten year typically do not result in normalized speech outcomes prior to first grade entry

The results of our literature review in each of these areas will be briefly summarized and then the wait time recommendations will be presented.

Nature of Pediatric SSD

Speech Sound Disorder (SSD) is a broad category name that can apply to any condition in which the child or adult is producing so many speech sound errors that speech intelligibility falls below expectations given the speaker's age and experience with the language being spoken (Shriberg, Austin, Lewis, McSweeny, & Wilson, 1997). In this paper we are concerned with a specific subset, those occurring in children (i.e., pediatric) with onset prior to age nine years (i.e., developmental) and with no known causal disease or disorder such as hearing impairment, autism, cognitive delay and so on (therefore, primary) although the speech impairment may be accompanied by other communication deficits (e.g, specific language impairment, dyslexia, voice or fluency disorder). This subset of SSD is variously known as functional articulation disorder (highlighting the sensorimotor aspects of the impairment) and developmental phonological disorder (highlighting the cognitive-linguistic aspects of the impairment) and recently,

protracted phonological development (Bernhardt & Stemberger, 1998). Where the term SSD has been adopted, there is a recognition that the impairment inevitably implicates both sensorimotor and cognitive-linguistic domains as explanatory factors. The developmental aspects of the impairment have been de-emphasized due to an unfortunate misrepresentation of the nature of developmental disorders – the term developmental is sometimes incorrectly associated with the notion of "delay" leading to the impression that such impairments will spontaneously resolve; in fact, developmental disorders arise from impairments in fundamental developmental processes that can have lifelong consequences for the individual (for further discussion, see Rvachew & Brosseau-Lapré, 2012)

Family aggregation and twin studies show that SSD can be heritable (Shriberg et al., 2005). Molecular genetics studies have identified specific regions on chromosomes 1, 3, 6, and 15 that are associated with oral and written language outcomes as well as underlying speech processes such as phonological processing, phonological memory, and oral-motor skills (Lewis et al., 2011; Lewis et al., 2006; Tunick & Pennington, 2002). Some of the genes that have been linked to SSD are thought to be involved in neuronal and axonal migration during early development of the central nervous system and are also associated with dyslexia and language disability (Bishop, 2009). Outcomes for children with these genetic risk factors interact with other factors that impact the child's access to language input from the environment such as otitis media, maternal education, and shared reading practices in the home (McGrath et al., 2007). A child's risk of having SSD is increased 7.7 times when the three risk factors of male sex, mother not finished high school, and family history of fluency and/or articulation and/or language disorder are present (Campbell et al., 2003). The great majority of cases of primary pediatric SSD can be explained by the common disease/common variant model of multifactorial causality whereby interactions among many genetic and environmental factors combine to form the full range of ability levels including those on the impaired end of the continuum. This polygenic explanation may include the low incidence disorder Childhood Apraxia of Speech (Lewis et al., 2004). However, monogenic causality is associated with certain syndromes characterized by motor speech disorders: for example, rare variants of the *FOXP2* gene on chromosome 7q31 (apraxia; MacDermot et al., 2005; Zhao et al., 2010) and 22q11 deletion (dysarthria; Clark & Neville, 2008). Finally, it has also been suggested that some cases, particularly of residual errors (i.e., persistent distortions of sibilants or liquids without prior history of speech delay), may have a strictly environmental origin (Flipsen, Shriberg, Weismer, Karlsson, & McSweeny, 2001).

SSD is the most commonly occurring neurodevelopmental disorder although it has low perceived severity in terms of disease burden, perhaps accounting for a relatively poor level of research funding and interest (Bishop, 2010). Estimates of prevalence range from approximately 2 to 25% (Law, Boyle, Harris, Harkness, & Nye, 2000) but the best estimate is that 11% of kindergarten aged children will have SSD with about a third of those children having a concomitant language impairment (for review and discussion, see Rvachew & Brosseau-Lapré, 2012). Estimates of the co-occurrence of SSD and specific language impairment vary greatly, with population studies suggesting quite low overlap (Beitchman et al., 1986; Beitchman, Wilson, Brownlie, Walters, & Lancee, 1996; Shriberg, Tomblin, & McSweeny, 1999) whereas clinic-based studies show at least half of the children with SSD having language impairment and very small numbers of children with language impairment having normal speech development (Baker & Cantwell, 1987a; Cantwell & Baker, 1987). The difference in findings may be due to the age of the children in these studies since population-based samples tend to be ascertained in schools whereas clinic-based samples are often describing preschool aged children; it is possible that the speech deficit tends to resolve faster than the language deficit so that co-occurring disorders are more difficult to detect in older children especially given the detection criteria employed in the population-based studies. On the other hand, clinic-based samples may be fundamentally different from those drawn from the general population, since children tend to be referred for speech-language services on the basis of speech intelligibility problems (Zhang & Tomblin, 2000). Furthermore, (Bishop & Hayiou-Thomas, 2008) reported that "the presence of speech problems rather than language impairment is a phenotypic signature of a heritable disorder (p. 370)."

In addition to the known relationships with language and reading disability, speech impairment is often associated with other developmental conditions. Referral to health care and allied health care practitioners for concerns regarding speech clarity or speech intelligibility is often the first step in a path leading to the detection of more serious developmental disabilities. For example, Coplan and Gleason (1988) developed a simple screening procedure that consists of asking the parent "How clear is your child's speech? That is, how much of your child's speech can a stranger understand?" The response alternatives are "less than half", "about half" (achieved on average at age 22

months), "three quarters" (achieved on average at age 37 months), and "all or almost all" (achieved on average at age 47 months). They found that, when assessed against a full diagnostic speech-language assessment, this screening procedure had 95% specificity and sensitivity in a sample of children referred for a full speech and language assessment. Furthermore, among the 76 children in the validation study who did not pass the screen or the diagnostic assessment, many were subsequently found to have one or more other disorders beyond speech delay, including development language disorder (41), learning disability (20), mental retardation (18), hearing loss (7), autism (4) and seizures (3). Therefore rapid assessment of children who are referred because they have "unclear speech" may serve to connect the child and family with resources required to diagnose and treat other more serious co-occurring conditions. Even in the case of speech impairment alone however, the long-term consequences of the condition may be nontrivial especially without prompt provision of appropriate care.

Time Course and Long-Term Consequences

Shriberg and Kwiatkowski (1994b) described two trajectories for resolution of speech difficulties in children with SSD: short-term normalization in which the child achieves expected levels of speech accuracy by age six years or within two years of speech therapy onset; and, long-term normalization in which the child does not achieve expected levels of speech accuracy until age nine years or later. Children with childhood apraxia of speech (CAS) and children with residual errors are most likely to show a long-term trajectory toward normalization. Even so, short-term normalization is achieved for less than a quarter of the SSD population as a whole prior to school entry when treatment is started at age four years (Baker & Cantwell, 1987b; Rvachew, Chiang, & Evans, 2007; Shriberg & Kwiatkowski, 1994a). Short-term normalization may be much more likely for children who begin therapy at an earlier age: Webster, Plante, and Couvillion (1997) reported that two-thirds of their sample of three-year old children achieved normalized speech functioning prior to school entry. However, the reason for better outcomes in younger children is not known: younger children may be easier to treat or they may benefit from a longer period of intervention; on the other hand, there is a tendency toward over-diagnosis in younger children that may contribute to this finding (Rafaat, Rvachew, & Russell, 1995).

It is critical to achieve short-term normalization for these children during the preschool period because persistence of the speech deficit past the point of school entry is a risk factor for ongoing problems in the academic and social domains, especially when there are concomitant language difficulties (Nathan, Stackhouse, Goulandris, & Snowling, 2004; Peterson, Pennington, Shriberg, & Boada, 2009; Raitano, Pennington, Tunick, Boada, & Shriberg, 2004). When children begin school with SSD but no accompanying language deficit, approximately one third can be expected to have poor spelling skills in third grade; when children begin school with SSD and language impairment, approximately two thirds can be expected to have both reading and spelling deficits in third grade (Lewis, Freebairn, & Taylor, 2000). Furthermore, children who begin school with these communication disorders can be expected to consume more special resources, which constitutes a financial burden to the school system and an opportunity cost to the child who forgoes participation in alternative classroom or extracurricular activities while receiving therapeutic services (Felsenfeld, Broen, & McGue, 1994; Shriberg & Kwiatkowski, 1988).

In addition to concerns regarding academic outcomes, especially those associated with literacy deficits, children with SSD may have difficulties in the social-emotional domain. On the basis of a population study, Beitchman et al. (1996) reported the psychiatric status of children aged 12.5 years as a function of their speech-language performance at age five years. When observed in sixth grade, emotional disorders were observed in 2.7% of the girls who started school with age-appropriate speech-language function and 33.3% of the girls who started school with speech and/or language impairment. For sixth grade boys, attention deficit disorder was observed in 8.1% of those who started school with age appropriate speech-language function and 19.7% of those who started school with speech and/or language impairment. Baker and Cantwell (1987a) also reported a very high prevalence of psychiatric disorders in their clinic sample; this finding held for children with speech-only (38%) as well as children with speech-and-language disorders (58%), including behavioral and emotional disorders and attention deficits.

McCormack, McLeod, Harrison, and McAllister (2010) examined the impacts of a speech disorder on children and their families from the perspective of the Activities and Participation component of the International Classification of Functioning, Disability, and Health – Children and Youth. A questionnaire administered to 205 speech-language pathologists and 86 parents revealed impacts in five areas with agreement between both groups of respondents (as reported in the abstract, p. 278) specifically "Verbal communication (e.g., Conversation, Speaking), Advanced learning (e.g., Learning to read/write), Interpersonal interactions (e.g., Relating with strangers, Informal social

relationships), Basic learning (e.g., Copying, Rehearsing), Applied learning and general tasks (e.g., Focussing attention, Handling stress)." Peer reactions can be negative to even mild residual errors in the speech of children and adolescents (Silverman, 1992).

Other studies have shown that the consequences of preschool SSD can carry over into the adult years. The underlying difficulties with phonological processing persist into adulthood even when speech accuracy is normalized and adequate reading outcomes are achieved (Lewis & Freebairn, 1992). In comparison to a control group with a history of typical speech and language development, adults with a history of childhood phonological disorder performed significantly worse on tests of articulation accuracy, vocabulary knowledge, and language skills (Felsenfeld et al., 1994). They required more remedial help at school, achieved poorer grades, and completed fewer years of formal education. These adults were also more likely to hold unskilled or semiskilled occupations in comparison with the control group and their gender-matched siblings who were more likely to hold professional positions. When viewed through the lens of the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001), these findings actually portray positive outcomes for individuals with SSD. The World Health Organization (WHO) defines *health as* "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2006). In other words it is the functioning of the individual in daily life and in society that is of importance when judging the outcomes of health care services. The persistence of underlying phonological processing difficulties attests to impairment at the endophenotype level, supporting the characterization of SSD as a neurodevelopmental disorder (Pennington and Bishop, 2009). At the same time, this longitudinal study of individuals with SSD who received services from an early age found that they achieved intelligible speech, functional literacy skills, and adequate employment as adults. In fact, Felsenfeld et al. (1994) found that their research participants reported high levels of life satisfaction overall.

Efficacy of Treatment for SSD

Estimating the impact of providing a service within a short or long time window is logically connected to the likelihood that the service will be effective to remedy the impairment or limitation in question. The scientific literature on the efficacy of interventions for the treatment of SSD remains small and consists largely of single subject studies (e.g., McReynolds & Bennett, 1972) with an increasing number of small scale randomized control trials (e.g., Almost & Rosenbaum, 1998; Rvachew, Nowak, & Cloutier, 2004). Nonetheless, these studies have been accumulating over five decades (e.g., Hesketh, Dima, & Nelson, 2007; Sommers et al., 1961) and the literature base is now large enough to support systematic meta-analyses (e.g., Law, Garrett, & Nye, 2009) and narrative reviews (e.g., Gierut, 1998), leading to the firm conclusion that speech therapy for SSD is effective in comparison to a no-treatment control condition. Comparisons of different treatment approaches are rare but there is some evidence to support the conclusion that phonological approaches are more effective than traditional articulatory approaches in the treatment of SSD, both primary and secondary (Klein, 1996; Pamplona, Ysunza, & Espinoza, 1999).

Another important issue is the amount of intervention that is required to achieve short-term normalization given the risk of long-term consequences for children who begin school with persisting deficits in speech and/or language skills. In fact no studies have directly addressed this question although a number of descriptive studies have asked how much service is required to achieve a functional gain such as a measurable improvement in speech intelligibility. The pool of experimental studies that have targeted questions related to required treatment intensity and duration to achieve a measurable outcome is too small for a systematic review in any one domain although a recent review summarized recent findings for a broad range of disorders and treatment targets (Schooling, Venediktov, & Leech, 2010). A synthesis of studies specific to SSD in Rvachew and Brosseau-Lapré (2012) yielded some general conclusions. First, cumulative intervention intensity is an important determinant of treatment outcomes: on the whole there is little reason to expect a measurable gain in speech intelligibility with less than 10 hours of speech therapy and more typically a minimum of 20 hours of service will be required (e.g., Jacoby, Levin, Lee, Creaghead, & Kummer, 2002). Children with CAS will require much more service (Campbell, 1999): specifically, in this study good functional outcomes were achieved when preschoolers with moderate and severe phonological impairments received twice-weekly therapy over a 90- to 120-day period (i.e., on average the children's speech intelligibility improved from approximately 50 to 75 percent intelligible); in comparison, equivalent outcomes in children with CAS required treatment for a 360- to 420-day period, provided at least three times a week. The efficacy and efficiency of treatment can be improved by including parents as partners in the process if they receive structured training on the provision of the home program (e.g., Eiserman, Weber, & McCoun, 1995; Sommers, 1962). Finally, when the number

of treatment sessions is rationed, there is some evidence that better outcomes are achieved when those sessions are provided intensively over shorter intervals (Allen, 2013; Barratt, Littlejohns, & Thompson, 1992; Thomas-Stonell, McConney-Ellis, Oddson, Robertson, & Rosenbaum, 2007) than stretched infrequently over a long interval as in Glogowska, Roulstone, Enderby, and Peters (2000); we caution that contrary findings have been reported in the domain of morphosyntax however (Smith-Lock et al.,2013) and insufficient controlled studies are available for confident conclusions.

In summary, cumulative intervention intensity is an important determinant of treatment outcomes. The goal of ensuring short-term normalization, and in particular, age-appropriate speech and language skills prior to school entry, requires that the child begin therapy at a young enough age and then receive a sufficient amount of therapy for resolution of these communication deficits. Given that several provinces in Canada ration service intervals to less than the recommended 20 hours of service in any given year, the finding that most children who are referred for service in the year prior to school entry do not achieve short-term normalization can be explained.

Wait Times Benchmarks for SSD

On the basis of the literature review reported above, benchmark wait times are recommended for assessment and treatment. The recommended wait time for **time to assessment** refers to *the maximum time clients should wait for an initial response following the service provider's receipt of a referral/self-request for service and accompanying intake information*. The committee's recommendation is that this wait time be two months regardless of the child's age or risk category. This recommendation that the wait time be short regardless of the child's age or risk category is founded on two arguments: first, an assessment is required to determine the child's risk status; and second, research shows that parent and teacher expressions of concern are valid indicators of a likely speech problem of significant concern (McLeod, Harrison, McAllister, & McCormack, 2013).

The recommended wait time for **time to treatment** refers to "*the maximum time clients (i.e., children with an identifiable speech disorder) should wait for intervention following the service provider's assessment*." These recommendations depend upon the child's age and risk category. The committee recommends that the presence of any one of the following identified risk factors would place a child in the "high risk" category related to intervention services:

- Reported family history of speech-language delays/ disorders and/or reading difficulties;
- Identified language impairments in conjunction with speech sound disorders at the time of assessment;
- Identified difficulties with phonological processing, including non-word repetition tasks and phonological awareness tasks at the time of assessment;
- Child is entering school (i.e., kindergarten or grade one) in September of the coming school year.
- The speech difficulties noted at the time of assessment are impacting the client's ability to participate in activities and roles in his/her daily life.

A greater number of risk factors identified at the time of assessment for each child would increase their priority for service.

The maximum time patients/clients should wait from the time of initial assessment until intervention is as follows for children in the high risk category: 3 months for children aged birth to three years; 1 month for children aged 4 through 6 years; and 3 months for school aged children. The maximum time patients/clients should wait from the time of initial assessment until intervention is as follows for children in the low risk category: 6 months for children aged birth to three years; 3 months for children aged 4 through 6 years; and 8 months for school aged children.

These recommendations and the accompanying justification are summarized in Table 1. The justification for the recommended wait times bench marks, summarized in the top part of Table 1,encompasses the whole of the literature review presented above. The primary consideration is clearly the elevated risk of long-term difficulties in the social, emotional, academic, and/ or vocational domains for children who fail to achieve normalized speech accuracy prior to school entry. However, the review should be taken as a whole and the recommended wait times bench marks take into account all of the information that has been presented, aggregating information across many studies and integrating the reviews in the three domains (nature of SSD, time course, and long-term consequences, and efficacy of treatment for SSD).

Discussion

There are a number of different approaches that might be taken when identifying appropriate wait time benchmarks for any given service. The approach described in this report is most closely aligned with that of the expert panel as described by Naylor (1998). The SSD panel considered quality of life and patient outcomes as revealed

Table 1. Benchmark Wait Times for Pediatric Speech Sound Disorders

Justification for the Benchmark Wait Times Recommendations

1. Nature of SSD
   a. SSD are a commonly occurring developmental impairment, arising from genetic and environmental factors
   b. Co-occurrence with other neurodevelopmental impairments is common
2. Time course and long-term consequences
   a. Persistence of SSD past the point of school entry increases the risk of long-term consequences
   b. Some children experience long-term difficulties in the social, emotional, academic, and/or vocational domains
3. Efficacy of treatment for SSD
   a. Interventions that are provided at the appropriate time with sufficient cumulative intensity are usually effective
   b. Intervention that is delayed until the prekindergarten year typically do not result in normalized speech outcomes prior to first grade entry

Factors to Consider When Placing Child in High Risk Category

1. Reported family history of speech-language delays/disorders and/or reading difficulties;
2. Identified language impairments in conjunction with speech sound disorders at the time of assessment;
3. Identified difficulties with phonological processing, including non-word repetition tasks and phonological awareness tasks at the time of assessment;
4. Child is entering school in September of the coming school year.
5. The speech difficulties noted at the time of assessment are impacting the client's ability to participate in activities and roles in his/her daily life.

Benchmark Wait Times Recommendations

1. ***Time to Assessment:*** The maximum time children should wait for an initial response following the service provider's receipt of a referral/self-request for service and accompanying intake information should be 2 months regardless of age or risk status.
2. ***Time to Intervention:*** The maximum time children with an identifiable speech disorder should wait for intervention following the service provider's assessment varies with age and risk status as follows:

Risk Category	Birth to 3 Years	4 to 6 Years	School Age
High Risk	3 months	1 month	3 months
Low Risk	6 months	3 months	8 months

by a thorough review of the literature but our interpretation of this literature is necessarily coloured by clinical inference and our personal values in a society where health care and education are publicly funded services available to enhance the well-being of people who live in the society. There is necessarily a degree of subjectivity to the process. Nonetheless, we present these recommendations with confidence given the structured process that was adopted and the quality of evidence that has been presented, notwithstanding the need for considerably more research that addresses the impact of specific interventions on the prevention of the long-term social, emotional, academic, and vocational outcomes that we describe in this report. The recommendations are founded on three essential arguments that are subject to a high degree of consensus in the scientific literature and among S-LPs: first, SSDs are a frequently occurring diagnostic category in the general population and on SLP caseloads; second, children with SSDs who do not resolve their speech problem prior to school entry are at greater risk for adverse outcomes than those children who do achieve normalized speech prior to school entry; and finally, speech therapy interventions for SSDs have been shown to be effective in randomized controlled trials when provided with sufficient duration and intensity. Furthermore, the risk factors identified for moderating the wait time for the provision of treatment are associated with an impressive body of clinical and basic science research.

Another approach to the development of wait time benchmarks is to consider the perspective of patients as the primary guide. Patient perception of their wait for medical services (such as joint replacement) and satisfaction with the length of wait is influenced by quality of life factors such as pain and disability (Conner-Spady et al., 2011). Patient satisfaction with wait time is also influenced by the perception of fair treatment however. These authors report that while fairness in access to health care is traditionally associated with the "first come, first served" model, patients are willing to accept queuing models that prioritize access to care based on patient need. Information provided to patients about the duration of the wait and the fairness of the method of prioritizing patients for service is an important factor in managing expectations and improving satisfaction.

Regarding satisfaction with wait times for speech-language assessment and therapy services, we are not aware of any published documentation for the Canadian context. However, service delivery in Canada has much in common with Australia which also has a mixed public-private service delivery model for the provision of rehabilitation services for children. Ruggero, McCabe, Ballard, and Munro (2012) describe the Australian context as one in which there is no legislated or mandated entitlement for children with speech and language disorders to receive a minimum amount of service; furthermore, policies and definitions regarding access to care for this population varies by state and territory, a situation that mirrors varying policies across provincial and territorial boundaries in Canada. These authors describe parent satisfaction with access to speech-language pathology services for their children in relation to the parents' preferences for delivery of these services. In this study, parents reported that the most common wait time for assessment service was 2-to-6 months whereas the most common wait time for treatment after assessment was 1 month. A substantial minority waited 6 months or longer however, with certain geographic regions being associated with very long waits for service. Satisfaction with speech therapy services was high but a longer wait from assessment to initiation of treatment was significantly associated with lower satisfaction. Moreover, the most common suggestions given by parents to improve services were to provide more service and shorter wait times. With respect to these findings, the wait time benchmarks recommended by the Alliance in this report, if implemented across Canada, could contribute to increased satisfaction by parents by increasing consistency and perceived fairness; specifically, the guidelines and this report provide a basis for managing expectations by informing parents about the rationale for wait times policy. Furthermore, the recommended wait times are reasonably short and appear to be within the bounds of what parents find to be acceptable as inferred from Ruggero et al.'s (2012) report.

Another common approach is for governmental jurisdictions (i.e., province, municipality, health region, or specific health care sector) to establish wait time benchmarks based on institutional and political considerations such as resource availability and perceived acceptability of a given wait time (Sanmartin, 2001). These policies have been found to have short-term effectiveness but lack long-term stability, in part, because the bench marks that are selected in this fashion may not be congruent with the values and expectations of health care providers or patients. One serious drawback to this approach is that wait times are likely to vary considerably across jurisdictions. Even though the health care system as a whole is bound by the principle of universality, individual jurisdictions, whether they be geographic or sectorial, will attempt to limit their wait lists and encourage patients to seek services from another jurisdiction. These policies

create confusion for patients, waste resources as providers expend a great deal of effort on 'gate keeping' functions, and reduce the perception of fairness throughout the system. The bench marks that are recommended by the Pan Canadian Alliance allow for variation based on age of the patient and numbers of risk factors such that service providers that care for patients with different characteristics may well have different wait time policies. However, overall, there should be greater consistency as a function of these patient characteristics and it will be possible to explain the needs-based rationale for these variations to families.

Different jurisdictions may argue that there are special considerations specific to their circumstances that require an adjustment to the recommendations. For example, rural and especially northern geographic locations have fewer clinicians and urban providers must cope with heterogeneous cultural and linguistic mixes in their caseloads. Shortages of resources will certainly have an impact on the way that the recommendations are implemented and the nature of the services that are provided. It may be necessary to provide services via telehealth or with the support of paraprofessionals and there is an urgent need for research to determine the effectiveness of these service delivery models (Hill & Theodoros, 2002). Cultural and linguistic differences will complicate the identification of risk factors but are not in and of themselves risk factors and do not change the requirement to provide care in a timely fashion (for more information about the assessment of SSD in multilingual children see the website Multilingual Children's Speech and related book, McLeod & Goldstein, 2011).

In conclusion, the Pan Canadian Alliance of Speech-Language Pathology and Audiology Organizations recommends these wait time benchmarks for assessment and intervention for children with SSDs. It is expected that these recommendations be applicable across Canada. The alliance is in the process of developing similar wait time benchmarks for a range of diagnostic groups and urges generalist S-LPs, specialist S-LPs, and academics to join the alliance in this collaborative process.

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Appendix A

There are currently 11 members of the Alliance (*denotes both a regulatory college and a member association). They include:

- Speech-Language and Audiology Canada (SAC)
- British Columbia Association of Speech-Language Pathologists and Audiologists (BCASLPA)
- Alberta College of Speech-Language Pathologists and Audiologists (ACSLPA)*
- Saskatchewan Association of Speech-Language Pathologists and Audiologists (SASLPA)*
- Ontario Association of Speech-Language Pathologists and Audiologists (OSLA)
- New Brunswick Association of Speech-Language Pathologists and Audiologists (NBASLPA)*
- Speech and Hearing Association of Nova Scotia (SHANS)
- Prince Edward Island Speech and Hearing Association (PEISHA)
- Newfoundland and Labrador Association of Speech-Language Pathologists and Audiologists (NLASLPA)
- Yukon Speech-Language Pathology and Audiology Association (YSLPAA)
- Association of Northwest Territorial Speech-Language Pathologists and Audiologists (ANTSLPA)

Appendix B

PAN CANADIAN ALLIANCE WAIT TIME BENCHMARK TEMPLATE
September 2012

1. **Define the Disorder Area/Service Area Identified for the Particular Benchmark**

   e.g., Speech Sound Disorders (SSDs) is a term coined by Shriberg, Austin, Lewis, McSweeny, & Wilson (1997) and includes the following categories of sound disorders:

   - Genetic (comparable to what was previously known as "functional" or "of unknown origin");
   - Otitis Media related;
   - Subclinical motor speech disorders;
   - Residual errors (e.g., /r,s,th/) seen in school-aged children

   Adult Audiology encompasses . . . .

   Where possible, provide a reference for the definition provided (there may be more than one).

2. **Identify Risk Factors Associated with Waiting for Assessment and/or Treatment Services:**

   - Identify any impairments and/or difficulties associated with the identified disorder area and reference, as appropriate (e.g., *SSDs can be associated with language impairments, reading disability and associated academic difficulties, as well as social problems that may lead to poor long-term outcomes such as school failure, underemployment, and delinquency (see references).*
   - Identify any timeframes cited in the literature (if available), or that can be extrapolated from the literature, with regard to the negative impacts of waiting for assessment and/or treatment services (e.g., *There is growing evidence that children whose speech and language problems normalize before school entry have markedly better outcomes than children whose speech and language problems persist past the point of school entry (see references*).

3. **Wait Time Definitions**

   Specify the particular definitions of interest for the benchmark.

   e.g., Time to Assessment: The maximum time clients should wait for an initial response following the service provider's receipt of a referral/self-request for service and accompanying intake information.

   Time to Intervention: The maximum time clients (i.e., children with an identifiable speech disorder) should wait for intervention following the service provider's assessment.

4. **Benchmark Recommendations**

Time to Assessment*

The maximum time patients/clients should wait from the time they receive a referral until the date of the first available appointment is ____ (hours/days/weeks/months).

Time to Intervention*

The maximum time patients/clients aged ____ to ____ should wait from the time of initial assessment until intervention is ____ (hours/days/weeks/months).

*Note that recommendations for each disorder/service area may either be stated for the entire population or may vary dependent on age group/# of risk factors identified, etc. It is up to the individual committee to decide how they wish to present their benchmark recommendations (see examples from fluency, speech sound disorders, cochlear implants, etc.)

5. **Additional Considerations**

Identify any additional considerations (*e.g., wait times for school-aged services may be impacted by periods such as summer vacation in which speech-language services are typically not available*).

6. **Levels of Evidence to Support the Identified Benchmark**

Identify how the committee arrived at the benchmark recommendations (include all levels of evidence that were used):

- Review of the literature (with references cited in the "References" section of the document) (these may include research articles, provincial, national, and international guidelines and reviews, published surveys, etc.)
- Expert clinical opinion

7. **References**

Provide a complete reference list using APA format.

8. **Committee Participants**

List names and credentials of participants alphabetically, identifying chairperson

9. **Date**

Include date benchmark was submitted for approval

Approved benchmarks will include the date when approval was obtained

Disclaimer

While the benchmarks contained in this publication were developed using the best evidence available at the time, they do not define a standard of care nor should they be interpreted as legal advice.

Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

The Pan Canadian Alliance for Speech-Language Pathology and Audiology assume no responsibility or liability arising from any error or omission or from the use of any information contained herein.