The Westmead Program Treatment Guide

February 2023 (Version 1.3)

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OVERVIEW

Qualified practitioner

It is essential that a qualified speech pathologist (subsequently referred to as clinician throughout this guide) trains, guides, and supervises the parent during the Westmead Program. The treatment is not designed for administration by the parent independent of clinicians. This guide is intended as a reference tool for use by clinicians during treatment.

A behavioural treatment

The Westmead Program is a treatment for children younger than 6 years of age that aims to reduce stuttering. The parent does not change the family lifestyle in any way, apart from encouraging the child to use syllable-timed speech during practice sessions, and occasionally throughout the day. The child's parent delivers the treatment in the child's everyday environment. The ultimate aim of the treatment is no stuttering or nearly no stuttering, with speech that does not sound unnatural in any way.

Syllable-timed speech (STS)

STS involves saying each syllable in time to a rhythmic beat. For example, "The chil-dren are play-ing on the tram-pol-ine." Typically, STS produces vowels of similar duration for each syllable. For very young children, it can be useful to give STS a name, for example, "syllable talking" or "rhythm talking."

Origins of the treatment

It has been known for centuries that talking to a regular beat reduces stuttering. According to one model,[1] the speech motor systems of those who stutter may be susceptible to variations in linguistic stress. These variations are triggers for stuttering. Saying each syllable in time to a rhythmic beat reduces these variations and allows the child to produce and practise stutter-free speech. It is thought that this helps to stabilise the child's speech motor system.

Measuring stuttering

Regular measurement of the child's stuttering severity occurs throughout the Westmead Program with a stuttering Severity Rating (SR) scale: 0 = *no stuttering,* 1 = *extremely mild stuttering*, and 10 = *extremely severe stuttering*.[†] The parent and the clinician use the SR scale during the program.

Parent consultations

The parent initially consults with the clinician weekly, either by clinic visit or by webcam. Consultations typically last for around 45 minutes. Consultations reduce to fortnightly when specific criteria have been met (see *Treatment progression*, below). During each consultation, the clinician instructs the parent how to do the treatment and ensures that it is being done properly. Later in this treatment guide, an outline of

[†] Similar versions of the scale have been used in previous versions of the treatment.

the specific criteria for reducing the frequency of visits is given, as well as suggestions about what should occur during each consultation and in what order.

Treatment goals during Stage 1 and Stage 2

The program is conducted in two stages. The treatment goal during Stage 1 is for the child to speak with no stuttering or almost no stuttering in everyday conversations, and the goal of Stage 2 is for no stuttering or almost no stuttering to be sustained for a long time.

Resource materials

On the Australian Stuttering Research Centre website (see *https://www.uts.edu.au/asrc/resources/westmead-program*), there are a number of downloadable resources to help clinicians implement the Westmead Program. These are (a) the *Child Stuttering Severity Chart* in eForm and PDF format, (b) a *Syllable-Timed Speech Training Model* of how it should be used throughout the program, (c) four *Video demonstrations* of a clinician teaching STS to a child using imitation, short sentences, long answers, and conversation, and (d) a *Stuttering Treatment Activity Guide* containing a list of activities that can be used with a child to practise syllable talking.

Measurement: the severity rating (SR) scale

Overview

The following section contains general information about stuttering SRs, their importance and use generally, and the training required. The *Westmead Program clinic consultations* section contains specific information about how to integrate this training into weekly consultations with the parent.

Purpose of SRs

SRs are used to measure the child's stuttering during each consultation and in the child's everyday speaking situations. The simplicity of SRs makes them a quick and effective way for the clinician and parent to communicate with each other about the child's stuttering severity. They enable treatment goals to be evaluated constantly. If progress is not satisfactory, then SR scores alert the clinician, and efforts can be made to resolve the issue. Such problem solving, and subsequent decision making, is a routine part of the Westmead Program, and much of it centres on SRs. It is useful if the clinician explains the importance of SRs to the parent during the first consultation, and reiterates this throughout the course of the treatment. Taking time each week to discuss and problem-solve around the child's SR scores from the previous week is a major contributor to the parent continuing to collect and report daily SR scores.

Treatment goals determined by SRs

The parent assigns a SR to their child's speech each day, and the clinician assigns a SR during each consultation. Long-term treatment goals, weekly treatment decision-making, and progression through the program are all based on these scores (see *Syllable-timed Speech Practice: Overview*, below).

A flexible measurement

SRs are a flexible way to measure stuttering severity. Each day, the parent records a SR for the whole day to reflect the child's typical stuttering severity for that day. In other words, the parent records the score for the majority of the day. The parent may not always hear the child talking all day. An example is when the child is at pre-school. In such a case, the parent assigns SRs based only on the speech heard during the day.

Variations of the SR procedure can be used, involving more than one SR per day, if the clinician thinks it would be useful. For example, one SR could be used for typical severity and another for highest severity during the day. Additionally, the clinician may wish the parent to use supplementary SRs for a particular speaking situation that occurs each day, such as during dinner, bath time, or shopping. These SRs are recorded in addition to the daily SR. Another option is for the parent to record a highest and lowest SR for each day.

Valid and reliable parent severity ratings are essential

Research shows that parents are usually able to assign SRs that agree with those of a clinician[2,3] and the general community.[4] It is essential for the clinician to ensure that this agreement occurs, as treatment progression and problem-solving rely on the parent and clinician having a reliable means of communication. However, the clinician also needs to be aware that the child's speech during a consultation, and, hence, the child's SR during that consultation, may not accord with parent scores from the child's everyday conversations. For various reasons, such as child shyness, reduced amount of conversational speech, or lack of variation in activities during the consultation, this SR may often be different from the parent report of SRs around the home environment.

Parent SR training

The parent is trained to use SRs either at assessment or during the first consultation. Training begins with the clinician explaining the reason for collecting measures, and then explaining the scale and its end points. The parent or the clinician, or both, talk with the child for a few minutes until the child displays a reasonably representative amount of speech and stuttering. After a few minutes, the clinician asks the parent to assign a SR to the speech sample. The clinician indicates whether that is an appropriate score and, if necessary, suggests a different score.

This score is documented in the child's file. As noted above, the clinician needs to be aware that this within-clinic score is not necessarily representative of the child's everyday conversational stuttering severity. Also, if the child's stuttering increases significantly during the remainder of the session, possibly due to more representative speech being elicited, the latter score would be documented.

All subsequent consultations begin with a child conversation. The parent then assigns a SR score, and the clinician either confirms that the score is appropriate or provides corrective feedback. The clinician's judgement, based on clinical experience, is used as the yardstick for SR scores. Acceptable agreement is when the parent SR is within one scale value of, or identical to, the clinician SR. It is desirable, however, during the later stages of Westmead Program treatment, for parent and clinician SR scores to be identical. This is because, during those later stages of treatment, the child's severity is at the lower end of the range where there is less margin for error with clinical use of the scale.

Another more time-efficient and valid speech sampling method—particularly early in treatment—is for the parent to take an audio or video recording of the child during one or more conversations of everyday life. This provides a much more realistic measure of the child's stuttering severity. In this scenario, the clinician and parent listen to the recording together and consider a SR score at the start of the consultation. This method has the advantage of being able to scan quickly through a long and representative set of recordings of the child's speech.

Discussion of the different types of stuttering in the child's speech is a useful part of a consultation. This is because clinical improvement, in terms of reduced stuttering, is often accompanied by a change in the type of stuttering a child presents with. One method of classifying stuttering behaviours[5] uses three main categories: repeated movements, fixed postures, and extraneous behaviours. A moment of stuttering may comprise one or more of these behaviours.

Documenting SRs

The parent may produce hand-written SRs each week for the consultation or use an e-version of the form accessible from a digital device. The *Child Stuttering Severity Chart* in eForm and PDF format can be found on the Australian Stuttering Research Centre website (see *https://www.uts.edu.au/asrc/resources/westmead-program*). Another option is for the parent to send SRs to the clinician at regular intervals, such as daily or every few days, using a digital device. The key to collecting SR scores is for the parent to do this consistently and accurately. The method that is used to record SRs should be guided by parent preference and convenience.

The bilingual child

When a child speaks two languages, it is important to ask the parent whether the child stutters more in one language than in the other, and to regularly report SRs for both languages. This information feeds into a decision about whether to include one or both languages in treatment. If the child tends to stutter

more in the language of treatment, there is no reason to doubt that gains will generalise to the other language. On the other hand, if the child stutters more in a language other than the language of treatment, it is important to also do treatment in that other language.

STS Practice

Overview

At the beginning of treatment, the clinician instructs the parent and child how to do STS using demonstration, imitation, and practice. STS is initially taught using a slowed speech rate then progresses over time to a near-normal speech rate with normal intonation, volume, and pitch. Some children may need to maintain the slowed rate for some time, and other children may need to drop back to a slower rate at a later time if STS is difficult to maintain. The parent is instructed to model STS to the child at home and to encourage the child to use STS in practice sessions during natural, everyday conversations.

STS practice sessions are initially encouraged 4–6 times per day for about 5–10 minutes each time.* The number of practice sessions may be reduced gradually over time as the stuttering reduces. Treatment continues until the following criteria are met: (a) clinician SR of 0 or 1 during the consultation, and (b) daily parent typical SRs of 0–1 during the week preceding the consultation, with at least four of those seven SRs being 0. These criteria need to be met for two consecutive fortnightly consultations. At this time, the child progresses to stage 2 of the program where consultations become less frequent, providing that stuttering reduction is maintained. During Stage 2, STS practice is withdrawn gradually.

Hierarchy of STS teaching

The treatment begins with the clinician teaching the child how to do STS while the parent observes. Age appropriate books are useful for stimulating speech. Examples are *Where's Wally?* for older children and *Usborne Picture Books* for younger children. STS is spoken like this:

- The dog is run-ning;
- The kit-ten is li-cking its paws
- The wo-man is ri-ding a brown horse

STS is introduced initially using imitation, with short sentences and slowed rate. Both imitation and slowed rate assist the child to achieve correct production of the speech pattern and are important teaching techniques. However, it is also important to use and encourage normal volume, pitch, and intonation. Each syllable should be joined to the next one in a smooth flowing manner (*legato*) rather than punched out with each syllable separated from the next one (*staccato)*. On the Australian Stuttering Research Centre website (see *https://www.uts.edu.au/asrc/resources/westmead-program*), there is a *Syllable-Timed Speech Training Model* of how STS should be used throughout the program, and there are four Video demonstrations of a clinician teaching STS to a child.

When the child can sustain STS for a number of short utterances, the child moves to simple conversation. Picture books or conversations about play activities can be used as stimulus materials. Some children may need intermediate steps, such as picture description or asking questions, to elicit short answers. These steps reduce the cognitive load and help the child to concentrate on using the new STS pattern more successfully. Progression from short utterances to simple conversation may take place quite quickly—within a week, or over several weeks—depending on the child's ability to imitate and maintain use of the technique. Children with issues additional to stuttering typically take longer. No programmed instruction is used when the STS pattern is taught.

* In some situations, at the discretion of the clinician, fewer that four STS practice sessions a day may be suitable, provided that a reduction of SRs can be attained.

It can be useful for the clinician and child to make a recording of them talking together using the STS pattern correctly. This reference model helps to stop the child's or parent's technique from morphing into normal speech or moving towards staccato-sounding speech when practising at home together.

Home STS practice sessions

When the child and the parent demonstrate proficient use of STS with the clinician, practice sessions begin at home. A practice session is when a time is specifically set aside for the parent and child to use STS together. This may be in a naturally occurring conversation if the child is able to do this. However, early in the treatment, it might be in a time set aside for imitation or use of STS in short sentences. The goal is for the child to use STS for 5–10 minutes at a time during 4–6 practice sessions spread across the day. Practice can be done anywhere a parent and child are together and able to concentrate on the task. Examples of everyday naturally occurring treatment situations would be talking at the dinner table, reading a book, engaging in a play activity together, preparing meals, hanging out the washing, or travelling in the car. The parent also speaks in STS during these practice times.

During practice sessions, the child should be trying to maintain STS for most of the time. Occasional gentle prompts for STS may be used. An example is "You are doing really well, but see if you can do a little bit more syllable talking." If the child is unable to maintain STS in conversation, then there may be a need to temporarily go back to easier practice tasks, such as imitation or short sentences, as well as for the parent to slow down when modelling STS. Sometimes more focused practice activities may help, such as looking at a book or photos together. Some children may need to rely on imitation for some time, but improvement can still be made in such circumstances. Parents can encourage and reinforce the child's use of STS with praise—"Great syllables! Keep talking like that!"—or the parent can request that the child self-evaluate the use of STS. An example of the latter is "Was that great syllable talking?"

Some essential considerations about STS practice

How STS should sound

STS is initially taught with slowed speech rate, then progresses to a near normal speech rate. However, the child may need to drop back to a slower rate at times if the child finds STS difficult to maintain. When using STS, it is essential to ensure that both parent and child use normal volume, normal pitch, and normal intonation, and to link the syllables together. Each syllable should be evenly stressed.

Be sure the parent is demonstrating and eliciting STS correctly and consistently

The clinician needs to be sure that the parent is demonstrating and eliciting STS correctly according to instructions. At each consultation, the parent demonstrates how practising STS has been done with the child during the previous week, and the clinician gives feedback. Alternatively, the parent may audio or video record examples of themselves doing STS practice sessions and play them to the clinician during the consultation. The clinician also engages the child in an STS practice session to demonstrate treatment for the parent to observe. The order of parent or clinician demonstration is not critical, but it is determined by discussion and problem-solving, and typically changes as the parent and child become more skilled with the STS speech pattern. It is not a static process but a fluid one.

Practice sessions are a positive experience for the child

Practice sessions must be a positive experience for the child. It is essential to identify when they are not a positive experience. Activities need to be varied to avoid boredom. The clinician should also watch out for parent over-correction. Neither STS nor a request for self-evaluation should be used as a correction for stuttering during STS practice sessions.

When to reduce practice sessions

At the beginning of treatment, the aim is to have the child practice STS 4–6 times a day for 5–10 minutes at a time. This is mostly in natural conversations, although, for some children, imitation may be needed for a while in the initial period. Some children may also need to use, or return to, a slowed speech rate to be able to maintain the technique. When the SRs begin to reduce significantly and consistently, the number of practice sessions each day can be gradually reduced. At least one practice session a day should be maintained until the child moves into Stage 2. Once the child is in Stage 2, the remaining daily practice session is gradually withdrawn.

Prompts

When the child can maintain STS for most of the practice session, and 4–6 practice sessions are being done each day, prompts are introduced. These are used outside of practice sessions. A prompt involves the parent encouraging the child to use STS for a few sentences during a naturally occurring everyday conversation. At other times during the day, it is useful for the parent to speak using STS for a few sentences and allow the child to join in. While there is no requirement for the child to use STS at these times, the child tends to use it unknowingly. It is important that the timing and frequency of prompts are discussed with the parent. Generally, no more than one prompt per hour would be recommended, and only if the child tolerates them. They should also only be provided in "comfortable" environments, such as with the family, but not in the presence of friends or peers. At this stage of the program prompts for STS should never be used as a response to the child's stuttering.

Rewards

Compliance may be an issue for some children. In such a case, it may be appropriate to reward the child specifically for compliance. Rewards are optional and individualised for each child. Sticker charts, tokens earned towards an ultimate goal, or activity-based rewards may be designed to suit the child's age and interests. Praise for the child's use of STS should occur occasionally, both within and outside of practice sessions. Compliance should not be confused with a child's inability to sustain STS use. In such a case, slowed speech rate and praise are more appropriate.

Treatment progression

The parent and child initially consult with the clinician weekly, either in the clinic or by webcam. When the child can maintain STS for the 5–10-minute practice sessions and is complying with practice sessions 4–6 times a day, prompts are introduced, and consultations move to fortnightly. When Stage 1 criteria are met (see below) the child moves into Stage 2 of the program.

Treatment criteria for progression to Stage 2

To progress to Stage 2, the following criteria need to be met for two consecutive fortnightly consults: (a) clinician SR of 0 or 1 during the consultation, and (b) daily parent typical SRs of 0–1 during the week preceding the consultation, with at least four of those seven SRs being 0. A minimum requirement during Stage 2 is for the parent to document SRs during the week preceding the consultation. However, the clinician may request the parent to document SRs more often.

Stage 2

The purpose of Stage 2

Stage 2 serves three purposes: (a) to withdraw practice sessions, (b) to maintain the absence or low level of stuttering that was attained during Stage 1, and (c) to ensure that the parent understands how to monitor and manage any increase that may occur in the child's stuttering, reintroducing STS practice if needed.

Systematic withdrawal of practice sessions

During Stage 2, the parent slowly withdraws the last of the STS practice sessions, providing that it can be done without an increase in stuttering. The clinician makes suggestions for the speed and timing of the

withdrawal of practice sessions, although occasional practice sessions are typically recommended for a few months. Prompting for STS may be used intermittently, and after moments of stuttering if appropriate. This is because stuttering frequency during Stage 2 is very low. Decisions about the timing and rate of withdrawal of practice sessions are based on the child's SRs and after discussion with the parent.

Empowering the parent

The parent should be taught to problem-solve and deal with any increases in stuttering severity in the first instance. If stuttering increases minimally—to SRs of 1 or 2—the parent should be taught to reintroduce a practice session daily until the SRs reach criterion levels again. Practice sessions may need to include a minimal amount of STS practice. An example is 1 minute of STS and 9 minutes of natural-sounding speech with contingencies.

The parent should be encouraged to monitor for such an increase in stuttering severity and to attempt to control it themselves before coming back to treatment consultations. However, if SRs increase substantially, or do not respond to reintroduction of practice sessions, the parent should be encouraged to contact the clinician for advice prior to the next scheduled Stage 2 consultation.

Performance contingent maintenance

A performance-contingent maintenance schedule applied to stuttering treatment, and its potential benefits, have been documented.[6] Performance-contingent maintenance means that the parent and child consult with the clinician less frequently, providing that treatment targets are maintained. For example, four consultations 4 weeks apart, then two consultations 8 weeks apart, and, finally, one or two consultations 16 weeks apart. The schedule normally takes a year or more.

A common Stage 2 problem

When a child completes Stage 1 and there is no stuttering or nearly no stuttering, the parent or clinician, or both, can become complacent and not follow through with the prescribed Stage 2 maintenance program. This creates a serious risk of relapse. It is important for the clinician to ensure that the parent is fully aware of the importance of a performance-contingent maintenance schedule, and the risks if it is not followed.

Westmead Program clinic consultations

Stage 1 consultations

During the first part of Stage 1 the parent and child consult with the clinician once per week. Each consultation is typically around 45 minutes. Once the STS practice is mastered, that is, the child is compliant with 4–6 practice sessions daily, consultations reduce to fortnightly. The following events normally occur during a consultation.

(1) Child conversation

The parent or the clinician, or both, converse with the child until the extent of stuttering, if any, is apparent. Alternatively, the parent and clinician listen to a recording, or a selection of recordings, of the child conversing during everyday life.

(2) Check parent SR

The clinician and parent discuss a SR using procedures outlined previously (see *Parent SR training*, above). The clinician then documents a SR. The clinician needs to be mindful that a within-clinic SR is not necessarily representative of the child's speech during everyday activities.

(3) Discussion of progress since last consultation

The parent reports the child's SR scores for each day of the previous week and the number, duration, and success of daily STS practice sessions. The clinician then uses this information to focus an in-depth

discussion of severity and treatment responsiveness from the previous week. Discussion questions normally include the following:

- When were practice sessions planned, did they occur as planned, and how often did they occur and for how long?
- When during the day did the practice sessions occur?
- What activity was the child and parent involved in during practice sessions?
- Was STS practised in imitation or conversational speech?
- Was the child able to sustain STS throughout the practice session?
- How much was the child using STS during the practice session?
- Did the parent use prompts for STS? How often? With what result?
- Did the parent think anything did or did not work particularly well during the week?
- What was the relationship between stuttering severity and STS practice?
- Did any activities appear to trigger an increase in stuttering?
- Did the child enjoy and was the child compliant with the practice sessions?

(4) Clinician and parent demonstrate an STS practice session

It is essential during each consultation for the clinician and the parent to demonstrate STS practice with the child, as each serves a different purpose. The clinician demonstrates with the child in order to reinforce to the parent the correct way to do the treatment. This can reassure less confident parents that what they are doing is correct. It can also model the best procedures for the parent who is having difficulty with the structure of practice sessions. It directs the changes that need to be made. Finally, it empowers the parent with more information.

It is also essential for the parent to demonstrate how the practice sessions have been conducted with the child at home. This may be done during the consultation, or the parent may bring in a recording of a session done at home, or both. This enables the clinician to see how well the parent has interpreted instructions given, and how well the parent has been able to structure and conduct the sessions at home. This information is essential so that the clinician and parent can engage in problem-solving each week.

Whether the clinician or the parent demonstrates first depends on a number of factors, including the stage of treatment, the behaviour and cooperation of the child, the confidence of the parent, and the discussion of progress during the previous week. Regardless of the order of demonstration, the fact that both the clinician and the parent demonstrate allows the child to get more practice using STS.

(5) Parent and clinician discuss issues with the conduct or scheduling of STS practice sessions

During and subsequent to the demonstration of the STS practice sessions, the clinician and parent discuss any issues that become apparent with the scheduling, conduct, or structuring of the practice sessions. If the recommended procedures are not able to be followed, the clinician and parent discuss the reasons for this and the solutions.

(6) Planning treatment changes for the coming week.

The parent and clinician discuss changes to procedures (for example, practice sessions or prompts) for the coming week and activities to use during practice sessions. The clinician may demonstrate to the parent any changes to the treatment procedures for the coming week. The parent may also demonstrate the changed procedures if the child is compliant with this. This, along with points 4 and 5 above, is not prescriptive in terms of the order of the procedures, and often they occur simultaneously. The important point is that the clinician and parent, together, discuss and problem-solve any issues to do with implementation of the STS practice sessions, prompts, or child compliance that are uncovered during the session. The clinician uses opportunities for further teaching and demonstration as required.

(7) Concluding the consultation

The clinician concludes the consultation by summarising the plan for the coming week. The clinician encourages the parent to raise any further matters for discussion.

Stage 2 consultations

A typical Stage 2 consultation is 30 minutes. The initial procedures of a Stage 1 consultation, as described above, are conducted: the clinician or parent converses with the child (preferably supplemented with some home recordings), the clinician checks the parent SR, and the parent presents SRs from the previous week. The clinician and parent then discuss the extent to which the child's clinic SR and weekly SRs have been typical of all weeks since the last consultation. They then discuss progress generally since the last consultation. Topics may include, but are not limited to, (a) the stability of the stuttering reduction, (b) the duration and degree of any fluctuations, (c) the number of practice sessions or the need to reintroduce any practice sessions, (d) the use and effectiveness of prompts, or (e) any activities that prompted more stuttering. Withdrawal of practice continues as soon as possible once low SRs are maintained.

The parent continues to collect daily SRs for, at least, the week prior to each consultation. If the child meets the criterion treatment goals (see *Treatment criteria for progression to Stage 2*, above), the clinician arranges progression to the next step in the performance contingent Stage 2 schedule. If the child does not meet those goals, progress is not recommended. Instead, depending on the child's stuttering severity and the parent's ability to deal with stuttering fluctuations, the clinician either (a) schedules a consultation for the next week, or the week after that, and makes recommendations regarding management of the child's increased stuttering, (b) schedules a return to an earlier stage of the sequence of Stage 2 consultations, or, (c) on rare occasions, returns the child to Stage 1.

Stage 2 continues until the child has sustained minimal stuttering for around a year. Subsequent to the conclusion of Stage 2, the parent is advised to contact the clinician if any relapse occurs that cannot be managed by short-term reintroduction of STS practice.

The Westmead Program evidence base at February 2023

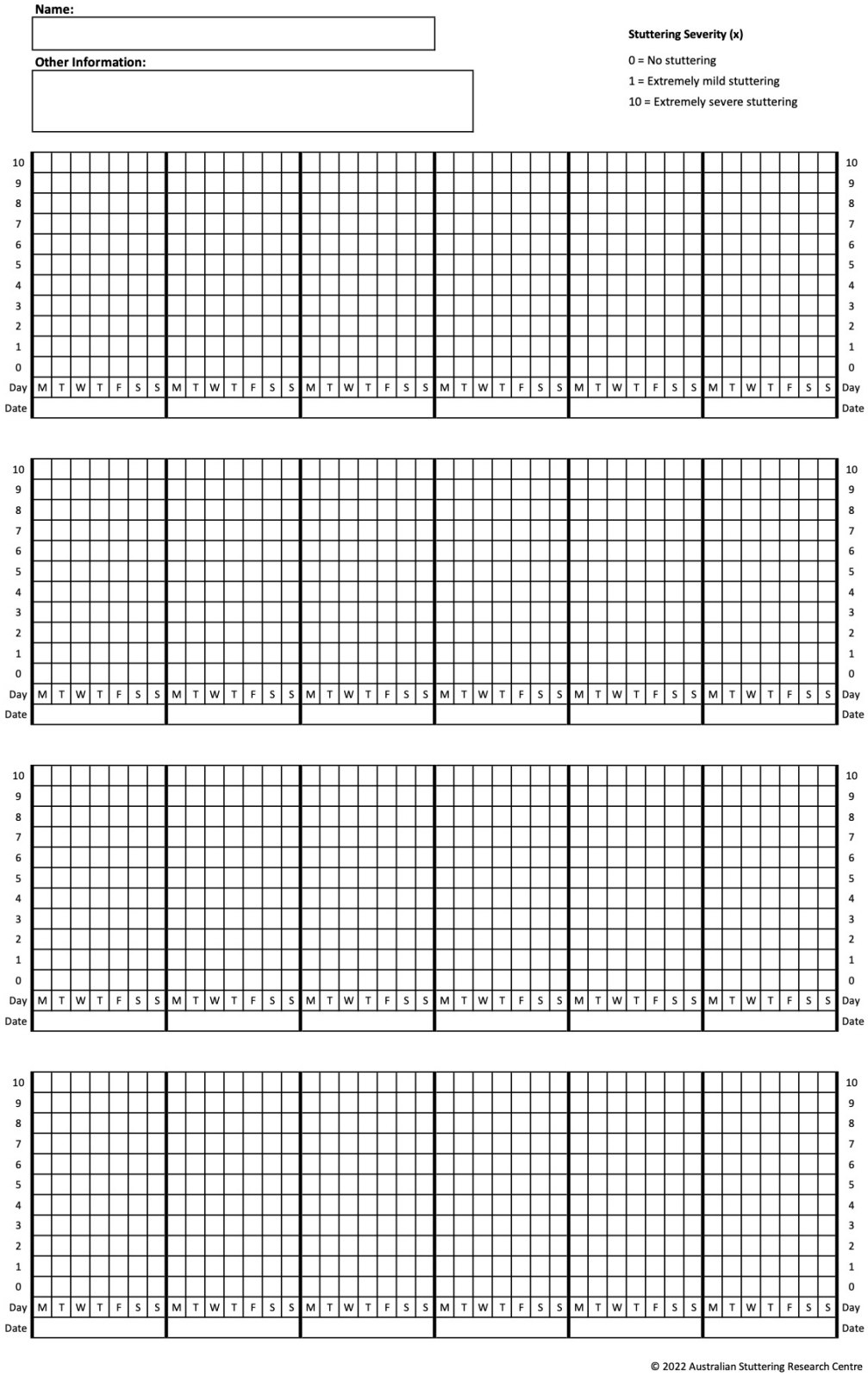
There are currently five clinical trials involving the Westmead Program. Four of these are with pre-school children.[7,8,9,10] There is one clinical trial with older children.[11] The strongest clinical trial evidence was a trial with 91 pre-school children up to 5 years 11 months of age.[10] This was a three-arm randomised controlled trial with the Lidcombe Program as the control arm and the Westmead Program and the Oakville Program as the two experimental arms. There were blinded outcome assessments at 9-months post-randomisation. There was no difference in %SS scores between groups at 9-months post-randomisation. A major limitation of this study, however, was the large drop-out rate of around 43% for both STS treatments.

Acknowledgements

The authors of this guide wish to acknowledge the valuable input of the following people in reading and offering comments on early drafts of this guide: Monique Jones, Damien Liu-Brennan, and Ann Packman.

Appendix One: Child Stuttering Severity Chart

Downloadable at the Australian Stuttering Research Centre website in eForm and PDF format (*https://www.uts.edu.au/asrc/resources/westmead-program*).



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