

Research Snapshot No. 12



February 2025

Effect of preemptive intervention on developmental outcomes among infants showing early signs of autism: A randomized clinical trial of outcomes to diagnosis.

Andrew Whitehouse and colleagues (2021)

What you need to know

Autism is a neurodevelopmental condition characterised by social and communication difficulties, restricted behavioural repertoire and sensory issues. Interventions for children with autism usually do not start until after they have been diagnosed. This does not usually occur until children are 3 years old. However, autism is a strongly heritable condition that is present at birth and emerges over the first two years or so. This poses the question of whether it is possible to intervene early during this crucial developmental phase in development to address emerging developmental challenges and reduce the subsequent severity of behavioural problems.

Previous efforts to intervene before the emergence of autistic symptoms have not succeeded in reducing the emergence of ASD symptoms. New evidence about early development and techniques for promoting parent-child interactions suggested a different intervention strategy that might be more effective. Led by Andrew Whitehouse at the Kids Research Institute Australia (formerly Telethon Kids Institute) in Perth, the research team set out to trial an intervention strategy that focused on one of the key developmental problems experienced by children with autism – the child's communication skills and their interactions with their parents and caregivers.

What is this research about?

The aim of the intervention used in this study was to help support social communication skills early in life, with the aim of reducing the impact of these difficulties on subsequent development. The intervention involved the iBASIS–Video Interaction to Promote Positive Parenting (iBASIS–VIPP) which uses video feedback to increase parental awareness of their infant's individual social communication and guide their responses to build infant social engagement and interaction. Parents are videoed interacting with their baby in everyday situations, such as feeding and playing. The trained therapist then provides guidance to the parent about how their baby is communicating with them, how they can respond, and how they can have

back-and-forth ‘conversations.’ Such exchanges lay the foundations for early social communication development, and for more complex skills such as verbal language.

What did the researchers do?

The study was delivered in two sites – the Kids Research Institute Australia in Perth and the Olga Tennison Autism Research Centre at La Trobe University in Melbourne. It took the form of a randomised clinical trial of the iBASIS-VPP intervention conducted over a 5-month period with developmental follow-up. Assessments were conducted at baseline, 6 months after baseline (treatment end point), 12 months after baseline, and 24 months after baseline.

The participants were 104 infants aged 9 to 14 months showing early behaviours associated with later ASD (such as reduced eye contact, imitation or social smiling) as measured by the Social Attention and Communication Surveillance–Revised scale. Fifty of the infants were randomised to receive 10 sessions of the iBASIS-VIPP therapy for five months. The other 53 infants received the usual services they would receive in their local community, such as allied health therapy, working with psychologists, speech pathologists and occupational therapists. When the babies were aged three, independent clinicians who did not know which therapies the children had received, reviewed all of the developmental information collected and determined whether the children met diagnostic criteria for autism.

What did the researchers find?

- There were improvements in caregiver responsiveness and language outcomes in the iBASIS-VIPP group.
- At age 3, the children in the treatment group had significantly fewer behavioural signs of autism, such as social communication difficulties and repetitive behaviours, compared to infants who did not receive the therapy.
- Infants who received the therapy were also less likely to meet criteria for an overall diagnosis of autism when they were three.

How can you use this research?

A couple of features of this research are worth noting:

- Many previous therapies for autism have tried to improve development by working with children directly to shape more ‘normal’ behaviours and reduce behaviours that are seen as problematic. This therapy focused on providing supports to children based on functional difficulties, rather behavioural symptoms, and sought to promote positive interactions rather than eliminate ‘problem’ behaviours .
- The therapy does not work with the child directly but with the child’s social environment, seeking to help the child’s caregivers understand and respond to the child’s communications more effectively. This is consistent with best practice in early childhood intervention services.

Implications for ECI practitioners and services:

- The findings from this study suggest that, rather than waiting until the child is diagnosed to provide early childhood intervention support, we should try to identify developmental differences as early as possible and provide early childhood intervention support.
- This study has obvious implications for children showing early social communication difficulties, but these are not restricted to children with autism. Promoting responsive caregiving is important for all children with developmental disabilities.
- The use of video feedback in promoting parent-child communication can be a valuable addition to ECI practice.

Where to from here:

- ***Inklings*** program - <https://inklings.org.au/>
This is a community-based service based on the intervention used in this study.

Follow up papers based on this study:

- Ke, C., Carter, L.A., Green, J., Whitehouse, A.J.O., Hudry, K., et al. (2025). Which emerging autism features at 12 months of age are associated with later parent-child interaction? **Research in Autism Spectrum Disorders**, **119**, 102525.
- Segal, L., Green, J., Twizeyemariya, A., Hudry, K., Wan, M.W., Barbaro, J., Iacono, T., Varcin, K.J., Pillar, S., Cooper, M.N., Billingham, W., Upson, G. and Whitehouse, A.J.O. (2023). Estimated therapy costs and downstream cost consequences of iBASIS–Video Interaction to promote positive parenting intervention vs usual care among children displaying early behavioral signs of autism in Australia. **JAMA Network Open**, **6** (4): e235847. doi:10.1001/jamanetworkopen.2023.5847

About the researchers:

Lead author was Professor Andrew Whitehouse, Bennett Chair of Autism, Kids Research Institute Australia, The University of Western Australia.

The article lists 35 co-authors from a number of institutions including the Telethon Kids Institute, Olga Tennison Autism Research Centre, Cooperative Research Centre for Living with Autism, La Trobe University, and University of Manchester.

Citation:

Whitehouse, A.J.O., Varcin, K.J., Pillar, S., et al. (2021). Effect of preemptive intervention on developmental outcomes among infants showing early signs of

autism: A randomized clinical trial of outcomes to diagnosis. **JAMA Pediatrics**, 175 (11): e213298. doi:10.1001/jamapediatrics.2021.3298

This Research Snapshot was prepared by Dr Tim Moore, PRECI Board Director and Senior Research Fellow, Centre for Community Child Health, Murdoch Children's Research Institute, Melbourne.

'In the spirit of reconciliation PRECI acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today. '