

# STUTTERING

## Treatment For Preschoolers

This is the second article in a two-part series on stuttering. The first article was published in the April issue of *Current Therapeutics* and discussed the treatment of stuttering in adults, including the onset and development of stuttering. This article focuses on the treatment of stuttering in preschool children.

For decades, it was recommended that parents should pay no attention to the speech of a stuttering preschool child. However, this is now known to be incorrect and potentially harmful. Failure to treat early stuttering correctly can lead to a lifetime of intractable and potentially debilitating stuttering. Timing of early intervention is a critical clinical concern because some children will recover without treatment within the first year after onset. Outcome data indicate that a behaviour modification programme – the Lidcombe Program – can control the condition in the medium and long term. Speech pathologists provide treatment for early stuttering.

In this article, the term ‘early stuttering’ refers to stuttering in preschool children, during the first years after

onset. One distinguishing feature of early stuttering is that it is a far more tractable condition than chronic stuttering in adults. Consequently, there is now widespread acceptance that every child who begins to stutter should be referred to a speech pathologist for management.

As described in the previous article (published in the April 2000 issue), one of the distinguishing features of chronic stuttering in adults is the significant distress that it causes. Some preschool children are obviously distressed when they experience a severe moment of stuttering and may, for example, put a hand up to their mouth or say something like ‘Mummy, I can’t say it’. Early stuttering can also be distressing for parents, especially in cases when onset is sudden. However, little is known as yet about whether the disorder can cause psychological harm to children during the first years after onset. So, the rationale for early intervention is not so much to protect children from the effects of the condition shortly after onset but to prevent them from experiencing the distress, anxiety, social maladjustment and career frustration that chronic stuttering can cause.

### History of Early Stuttering Intervention

The history of early stuttering intervention in speech pathology is a fascinating one, being dominated until quite recently by the diagnosogenic theory.<sup>[1]</sup> This theory suggested that stuttering is caused by parents drawing attention to the normal disfluencies



**MARK ONSLOW**

Director,  
Australian Stuttering  
Research Centre,  
Faculty of Health Sciences,  
The University of Sydney,  
NSW

## Salient Points

- Historically popular advice to ignore stuttering in a preschool child is incorrect and potentially harmful
- Failure to treat early stuttering correctly can lead to a lifetime of debilitating stuttering
- Timing of early intervention is a critical clinical concern
- Outcome data indicate that the Lidcombe Program can control the condition in the medium and long term
- Speech pathologists provide treatment for stuttering in childhood

of early childhood. These are the stumblings and hesitations that are common as children learn to speak. Sometimes, to the untrained observer, these normal disfluencies resemble stuttering. The diagnosogenic theory suggested that parents mistakenly considered

to indicate that the operant methods of psychology could control stuttering in preschool children.

For some time it had been known that laboratory control of stuttering was possible with response contingent stimulation (for reviews, see ref-

effective dealings with small children that punishment can occur in a supportive and constructive way. If, for example, a child asks for things without saying 'please', this problem behaviour can be stopped by regularly saying things like 'You can have an ice cream if you ask again and say "please".' It is absolutely essential that supportive punishment occurs in operant treatments for stuttering children.

## There is now widespread acceptance that every child who begins to stutter should be referred to a speech pathologist for management

that these normal speech behaviours were stuttering and pressured their children to stop producing them. This pressure was thought to cause the child to struggle to avoid the normal disfluencies and to cause the child to expect negative parental evaluation, and to generally become apprehensive about speech. This process was thought to precipitate the development of stuttering.

The diagnosogenic theory was extraordinarily influential for decades and its proponents disseminated throughout the Western world the accepted wisdom that parents should ignore the speech of a child who appears to have begun to stutter. In fact, it was common in health care settings even as late as the 1980s for parents to receive advice to ignore stuttering and the child will 'grow out of it'. However, dissatisfaction with this theory mounted because it was never subjected to a critical empirical test, and from all accounts, it was impossible to convince parents of stuttering children to ignore the problem.

erences 2–4). Response contingent stimulation is a procedure that involves the reward and punishment of behaviour. The term 'punishment' describes a situation where a stimulus is presented immediately following the occurrence of an undesirable behaviour and the frequency of occurrence of that undesirable behaviour consequently decreases or reaches zero. The term 'reward' describes a situation where a stimulus is presented immediately following the occurrence of a desirable behaviour and the frequency of occurrence of that desirable behaviour consequently increases.

In clinical applications of operant methods, it is important to note the distinction between the scientific use of the term 'punishment' and its use in a social sense. It is true that much laboratory research in operant methods with adults has involved negative stimulation of subjects (eg shock and loud noise). However, scientifically, the term 'punishment' does not refer to the nature of the stimulus; it means only that an undesirable behaviour decreases in frequency.

In a landmark study, an ingenious method was devised to apply operant laboratory findings about stuttering to preschool children.<sup>[5]</sup> A talking puppet was mounted and illuminated in a box, and the children in the experiment sat in a room and conversed with the puppet. The puppet was operated from outside the room by the experimenters. A baseline period involved a number of 20-minute conversations with the puppet, which the child enjoyed. Then, the experimenters presented punishment each time the child stuttered by turning out the light, effectively making the puppet 'disappear'. After this procedure each subject's stuttering dropped to near-zero levels, generalised to outside the laboratory, and was maintained at follow up after 1 year. Subsequent research with young stuttering children fulfilled the promise of operant methods with this patient population.

## Emergence of an Operant Treatment

Consequently, during the 1970s, researchers began to search for ways to treat stuttering *directly* during the first years of life. The prolonged-speech treatment for adults is unsuitable for preschool age children because of its laborious nature and its demands on the child for goal orientation and cognitive maturity. Eventually, laboratory evidence started

## Prolonged-speech treatment for adults is unsuitable for preschool age children

A punishing stimulus does not have to be negative or unpleasant in any way. It is particularly important to recognise this distinction in the clinical management of stuttering preschool children, because any negative input is undesirable. In fact, it is a basic of all

## Lidcombe Program of Early Stuttering Intervention

This laboratory research was the basis of the Lidcombe Program, which is a parent-conducted, operant intervention for early stuttering. It is

named after the suburb in Sydney where it was developed, at the Faculty of Health Sciences of The University of Sydney and the Stuttering Unit, Bankstown Health Service. The treatment is summarised below.

### An Operant Procedure to Control Stuttering

Parents present verbal contingencies for stuttered speech and stutter-free speech. The contingency for stutter-free speech is praise, and the contingency for stuttering is that parents identify a stuttered utterance and possibly request the child to correct the utterance. Parents administer the treatment to children in formal 'sessions' at home and also 'on-line' in their customary speaking environments. 'Sessions' are emphasised at the start of the programme and 'on-line' praise and correction occur mostly in the latter stages of the programme.

communicate about the child's progress, and provide a means to clearly specify the targets of the programme.

### A Systematic Maintenance Programme

When near-zero stuttering has been achieved in everyday speaking situations, the parents are instructed to systematically withdraw all treatment procedures and to



Figure 1. A speech pathologist at the stuttering Unit uses a button-press counting and timing device (inset) to measure per cent syllables stuttered with a stuttering child and her parent.

## After the Lidcombe Program, children have near-zero stuttering levels for the medium- and long-term

### Regular Speech Measures Within and Beyond the Clinic

Parents use a 10-point scale to rate the severity of their child's stuttering in everyday speaking situations. Additionally, during weekly clinic visits, the speech pathologist makes objective measures of stuttering severity, using a button-press device (Fig. 1) to measure per cent syllables stuttered (%SS). These measures guide the speech pathologist's management decisions during the programme, enable the speech pathologist and parents to

carefully monitor their children's speech for any signs of relapse. During the maintenance programme, the family attends follow-up clinic visits and may be instructed to reintroduce treatment procedures for a while, in the event that the child shows some signs of impending relapse.

### Effectiveness of the Lidcombe Program

A series of outcome studies funded by the National Health and Medical

Research Council show that this procedure can produce near-zero stuttering levels in preschool children for the medium- and long-term. Outcome data have been published up to 7 years post-treatment.<sup>[6]</sup> These studies are based on objective speech data (%SS) from 42 children in everyday speaking situations (Fig. 2)<sup>[7]</sup> and are supported by social validity data showing that listeners cannot distinguish between the speech of treated children and that of normally fluent children. Consequently, the Lidcombe Program is now accepted best practice among Australian speech pathologists, and speech pathologists in four other countries are presently training in the method. For example, in the United Kingdom around 150 speech pathologists have been trained in the Lidcombe Program at the time of

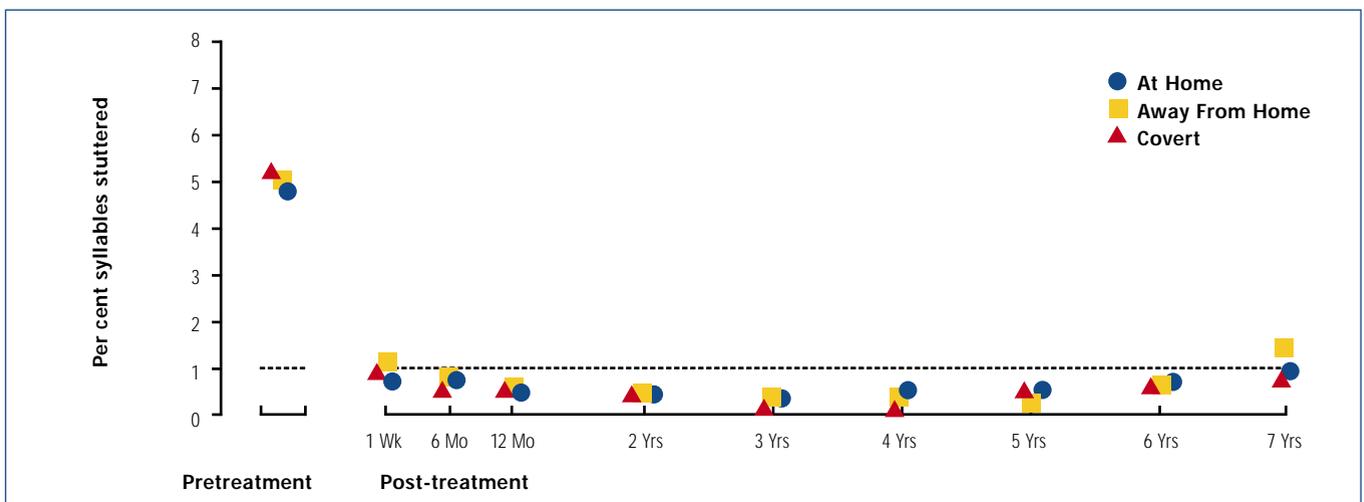


Figure 2. Mean long-term follow-up data from reference 7. The children's stuttering was measured in three everyday speaking situations. Adapted with permission of the American Speech-Hearing-Language Association. Mo = months; Wk = week; Yrs = years

writing. Randomisation has begun in an international randomised controlled clinical trial.

For many reasons, the Lidcombe Program is an advance on treatments for adults who stutter. Natural sounding, stutter-free speech can be achieved effortlessly because the child does not have to learn a new speech pattern. So effortlessly, in fact, that it is common at long-term follow up for children to have forgotten why they came to the clinic and even that they ever stuttered. Unlike prolonged-speech treatments for adults, the Lidcombe Program is suitable for most children. Further, when the treatment is administered by a properly trained speech pathologist, relapse rates are extremely low. Finally, the treatment is cost-effective, with a recent study of 250 clinical cases showing that a median of 11 clinic visits of 45 minutes to 1 hour duration were required to achieve near-zero stuttering.<sup>[8]</sup> This constitutes at least one-tenth of the time required to treat adults who stutter.

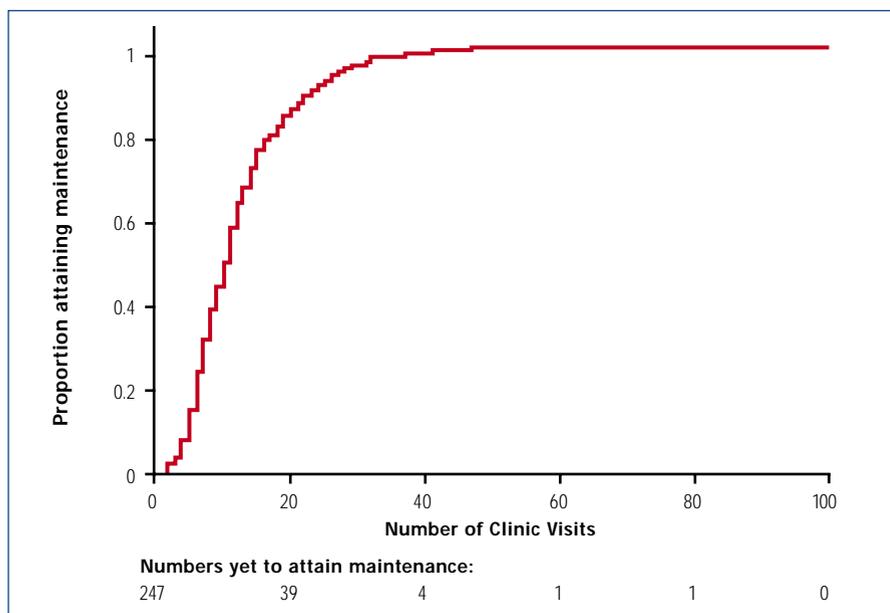
### Timing of Early Intervention

Although it is becoming increasingly obvious that early intervention is extremely effective, it is also clear that any child who presents to a speech clinic with stuttering of recent onset

## Natural sounding, stutter-free speech can be achieved effortlessly because the child does not have to learn a new speech pattern

has some chance of natural recovery. This situation creates the most pressing issue for speech pathologists in managing stuttering in preschool children. How should the benefits of waiting in the hope that natural recovery will occur be traded off against the benefits of early intervention? In other words, when should treatment for early stuttering begin? The clinical literature of late has been considering this complex issue in detail.

One important consideration is that the path from early stuttering in the



**Figure 3.** Kaplan-Meier survival plot for 250 children treated with the Lidcombe Program. Cumulative proportion of children who attained maintenance is plotted against number of clinic visits.<sup>[8]</sup> Reproduced with permission of the American Speech-Hearing-Language Association.

preschool years to stuttering in the early adult years is also a path from a tractable condition to a quite intractable one. However, a recent regression analysis of 250 cases treated with the Lidcombe Program showed that, *during the preschool years*, a delay in treatment of up to 12 months post-onset did not worsen the tractability of the condition.<sup>[8]</sup> Consequently, it currently seems justifiable to delay treatment for a short period after onset

although there appears to be a consensus among speech pathologists that a delay in treatment beyond the preschool years would not be wise. This is particularly the case in light of two reports that children as young as 6 and 7 years may develop negative attitudes to their speech.

The decision about when to intervene with the Lidcombe Program is aided by the availability of a survival plot for this treatment (Fig. 3). The curve is nearly uniformly quite steep, with a median of 11 weekly treat-

ment sessions for the control of stuttered speech and 90% of cases effectively managed by 22 weeks. Hence, a decision to begin treatment can be made in the knowledge that it will probably have an effect reasonably quickly. However, the survival plot for natural recovery is currently unknown. Consequently, if a speech pathologist chooses to delay treatment for a period to wait for natural recovery to occur, there are no detailed data to guide a decision about when a reasonable chance of natural recovery has passed. All that is clear at present is that recovery may occur during the first 6 months and may occur during a period of several years subsequent to that.

Nonetheless, there is reasonable agreement in the field that intervention with stuttering of recent onset should occur after a period of monitoring for natural recovery. The author and colleagues recommend that, during this monitoring period, regular stuttering severity measures be collected in order to identify any recovery trends. Such a monitoring period should be for a minimum of 6 months but not for much longer unless clear signs of regression of stuttering severity toward zero are detected. The decision about

## Any child who presents to a speech clinic with stuttering of recent onset has some chance of natural recovery

when to intervene should be guided by available data that indicate that the chances of natural recovery are best for girls, when there is a short post-onset time and when there is a family history of natural recovery (for a review, see reference 9).

Most importantly, there is agreement in the field that the overriding consideration in deciding when to intervene with a stuttering preschool child should be the speech pathologist's judgment of whether there are any signs of the child becoming distressed by the disorder and whether the disorder is causing any social or psychological problems.

The web site of the Australian Stuttering Research Centre is: <http://www.cchs.usyd.edu.au/Academic/ASRC>

*[Editor's note: This comprehensive web site complements the article and is a useful resource for a doctor faced with a stuttering patient.]*

### References

1. Johnson W. A study of the onset and development of stuttering. *J Speech Hear Disord* 1942; 7: 251-7
2. Bloodstein O. A handbook on stuttering. 5th ed. San Diego, CA: Singular Publishing Group, 1995
3. Ingham RJ. Stuttering and behavior therapy: Current status and experimental foundations. San Diego, CA: College-Hill Press, 1984
4. Onslow M. Behavioral management of stuttering. San Diego, CA: Singular Publishing Group, 1996
5. Martin RR, Kuhl P, Haroldson S. An experimental treatment with two preschool stuttering children. *J Speech Hear Res* 1972; 15: 743-52
6. Onslow M, Packman A. The Lidcombe Program of early stuttering intervention. In: Bernstein Ratner N, Healy EC, editors. Treatment and research: Bridging the gap. Mahwah, NJ: Laurence Erlbaum Associates, 1999
7. Lincoln M, Onslow M. Long-term outcome of an early intervention for stuttering. *American Journal of Speech-Language Pathology* 1997; 6: 51-8
8. Jones M, Onslow M, Harrison E, Packman A. Treating stuttering in children: Predicting outcome in the Lidcombe Program. *Journal of Speech, Hearing, and Language Research*. In press

9. Packman A, Onslow M. Issues in early stuttering intervention. In: Onslow M, Packman A, editors. A handbook of early stuttering intervention. San Diego, CA: Singular Publishing Group, 1999

This article has been peer reviewed.

### Author Details

Associate Professor Mark Onslow, BAppSci (Sp Path), MAppSci (Sp Path), PhD, is Director of the Australian Stuttering Research Centre, Faculty of Health Sciences, The University of Sydney. His research interests include clinical outcomes of stuttering treatment, theories of proximal and distal causes of stuttering, and speech motor function in stuttering.

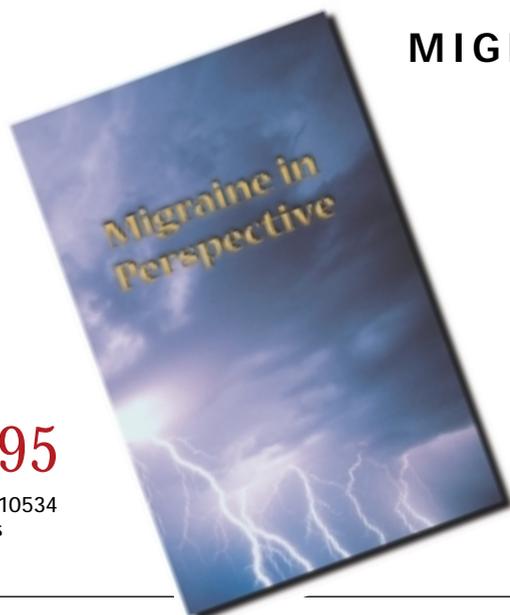
Correspondence: Australian Stuttering Research Centre, Faculty of Health Sciences, The University of Sydney, PO Box 170, Lidcombe, NSW 1825

email: [m.onslow@cchs.usyd.edu.au](mailto:m.onslow@cchs.usyd.edu.au)

**CTONLINE**

The full text of this article is available on the *Current Therapeutics* website <http://www.ctonline.com.au>

# A D I S B O O K S



## MIGRAINE IN PERSPECTIVE

How do you diagnose migraine successfully? How should migraine patients be managed? What is the impact of migraine on the patient's life? How important is patient education in helping to reduce or prevent a migraine attack? What is the place of preventive medicine? What is the most appropriate acute treatment? How should patients be monitored so that outcomes, with regard to quality of life and treatment cost, are optimised?

These questions are answered in this collection of review articles, written by leaders in migraine management.

### Order Now!

Phone Simone Clarke at Adis International Australia on (02) 9975 9100 or fax (02) 9975 9199

**\$74.95**

ISBN 0864710534  
B5 96 pages  
softbound