The Lidcombe Program Treatment Guide

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OVERVIEW
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Professional issues

Qualified practitioners

Practitioners who use the Lidcombe Program are known by various terms including, but not limited to, speech pathologist (Australia), speech-language pathologist (North America), speech and language therapist (United Kingdom), Logopäde (Germany), orthophoniste (France), logopædagog (Demark) and logopedist (Netherlands). In this guide the generic term clinician is used.

An important note

It is essential that a professionally qualified clinician trains, guides, and supervises parents during the Lidcombe Program. This guide is intended as a reference tool for use by clinicians and parents during that process. The treatment is not for administration by parents independently of clinicians. Neither this guide, nor any other written material about the treatment, can replace professional Lidcombe Program training.

The Lidcombe Program Trainers Consortium

Postgraduate clinician training is available from The Lidcombe Program Trainers Consortium.[1] The Consortium has members in nine countries and provides training in other countries as well. That training involves two days of instruction and demonstration, often with subsequent follow-up.

A behavioural treatment

The Lidcombe Program is a behavioural treatment, which targets children's stuttered speech. During the Lidcombe Program treatment children are not instructed to change their customary speech pattern in any way. Parents do not alter their customary speech and language habits in any way, nor do they change the family lifestyle in in any way, apart from presenting verbal contingencies as described in this guide. Parents, or sometimes caregivers, deliver Lidcombe Program treatment with the training and supervision of a qualified clinician.

Parents give verbal response contingent stimulation

Parent verbal contingencies refers to parents commenting when a child stutters or does not stutter. Parents provide verbal contingencies to their child [1] during structured conversations designed specifically for that purpose, and [2] during everyday conversations.

Measuring stuttering

Regular measurement of children's stuttering severity occurs during the Lidcombe Program with a Severity Rating (SR) scale: 1 = *no stuttering,* 2 = *extremely mild stuttering,* and 10 = *extremely severe stuttering.* Parents and clinicians use the SR scale during the Lidcombe Program.

Parents visit the clinic each week

During each weekly visit, for 45–60 minutes, the clinician teaches the parent how to do the treatment and ensures that it is being done properly. A later part of this treatment guide specifies what occurs during each clinic visit, and in what order.

Treatment goals during Stage 1 and Stage 2

The Lidcombe Program treatment goal during Stage 1 is no stuttering or almost no stuttering, and the goal of Stage 2 is for no stuttering or almost no stuttering to be sustained for a long time.

Resource materials

At the Australian Stuttering Research Centre website there is a downloadable SR chart for parents and clinicians, and a downloadable pamphlet about the treatment for parents, in several languages.[2] A checklist is available which clinicians can use to verify that they are doing the treatment as specified in this guide.[3] Since 2007 there has been a regular newsletter about the treatment.[4]

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Measurement

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The severity rating [SR] scale

Purposes of SRs

SRs measure children's stuttering in and outside the clinic. Their simplicity makes them a quick and effective way for clinicians and parents to communicate about children's stuttering severity. They enable progress toward the Lidcombe Program treatment goals to be evaluated constantly. If progress is not satisfactory, then SR scores will alert the clinician and the problem can be resolved. Such problem solving, and subsequent decision making, is a routine part of the Lidcombe Program, and much of it centres on SRs. It is useful if clinicians explain the importance of SRs during the first clinic visit.

Finally, SRs give parents and clinicians a way to plan the presentation of parent verbal contingencies. For example, they may wish to target occasions when stuttering is severe to implement verbal contingencies, and on other occasions they may wish to target situations where stuttering is mild.

Treatment goals specified with SR scores

Parents assign the child a SR for each day and clinicians assign a SR during each clinic visit. Lidcombe Program treatment goals are specified with those SR scores (see "Treatment goals for Stage 2," page 11).

A flexible measurement

SRs are a flexible way to measure stuttering severity. Each day parents record SRs for the whole day, to reflect children's typical speech for the day. Parents often do not hear their children speaking all day, for example when they are at pre-school or childcare. In such cases, parents assign SRs based only on the speech they heard during the day.

Variations of the SR procedure can be added to the treatment process if the clinician thinks it would be useful, commonly one SR for the morning and one for the afternoon. Clinicians may wish parents to use supplementary SRs for a particular speaking situation that occurs each day, such as at dinner and bath time, and shopping. These are recorded in addition to the daily SRs. Other options are for parents to record a highest and lowest SR for each day.

Accurate parent SRs are essential

There is good reason to believe that parents will be able to assign SRs accurately[5] and that parents have close agreement with clinicians.[64,6] It is essential for clinicians to ensure that this occurs. If parents underestimate a child's stuttering SRs, it can result in the child being admitted to Stage 2 prematurely. In the opposite situation, where parent SRs are too high, children will take longer to complete Stage 1 than necessary.

Web based severity ratings

It is not necessary for parents to bring in hand-written SRs each week on a hard copy. A disadvantage of that procedure is that clinicians cannot monitor for whether parents are following their instructions properly and recording a score at the end of each day. Sometimes, parents are not compliant with that instruction and will wait a few days to record scores.

This problem can be avoided, along with the need for hard copy, by using one of the many password protected, cost-free Internet document sharing sites.[7] If the clinician wishes, such sites can prevent the user from backdating any entries. This enables to clinician to become aware during the clinic visit of any compliance problems with parents using SRs. Considering the importance of SRs during the Lidcombe Program treatment process, being aware of any such problems could be important.

Parent SR training

The parent is trained to use SRs during the first clinic visit. Training begins when the clinician explains the scale and its end points. The SR scores (see "Measuring stuttering," p. 3) are assigned in relation to the population of stuttering pre-schoolers who present to clinicians. The clinician's judgement 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.

During the first clinic visit, after the clinician has explained the SR scale, the parent or the clinician, or both, converse with the child for a few minutes until the child displays a reasonably representative amount of 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. All subsequent clinic visits begin with the parent conversing with the child, the parent assigning a SR score, and the clinician either confirming that the score is appropriate or providing corrective feedback.

Parent training methods can include scoring SR from recorded speech samples, practice with identifying numbers of stuttering moments, and discussion of types of stuttering moments. One taxonomy of stuttering moments[8,9] uses three prime categories— repeated movements, fixed postures, extraneous behaviours—and seven subcategories.

Percent syllables stuttered (%SS)

This measure formerly was routine during the Lidcombe Program, but now is optional. The theoretical and empirical reasons for this change have been described in detail.[10] Percent syllables stuttered can be measured by the clinician at the start of the clinic visit during a conversation where the child displays a reasonably representative amount of stuttering. For this purpose the parent converses with the child until the extent of stuttering, if any, is apparent. The measure may be collected using a commercially available dual button press device, a smartphone application, a computer software program, or a spreadsheet. There is a %SS training package that is publicly available at no cost.[11]

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Parent Verbal Contingencies
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There are five Lidcombe Program verbal contingencies. Three of the verbal contingencies are for stutter-free speech, and two are for moments of unambiguous stuttering.

Verbal contingencies for stutter-free speech

Verbal contingencies for stutter-free speech are central to the Lidcombe Program because, above all else, children must enjoy the treatment. Therefore parent verbal contingencies for stutter-free speech need to be inherently positive, supportive and enjoyable.

Praise

The first parent verbal contingency for stutter-free speech is *praise*.
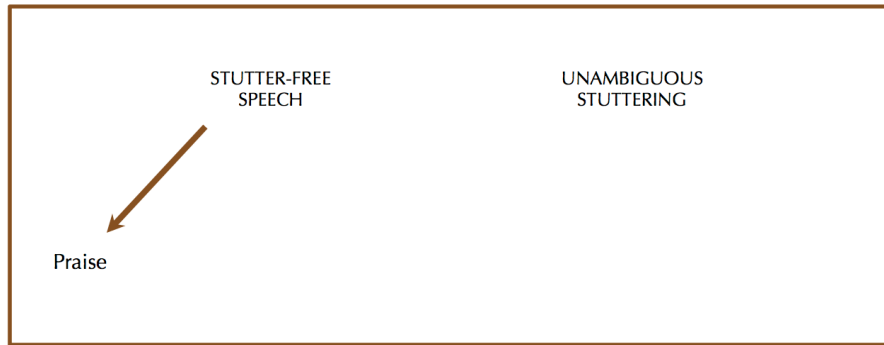
Simply, clinicians teach parents to praise their children for not stuttering. Parents can be taught to say things such as "that was lovely smooth talking," or "good talking, no bumps." It is essential for parents to do this in their own way. Every parent has a different style and different children like to be praised in different ways. Clinicians also need to be sure that parents are genuine with their praise and don't overdo it to the point that it ceases to be enjoyable for the child.

Request for self-evaluation

The second parent verbal contingency for stutter-free speech is *request self-evaluation*.
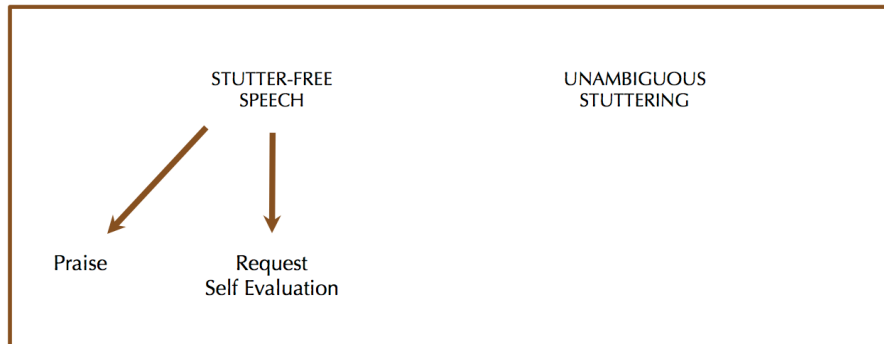
This verbal contingency can be used when a child does not stutter for a certain time interval. This can be as brief as a single utterance or as long as several hours. When no stuttering occurs during this time, the parent can ask the child to evaluate speech. The parent could say something like "was that smooth?" and expect the response "yes," or "were there any bumps there?" and expect the response "no." This verbal contingency is recommended only for stutter-free speech. It is not recommended for stuttering.

Acknowledge

The third verbal contingency for stutter-free speech is *acknowledge*.
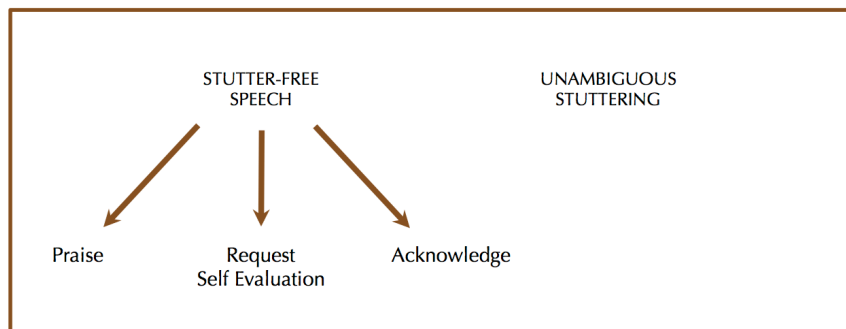
The difference between this and the previous two verbal contingencies is that it does not evaluate the child's speech in any way. Acknowledging stutter free speech is different from praise for stutter-free

speech because it is a matter-of-fact statement rather than a positive comment. Examples would include "that was smooth" and "no bumpy words."

Verbal contingencies for unambiguous stuttering

These need to be introduced carefully because some children can initially respond negatively to them. They are used much less frequently than verbal contingencies for stutter-free speech. In other words, most of the verbal contingencies children receive during the Lidcombe Program are for stutter-free speech. As is the case with verbal contingencies for stutter-free speech, every parent has a different style with a child, and different children will need to receive verbal contingencies for stuttering in different ways.

Acknowledge

The first verbal contingency for unambiguous stuttering is *acknowledge*.
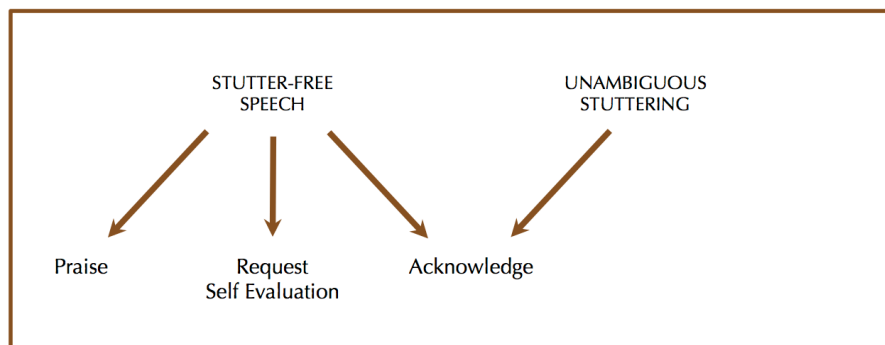
As with the verbal contingency to acknowledge stutter-free speech, this verbal contingency needs to be not at all evaluative. The parent just notes that stuttering has occurred and moves on, saying something like "that was bumpy" or "that was a stuck word."

Request self-correction

The second verbal contingency for unambiguous stuttering is *request self correction*.
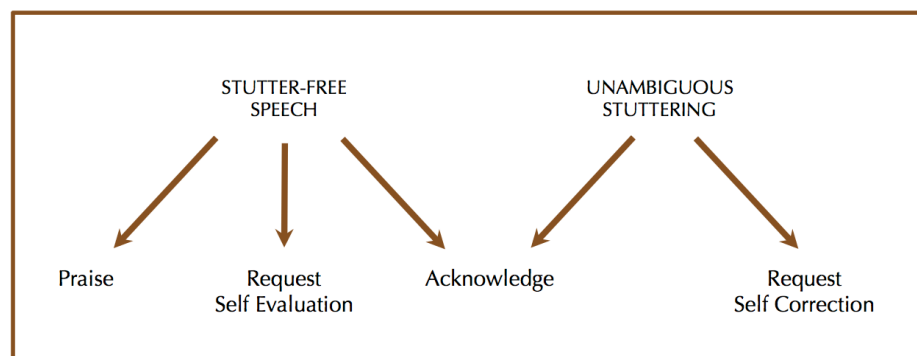
Here the parent asks the child to say the utterance again without the stuttering moment. Mostly the child can do that, but if the child fails to do so, it is usually best for the parent not to persist. If a child reacts in any way negatively to requests for self-correction, it is essential that they be stopped immediately and the matter is discussed and resolved with the clinician.

Examples of requests for self-correction would be "can you say it again?", "can you say that smoothly?", or "see if you can say that without the bump." Request for self-correction occurs occasionally, not after the majority of or after most stuttering moments. The exception to that rule is that when the child only has a few stuttering moments each day, which occurs toward the end of Stage 1. At that time it might be appropriate for the clinician to direct a parent to request self-correction for all stuttering moments.

Optional parent verbal contingencies

The Lidcombe Program has two additional verbal contingencies that parents can use but which are optional.

Praise for spontaneous self-evaluation of stutter-free speech

The first of these is *praise for spontaneous self-evaluation of stutter-free speech*. Older pre-school children receiving the Lidcombe Program will sometimes spontaneously self-evaluate their speech as stutter free, saying something like "I did smooth talking." In which case a parent may say something like "great, you're listening for your smooth talking."

The parent needs to be sure that the praise is for self-evaluation of stutter-free speech, not praise for stutter-free speech. Parents need to understand the subtle difference between the two. In the previous example, "great, you're listening for your smooth talking" is praise is for self-evaluation of stutter-free speech, and "great, that was smooth talking" is praise for stutter-free speech.

It is probably not useful to praise spontaneous self-evaluation of stuttered speech, such as "I just did a bump." The reason for this is that it might confuse a child if parent praise follows a moment of stuttering. If a child does spontaneously self evaluate stuttering, parents can note that it occurred and tell the clinician at the next clinic visit. Naturally, this is a desirable thing to be happening and is a sign that the Lidcombe Program treatment process is working well.

Praise for spontaneous self-correction.

The second optional verbal contingency is *praise for spontaneous self-correction*. When children correct stuttered utterances without being asked by a parent to do so, the parent can offer praise. Again, older pre-school children are the most likely to do this. The verbal contingencies that parents might use here include "great job, you fixed that bumpy word all by yourself," and "you fixed that stuck word, great job."

Examples of parent verbal contingencies

The table contains examples of some of the ways that parents can provide verbal contingencies.

STUTTER-FREE SPEECH	UNAMBIGUOUS STUTTERING	
Praise		"Wow, that was so smooth!"
		"Fantastic smooth talking."
		"I'm loving your smooth speech."
		"That was so super-smooth."
Request self-evaluation		"Was that smooth?"
		"Were there any bumps there?"
		"Did you say that smoothly?"
Acknowledge		"Smooth talking"
		"That was smooth."
		"Smooth again."
	Acknowledge	"A little bump then."
		"That was a bit bumpy."
		"That was a stuck word."
	Request self-correction	"Can you try that again?"
		"Can you say [stuttered word] smoothly?"
		"See if you can say that without the bump."

Some essential things about parent verbal contingencies

Teach verbal contingencies for stutter-free speech first

Clinicians don't teach parents how to do the verbal contingencies all at once. Normally, they first teach parents to do verbal contingencies for stutter-free speech so that children can become comfortable with the treatment. Then, they implement the parent verbal contingencies for stuttered speech with children when they are sure they are ready for it. It makes clinical sense to introduce verbal contingencies for stutter-free speech before verbal contingencies for stuttering, because it is an inherently positive approach.

Be sure parents are using them correctly

Clinicians need to be sure that parents are using verbal contingencies correctly, according to their instructions. At each clinic visit, parents demonstrate how they have been doing the verbal contingencies with the child during the previous week, and the clinician gives them feedback. This involves watching parents give verbal contingencies, making constructive comments, and then watching parents give verbal contingencies subsequent to the feedback. Parents delivering contingencies incorrectly is a common reason that children do not progress as expected through Stage 1.

They are for unambiguous stuttering moments

Lidcombe Program verbal contingencies for stuttering are for unambiguous stuttering moments. If parents have any doubt about whether a disfluency is actually a stutter, then they do not give a verbal contingency. At the start of the program, children typically will have many unambiguous stuttering moments each day, and parents will have plenty of them to work with. Giving verbal contingencies for ambiguous disfluencies normally only becomes an issue at the end of Stage 1, when children have SR 1–2; that is, when there is no stuttering or there is only extremely mild stuttering during most days.

They are a positive experience for the child

Verbal contingencies must be a positive experience for the child. They cannot be constant, intensive, or invasive. It is essential to identify when they are not a positive experience, or even better, to anticipate when this might occur and prevent it. For some parents, it is necessary to introduce the verbal contingencies slowly and carefully in order to be sure that the child is receiving supportive and enjoyable verbal contingencies. Otherwise, during clinic visits it will be obvious that the child is not happy with the treatment. The child needs to find the verbal contingencies enjoyable and sincere. It is a rule of thumb that there should be far more verbal contingencies for stutter-free speech than for stuttered speech.

Have parents give as many of them as are needed

There is no standard number of verbal contingencies each day that is known to ensure success for all children. All that is known from laboratory research is that verbal contingencies can control stuttering and that clinical trials show that the Lidcombe Program, which contains parent verbal contingencies, is an efficacious treatment. The parent and clinician need to establish how many verbal contingencies are suitable for the individual child. This is a clinical variable that could be targeted for change in the event that the child does not show signs of improvement.

They are accurate

It is essential that the clinician is satisfied that parents, before they attempt to use verbal contingencies, can present them accurately. The clinician needs to be satisfied that parents can distinguish between unambiguous stuttering moments and stutter-free speech. It is also essential that parents are able to present verbal contingencies immediately after periods of stutter-free speech and stuttering moments. Delayed and inaccurate verbal contingencies are unlikely to be effective.

Verbal contingencies during structured conversations

What they are

Verbal contingencies during structured conversation allow the clinician to ensure that the parent learns to do the procedures safely and correctly. The structured conversations also provide an optimal response rate for children to practice speaking without stuttering. In other words, the desired behavioural response of stutter-free speech has to predominate, but stuttering needs to occur sometimes so parents can present verbal contingencies for it. This means that during the structured conversations, stuttering moments occur only occasionally.

Maximising stutter-free speech

In order to ensure that stuttering occurs only occasionally during structured conversations, the parent learns techniques to regulate the child's quantitative and qualitative output. These include turn taking, word imitation, sentence completion, closed questioning, and binary choice questions.

There is research evidence that stuttering increases with increased syntactic complexity and utterance length[12,13] and those findings have been replicated with children.[14,15,16,17,18,19,20,21,22,23] Clinicians can use that information to teach parents to manage those variables when doing treatment during structured conversations so that the child's stutter-free speech is maximised. With such management, treatment during structured conversation can involve eliciting a range of utterance lengths and durations with differing syntactic complexities: from one and two word responses to several utterances. Clinicians make those management decisions based on the child's stuttering severity at the time of the activity.

The parent's management of syntactic complexity and utterance length is not a static procedure; parents change their utterance durations and language complexity as needed according to their child's stuttering severity during the structured conversations. Although they are structured in that sense, activities need to be based on natural conversation.

Clinicians find that the following situations during structured conversations can be challenging and require work with the parents to find a way to deal with them:

- Stuttering is severe
- Children talk about abstract or imaginative topics in detail and at length
- Parents are uncomfortable leading conversations with their children
- Children do not comply with a turn-taking format
- Children quickly become bored with one activity

How often they occur

The clinician teaches the parent to present verbal contingencies during structured conversations, usually for 10–15 minutes, usually once, sometimes twice, per day. The clinician can recommend them more frequently each day if thought necessary. The parent typically sits with the child at a table or on the floor in a quiet place, with suitable activities such as books and games. Such activities are not essential, however, and treatment during structured conversations can be done in many situations, such as meal preparation, bath time, and shopping. However, in many cases, perhaps most, the formality of sitting at a table or on the floor at home is useful.

Verbal contingencies for stutter-free speech can be supplemented with nonverbal contingencies if the clinician thinks that they would be helpful. Examples would be tokens and physical actions. Examples of tokens are stickers, stamps, ticks on a page, and blocks. Examples of physical actions would be high-fives, smiling, winking, and nodding. It is important that nonverbal contingencies do not replace verbal contingences but only supplement them.

Verbal contingencies during unstructured conversations

What they are

Verbal contingencies during unstructured conversations are when parents give verbal contingencies during everyday conversations with the child. Unlike structured conversations, the unstructured childhood conversations of everyday life are never modified to optimise the occurrence of stutter-free

speech. Instead, parents take advantage of naturally occurring periods of reduced stuttering severity during each day to present verbal contingencies.

Examples of unstructured conversations with children, during which parents typically give verbal contingencies, are food preparation, meal times, in the bath, on the way to pre-school, in the park, and shopping. As with verbal contingencies during structured conversations, they can be supplemented with nonverbal contingencies if the clinician thinks that they would be helpful.

Their purpose

The fundamental premise of the Lidcombe Program is that parent verbal contingencies are the active treatment agent for eliminating or greatly reducing stuttering. So, when the clinician feels it to be appropriate, it is logical for those parent verbal contingencies to occur during everyday conversations with children.

When they are introduced

Verbal contingencies during unstructured conversations are introduced when the clinician observes that the parent is giving verbal contingencies safely and correctly during structured conversations. Usually, at that time child's SRs will be showing improvement in one or more everyday conversations.

The transition between treatment during structured and unstructured conversations

For a period, parents provide treatment concurrently during structured and unstructured conversations. Eventually, treatment during unstructured conversations replaces treatment during structured conversations, and treatment during structured conversations does not occur at all. The clinician may decide that this should not happen until some time during Stage 2.

This transition is a flexible process. During the period when parents are providing verbal contingencies during structured and unstructured conversations, the clinician may recommend several changes to the number and duration of structured treatment conversations. An example would be changing from one such structured treatment conversation each day to one each second day. Similarly, during the period when parents are providing verbal contingencies during structured and unstructured conversations, the clinician may direct many changes to the number and type of verbal contingencies parents give during unstructured conversations.

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Stage 2

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The purpose of Stage 2

There are two purposes of Stage 2. The first is to systematically hand over complete responsibility for management of children's stuttering to their parents. Second, Stage 2 is designed to maintain the absence or low level of stuttering attained during Stage 1. Relapse after successful Lidcombe Program treatment can occur.[36] Half the children in that report showed some transient signs of stuttering a mean of 5 years after they began Stage 1.

Systematic withdrawal of verbal contingencies

During Stage 2, the parent progressively withdraws verbal contingences during unstructured conversations, providing that it can be done without stuttering increasing. The clinician makes suggestions for the timing of the withdrawal of contingencies. Suggestions are based on the child's SRs and discussion with the parent.

Treatment goals for Stage 2

To progress to Stage 2 the following two criteria need to be met for three consecutive clinic visits that are 1 week apart: *[1]* parent SRs of 1–2 during the week preceding the clinic visit with at least four of those seven SRs being 1, *[2]* clinician SRs of 1–2 during the clinic visit. Ideally, during Stage 2 parents record

SRs only during the week preceding the clinic visit. However, the clinician may direct parents to record SRs more often during Stage 2.

If %SS is used during Stage 1 (see "Percent syllables stuttered," page 4), then an additional treatment goal for progression to Stage 2 (see "Treatment goals specified with SR scores," page 3) is that %SS needs to be below 1.0 for three consecutive, weekly clinic visits that are 1 week apart.

Performance contingent maintenance

The performance contingent maintenance schedule applied to stuttering treatment, and its potential benefits, have been documented.[24] Performance contingent maintenance amounts to the parent and child returning to the clinic and having to maintain treatment targets for increasingly longer intervals; two visits 2 weeks apart, then two visits 4 weeks apart, then two visits 8 weeks apart and, finally, two visits 16 weeks apart. The schedule normally takes a year or more. The importance of performance contingent maintenance is shown by a report that half of children during Stage 2 fail to meet treatment targets at least once during Stage 2.[25]

Ideally, in the case of early signs of relapse during Stage 2 clinic visits, parents will be able to restore SRs to the target 1–2 range, as described above (see "Treatment goals for Stage 2," page 11), by resuming treatment during structured conversations and/or increasing the rate of verbal contingencies. In the event that such attempts to restore SRs to the target 1–2 range are not successful, parents contact the clinician for advice prior to the next scheduled Stage 2 clinic visit.

A common Stage 2 problem

When children complete Stage 1, and there is no stuttering or nearly no stuttering, parents or clinicians, or both, can become complacent and not follow through with the prescribed Stage 2 maintenance program. This poses a serious risk that relapse will occur. It is essential that verbal contingencies for stutter-free speech continue to occur during Stage 2, and that any unambiguous stuttering moments that occur receive verbal contingencies from parents. The authors of a long-term clinical follow-up[36] suggested that clinicians encourage parents to watch and listen carefully for any signs of post-treatment stuttering during Stage 2.

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LIDCOMBE PROGRAM CLINIC VISITS
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Stage 1 clinic visits

During Stage 1 the parent and child visit the clinic once each week. The following events normally occur during a clinic visit in this sequence:

[1] Child conversation

The parent or the clinician, or both, converse with the child until the extent of stuttering, if any, is apparent. The clinician records a SR and, if required, a %SS score.

[2] Check parent SR

The clinician checks the parent's use of the SR scale using procedures outlined previously (see "Parent SR training," page 4).

[3] Discussion of progress during the previous week

The clinician uses SR scores for each day of the previous week as a focus for an in-depth discussion of severity and treatment responsiveness during the previous week. Discussion topics normally include the following:

- When verbal contingencies during structured conversations were planned, did they occur as planned, and how often and for how long?
- With verbal contingencies during structured conversations, how was the required low stuttering severity achieved?

- How frequently did the parent give verbal contingencies during unstructured conversations?
- What verbal contingencies were used during structured and/or unstructured conversations?
- What periods during the day did the verbal contingencies during structured conversations occur?
- What were the child and parent doing at the time of verbal contingencies during unstructured conversations?
- Where did the verbal contingencies during unstructured conversations occur?
- How long did the verbal contingencies during unstructured conversations last?
- How much was the child speaking during these conversations?
- Does the parent think anything did or did not work particularly well during the week?

The following issues commonly emerge:

- The child's stuttering was too severe during structured conversations because they were not structured optimally.
- The parent did not present verbal contingencies during structured and or unstructured conversations each day as planned
- The parent did not apply sufficient verbal contingencies during unstructured conversations each day

[4] Parent demonstrates verbal contingencies

The parent demonstrates to the clinician verbal contingencies that were planned for the previous week. The clinician observes the procedures and checks for the following:

- The child is enjoying the treatment conversation
- The parent accurately identifies stutter-free and stuttered speech
- The conversations are structured adequately to attain low stuttering severity
- The verbal contingencies are appropriate for the child
- Most verbal contingencies are for stutter-free speech
- The verbal contingencies are varied

[5] Parent and clinician discuss the verbal contingencies demonstrated by the parent

The clinician determines the extent to which the demonstration accurately represents procedures during the previous week. It can be helpful if parents bring stimulus materials used at home, and audio or video recorded examples of verbal contingencies being used. The clinician asks parents for their comments about the verbal contingencies being used. That discussion includes which verbal contingences worked well, which did not, and which could be improved.

[6] Planning treatment changes for the coming week

The parent and clinician discuss changes to procedures for the coming week. These may include:

- The technique to achieve low stuttering severity during structured conversations
- Activities to use during structured conversations
- The types and frequencies of verbal contingencies
- When and where to provide verbal contingencies during structured conversations

The clinician trials and then demonstrates to the parent any changes to treatment procedures for the coming week. Then, the parent demonstrates the changed procedures and the clinician gives feedback to the parent.

[7] Concluding the visit.

The clinician concludes the visit by summarising the plan for the coming week, and inviting the parent to raise any matters for discussion.

Stage 2 clinic visits

A typical Stage 2 clinic visit is 30 minutes. At the start of the visit the clinician obtains parent SRs for the previous week and checks that these have been typical of all weeks since the last visit. The clinician and parent discuss the SRs in detail. Then, subsequent to a conversation with the child, the clinician assigns a SR and checks that the parent agrees with that score. The clinician and parent discuss the number of verbal contingencies that have typically been used during unstructured conversations since the last visit.

If the child meets the treatment goals, then 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, the clinician either *[1]* schedules an appointment for the next week and makes recommendations regarding management for the child's increased stuttering, *[2]* schedules a return to an earlier stage of the sequence of clinic visits, or *[3]* on rare occasions, returns the child to Stage 1.

Stage 2 continues until the child has sustained treatment goals for around a year or more. Subsequent to the conclusion of Stage 2, parents are advised to contact the clinician if any relapse occurs that they cannot effectively manage

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The Lidcombe Program evidence base at January 2014

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Clinical trials

The Lidcombe Program is supported by basic and clinical research. It is derived from an extensive body of literature showing that stuttering can be controlled by response contingent stimulation and that response contingent stimulation of stuttering can be verbal.[26,27] The Lidcombe Program was derived directly from research showing that this was a clinical option for children.[28,29,30]

The Lidcombe Program was developed for the traditional format of weekly clinic visits. This guide describes procedures for that traditional format. The first clinical trial for the traditional format was published in 1990.[31] Subsequently, there were three nonrandomised Phase II trials[32,33,34] and one Phase III randomised controlled trial.[35] One report followed up children treated in those trials from 3–7 years.[36]

To date, there have been three telehealth trials with Australian children: one Phase I trial,[37] one nonrandomised Phase II trial,[38] and one randomised Phase II trial.[39] With the publication of telehealth Lidcombe Program trials and the development of webcam technology, telehealth Lidcombe Program presentation is emerging as a service provision option. During 2013 a randomised controlled trial of the Lidcombe Program with webcam presentation was completed and is being prepared for publication.[40]

In addition to randomised controlled trials, there have been two randomised clinical experiments that have given children a portion of the Lidcombe Program and compared results to control children.[41,42] One experiment compared the Lidcombe Program to a treatment based on the demands and capacities model.[43]

Information about the Lidcombe Program and its efficacy has been made available beyond the speech-language pathology discipline to medical practitioners.[44,45]

Meta-analysis

A meta-analysis (N=134) of randomised controlled clinical evidence and randomised controlled trials for the Lidcombe Program[46] showed that its odds ratio was 7.5 for attaining below 1.0 percent syllables stuttered (%SS) at 6.3 months post-randomisation. That means that, at 6.3 months post-randomisation, children who received the Lidcombe Program had 7.5 times greater odds of having no stuttering or almost no stuttering than children who did not receive the Lidcombe Program.

Translation research

Translation refers to the extent to which the results of clinical trials can be attained in clinical communities. One report[47] has explored this issue with 31 community clinicians in Australia who treated 57 pre-school children with the Lidcombe Program.

Nine months after the start of treatment, mean stuttering outside the clinic for all the children was 1.7 %SS. However, better outcomes were attained by Consortium trained clinicians. The mean for children treated by Consortium trained clinicians was 1.1 %SS and the mean for children treated by a clinician without such training was more than twice this, at 2.4 %SS. No other predictors of outcome were found. The researchers concluded that for clinicians with Consortium training, Lidcombe Program community outcomes can match those of clinical trials.

Basic research

Treatment fidelity refers to whether a treatment is administered as intended. This is an important consideration with treatment in general,[48,49] and also with stuttering treatment.[50,51] Departure from manualised procedures, or clinician drift[52] to use the correct term, is undesirable. There have been four studies that reported data about Lidcombe Program treatment fidelity that highlighted some important issues with its application.[47,53,54,55]

There have been several studies that sought to explain the demonstrated efficacy of the treatment. It appears that post-treatment changes to parent or child language cannot explain its reported treatment effects,[56,57] nor do child post-treatment acoustic changes to speech production.[58] There are data to confirm that it is a safe treatment if delivered as intended,[59] with no negative psychological outcomes associated with it, such as child anxiety or impaired parent-child attachment.

Much is known of parent experiences when using the Lidcombe Program,[60,61] and those studies are recommended reading about the treatment before attempting it clinically.

Number of Stage 1 clinic visits required

At January 2014, Lidcombe Program treatment benchmarks are based on four file audits,[62,63,64,53] three clinical trials,[32,40,65] one prospective follow-up,[66] and one translation study.[47] Those studies involved a total of 749 children. According to those studies, a median of 15 clinic visits is required for children to attain Stage 2 criteria (see "Stage 2," page 11) and there is around a one-third reduction of median parent SR scores after four weeks of treatment.[67]

Treatment times for individual clinicians will vary according to specialist or generalist clinical status, the nature of their caseloads, and their clinical experience and training. Indeed, the range of medians in the reports above is 11–22.

It is recommended that those studies be used as broad guidelines for the number of Stage 1 clinic visits, rather than being used as professional benchmarks. They may be useful guidelines to alert clinicians when a child's progress may not be typical of Lidcombe Program caseloads. Such situations commonly prompt clinicians to consult with colleagues.

References

[1] Australian Stuttering Research Centre. (2013). *Lidcombe Program Trainers Consortium.* Retrieved from http://sydney.edu.au/health_sciences/asrc/health_professionals/lptc.shtml

[2] Australian Stuttering Research Centre. (2013). *Lidcombe Program Brochure.* Retrieved from http://sydney.edu.au/health-sciences/asrc/health_professionals/asrc_download.shtml

[3] Swift, M., O'Brian, S., Onslow, M., & Packman, A. (2012). Checklist of parent Lidcombe Program administration. *Journal of Clinical Practice in Speech-Language Pathology, 14,* 12–17.

[4] The Montreal Fluency Centre. (2014). *Lidcombe Newsletters.* Retrieved from http://www.montrealfluency.com/clinicians/lidcombe-program/lp-newsletters/

[5] Eve, C., Onslow, M., Andrews, C., & Adams, R. (1995). Clinical measurement of early stuttering severity: The reliability of a 10-point scale. *Australian Journal of Human Communication Disorders*, 23, 26–39.

[6] Onslow, M., Andrews, C., & Costa, L. (1990). Parental severity scaling of early stuttered speech: Four case studies. *Australian Journal of Human Communication Disorders*, 18, 47–61.

[7] Google Drive. (n.d.). *Create and collaborate.* Retrieved from http://www.google.com/drive/apps.html?usp=ad_search&gclid=CLC9u_S8nLsCFUQgpQodAFsA9Q

[8] Packman, A., & Onslow, M. (1998). The behavioral data language of stuttering. In A. Cordes & R. J. Ingham (Eds.), *Treatment efficacy in stuttering: a search for empirical bases.* (pp. 27–50). San Diego, CA: Singular Publishing Group.

[9] Teesson, K., Packman, A., & Onslow, M. (2003). The Lidcombe behavioral data language of stuttering. *Journal of Speech Language and Hearing Research, 46*, 1009–1015.

[10] Bridgman, K., Onslow, M., O'Brian, S., Block, S., & Jones. M. (2011). Changes to stuttering measurement during the Lidcombe Program treatment process. *Asia Pacific Journal of Speech, Language, and Hearing, 14,* 147–152.

[11] SMS Stutter Measurement System. (n.d.). Retrieved from http://sms.id.ucsb.edu/index.html

[12] Jayaram, M. (1983). Phonetic influences on stuttering in monolingual and bilingual stutterers. *Journal of Communication Disorders, 16*, 287–297.

[13] Jayaram, M. (1984). Distribution of stuttering in sentences: relationship to sentence length and clause position. *Journal of Speech and Hearing Research, 27*, 338–341.

[14] Watson, J. B., Byrd, C. T., & Carlo, E. J. (2011). Effects of length, complexity, and grammatical correctness on stuttering in Spanish-speaking preschool children. *American Journal of Speech-Language Pathology, 20*, 209–220.

[15] Bernstein Ratner, N., & Sih, C. C. (1987). Effects of gradual increases in sentence length and comlexity on children's dysfluency. *Journal of Speech and Hearing Disorders, 52*, 278–287.

[16] Kadi-Hanifi, K., & Howell, P. (1992). Syntactic analysis of the spontaneous speech of normally fluent and stuttering children. *Journal of Fluency Disorders, 17*, 151–170.

[17] Gaines, N. D., Runyan, C. M., & Meyers, S. C. (1991). A comparison of young stutterers' fluent versus stuttered utterances on measures of length and complexity. *Journal of Speech and Hearing Research, 34*, 37–42.

[18] Yaruss, J. S., Newman, R. M., & Flora, T. (1999). Language and disfluency in nonstuttering children's conversational speech. *Journal of Fluency Disorders, 24*, 185–207.

[19] Yaruss, J. S. (1999). Utterance length, syntactic complexity, and childhood stuttering. *Journal of Speech Language and Hearing Research, 42*, 329–344.

[20] Weiss, A. L., & Zebrowski, P. M. (1992). Disfluencies in the conversations of young children who stutter: Some answers about questions. *Journal of Speech and Hearing Research, 35*, 1230–1238.

[21] Logan, K. J., & Conture, E. G. (1997). Selected temporal, grammatical, and phonological characteristics of conversational utterances produced by children who stutter. *Journal of Speech Language and Hearing Research, 40*, 107–120.

[22] Chon, H., Sawyer, J., & Ambrose, N. G. (2012). Differences of articulation rate and utterance length in fluent and disfluent utterances of preschool children who stutter. *Journal of Communication Disorders, 45,* 455–467.

[23] Brundage, S. B., & Bernstein Ratner, N. B. (1989). Measurement of stuttering frequency in children's speech. *Journal of Fluency Disorders, 14*, 351–358.

[24] Ingham, R. J. (1980). Modification of maintenance and generalization during stuttering treatment. *Journal of Speech and Hearing Research, 23*, 732–745.

[25] Webber, M., & Onslow, M. (2003). Maintenance of treatment effects. In M. Onslow, A. Packman, & E. Harrison (Eds.), *The Lidcombe Program of early stuttering intervention: A clinician's guide* (pp.81–90). Austin, TX: Pro-Ed.

[26] Quist, R. W., & Martin, R. R. (1967). The effect of response contingent verbal punishment on stuttering. *Journal of Speech and Hearing Research, 10*, 795–800.

[27] Cooper, E. B., Cady, B. B., & Robbins, C. J. (1970). The effect of the verbal stimulus words wrong, right, and tree on the disfluency rates of stutterers and nonstutterers. *Journal of Speech and Hearing Research, 13*, 239–244.

[27] Christensen, J., & Lingwall, J. (1982). Verbal contingent stimulation of stuttering in laboratory and home settings. *Journal of Fluency Disorders, 7*, 359–368.

[28] Manning, W. H., Trutna, P. A., & Shaw, C. K. (1976). Verbal versus tangible reward for children who stutter. *Journal of Speech and Hearing Disorders, 41*, 52–62.

[29] Reed, C., & Godden, A. (1977). An experimental treatment using verbal punishment with two preschool stutterers. *Journal of Fluency Disorders, 2*, 225–233.

[30] Martin, R. R., Kuhl, P., & Haroldson, S. (1972). An experimental treatment with two preschool stuttering children. *Journal of Speech and Hearing Research, 15*, 743–752.

[31] Onslow, M., Costa, L., & Rue, S. (1990). Direct early intervention with stuttering: Some preliminary data. *Journal of Speech and Hearing Disorders, 55*, 405–416.

[32] Rousseau, I., Packman, A., Onslow, M., Harrison, E., & Jones, M. (2007). An investigation of language and phonological development and the responsiveness of preschool age children to the Lidcombe Program. *Journal of Communication Disorders, 40*, 382–397.

[33] Lincoln, M., & Onslow, M. (1997). Long-term outcome of early intervention for stuttering. *American Journal of Speech-Language Pathology, 6*, 51–58.

[34] Onslow, M., Andrews, C., & Lincoln, M. (1994). A control/experimental trial of an operant treatment for early stuttering. *Journal of Speech and Hearing Research*, *37*, 1244–1259.

[35] Jones, M., Onslow, M., Packman, A., Williams, S., Ormond, T., Schwarz, I., Gebski, V. (2005). Randomised controlled trial of the Lidcombe programme of early stuttering intervention. *British Medical Journal, 331*, 659–661.

[36] Jones, M., Onslow, M., Packman, A., O'Brian, S., Hearne, A., Williams, S., Ormond, T., & Schwarz, I. (2008). Extended follow-up of a randomized controlled trial of the Lidcombe Program of Early Stuttering Intervention. *International Journal of Language and Communication Disorders, 43*, 649–661.

[37] Harrison, E., Wilson, L., & Onslow, M. (1999). Distance intervention for early stuttering with the Lidcombe Programme. *Advances in Speech Language Pathology, 1,* 31–36.

[38] Wilson, L., Onslow, M., & Lincoln, M. (2004). Telehealth adaptation of the Lidcombe Program of Early Stuttering Intervention: five case studies. *American Journal of Speech-Language Pathology, 13,* 81–93.

[39] Lewis, C., Packman, A., Onslow, M., Simpson, J. A., & Jones, M. (2008). A Phase II trial of telehealth delivery of the Lidcombe Program of Early Stuttering Intervention. *American Journal of Speech-Language Pathology, 17,* 139–149.

[40] Bridgman, K., Onslow, M., O'Brian, S., & Block, S. (2012, July). *Preschool telehealth: Treating children who stutter using the Internet and webcam.* Paper presented at the 7th World Congress on Fluency Disorders. Tours, France.

[41] Lattermann, C., Euler, H. A., & Neumann, K. (2008). A randomized control trial to investigate the impact of the Lidcombe Program on early stuttering in German-speaking preschoolers. *Journal of Fluency Disorders, 33,* 52–65.

[42] Harris, V., Onslow, M., Packman, A., Harrison, E., & Menzies, R. (2002). An experimental investigation of the impact of the Lidcombe Program on early stuttering. *Journal of Fluency Disorders, 27,* 203–214.

[43] Franken, M. J., Kielstra-Van der Schalk, C. J., & Boelens, H. (2005). Experimental treatment of early stuttering: A preliminary study. *Journal of Fluency Disorders, 30,* 189–199.

[44] O'Brian, S., & Onslow, M. (2011). Clinical management of stuttering children and adults. *British Medical Journal, 342,* 35–38.

[45] Onslow, M., & O'Brian, S. (2013). Management of childhood stuttering. *Journal of Paediatrics and Child Health, 49,* E112–E115.

[46] Onslow, M., Jones, M., Menzies, R., O'Brian, S., & Packman, A. (2012). Stuttering. In P. Sturmey & M. Hersen. (Eds.), *Handbook of Evidence-Based Practice in Clinical Psycholog: Vol 1. Child and Adolescent Disorders* (pp. 185–207). Hoboken, NJ: Wiley.

[47] O'Brian, S., Iverach, L., Jones, M., Onslow, M., Packman, A., & Menzies, R. (2013). Effectiveness of the Lidcombe Program for early stuttering in Australian community clinics. *International Journal of Speech-Language Pathology. 15,* 593–603.

[48] Kaderavek, J. N., & Justice, L. M. (2010). Fidelity: An essential component of evidence-based practice in speech-language pathology . *American Journal of Speech-Language Pathology*, 19, 369–379.

[49] Baker, K. D., & Neimeyer, R. A. (2003). Therapist training and client characteristics as predictors of treatment response to group therapy for depression. *Psychotherapy Research*,13,135–151.

[50] Thomas, C., & Howell, P. (2001). Assessing efficacy of stuttering treatments. *Journal of Fluency Disorders, 26*, 311–333.

[51] Ingham, J. C., & Riley, G. (1998). Guidelines for documentation of treatment efficacy for young children who stutter. *Journal of Speech, Language, and Hearing Research, 41*, 753–770.

[52] Walter, G. (2009). Evidence-based treatment and therapist drift. *Behaviour Research and Therapy, 47,* 119–127.

[53] Koushik, S., Hewat, S., Shenker, R., Jones, M., & Onslow M. (2011). North-American Lidcombe Program file audit: Replication and meta-analysis. *International Journal of Speech-Language Pathology, 13,* 301–307.

[54] Carr Swift, M., O'Brian, S., Hewat, S., Onslow, M., Packman, A., & Menzies, R. (2011). Investigating parent delivery of the Lidcombe Program. *International Journal of Speech-Language Pathology, 13*, 308–316.

[55] Rousseau, I., Packman, A., Onslow, M., Dredge, R., & Harrison, E. (2002). Australian speech pathologists' use of the Lidcombe Program of early stuttering intervention. *Acquiring knowledge in speech, language and hearing, 4*, 67–71.

[56] Bonelli, P., Dixon, M., Bernstein Ratner, N., & Onslow, M. (2000). Child and parent speech and language following the Lidcombe Programme of early stuttering intervention. *Clinical Linguistics and Phonetics, 14*, 427–446.

[57] Lattermann, C., Shenker, R. C., & Thordardottir, E. (2005). Progression of language complexity during treatment with the Lidcombe Program for early stuttering intervention. *American Journal of Speech-Language Pathology, 14*, 242–253.

[58] Onslow, M., Stocker, S., Packman, A., & McLeod, S. (2002). Speech timing in children after the Lidcombe Program of early stuttering intervention. *Clinical Linguistics and Phonetics, 16*, 21–33.

[59] Woods, S., Shearsby, J., Onslow, M., & Burnham, D. (2002). Psychological impact of the Lidcombe Program of early stuttering intervention. *International Journal of Language and Communication Disorders, 37*, 31–40.

[60] Hayhow, R. (2009). Parents' experiences of the Lidcombe Program of early stuttering intervention. *International Journal of Speech-Language Pathology, 11,* 20–25.

[61] Goodhue, R., Onslow, M., Quine, S., O'Brian, S., & Hearne, A. (2010). The Lidcombe Program of early stuttering intervention: Mothers' experience. *Journal of Fluency Disorders, 35,* 70–84.

[62] Kingston, M., Huber, A., Onslow, M., Jones, M., & Packman, A. (2003). Predicting treatment time with the Lidcombe Program: Replication and meta-analysis. *International Journal of Language and Communication Disorders, 38*, 165–177.

[63] Jones, M., Onslow, M., Harrison, E., & Packman, A. (2000). Treating stuttering in young children: Predicting treatment time in the Lidcombe Program. *Journal of Speech, Language, and Hearing Research, 43*, 1440–1450.

[64] Onslow, M., Harrison, E., Jones, M., & Packman, A. (2002). Beyond-clinic speech measures during the Lidcombe Program of early stuttering intervention. *ACQuiring Knowledge in Speech, Language and Hearing, 4,* 82–85.

[65] Lees, S., Onslow, M., O'Brian, S., Packman, A., Menzies, R. G., & Block, S. (2011, September). *Exploring group delivery of the Lidcombe Program of Early Stuttering Intervention from a theoretical perspective.* Paper presented at 9th Oxford Dysfluency Conference, Oxford, United Kingdom.

[66] Miller, B., & Guitar, B. (2009). Long-term outcome of the Lidcombe Program for early stuttering intervention. *American Journal of Speech-Language Pathology, 18*, 42–49.

[67] Onslow, M., Harrison, E., Jones, M., & Packman, A. (2002). Beyond-clinic speech measures during the Lidcombe Program of early stuttering intervention. *ACQuiring Knowledge in Speech, Language and Hearing, 4,* 82–85.