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Contemporary clinical conversations about stuttering: Can intervention stop early stuttering development?

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Abstract

Purpose: To discuss whether early intervention can stop stuttering development. To inform junior clinicians and students of speech-language pathology about contemporary views on this issue.

Method: The issue was discussed by two university researchers and two speech-language pathologists who provide public clinical services. Written conversational turns in an exchange were limited to 100 words each. When that written dialogue was concluded, each participant provided 200 words of final reflection about the issue.

Result: Most differences that emerged centred on the clinical evidence base for early intervention, which emphasises stuttering reduction, and how it should be interpreted.

Conclusion: The evidence base for early intervention has limitations and it should be interpreted cautiously. One interpretation is that reducing stuttering severity is a justifiable core of early management. Another interpretation focuses on ease of communication, anticipation of stuttering, and covert stuttering.

Keywords: *stuttering; early intervention; development*

Prologue

There is a consensus that early intervention for stuttering before 6 years of age—the preschool years—is best practice (Lowe et al., 2021). This consensus is primarily driven by clinical outcome research involving more than a thousand preschoolers (for a review, see Onslow, 2024). The evidence base includes case studies and retrospective file audits, along with prospective designs. The prospective designs include clinical trial and experimental designs that randomise children to treatment and control groups (e.g. Harris et al., 2002; Jones et al., 2005). The primary outcome measure in all these reports is typically percentage of syllables stuttered (%SS). The largest of these studies (de Sonneville-Koedoot et al., 2015) compared the Lidcombe Program with RESTART-DCM, the latter being an approach that includes the Demands and Capacities model. These are two of the most common treatments for preschoolers, and the trial showed noninferiority at 6, 12, and 18 months. In other words, neither treatment was less efficacious than the other.

An important consideration in evaluating early-childhood stuttering intervention is awareness and subsequent life impact. The negative impact of stuttering is well documented (Carter et al., 2017; Craig et al., 2009; Koedoot et al., 2011; Nang et al., 2018; Norman et al., 2023). During adolescence and adulthood, the disorder is associated with clinically significant social anxiety, restricted educational and occupational attainment, and challenges with social functioning (for a review, see Norman et al., 2023). Anticipation of stuttering is an anxiety-related experience and is reported commonly in adults and school-age children (7–12 years; Jackson et al., 2015).

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Anticipation of stuttering can be associated with concealment, which is often referred to as covert stuttering (Murphy et al., 2007). There is evidence that these negative effects of stuttering appear during early childhood (for a review, see Bernard et al., 2022); however, when such negative impact emerges is unclear, and their effects will vary for individuals. Unlike developmental language or phonological difficulty, stuttering onset generally begins unexpectedly at some time between 2 and 3 years of age (Ambrose et al., 2015; Reilly et al., 2009), after development of early language skills (Bernstein Ratner & Brundage, 2024). There is evidence that children may be aware of early stuttering, that it has potential to cause them distress, and that it may be associated with speech and situation avoidance (Bloodstein, 1960; Boey et al., 2009; Langevin et al., 2010). Presumably because of the potential negative impact of stuttering, and evidence of it appearing in early childhood, international speech-language pathologists prioritise treatment of childhood stuttering as a disorder "requiring urgent input for a positive outcome" (McGill et al., 2021, p. 12).

This body of clinical research raises the question of whether intervention can stop early stuttering development. Consequently, that is the topic of this contemporary clinical conversation about stuttering.

Participating in this conversation are two university researchers and two speech-language pathologist clinicians who provide public services. Eric S. Jackson is Associate Professor of Communicative Sciences and Disorders at New York University, USA, where he studies the impact of social-cognitive factors on stuttering variability in adults and children. He is also a practicing speech-language pathologist with more than 15 years of experience in stuttering intervention, and a person who stutters. Elaina Kefalianos is a senior lecturer for stuttering at the University of Melbourne, Australia. She is Vice-President of SAY:AU, The Stuttering Association for the Young in Australia. Brooke Edwards is a clinician. She is the Director of Speech at SAY: The Stuttering Association for the Young, a non-profit organisation in the USA. Through SAY, she provides treatment services for children, teens, and their families, as well as educational opportunities for speech-language pathologists. Stacey Sheedy is a clinician at a public treatment facility in Australia: The Stuttering Unit, within the South-Western Sydney Local Health District, New South Wales. She also works in private practice. Stacey has 30 years of experience in clinical practice, 26 years of which have specialised in stuttering. The conversation was moderated by Mark Onslow, Director of the Australian Stuttering Research Centre, Sydney, Australia.

Participants were limited to 100 words during each of their conversational exchanges. When the initial dialogue was concluded, each participant provided 200 words of final reflections about the matter in an epilogue. These final reflections were not seen by the other participants until they were all completed.[1] After the Epilogue, a final section of Additional Readings provides sources for some of the issues raised during the conversation.

Dialogue

Mark: We know that stuttering develops in early childhood. So, is it reasonable to state that early intervention shortly after onset can stop its development?

Brooke: I don't think that early intervention can stop the development of stuttering for all children, but it's reasonable to say that it can alter the trajectory of its development. How the child (and family) reacts both physically and emotionally to stuttering can be greatly impacted by intervening before maladaptive behaviours and mindsets fully form. This is why the success of an intervention needs to be measured not only by whether or not stuttering stops but by how communication changes for that child.

Eric: The data do not suggest that therapy alone, even shortly after onset, is sufficient to "cure" stuttering. As successful as our colleagues have been in running preschool treatment studies, these studies are not sufficiently powered (i.e. large enough) to conclude that treatment outpaces natural recovery. I think it's reasonable to say that comprehensive treatment could have a beneficial effect on a child's and family's wellbeing and maybe even the child's speech behaviours, but I think we need larger studies to be sure.

Elaina: The short answer is "we don't know yet." Treatment trials to date have not answered this question. Our field needs randomised controlled trials that include a control group and long-term maintenance data to answer this question. Early intervention may, at best, expedite the process of recovery for children who are already on the pathway to recovery.

Stacey: While there is some possibility that early treatment can stop the progression of stuttering development, I feel more confident that it impedes its progression, whether or not natural recovery was going to occur. Since some children do not achieve stutter-free speech outcomes, and others experience relapse after successful intervention, it is clear that early treatment does not "stop" stuttering from developing for all children. Regardless, I believe that treatment can reduce stuttering severity for most young children and, hence, is worthwhile.

Mark: So, we have a theme emerging here. Brooke states that early intervention can "alter the trajectory" of early stuttering development, and Eric states that it could be beneficial to "maybe even the child's speech behaviours." Elaina indicates that it "may expedite the process of recovery," and Stacey is a bit bolder, indicating that early intervention "can reduce stuttering severity." Stacey, can you elaborate on how much early intervention might reduce stuttering severity?

Stacey: Minimal or no stuttering is a desirable and achievable outcome for most young children who commence Lidcombe Program treatment. Evidence has shown that young children who receive this treatment are more likely to exhibit less than 1%SS some months after they commence intervention. I actively strive towards, and anticipate, achieving that outcome. At the least, a reduction in the severity of stuttering is a typical and expected response to the treatment.

Eric: I think it's misleading to say that a treatment program can lead to minimal or no stuttering because, as has been stated, we need a true control group to determine whether it's the treatment itself having the effect, and also whether the treatment outpaces natural recovery. The idea that Lidcombe Program pushes children to achieve recovery faster is an interesting one, but I don't think the data support this. There's also the issue of using frequency as an outcome measure. While studies report a statistically significant reduction in %SS, I wonder how meaningful this reduction actually is.

Brooke: It appears we may differ in how we define stuttering severity. If we use %SS as the measurement, then progress is only measured by reduction in frequency. How do we account for the natural variability we see in stuttering? How about the covert behaviours, like word avoidances, that make the percentage lower? Is intervention successful even if the child is at 1%SS because they are choosing to talk less or had some lucky fluency? I think early intervention works to reduce stuttering severity, but we must redefine "stuttering severity" and use some other measures.

Stacey: With respect to how much early intervention might reduce stuttering severity, I mentioned %SS as one measure of this. That measure is supplemented by parental observations across communication contexts, including ratings of severe episodes, therefore, encompassing variability. It goes without saying that child wellbeing and effective communication are paramount. In the uncommon scenario of a child being observed to talk less, this would indicate ineffective treatment. In my clinic, we routinely collect supplementary measures of impact and concern from parents, for themselves and on behalf of their young child. It is more typical for parents to report increased talking and communication competence and confidence.

Elaina: We all agree that evaluation of stuttering impact and the child's wellbeing is essential. I think we are seeing the importance of holistic assessment recognised more often in recent treatment trials.

Brooke: What I've learned from children in my organisation, as well as from what we're learning in the growing literature on the speaker's experience of stuttering, is that covert behaviours are far from uncommon. I worry that by not including formal quality of life measurements, we are sending the wrong message to families of children who stutter and other speech-language pathologists reading this. We must be explicit in our research and in our practice to ensure we're not saying that early intervention successfully hides stuttering development, but that it truly is reducing any negative impacts of stuttering on quality of life.

Mark: Indeed, Brooke raises an important point. It is not only clinicians and students who will read this, but its open-access status in the journal means that parents of children who begin to stutter can access it. So, do any of us have anything to say to parents about Brooke's point that early intervention should not hide stuttering development?

Stacey: I said that child wellbeing and effective communication are paramount, and this is the case with the Lidcombe Program. Children must enjoy the treatment, and most do. Speech-language pathologists have the goal of improving a client's communication. While covert stuttering behaviours are more likely for older children and adults, they can occur for some young children. We must ensure that we are not causing such behaviours; we need to monitor for them and alter treatment if they occur. After all, we are aiming to improve quality of life.

Elaina: We don't have any evidence to suggest early intervention can have the effect of hiding stuttering development. To the contrary, the limited research that has examined the impact of intervention—namely the Lidcombe Program—suggested improvements in children's behavioural markers of anxiety and withdrawal post-treatment (de Sonneville-Koedoot et al., 2015; Woods et al., 2002). Based on this evidence, the Lidcombe Program appears to be a safe treatment for children who stutter.

Brooke: My concern isn't about experienced and talented clinicians who specialise in stuttering using their intuition and their knowledge of supplementary impact measures to capture the emotional and cognitive components of stuttering. My concern is about the vast majority of clinicians without a specialty, and/or families that are reading the literature and program manuals. They are seeing %SS and parent severity ratings of overt behaviours as main measures and are stopping there, or are reading on but don't really know which supplementary measures to use. They're either giving too much or too little credit to early intervention, based solely on frequency measures.

Eric: I understand the concern that Lidcombe Program may be promoting covert behaviours such as avoidance through negative contingencies, though I don't think there's a strong argument that Lidcombe Program is unsafe. Whether a treatment strengthens avoidance is an open question, and it would be interesting to see long-term longitudinal KiddyCat (Vanryckeghem & Brutten, 2007) or related outcomes from the RESTART study (de Sonneville-Koedoot et al., 2015) for the children who persist with stuttering. Nevertheless, I think our

group may have differing perspectives of the role that awareness and anticipation play in early stuttering.

Mark: I'd like to return now to an issue that was raised earlier about the effects of early intervention above those of natural recovery. Clearly, as some of you have noted, the experimental and clinical trial evidence about that matter could be stronger. But is such evidence sufficient to prompt a clinician to select a treatment and give early intervention a try?

Stacey: Evidence has consistently demonstrated that treating young children with the Lidcombe Program reduces stuttering severity without negative impact. Given that recovery is unpredictable, we must weigh up whether treatment evidence outweighs risks of inaction. Active monitoring may be appropriate for some young children and treatment for others. Even if a child improves and later relapses, the period of improved communication without experiencing the well-documented negative consequences associated with stuttering justifies intervention. Of course, speech-language pathologists should be cautious with the language used and should avoid setting up false expectations. Monitoring child wellbeing is crucial, and treatment decisions should be adjusted as indicated.

Brooke: We all agree that we should intervene early, but, at the risk of sounding like a broken record, we diverge at the "why." How can we make a case for therapy and manage parental expectations if our main measure of success is so black and white and prone to relapse? If the child's reaction to stuttering (behaviourally and emotionally) is a part of the definition of stuttering severity rather than a supplementary measure, we can make a much better case for why we're intervening! This may be semantics, but it guides our treatment plan and impacts how we view success.

Eric: The claim that treating young children consistently reduces overt stuttering severity is not supported by empirical research. The estimate 2- to 4-point reduction in frequency that has been reported in treatment studies includes both children who persist and recover, with the latter group likely driving the statistically significant finding. Still, I agree that inaction is unwarranted because we know, based on combined empirical evidence, clinical experience, and patient preference, that treatment helps (and likely doesn't harm). Treatment, though, could be a single session or an entire program depending on what the child and family need.

Brooke: To expand on what was said about what treatment might look like, research has not found one approach that works for everyone, nor has research found one approach that works better than other approaches. So, I believe, yes. We go ahead with therapy, but we must be flexible about what that intervention looks like!

Elaina: There is sufficient evidence to support early intervention for children (Sjøstrand et al., 2019). There is not, however, sufficient evidence to support all currently used early interventions. While we don't currently have evidence for any early intervention being more effective than natural recovery, there is certainly evidence that children who receive intervention benefit in the short term. Importantly, given that we don't know which children will recover and who will persist after receiving intervention, promotion of positive communication attitudes is paramount in any early intervention program.

Mark: Earlier, Eric mentioned awareness and anticipation of stuttering, which are among the prominent consequences of persistent stuttering. Of course, preschoolers are aware of their stuttering, and this has been well documented. And there is evidence that anxiety may be present for them, and anticipation is connected to anxiety. So, should early intervention directly target anticipation of stuttering?

Elaina: I don't think so. The preschool years are a unique period in the development of stuttering. It is when the possibility of recovery is highest. While we don't yet know whether early intervention increases the likelihood of recovery in the long term, we do know that it can reduce stuttering severity for most children in the short term, and in many cases stuttering can cease completely. If stuttering reduction or minimisation is a possible goal of treatment, that should be the target for early intervention, to give children the greatest chance of less effortful communication.

Brooke: Why can't we consider working on both increasing likelihood of outgrowing stuttering and anticipation/awareness from the get-go? Let's not make the child's awareness and reactions to stuttering the elephant in the room. If we wait until later to address anticipation and awareness, the sudden change in narrative may confuse families and may even potentially result in shame that they didn't "work hard enough" or "do it right," when, of course, that is not the case.

Stacey: The objective of early intervention is to help a child talk more fluently and, therefore, more easily. My observation is that many preschool children talk freely and are seemingly oblivious to their stuttering. Nonetheless, there can be some who are sensitive and aware. I, therefore, actively look for signs of awareness or any reaction to stuttering, including avoidance or reduced talking, and manage these accordingly. I advise parents to be cautious not to reinforce subtle stuttering-related behaviours or avoidances. Additionally, should signs of generalised anxiety become apparent, referral to a psychologist is recommended.

Eric: I agree that we should target awareness and anticipation, which are the hallmarks of persistent stuttering and central to adverse impact in later years. Also, my perspective differs from my colleagues: that early intervention reduces stuttering to a meaningful extent. I don't think the data support this interpretation, primarily because natural recovery hasn't been accounted for in treatment studies, and also because short-term reductions in overt stuttering (and later rebounds) may be driven by awareness/avoidance. We

seem to disagree on the extent to which anticipation occurs in young stutterers, which unfortunately has not been studied empirically.

Brooke: Students and clinicians reading this should know that signs of awareness and anticipation in young children are often very subtle and require ongoing evaluation, parent education, and creativity to detect. Unless the child is truly demonstrating coexisting anxiety beyond their response to stuttering, I believe speech-language pathologists are uniquely qualified to help a child navigate the cognitive and emotional components of stuttering. If we only work on the physical aspects of stuttering, and refer out for how they react to it, we're sending a message that the child's reactions are atypical or "wrong."

Eric: Good points. I think, given what we know about older stutterers, and given that humans are by nature anticipating creatures, awareness and anticipation in young stutterers should be the rule, not the exception. If awareness and anticipation aren't negatively impacting the child, great! It just seems unlikely that they don't exist, at least at a low cognitive or proprioceptive level. Also, I have worked with many children who stutter and have never deemed it necessary to refer out for generalised anxiety. If there was anxiety, it was always a response to stuttering and, therefore, fell under my scope of practice.

Stacey: We agree that evidence of anticipation and avoidance in relation to preschool children who stutter is needed. However, such evidence currently does not exist. In the meantime, it is sensible to exercise caution, particularly given that signs can be subtle. I concur that speech-language pathologists need skills for managing speech-related anxiety and should acquire knowledge and skills for understanding generalised anxiety. In Australia, when issues extend beyond speech-related anxiety, or are complex, intervention is outside the scope of practice for speech-language pathologists. In these cases, including generalised anxiety, referral to a psychologist for expert intervention is warranted.

Mark: I am mindful that students of speech-language pathology might seek guidance from our conversation. Our topic is whether early intervention can stop stuttering development. Brooke, you prefer a modified statement that early intervention can alter the trajectory of early stuttering development. What clinical procedures would you suggest that students consider using to achieve that?

Brooke: The more popular response would be to state a program that students can easily find a manual for, but we simply haven't found one approach that works for everyone. We are clinicians, not technicians, and it's our job to adapt to our clients' needs, not the other way around. My advice to students is to do more listening than talking. Clinicians should not only gather information on the observable features of stuttering but also assess the child's reactions to stuttering and gather information on how people in their environment are responding as well. Treatment activities will vary; the evaluation will not.

Mark: So, if clinicians seek to alter the trajectory of early stuttering development, what specific procedures would you suggest clinicians consider trying as they seek to find what works for an individual child and family?

Brooke: We must consider the three main stakeholders: child, family, and community. The family and community members, to the extent it's reasonable, are empowered to reduce known demands on the child's speech motor system, while also creating a safe space for the child to stutter. The child "strategies" vary, depending on the child's level of awareness and anticipation, amongst other things. Children indirectly reap the benefits of the environmental changes but may also participate in age-appropriate stuttering education, acceptance, and resilience activities and/or learn strategies to reduce physical struggle, to name a few possible treatment pathways.

Mark: Stacey, you had a different answer to our driving question of whether early intervention can stop stuttering development. You said that "minimal or no stuttering is a desirable and achievable outcome." What specific procedures would you suggest that student clinicians consider using to achieve that outcome?

Stacey: I believe that minimal or no stuttering is a realistic goal for most children. Currently, I recommend that student clinicians, and speech-language pathologists who work with children who stutter, access training for the Lidcombe Program, given its strong evidence base. Without formal training, there is a potential risk of misinterpreting written guides. Additionally, clinicians should seek guidance from an experienced supervisor. Training in alternative evidence-based treatment approaches, such as RESTART (de Sonneville-Koedoot et al., 2015) and the Westmead Program (Trajkovski et al., 2019), is suggested, to broaden the choice of therapeutic interventions. Referral to an experienced speech-language pathologist is recommended if a client has a complex presentation.

Mark: Eric referred to a "cure" for stuttering. Is that what you mean by minimal or no stuttering?

Stacey: Treatment is effective at reducing stuttering—that is "minimal or no stuttering"—but a cure implies that it has been eliminated without a possibility of recurring. Since I have said that some children may not achieve this outcome and I acknowledged there is some chance that stuttering may relapse, I don't believe that the treatment response to Lidcombe Program is a "cure." We don't know how this treatment works, and it is crucial for parents to monitor and respond if relapse does occur. Regardless, the goal is for the resultant speech to be effortless, spontaneous, and ideally fluent long term.

Mark: Eric, from what you have said, you seem sceptical about Stacey's view that early intervention can attain minimal or no stuttering.

Eric: Making a distinction between "no stuttering" and "cure," or even "minimal stuttering," is a red herring because none of these claims are supported by research. The primary issue, again, is that no study shows a reduction of stuttering that outpaces natural recovery, meaning that the treatment itself may have no effect. To me, these claims also reflect a medicalised view of stuttering—that it's something to be fixed or even that it can be fixed. I wouldn't take issue if we knew how to "fix" stuttering, but we don't. Medicalisation may not harm children who will recover, but it may harm those who persist.

Mark: So, what advice do you have about this for students of speech-language pathology? Should they, during clinical practice, take account of randomised trials and experiments about the efficacy of early intervention? Are those data of any value to them?

Eric: Of course, they should take account of best evidence, but they need to be critical of that evidence. Treatment studies suggest that early intervention may help children and families, that one treatment doesn't seem better than another, and that treatment doesn't seem to be harmful. My biggest concern is a claim that Lidcombe Program reduces stuttering to minimal or zero levels, not only because it's unsupported by data (when you take into account natural recovery), but also because it may instil false hope in clients/families. Students should be honest with families about what the science tells us about early intervention.

Mark: Elaina, you expressed reservations about the evidence for early intervention. What advice would you have for students about this matter?

Elaina: Existing data for early intervention are incomplete, but they are still useful. It's unknown whether early intervention increases the likelihood of recovery long term. In the short term, however, there is evidence that intervention—specifically the Lidcombe Program—significantly increases a child's likelihood of reaching minimal/near zero levels of stuttering. Even if this is a temporary effect, it is undeniably a worthwhile one as it makes communication easier for the child.

Eric: I agree that current evidence is useful, but again, any claim that a treatment reduces stuttering to "minimal/near zero" levels, even in the short term, is misleading for the same reason that it would be misleading to say this for the long term. Natural recovery happens for many children within 6 to 12 months post-onset, and my understanding is that many of the children in the RESTART trial (de Sonneville-Koedoot et al., 2015) fall in this age range. And this isn't taking into account whether the change in %SS is actually a meaningful one (e.g. quality of life doesn't improve with the drop in %SS).

Mark: Eric raised the issue of false hope about minimal or nearly no stuttering. Should students bear that in mind?

Elaina: Of course, they should. You would never guarantee an outcome of minimal or no stuttering to a family. But we can assure parents that they are receiving an evidence-based treatment. In my view, that evidence indicates that minimal or no stuttering may be an outcome.

Epilogue

Brooke: While I wholeheartedly recommend early intervention, this isn't based on its impact on overt stuttering measurements like %SS or parental severity ratings. These measurements minimise the stuttering experience to a listener's judgement and ignore the child's experience. The literature has shown us that the listeners' perceptions of recovery or relapse do not always match the perception of the child or adult who stutters (Franken et al., 2018; Tichenor & Yaruss, 2019). Nonetheless, intervention can be beneficial if we formally measure and address stuttering behaviours and adverse impact, with input from the child.

There have been several misleading statements highlighting the Lidcombe Program as the program of choice. However, we cannot confidently say that treatment outpaces natural recovery, and the Lidcombe Program/RESTART study demonstrates that the Lidcombe Program doesn't work better than the comparison program. In fact, while we all have agreed that effortless, spontaneous speech is the preferred outcome, the Lidcombe Program does not measure this at all. Effort and spontaneity simply cannot be measured by the presence or absence of stuttering, nor should a child's reactions to stuttering be treated by a psychologist. Speech-language pathologists must provide holistic, individualised treatment and shouldn't subscribe to one approach for all.

Stacey: Research shows that stuttering shortly after onset is tractable. There is ample evidence, still evolving, that Lidcombe Program treatment is more effective in significantly reducing stuttering severity than natural recovery, at least short term (Sjøstrand et al., 2019). Some children won't achieve that, and some may relapse longer term; therefore, it isn't a cure. Certainly, clinicians should explain realistic expected outcomes to parents. They must weigh up whether treatment evidence outweighs risks of inaction. I believe it does in most cases. Any period of improved communication, without negative consequences associated with stuttering, undeniably justifies intervention. To my knowledge, there is no evidence that this treatment leads to covert stuttering, and I rarely observe that clinically. Lidcombe Program studies show no post-treatment detriment to child language (Imeson et al., 2018), and may even improve speech attitudes, and behavioural and emotional measures (de Sonneville-Koedoot et al., 2015; Woods et al., 2002). Regardless, we must be vigilant, assessing treatment through parent judgement and observing overall child wellbeing, and altering treatment if negative awareness or reactions are observed. Speech-language pathologists should seek training in evidence-based programs and refer to experienced

professionals if a child's presentation is outside their skillset. In summary, early intervention competently implemented by a proficient clinician, with careful monitoring, and a holistic approach to improve communication and quality of life are recommended.

Eric: There have been several claims during this discussion that treatment (especially the Lidcombe Program) reduces overt stuttering severity, despite it being pointed out that this claim is questionable, based on existing data. Until future studies demonstrate this effect unequivocally, it is dangerous for clinicians to be making such claims. Additionally, the claim that treatment speeds up natural recovery may be correct but is also confounded by the high rate of natural recovery in the first year of stuttering. My colleagues argue that a reduction in stuttering frequency is the primary goal of intervention, but I disagree. The argument is circular: because treatment reduces overt severity, reducing overt severity should be the goal. However, because we don't know that it is the treatment that is reducing overt severity, promoting healthy communication attitudes should be paramount. My view is that because we don't understand what exactly about treatment reduces stuttering—if treatment does at all—reducing overt severity should not be a direct goal of treatment. Still, preschool interventions don't seem to be harmful, and coupled with clinician experience and client preferences, there is support that children at risk for persistence could benefit from them. Thus, there is some support for using established treatment programs.

Elaina: Stuttering tractability is highest during the preschool years, and we know early stuttering can create adverse effects in children after onset. Effective early intervention is, therefore, imperative. While current evidence is incomplete, it is still informative. Empirical evidence has demonstrated that children who receive early intervention benefit in the short term. In the long term, we don't yet know whether early intervention is more effective than natural recovery due to a paucity of waitlist control groups and long-term maintenance data in randomised controlled trials. While this question does need to be answered, current evidence can still be used by clinicians to inform clinical decisions. Current evidence indicates that minimal or no stuttering may be an outcome of early intervention. The possibility of less effortful communication makes early intervention undeniably worthwhile and should be made available to every child.

Mark: Our discussion found much agreement but differences emerged, most involving the evidence base for early intervention. Randomised trials have, by necessity, one primary outcome variable, and all have used stuttering severity as such. There was diverse clinical reasoning about that situation.

One position is that reducing stuttering severity is a justifiable core of early management, and that clinical attention will naturally be given to other aspects of early stuttering if a clinical need arises. Other clinical reasoning was more guarded, pointing out that stuttering is not well captured with severity indices. Ease of communication, anticipation of stuttering, and covert stuttering were foremost in the clinical thinking of some about early intervention with preschoolers.

All agreed that the evidence base for early intervention has limitations and that it should be interpreted cautiously. That, surely, is a fine message for anyone who may be influenced by this discussion, especially students of speech-language pathology. Practitioners of evidence-based health care need to interpret and apply the current evidence. It will improve in the future, to be sure, but how worthwhile is it now? To end with a closing statement to a review of evidence 4 decades ago (Andrews et al., 1983), "science only issues interim reports" (p. 240).

Additional readings

The open-access text by Onslow (2024), details below, provides more details and sources of publications for issues raised during this conversation. This text is updated regularly to take account of contemporary research and thinking.

- Lecture One: The negative impact of stuttering on quality of life (including awareness and anticipation of stuttering).
- Lecture Two: Epidemiology of early stuttering (including natural recovery).
- Lecture Four: Clinical measurement of stuttering (including percentage of syllables stuttered and parent severity ratings).
- Lecture Five: Evidence based practice and methods for stuttering treatment research.
- Lectures Six and Seven: The clinical process, clinical trials, and clinical process research for RESTART-DCM, the Lidcombe Program, and the Westmead Program.
- Lectures 10, 11, and 12: Stuttering and social anxiety (including the emergence of social anxiety shortly after onset, and including awareness and anticipation of stuttering and "covert stuttering").

Note

1. Because of the opinion-based nature of this discussion paper, no view expressed is necessarily endorsed by all authors.

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References

Ambrose, N. G., Yairi, E., Loucks, T. M., Seery, C. H., & Throneburg, R. (2015). Relation of motor, linguistic and temperament factors in epidemiologic subtypes of persistent and recovered stuttering: Initial findings. *Journal of Fluency Disorders*, *45*, 12–26. https://doi.org/10.1016/j.jfludis.2015.05.004

Andrews, G., Craig, A., Feyer, A. M., Hoddinott, S., Howie, P., & Neilson, M. (1983). Stuttering: A review of research findings and theories circa 1982. *The Journal of Speech and Hearing Disorders*, *48*(3), 226–246. https://doi.org/10.1044/jshd.4803.226

Bernard, R., Hofslundsengen, H., & Frazier Norbury, C. (2022). Anxiety and depression symptoms in children and adolescents who stutter: A Systematic Review and Meta-Analysis. *Journal of Speech, Language, and Hearing Research: JSLHR*, *65*(2), 624–644. https://doi.org/10.1044/2021_JSLHR-21-00236

Bernstein Ratner, N., & Brundage, S. B. (2024). Advances in understanding stuttering as a disorder of language encoding. *Annual Review of Linguistics*, *10*(1), 127–143. https://doi.org/10.1146/annurev-linguistics-030521-044754

Bloodstein, O. (1960). The development of stuttering: I. Changes in nine basic features. *The Journal of Speech and Hearing Disorders*, *25*(3), 219–237. https://doi.org/10.1044/jshd.2503.219

Boey, R. A., Van de Heyning, P. H., Wuyts, F. L., Heylen, L., Stoop, R., & De Bodt, M. S. (2009). Awareness and reactions of young stuttering children aged 2–7 years old towards their speech disfluency. *Journal of Communication Disorders*, *42*(5), 334–346. https://doi.org/10.1016/j.jcomdis.2009.03.002

Carter, A., Breen, L., Yaruss, J. S., & Beilby, J. (2017). Self-efficacy and quality of life in adults who stutter. *Journal of Fluency Disorders*, *54*, 14–23. https://doi.org/10.1016/j.jfludis.2017.09.004

Craig, A., Blumgart, E., & Tran, Y. (2009). The impact of stuttering on the quality of life in adults who stutter. *Journal of Fluency Disorders*, *34*(2), 61–71. https://doi.org/10.1016/j.jfludis.2009.05.002

de Sonneville-Koedoot, C., Stolk, E., Rietveld, T., & Franken, M.-C. (2015). Direct versus indirect treatment for preschool children who stutter: The RESTART randomized trial. *PLoS One*, *10*(7), e0133758. Article https://doi.org/10.1371/journal.pone.0133758

Franken, M. C. J., Koenraads, S. P., Holtmaat, C. E., & van der Schroeff, M. P. (2018). Recovery from stuttering in preschool-age children: 9 year outcomes in a clinical population. *Journal of Fluency Disorders*, *58*, 35–46. https://doi.org/10.1016/j.jfludis.2018.09.003

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*(3), 203–214. https://doi.org/10.1016/S0094-730X(02)00127-4

Imeson, J., Lowe, R., Onslow, M., Munro, N., Heard, R., O'Brian, S., & Arnott, S. (2018). The Lidcombe Program and child language development: Long-term assessment. *Clinical Linguistics & Phonetics*, *32*(9), 860–875. https://doi.org/10.1080/02699206.2018.1448897

Jackson, E. S., Yaruss, J. S., Quesal, R. W., Terranova, V., & Whalen, D. H. (2015). Responses of adults who stutter to the anticipation of stuttering. *Journal of Fluency Disorders*, *45*, 38–51. https://doi.org/10.1016/j.jfludis.2015.05.002

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. *BMJ (Clinical Research ed.)*, *331*(7518), 659–663. https://doi.org/10.1136/bmj.38520.451840.E0

Koedoot, C., Bouwmans, C., Franken, M.-C., & Stolk, E. (2011). Quality of life in adults who stutter. *Journal of Communication Disorders*, *44*(4), 429–443. https://doi.org/10.1016/j.jcomdis.2011.02.002

Langevin, M., Packman, A., & Onslow, M. (2010). Parent perceptions of the impact of stuttering on their preschoolers and themselves. *Journal of Communication Disorders*, *43*(5), 407–423. https://doi.org/10.1016/j.jcomdis.2010.05.003

Lowe, R., Jelčić Jakšić, S., Onslow, M., O'Brian, S., Vanryckeghem, M., Millard, S., Kelman, E., Block, S., Franken, M.-C., Van Eerdenbrugh, S., Menzies, R., Shenker, R., Byrd, C., Bosshardt, H.-G., Del Gado, F., & Lim, V. (2021). Contemporary issues with stuttering: The Fourth Croatia Stuttering Symposium. *Journal of Fluency Disorders*, *70*, 105844. https://doi.org/10.1016/j.jfludis.2021.105844

McGill, N., McLeod, S., Crowe, K., Wang, C., & Hopf, S. C. (2021). Waiting lists and prioritization of children for services: Speech-language pathologists' perspectives. *Journal of Communication Disorders*, *91*, 106099. https://doi.org/10.1016/j.jcomdis.2021.106099

Murphy, B., Quesal, R. W., & Gulker, H. (2007). Covert stuttering. *Perspectives on Fluency and Fluency Disorders*, *17*(2), 4–9. https://doi.org/10.1044/ffd17.2.4

Nang, C., Hersh, D., Milton, K., & Lau, S. R. (2018). The impact of stuttering on development of self-identity, relationships, and quality of life in women who stutter. *American Journal of Speech-Language Pathology*, *27*(3S), 1244–1258. https://doi.org/10.1044/2018_AJSLP-ODC11-17-0201

Norman, A., Lowe, R., Onslow, M., O'Brian, S., Packman, A., Menzies, R., & Schroeder, L. (2023). Cost of illness and health-related quality of life for stuttering: Two systematic reviews. *Journal of Speech, Language, and Hearing Research: JSLHR*, *66*(11), 4414–4431. https://doi.org/10.1044/2023_JSLHR-23-00072

Onslow, M. (2024). *Stuttering and its treatment: Twelve lectures*. Retrieved March 21, 2024, from https://www.uts.edu.au/asrc/resources

Reilly, S., Onslow, M., Packman, A., Wake, M., Bavin, E. L., Prior, M., Eadie, P., Cini, E., Bolzonello, C., & Ukoumunne, O. C. (2009). Predicting stuttering onset by age 3 years: A prospective, community cohort study. *Pediatrics*, *123*(1), 270–277. https://doi.org/10.1542/peds.2007-3219

Sjøstrand, Å., Kefalianos, E., Hofslundsengen, H., Guttormsen, L. S., Kirmess, M., Lervåg, A., Hulme, C., & Naess, K.-A B., Cochrane Developmental, Psychosocial and Learning Problems Group. (2019). Non-pharmacological interventions for stuttering in children aged between birth and six years. *Cochrane Database of Systematic Reviews*, *2019*(11), 1–34. https://doi.org/10.1002/14651858.CD013489

Tichenor, S. E., & Yaruss, J. S. (2019). Group experiences and individual differences in stuttering. *Journal of Speech, Language, and Hearing Research: JSLHR*, *62*(12), 4335–4350. https://doi.org/10.1044/2019_JSLHR-19-00138

Trajkovski, N., O'Brian, S., Onslow, M., Packman, R., Lowe, R., Menzies, R., Jones, M., & Reilly, S. (2019). A three-armed randomized controlled trial of Lidcombe Program and Westmead Program early stuttering interventions. *Journal of Fluency Disorders*, *61*, 105708. https://doi.org/10.1016/j.jfludis.2019.105708

Vanryckeghem, M., & Brutten, G. J. (2007). *KiddyCat: Communication attitude test for preschool and kindergarten children who stutter*. Plural Publishing.

Woods, S., Shearsby, J., Onslow, M., & Burnham, D. (2002). Psychological impact of the Lidcombe Program of early stuttering intervention. *International Journal of Language & Communication Disorders*, *37*(1), 31–40. https://doi.org/10.1080/13682820110096670