

Evidence Check

Rapid Evidence Check: Interventions for children with mild to moderate autism spectrum disorder and/or developmental delay

An Evidence Check rapid review brokered by the Sax Institute
for the NSW Ministry of Health—March 2026

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This report was prepared by: Rebecca Sutherland, Antoinette Hodge, Kelsie Boulton, Julia Dray, Jacqueline Roberts, Kim Bulkeley, Adam Guastella, and Natalie Silove with the assistance of Tegan Cox, Nichola Shelton and Suzi Drevensek

March 2026
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Suggested Citation: Sutherland R, Hodge A, Boulton K, Dray J, Roberts J, Bulkeley K, Guastella A, Silove N. Interventions for children with mild to moderate autism spectrum disorder and/or developmental delay: an Evidence Check rapid review brokered by the Sax Institute (www.saxinstitute.org.au) for the NSW Ministry of Health, 2026. doi:10.57022/uygi658

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Abbreviations and definitions

Term	Definition
AAQ-II	Acceptance and Action Questionnaire-II
ABA	Applied Behavioural Analysis
ABAS-II	Adaptive Behaviour Assessment Systems-II
ABC	Adaptive Behaviour Composite
ACT	Acceptance and Commitment Therapy
ADOS-2	Autism Diagnostic Observation Schedule – Second edition
AFEQ	Autism Family Experience Questionnaire
AHEMD-IS	Affordances in the Home Environment for Motor Development
AIMS	Alberta Infant Motor Scale
(AMS/ACCHOs)	Aboriginal Medical Services/Aboriginal Community Controlled Health Services
APSI	Autism Parenting Stress Index
AQoL4D	Assessment of Quality of Life
ASD	Autism Spectrum Disorder
Autism	A neurodevelopmental condition characterised by differences and difficulties in social communication, interests and behaviours
BFRS-R	Behaviour Flexibility Rating Scale – Revised
BMPS	Bangor Parenting Mindful Parenting Scale

Term	Definition
BOSCC	Brief Observation of Social Communication Change
BRIEF	Brief Family Distress Scale
BSID-II	Bayley Scales of Infant Development (2nd Edition)
CA	Corrected age (that is, age calculated from due date, rather than birth date for premature babies)
CarerQoL	Caregiver Quality of Life
CDI	McArthur-Bates Communicative Development Inventories
CFCS	Communication Function Classification System
CGI	Clinical Global Impression
ChIPPA	Child-Initiated Pretend Play Assessment
CHU9D	Child Health Utility 9D – 9 item measure
CompACT	Comprehensive assessment of Acceptance and Commitment Therapy processes
COPM	Canadian Occupational Performance Measure
CSBS	Communication and Symbolic Behaviour Scales
CSHQ	Children's Sleep Habits Questionnaire
DASS-21	Depression Anxiety Stress Scale-Short Form - 21
DBC2	Developmental Behaviour Checklist 2
DBC2-P	Developmental Behaviour Checklist Parent Form
DD	Developmental Delay
DECA	Devereux Early Childhood Assessment

Term	Definition
Developmental delay	Developmental delay is a term used to describe a delay in a child's development. It means that a child finds it much harder to do everyday things that other children their age can do, for example dress themselves, talk or walk. The delay may be in one or more areas of development
DIR	Developmental, Individual-Differences and Relationship-based
DSM-5	Diagnostic and Statistical Manual of mental Disorders, Fifth Edition, 2013
DPICS	Dyadic Parent-Child Interaction Coding System
EA	Emotional Availability Scales
EA-SR	Emotional Availability Scales – Self Report
ED-5D-5L	EuroQoL-5 Dimensions, quality of life, five-level version
Effective	Interventions were categorised as effective if the study achieved statistically significant results and it was designed to determine this (see effectiveness definition below).
Effectiveness	Studies designed to test whether an intervention was effective in 'real world' settings are referred to as effectiveness studies. For example, a study that uses an experimental design (e.g., a cluster randomised controlled trial) to randomly assign participants to either an intervention group or a control group (i.e., not exposed to the intervention), to test for causal attribution of the intervention on outcomes. The inclusion of a control group for comparison with results achieved in the intervention group adds confidence that the results were not due to chance.
EI	Early intervention
EIBI	Early intensive behavioural intervention
ELSA-T	Eliciting Language Samples for Analysis - Toddler
ESCS	Early Social Communication Scales
ESDM	Early Start Denver Model
(P-ESDM)	Parent mediated Early Start Denver Model

Term	Definition
(C-ESDM)	Community based Early Start Denver Model
FOCUS	Focus on the Outcomes of Communication Under Six
FQOL	Family Quality of Life assessment
GAS	Goal Attainment Scaling
GDD	Global Developmental Disorder
GHQ-30	General Health Questionnaire-30
HCCBS	Home and Community Social Behaviour Scales
HSQ-ASD	Home Situation Questionnaire
IDD	Intellectual Disability Disorder
IBR	Initiations of behaviour regulation
IJA	Initiations of joint attention
i-PiCS	Internet-Based Parent- Implemented Communication Strategies
JASPER	Joint Attention, Symbolic Play, Engagement and Regulation intervention
JERI	Joint Engagement Rating Scale
K10	Kessler 10
KAQ-UK	Knowledge of Autism Questionnaire-UK
MAAS	Mindful Attention Awareness Scale
MACI	Manchester Assessment of Caregiver-Infant Interaction
MB-CDI	MacArthur-Bates Communication Development Inventories
MPOC	Measures of Processes of Care

Term	Definition
MPR	Merrill–Palmer-Revised Scales of Development (MPR)
MSEL	Mullen Scales of Early Learning
NDBI	Naturalistic Developmental Behavioural Interventions
NPV	Net Present Value
NHMRC	National Health and Medical Research Council
PACT	Paediatric Autism Communication Trial
(PACT-G)	Paediatric Autism Communication Trial-Generalised
PAUACS	Parental Acceptance and Understanding of Autistic Children Scale
PDMS-2	Peabody Developmental Motor Scale
PedsQL	Pediatric Quality of Life Inventory
PEEM	Parent Empowerment and Efficacy Measure
PICCOLO	Parenting Interactions with Children: Checklist of Observations Linked to Outcomes
PS	Parenting Scale
POM	Pragmatic Observation Measure
PPE-DC	Pretend Play Enjoyment Developmental Checklist
PREP	Pathways and Resources for Engagement and Participation
PROMIS	Patient-Reported Outcomes Measurement Information System
PRPP	Perceive, Recall, Plan, Perform Stage Two Cognitive Task Analysis
PRQ	Parent Relationship Questionnaire
PRT	Pivotal Response Training

Term	Definition
PSE	Parent Self-Efficacy
PSI	Parenting Stress Index
PSI/SF	Parental Stress Index Short Form
PSI-4SF	Parenting Stress Index Short Form, 4 th Edition
PSOC	Parenting Sense of Competence
QALY	Quality-adjusted life-years
QoLA	Quality of Life in Autism Questionnaire
RBQ-2	Repetitive Behaviour Questionnaire–2 (RBQ-2)
RCT	Randomised Controlled Trial
RDQ	Reaction to Diagnosis Questionnaire
RRBs	Restricted, repetitive, and stereotyped patterns of interests, behaviours and activities
RUQ	Resource Use Questionnaire
SAS	Sensory Activity Schedule
SCIP-GAS	Social Communication Intervention Program – Goal Attainment Scale
SDQ	Strengths and Difficulties Questionnaire
SELSI	Sequenced Language Scale for Infants
SHS	Sleep Hygiene Scale
SPA	Structured Play Assessment
SPT	Symbolic Play Test
SRS-2	Social Responsiveness Scale, second edition

Term	Definition
SSBS	School Social Behaviour Scale
SSIS	Social Skills Improvement System
TAU	Treatment as usual
TDSQ	Teacher Daytime Sleepiness Questionnaire
ToP	Test of Playfulness
TOPSE	Tool to measure Parenting Self-efficacy
UK	United Kingdom
US	United States
VABS-III	Vineland Adaptive Behavior Scale – 3 rd edition
VB-MAPP	Verbal Behavior Milestones Assessment and Placement Program
VLQ	Valued Living Questionnaire
WEMWBS	Warwick-Edinburgh Mental Well-Being Scale
WRAT	Wide Range Achievement Test
YC-PEM	Young Children’s Participant and Environment Measure

Summary of the key messages

Children with differences and difficulties associated with developmental delay and/or autism require a range of supports, often provided by allied health practitioners such as speech pathologists, occupational therapists, physiotherapists, psychologists and social workers. This evidence check provides a spotlight on recent evaluative studies of allied health models of care for children with mild to moderate autism and/or developmental delay currently being delivered in Australia and other countries with comparable health systems. The review aimed to summarise the effectiveness of these models, and describe their key components in order to inform planning of services in NSW.

A rapid literature review was conducted within prescribed bounds, using strict inclusion and exclusion criteria. The search was limited to a small number of searched databases, included only studies published in the last 5 years, focused on countries with similar health care services to Australia, and considered only children with mild to moderate developmental delay and/or autism. This approach ensures that the findings reflect the most recent for informing policy and practice in the local context, which should be positioned as a targeted up-to-date evidence check that builds on other past evidence syntheses (e.g. (1-4))

The evidence indicates:

- Effective programs can be delivered by clinicians and through well-structured parent training/coaching by clinicians
- Effective supports may be delivered in individual, group and preschool based settings in person, and via telehealth
- Parent training, support and coaching can help support parent well-being as well as some outcomes for the children (e.g. communication, movement)
- Intensity, duration, the program adopted, and multidisciplinary support may play an important role in positive outcomes
- The earlier the intervention, the more effective in many cases, but intervention and supports are beneficial at any age
- Investment in children who are more mild in their presentation has a significant impact, and therefore mild should not mean less intervention
- Economic evaluations suggest that investment in early intervention at sufficient intensity and duration may have a significant impact by reducing downstream costs and service use

Almost every study considered a different type or delivery of intervention, or measured different outcomes for parents and children. In addition, most studies had short intervention periods and limited follow-up, making it difficult to assess sustainability of effects or long-term impact on child and family outcomes. While there is no single intervention or model of support for all children, the current evidence supports the use of early, goal directed, naturalistic, parent-involved interventions to improve communication, movement development and social outcomes for autistic children and developmental delays. These supports are most effective when tailored to the needs of individual children, their families and communities.

Executive summary

Background

Children with mild to moderate autism and/or developmental delay make up a significant proportion of participants on the National Disability Insurance Scheme (NDIS). While the scheme has provided many families with access to supports that their children need, a consequence has been the loss of alternative services for children who have developmental needs, but who are not the target group of the NDIS (that is, children and adults with significant, lifelong disability). The recent NDIS Review concluded that there are insufficient disability supports available for people who are not eligible for the NDIS, compared to the level of need. Foundational Supports (FS) are specific supports that are outside the NDIS to help people with disability, and their families and carers; at this point, these supports will be known as “Thriving Kids”. General FS are intended to be available for all children and families and may include parenting information, capacity-building programs, and system interface support (e.g. navigator functions). Targeted FS provide individual capacity building via responsive and/or therapeutic supports. These may include individual, and group allied health therapy, supported playgroups, school readiness programs, and aids and equipment. It is important that the content of this new model is informed by the best available evidence.

To this end, the review aimed to identify evaluative studies of allied health models of care for children with mild to moderate autism and/or developmental delay currently being delivered in Australia and internationally in countries with similar health systems to Australia, summarise their effectiveness, and describe their key components to inform planning of these services in NSW.

This review aimed to address the following specific question:

Research question:

- a) To identify **evaluative** studies of **allied health** models of care for children with **mild to moderate autism and/or developmental delay** currently being delivered in **Australia and internationally** in countries with similar health systems to Australia,
- b) summarise their **effectiveness**, and
- c) describe their key **components**.

It is important to note that there is no agreed definition of mild to moderate autism or developmental delay. For example, it is unclear whether a label of developmental delay would apply only to children with delays in two or more areas, or if more significant difficulties in a single area of development may

also be classed as such. For the purpose of this review, the review team has included studies of children with autism or any kind of developmental delay, excluding only those where there is clear evidence of greater severity than 'mild' or 'moderate.' This means that studies involving augmentative communication, significant physical disability or children with identified intellectual disability, for example, have been excluded while other studies focusing on autistic children, potentially autistic children, children with single or multiple areas of developmental delay and those at risk of delay, have been included.

Summary of methods

We conducted a rapid literature review. The search was limited by strict inclusion and exclusion criteria. These included a small number of searched databases, inclusion of studies published only in the last 5 years, studies conducted in countries with similar health care services to Australia, and a focus only on mild to moderate developmental delay and/or autism. Rapid reviews are designed to provide timely evidence for decision-making, often within constrained timeframes. To achieve this, they streamline traditional systematic review methods by narrowing the scope and simplifying processes such as searching and screening. While this limits the comprehensiveness of the search compared to a full systematic review, the goal is to identify the most relevant and high-quality primary studies that address the research questions. This approach is considered appropriate when decisions need to be informed quickly and when a balance between rigor and timeliness is essential. In consultation with the Sax Institute, the NSW Ministry of Health and a research librarian at the University of Sydney, we developed a search strategy that covered the period January 2020 to September 2025, using the following databases: Medline, Embase and CINAHL. This search included terms associated with autism and developmental disability, settings (e.g. school, childcare centres), allied health disciplines (e.g. speech pathology, occupational therapy), interventions or programmes, special populations and service locations. A total of 47 papers were selected for data extraction.

Key findings

The 47 papers included in this review described interventions and supports across Australia, the United Kingdom, Canada, New Zealand and other countries with similar healthcare systems to Australia. The included studies varied widely in terms of intervention philosophy, parent involvement, delivery method and intensity, as well as in the outcomes measured and the tools used to evaluate these. The vast majority of the studies included autistic children, with a small number focusing on children with developmental delay without autism. Autistic children and children with developmental delay are very heterogeneous in their language, behaviour and development and it is clear from the literature there is not one program suitable for all children. Therefore, families, service providers and clinicians need to be well informed regarding the range of supports and interventions to be able to advise on the best approach for the individual and their family. While the limitations of the literature make it challenging to provide one size fits all guidance for children with mild to moderate autism and/or developmental delay, it is clear that there is evidence that a range of programs can help children and their parents. There is good evidence that naturalistic developmental behavioural interventions, and those that focus on communication and movement development, can support

children to develop communication, social, cognitive, motor and adaptive functioning skills. We found that:

- Effective programs can be delivered by clinicians and through well-structured parent training/coaching by clinicians
- Effective supports may be delivered in individual, group and preschool based settings in person, and via telehealth
- Parent training, support and coaching can help support parent well-being as well as some outcomes for the children (e.g. communication, movement)
- Intensity, duration, the program adopted, and multidisciplinary support may play an important role in positive outcomes
- The earlier the intervention, the more effective in many cases, but intervention and supports are beneficial at any age
- Investment in children who are more mild in their presentation has a significant impact, and therefore mild should not mean less intervention
- Economic evaluations suggest that investment in early intervention at sufficient intensity and duration may have a significant impact by reducing downstream costs and service use

It is important to note that there are some limitations in the research that will require consideration, including small sample sizes, and limited representation of culturally and linguistically diverse families, rural/remote populations, and lower socioeconomic groups. There were no studies that focused specifically on Aboriginal and Torres Strait Islander children or communities. The majority of the studies included autistic children, rather than those with developmental delay only. It will be important to ensure that supports are well tailored to individual children, their families and communities. Crucially, given the limited findings in the studies regarding generalisation and sustainability, consideration must be given to systematically and adequately evaluating and measuring clinical and meaningful functional outcomes, as well as economic and operational considerations of any intervention or support models adopted. The findings of this rapid review should be understood in the context of a targeted, up-to-date evidence check that builds on other past evidence syntheses (e.g. (1-4).

Background

Introduction

Autism, also known as Autism Spectrum Disorder or ASD¹, is a neurodevelopmental condition that is currently diagnosed in approximately 1.1% of Australian people (5) with higher prevalence among males than females and much higher prevalence in younger people (for example, 4.1% of children aged 5 – 14 years have an autism diagnosis compared with 0.8% of those over 25 years).

Developmental delay is described in a number of ways but is a term typically applied to children who are meeting motor, communication, cognitive and social milestones at later ages than typically developing age peers. In Australia, 23.5% of young children are described as 'developmentally vulnerable' (below the 10th percentile) on one or more of the five AEDC (2) domains (physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication and general knowledge) (6) at school entry.

Children with autism and developmental delay make up a large proportion of the participants on the National Disability Insurance Scheme (NDIS). Reports from June 2025 indicate that there are 294,960 autistic participants across the age range accessing the scheme, representing 40% of all participants, a year-on-year increase of 23%. Children aged 0–8 account for 18% of all NDIS participants diagnosed with autism, totalling 53,042 individuals. In comparison, children with developmental delay make up 11% of NDIS participants, with 83,443 children. Ninety nine percent of NDIS participants with developmental delay are in the 0 – 8 age group, a total of 82,680 children. Overall, NSW participants comprise 29% of all autistic people, and 26% of all children with developmental delay, suggesting that the total number of children with autism or developmental delay in the 0-8 age bracket in NSW is around 36,800 children. Across the age ranges, more than 80% of autistic people are classified as functioning in the 'high' or 'medium' categories, and more than 90% of children with developmental delay are in these two categories (7).

Previous reviews of the literature

Significant, large-scale systematic and other reviews of the autism intervention literature over the last two decades have shown consistent outcomes and recommendations. These have included those by Australian researchers and/or reviews that are relevant to the Australian context as follows. As early as 2006, Roberts and Prior (4) reported that there was no single program that would suit all children and their families and that it was likely that different children would respond in different ways. Recommendations about intensity were made, with a number of 15 – 20 hours of intervention (including therapy, education and home-based supports) identified. Key components that were characteristic of effective programs included addressing the core features of autism, provision of highly supportive teaching environments, providing predictability and routine, transition support, and

¹ The term 'autism' will be used throughout, rather than autism spectrum disorder, or ASD, in line with community preferences. The review will use both 'child with autism' and 'autistic child/person', reflecting preferences of both autistic people and parents of children with autism (e.g. Buijsman, et al., 2023)

ensuring that families were supported and engaged in collaborative partnerships with clinicians (4). Building on this work, Prior and colleagues (3) concluded that while some interventions were showing promising evidence, high quality research that was sufficiently powered to show intervention effects was lacking. Sandbank and colleagues (8) reviewed evidence from 6240 participants (0 – 8 years) of group design studies of autism interventions and found positive effects for developmental and naturalistic developmental behavioural interventions (NDBI), with methodological concerns regarding behavioural interventions, but little evidence to support interventions in the other categories. In the update of this review (9), the authors reported that the available evidence had doubled between reviews and that a range of interventions showed some evidence for a number of different outcomes. They cautioned, however, that potential benefits could not be weighed against ‘the potential for adverse events owing to inadequate monitoring and reporting’ (p.2). A recent Australian umbrella review (1) considered interventions outlined in 58 systematic reviews, finding that positive therapeutic effects were found for a range of intervention types including behavioural interventions, developmental interventions, naturalistic developmental behavioural interventions, technology-based interventions, and cognitive behaviour therapy for both child and parent outcomes. However, less than half the reviews (47%) were rated as high quality, and the authors emphasised the need for individualised, evidence-based decision making in selecting interventions for autistic children, echoing Roberts and Prior’s (4) work of almost 2 decades earlier.

Even less is known about effective interventions for children with developmental delay. The breadth of concerns for children in this category mean that there are very few large-scale reviews that have looked specifically at this group; reviews of the literature tend to be focused on specific areas, such as communication or motor skills. For example, there is some evidence that parent implemented language interventions for children with developmental delay support some general communication abilities but have limited impact on expressive language development (10), and some limited evidence for a positive intervention effect on motor skills of premature babies who are at risk of developmental delay (11). Other reviews in this area have focused on disability more broadly (e.g. (12)), or only on parent coaching fidelity (e.g. (13)).

For both populations, recommendations about specific interventions are limited by the heterogeneity of the populations, the quality of the evidence and the broad range of outcomes that are important for optimal functioning. Of additional interest may be the types of interventions and the models that may be implemented to support children and their families. Early data regarding service use in Australia (14) indicated that services such as speech pathology and occupational therapy were commonly used, albeit at low intensity, along with childcare and generic early intervention services. Survey data from a recent Australian study (15) suggests that current service use under the NDIS for young autistic children tends to follow an individual, clinic-based model, with little use of groups or other flexible service delivery, including natural, everyday contexts that align with sector recommendations for young children and their families (16). In this research, the number of services accessed was associated with the level of the child’s support needs, as well as location and income, suggesting inequality within the system. The most frequently accessed services were occupational therapy, speech pathology and psychology services and there was less use of generic early intervention services since the introduction of the NDIS (15). The authors also noted that despite the relative ubiquity of manualised services in the research (1, 8, 9), such as Early Intensive Behavioural Intervention (EIBI) and NDBI services like the Early Start Denver Model (ESDM), these interventions were rarely used by the families surveyed. They speculated as to whether this was because of the limited availability of such programs, or a societal shift in preference towards programs that are

considered more neurodiversity affirming. They also noted that the focus on individual, clinic-based therapies meant that benefits from other service models, such as group interventions, or supports delivered in community settings could not be fully realised.

Current review

In Australia, changes are being proposed to the NDIS for young children (0-8) with mild to moderate autism and children with mild to moderate developmental delay. Specifically, the current plans involve support for these children outside of the NDIS, in programs described as 'Foundational Supports' including the 'Thriving Kids' initiative. These supports are likely to take a variety of forms, including general supports for navigating systems and psychoeducation, as well as targeted supports to help children to meet developmental milestones and supporting their emotional well-being and mental health. This review, therefore, aims to provide information about the current evidence base regarding supports and services for children who are likely to be part of the Thriving Kids program in order to inform options for services.

Aim and evidence check questions

This review aimed to address the following specific question:

Research question:

- a) To identify **evaluative** studies of **allied health** models of care for children with **mild to moderate autism and/or developmental delay** currently being delivered in **Australia and internationally** in countries with health systems similar to Australia,
- b) summarise their **effectiveness**, and
- c) describe their key **components**.

It is important to note that there is no agreed upon definition of mild to moderate autism or developmental delay. For example, it is unclear whether a label of developmental delay would apply only to children with delays in one or more areas, or if more significant difficulties in a single area of development may also be classed as such. For the purpose of this review, the review team included studies of children with autism or any kind of developmental delay, excluding only those where evidence of greater severity than 'mild' or 'moderate' is clear. This means that studies involving augmentative communication, significant physical disability or children with identified intellectual disability, for example, have been excluded while other studies focusing on autistic children, potentially autistic children, children with single or multiple areas of developmental delay and children at risk of delay, have been included.

Scope of the evidence check

The scope of the review, including definitions and priorities, was agreed by the Sax Institute, the NSW Ministry of Health and the review team:

- **Study type:** Original research reported in an evaluation or intervention study that assesses the effectiveness or cost-effectiveness of an intervention or model of care on specified outcomes of interest, using either an experimental, quasi-experimental, or pre/post-study design (levels II to IV on the NHMRC evidence hierarchy).
- **Cohort of interest:** Children aged under 9 years with autism and/or developmental delay of mild to moderate severity.
- **Interventions of interest** included:
 - Allied health models of care. Especially those involving social work, psychologists, occupational therapists, physiotherapists and speech pathologists in models such as:
 - Individual vs. group therapy
 - Single discipline vs. Interdisciplinary, multidisciplinary, and transdisciplinary
 - Single health professional vs. Inclusion of other allied health practitioners, allied health assistants, educators, family and carers, in the delivery of therapy
- **Outcomes of interest, in order of priority**, may include:
 - Age-appropriate developmental outcomes and related therapy goals and indicators
 - Educational parameters including literacy/numeracy improvement, engagement in the school curriculum, school readiness, and school attendance
 - Mental health indicators
 - Physical health indicators
 - Quality of life including engagement in everyday tasks and social interaction
 - Safety
 - Process outcomes:
 - Experience of service users including engagement, confidence, interaction with allied health services
 - Experience of service providers including staff retention
 - Reach
 - Retention
 - Acceptability
 - Needs indicators
 - Cost-effectiveness
 - Does the monetary value of benefits (outcomes) achieved outweigh the costs?
- **Effectiveness** (as defined earlier in this document)

- **Implementation characteristics of interest** may include:
 - Type(s) and combinations of supports provided
 - Types of allied health professionals delivering supports
 - Level of intensity, i.e. number/frequency of sessions and duration of therapy
 - **Settings** may include:
 - Early learning – preschool, long day care, OOSH.
 - Primary school
 - Health facility (hospital and community) - if hospitals, outpatient (i.e. exclude inpatient care)
 - Private practice
 - Community
 - Home
 - Aboriginal Medical Services/Aboriginal Community Controlled Health Services (AMS/ACCHOs)
 - **Modes** may include:
 - Group
 - Individual
 - Face to face
 - Virtual
- **Priority populations of interest:** Of the key components identified above, flag where evidence shows they are particularly effective in certain populations including:
 - Rural and regional areas
 - Vulnerable population groups, e.g. Aboriginal and Torres Strait Islander children, children out of home care, culturally and linguistically diverse children, refugees.
 - Above populations must also be diagnosed with mild or moderate DD or ASD, including global developmental delay, developmental concerns, intellectual disability/intellectual developmental disorder.

Excluded

- Other conditions, including Attention-Deficit/Hyperactivity Disorder (ADHD), and specific diagnoses such as Cerebral Palsy and Down Syndrome, ASD or DD that is high severity (this is the remit of the NDIS).
- Non-intervention studies: Systematic reviews, meta-analyses, narrative reviews, scoping reviews, qualitative studies
- A systematic appraisal of the quality of the included studies is agreed to be out of scope. However, the reviewers may choose to make comments on or flag studies that were noted as being of poor quality but may still be of interest to the agency.

Limits

-
- Evidence from high-income countries, published in English, was included. There was a specific interest in evidence from Australia, New Zealand, UK and Canada and other countries with comparable health care systems to Australia only.
 - The literature sources will include peer-reviewed journals from the last 5 years published in English.
 - Maximum three databases searched.

Methods

Search strategy, approach and rationale

This rapid review was conducted within a very limited timeframe (one month). Our methods align with Cochrane Rapid Reviews interim guidelines (17). Rapid reviews use systematic and explicit methods to appraise, extract, and analyse data to produce evidence for the public, policy makers and funders (17). We used a systematic review approach with some steps omitted or adjusted (e.g. third member checking at title and abstract screening stage) due to the rapid nature of the current review. The population, outcomes of interest and limitations are described in full on pages 14-16.

In consultation with the Sax Institute, the NSW Ministry of Health and a research librarian at the University of Sydney, we developed a search strategy that covered the time period January 2020 to September 2025, and targeted three databases: Medline, Embase and CINAHL. As we were interested in literature that evaluated interventions in high income countries with similar health care systems to Australia, our search strategy included a country filter to intentionally target studies from Canada, the UK, New Zealand and Australia. In the event that any publications returned by the search strategy fell outside the applied country filters the author team firstly identified the country of publication and secondly considered the comparability of the countries health system with that of Australia, and included or excluded studies based on this assessment.

Search strategy

The search terms were developed by the team, with modifications to suit the different databases as required and recommended by the research librarian at the University of Sydney. This search included terms associated with autism and developmental disability, settings (e.g. school, childcare centres), allied health disciplines (e.g. speech pathology, occupational therapy), interventions or programs, special populations and service locations. The search terms specifically included target populations, including Aboriginal and Torres Strait Islander communities. All terms were agreed to by the team, the Sax Institute and the NSW Ministry of Health, prior to full execution of the evidence review. See Appendix 1 for full details.

The results of the search were uploaded into the Covidence systematic review software (18). Duplicates were removed automatically by Covidence and manually by the research team, then titles and abstracts were each screened independently by two members of the research team, with dissenting results resolved through discussion and/or third member checking. Full text screening of each paper was completed independently by two members of the research team with resolution through discussion. A data extraction table was developed by the team and built in Covidence; data was extracted by two team members with any conflicting data checked and resolved by a third team member.

To augment the database search, hand searching of 3 relevant journals was undertaken: *The Journal of Early Intervention* (USA), the *International Journal of Speech Language Pathology* (Australia) and the *Australian Occupational Therapy Journal* (Australia). These journals were chosen due to the high likelihood of inclusion of research about developmental delay, rather than autism, and represented the most logical choices to potentially identify such articles given the broad remit of each. All articles from January 2020 to the most recent issue were screened for potential inclusion by one member of the team and potentially relevant papers were added to Covidence for team screening. To inform background information to this report, we sought papers reporting initial effectiveness outcomes from the included studies, even if those papers were published outside the date range.

Findings

Study characteristics

The review process resulted in 121 papers reviewed at full text, with 47 publications meeting eligibility for inclusion (see Appendix 2). The 47 studies comprised 17 RCTs consisting of participants (child or parents of children) diagnosed with autism (N=1049) and developmental delay (N=115). In addition, there were 11 non-randomised experimental studies, 7 cohort studies, 6 case series, 3 economic evaluations associated with RCTs included in the review, and one paper that was a standalone economic evaluation (see Appendix 3 for characteristics of included papers). Of the 7 studies that included an economic evaluation, 6 were conducted alongside another study design (most commonly an RCT), while 1 was an economic evaluation only. Included studies were conducted across 12 countries, with the largest number focused on Australia (n=17), followed by Canada (n=12; inclusive of one joint study between Australia and Canada), United Kingdom (n=12; inclusive of one study incorporating analyses of programs in the UK, Spain, Italy and Ireland) and New Zealand (n=2), and one each from Italy, Taiwan, Israel, Brazil and Korea. Only 5 of the 47 studies focused specifically on children with developmental delay or potential developmental delay. The remainder included autistic children, and those likely to be autistic.

Evidence Grading

The National Health and Medical Research Council (NHMRC) levels of evidence were used to Grade evidence for included studies and is summarised in Table 1 below. A large proportion of included studies were randomised controlled trials, and non-randomised experimental studies (33/47, 70%).

Table 1—NHMRC levels of evidence for included studies (n=47)

NHMRC level of evidence	Definition	Number of studies
Level I:	Systematic review of all relevant RCTs	0
Level II:	RCT	22
Level III: 1	Pseudo-randomised controlled trials	0

NHMRC level of evidence	Definition	Number of studies
Level III: 2	Comparative studies with concurrent controls (non-randomised), case-control, interrupted time series with control group	11
Level III: 3	Comparative studies case control and cohort studies	7
Level 4	Case series, either post-test or pre-test and post-test	6
Level NA	Did not meet the NHMRC criteria to be graded	1

Analysis of evidence

Overall summary of the evidence base

This review synthesises findings from 47 studies evaluating early interventions for mild to moderate autistic children and children with developmental delays. Participant numbers in the RCT (mean = 61, range 12 - 255) suggests that while some were sufficiently powered to show moderate to large effect sizes, it is unlikely that the majority were powered sufficiently to explore potential moderators of response or to answer many of the questions pertaining to who might benefit the most from therapy. The evidence base is diverse, encompassing randomised controlled trials, non-randomised experimental studies, cohort studies, case series, cross-sectional studies, and economic evaluations conducted across multiple countries and settings.

Overall summary of interventions

Across the 47 included studies, a diverse range of early interventions were evaluated for children with autism and developmental delays. These interventions spanned behavioural, developmental, educational, and family-focused approaches, delivered in various settings (home, clinic, community, school) and formats (individual, group, telehealth). Most interventions were multidisciplinary or transdisciplinary, involving professionals such as speech pathologists, psychologists, occupational therapists, educators, as well as parents and peers. The evidence base includes randomised controlled trials, non-randomised studies, cohort studies, case series, and economic evaluations, reflecting both clinical effectiveness and real-world feasibility.

While the majority of interventions demonstrated improvements in areas such as child development, communication, well-being or family outcomes (65%), 16 studies (35%) reported no significant effect or reported on positive outcomes for processes only (e.g. parent satisfaction, without demonstrated child gains). Some interventions showed benefits only for specific subgroups, or improvements in some domains but not others. In a few cases, negative effects were noted, such as increased parental stress or lack of cost-effectiveness.

The studies were grouped by intervention types that focus on broad outcomes (e.g. behavioural, naturalistic developmental behavioural interventions) or by the underpinning targets of the intervention (e.g. motor, sensory or communication interventions) and are described below. Further outcomes considered such as cost effectiveness, and questions of interest such as implementation outcomes (e.g. intensity, duration) and evidence by age of children, is also detailed below.

Naturalistic Developmental Behavioural Interventions (NDBI)

Early Start Denver Model

The Early Start Denver Model (ESDM) is a play based early intervention that draws from behavioural, developmental and relationship-based principles. It is a naturalistic developmental behavioural intervention (NDBI) that is delivered in a number of different forms, including direct clinician-led therapy, parent-implemented programs (P-ESDM), and group-based formats (G-ESDM), including autism specific early learning childcare centres (19, 20). The intensity of the program varies extremely widely depending on the type of ESDM service. Studies of ESDM featured prominently, with eight studies included, three of which were randomised control trials, four were cohort studies with pre/post measurement, and one was a case series. In terms of child outcomes, studies reported significant gains in communication, including number of words and utterances used (21-24), cognitive skills (19, 20), social skills (23), preacademic skills (21) and adaptive functioning (19). These gains were evident across all forms of ESDM, including relatively low intensity parent implemented interventions(23), group, and clinician delivered models (19). Parent outcomes were also frequently assessed alongside child outcomes. Parental stress or confidence were sometimes unchanged (21) or occasionally worsened (e.g. (19): increased parenting stress, no clear benefit for parent wellbeing for the parent coaching version), but other studies showed positive, though non-significant improvements in confidence (e.g.(23)). Implementation studies highlighted the feasibility of scaling ESDM across settings and the importance of fidelity in delivery. A cost effectiveness study (25) compared a modified, community-based P-ESDM and reported that while initial investment costs of ESDM programs are somewhat higher than TAU, over 6 months of intervention children in the ESDM group used fewer health and other services than the TAU group, indicating longer term cost benefits.

PACT

The Preschool Autism Communication Trial (PACT) focuses on enhancing social communication through parent-mediated strategies. PACT and its adaptations were evaluated in two studies: one RCT (26) and one economic evaluation of a cohort study (27). The PACT study included in this review focused on generalisation of intervention delivered over 6 months across a maximum of 30 parent and learning support assistant sessions. Positive effects on communication and social interaction were reported, with some evidence for generalisation of skills across settings (home, school, clinic) (26). Economic analyses suggested that while PACT may incur higher initial costs than TAU, long-term benefits and cost savings are possible (27).

Pivotal response training (PRT)

Pivotal response training is a play-based, naturalistic intervention, based on behavioural principles. One study (28), compared services across two Canadian provinces; one of which provided clinician implemented PRT (with parent training) to children for one year for 15 hours PRT per week (first 6

months) then 10 hours per week for the next 3 months and finally 6 hours per week (final 3 months). This study reported only parent outcomes (positive child outcomes were reported in a previous paper, (29) outside the scope of the review). Parents showed significantly higher satisfaction across a range of factors, compared with parents whose children received traditional ABA.

JASPER

Joint attention, Symbolic Play, Engagement, and Regulation (JASPER) interventions, designed for preschool and early school age children (0-8), use developmental and behavioural principles to improve social communication skills. The JASPER programs included in this review were a case series (30) and an RCT(31) and were parent mediated, with one delivered via telehealth (30). The intervention was delivered to parents in twice weekly individual sessions for a period of 6 months. Significant positive changes in joint attention and engagement were reported.

Behavioural interventions

Behavioural interventions, including traditional applied behavioural analysis (ABA) programs, such as early intensive behavioural intervention (EIBI), involve high intensity, 1:1, clinician directed intervention. A retrospective chart review of Australian children (32) in ABA services for approximately 27 hours a week (21 individual and 6 hours group) found significant positive change on developmental and adaptive functioning assessments, with older children making somewhat greater gains. However, a randomised control trial (33) found limited gains in child outcomes and no significant differences between groups on parent outcomes. An economic evaluation of ABA intervention (34) concluded that early intensive ABA-based intervention may yield slightly higher quality adjusted life years (QALY) than treatment as usual but at substantial additional cost.

Communication interventions

Communication-focused interventions were widely represented, including speech-language therapy, parent-implemented communication strategies (e.g. Hanen programs), and technology-assisted programs (e.g. TOBY app; (35)) along with many studies that reported communication outcomes. Seven studies specifically targeted communication; one of these was an RCT (36), the others were cohort and case series studies. These interventions targeted social communication, speech, language development, and pragmatic skills, with most studies reporting positive changes in child communication and parent confidence.

Clinician implemented interventions (i.e. speech pathology sessions, 45 minutes per week for 12 weeks) were shown to be more effective than waitlist resources (advice: one 45 minutes session for goal setting and advice; device: access to a website for stimulating speech and language) for supporting speech sounds (though not language or literacy) in a speech pathology focused RCT (36). A manualised speech pathology intervention (known as SCIP; (37, 38)) showed improvement on goals for most early primary school aged students (mean age 102 months, or 8.5 years) after 20 individual weekly sessions with trained clinicians (one-day workshop training).

A parent training Hanen program (39) showed that 75% of children made clinically significant improvements in participation and there was a significant improvement in expressive and receptive vocabulary (an average gain of 55 and 53 words respectively) over the 9 week program.

Some communication specific programs also measured parent-child interaction and family outcomes. These studies tended to find no effect for parent outcomes and broader child outcomes such as self-concept (38).

Group and individual formats were both effective, and telehealth delivery was feasible for families in rural or remote areas. These studies generally reported improvements in speech (36), expressive and receptive language, pragmatic skills, and communicative participation (40). Improvements were sometimes limited to specific measures or not maintained at follow-up (37, 39). Parents generally rated telehealth and web-based formats with high satisfaction, as helpful, feasible and acceptable, and something they would recommend to other parents (30, 36, 40, 41).

Sensory interventions

Sensory-focused interventions, including sensory integration therapy and sensory schedules, were evaluated for their impact on sensory processing, behaviour, and quality of life. There were very limited positive effects compared to usual care for Sensory Integration Therapy (42) in a very comprehensive RCT; that is, sensory integration therapy in this study was not found to be effective. In comparison (43), sensory schedules provided some benefit in classroom settings in a non-randomised experimental study. Cost-effectiveness analyses suggested that sensory integration therapy in particular may incur additional costs without clear added clinical benefit (42).

Movement skills interventions

Motor interventions, including physiotherapy and occupational therapy protocols with parent implementation (44, 45), targeted motor development and participation for children at risk of developmental delay or autism. Studies reported gains in motor skills, participation, and quality of life, with high feasibility and acceptability among families in an RCT of children at risk of developmental delay (44) although these were not distinguishable from the controls in the parent education only intervention (45) at 12 or 24 months of age. Individualised, home-based approaches were valued (44); individual and group (45) implementation was used.

Parent focused interventions

The parent program Acceptance and Commitment Therapy (ACT) was assessed in two randomised control trial studies as a support for parents of autistic children. ACT-based programs aim to improve parental psychological flexibility, reduce stress, and enhance wellbeing. Results indicated moderate improvements in parent mental health and adjustment to diagnosis, with high acceptability and feasibility reported by participants. No child outcomes were reported (46, 47). In contrast is an Australian program, Stepping Stones Triple P (48) which supports parents of children with a range of developmental delays and disabilities through relatively low intensity parent training and support. This cohort study demonstrated the value of such programs with a significant improvement in children's behavioural and emotional problems, as well as parent depression, anxiety and stress.

Intervention modalities

Parent implemented/Parent mediated

Parent-implemented interventions were a major focus, with many studies evaluating programs where parents received coaching or training to deliver strategies at home to support communication, social engagement, motor, and other child focused outcomes. These approaches ranged from structured parent education workshops to ongoing coaching in communication, play, and behaviour management. Overall, parent-implemented and parent-mediated interventions were associated with positive child outcomes in communication and social domains (21, 22, 31, 39-41, 49-51). Specifically, gains were seen in expressive and receptive language (21, 22, 39, 40), social engagement (31, 49), and play skills (50, 51). Of note, an Australian RCT found improvement of autism signs and severity, as well as significant improvements in communication (52). Some interventions also led to improvements in cognitive development, motor skills, and participation (44). In some cases, improvements were not maintained at follow-up (39). A few studies reported no significant difference between intervention and TAU groups (e.g. no difference between groups in a parent education motor intervention at 12 months of age; no difference between specific and general education programs (45, 53)).

Effects on other outcomes such as parent stress, competence, or family quality of life were frequently measured in these studies but showed inconsistent outcomes. Some studies e.g. (28) showed greater parent satisfaction with a parent involved NDBI intervention than ABA intervention with more limited parent input, but others found no significant changes in parent outcomes (22, 54) and implementation fidelity varied.

In studies examining parent coaching within early intervention programs for autistic children, several consistent patterns emerge. Results suggest that children make significant developmental gains, particularly in cognitive skills and adaptive behaviour, regardless of whether the intervention is parent-mediated, clinician-led, or delivered in a group or individual format (19, 21-23). There was no clear indication that parent coaching, as a standalone or adjunctive component, leads to superior outcomes for children or their parents compared to other models.

Group based

Group based interventions were relatively uncommon in the literature reviewed. Group interventions occurred in the context of preschool programs implementing ESDM (19, 20) and an Early Intensive Behavioural Study (32). Outcomes were generally positive across a range of measures, including communication, learning, social skills, parent/child interaction and autism characteristics. One study (55) considered group versus individual interventions based on DIR principles and found no inferiority for group intervention, despite generally longer intervention for children who received individual sessions. The relative rarity of group-based intervention studies is notable.

Single clinician implemented (clinic model)

While most studies in the review emphasized multidisciplinary or parent-mediated approaches, a small subset evaluated interventions delivered by a single clinician within a clinic setting. These studies provide insight into the effectiveness, acceptability, and potential limitations of more traditional, clinician-led models. As noted above (55) there were similarities in all outcomes between group-based and individual occupational therapy delivered by a single clinician, indicating that both

approaches helped to improve motor, adaptive, and quality of life outcomes in young autistic children. This suggests that the choice between group and individual clinician-led therapy may be guided more by practical considerations, such as resource availability, funding requirements, or family preference, rather than expected differences in effectiveness. A study of speech pathology (36) found that clinic-based, single clinician speech pathology was effective for improving child speech outcomes and reported significantly higher parent satisfaction in the intervention group. Similarly, the SCIP studies (37, 38) that involved speech pathology specifically showed gains for most early primary school aged children on social communication goals after 20 individual sessions.

When considering the role of clinic based interventions, such as speech pathology, occupational therapy and physiotherapy, it is important to note that many studies that included a generic 'treatment as usual' arm are likely to have included single clinician implemented interventions that may have had positive effects e.g. (19, 33, 56) but that have not been reported in the literature specifically.

Transdisciplinary models

Many interventions adopted a transdisciplinary approach, integrating expertise from education, speech pathology, psychology, occupational therapy, and other allied health professionals. These interventions include those in the ESDM and PACT suites of interventions, other parent implemented programs such as JASPER (31), parent training models (53), preschool programs (19, 20), and peer mediated interventions (57). Positive effects across a range of outcomes were noted and while transdisciplinary approaches were feasible and well-received, they were not universally effective. Some studies found no significant change in parent wellbeing (58), or child adaptive functioning (20).

Peer-mediated interventions

Peer-mediated interventions were explored in a small number of studies, focusing on improving play, social engagement, and inclusion in mainstream settings. These programs involved training peers and educators to facilitate their understanding of autism and social interaction, with evidence of increased joint engagement, play skills, and social competence among autistic children. Peer-mediated models were feasible in both school and community environments (50, 57). Positive outcomes included a significant positive effect on play, significant differences in parent rated social emotional strengths, and significant differences to children in the control group on teacher rated social competence (50) along with increased joint attention with peers following a brief intervention (57).

Education, preschool interventions

Two studies reported on outcomes from preschool settings. In studies of particular relevance to the Australian context (19, 20), researchers found that children who had participated in an ESDM style intervention within an Autism-Specific Early Learning Childcare Centre (ASELCC) showed significant improvements in all areas of communication (20) as assessed by checklist and formal assessment, and there was a positive impact on adaptive functioning (19). Children with verbal skills (likely those with mild-moderate autism as opposed to those with more significant needs) showed a greater magnitude of improvement (20). Intensity was relatively high with children attending 15 hours per week in the preschool group programs (19, 20) and duration ranged from 4 to 29 months (mean 15.1 months) (20).

Cost effectiveness

Cost effectiveness was an outcome considered in seven studies. Tsiplova et al. (25) completed a cost analysis of an RCT (22) and showed that while costs for their parent coaching version of ESDM were moderate (mean \$3118 per family for 6 months, not including the cost of staff training), the downstream cost-effectiveness was considerable. Families who received the intervention had fewer paediatrician and social work visits, and the calculated societal costs were lower. The economic analysis by Tinelli et al. (27) included data from trials of PACT across four countries. They found that PACT was not cost-effective at 13 months post-delivery, with higher service costs for PACT compared to treatment as usual. Despite improved autism symptoms for children and parent–child communication, short-term benefits in these outcomes did not translate into noticeable cost savings for public services or society. *However, at 6-year follow-up, reductions in autism symptoms and improved family outcomes were associated with lower downstream costs, particularly informal care.* Similarly, although the Australian Sleeping Sound intervention (59) led to higher upfront costs from healthcare and societal perspectives (approximately A\$1079 and \$1333 per participant, respectively), as noted by the authors these costs are comparable to five standard therapy sessions in Australia, and its potential to reduce downstream healthcare use make it a viable option for implementation within existing public health systems without placing undue financial strain on families or funders. Importantly, the intervention also resulted in significantly better health outcomes for children, as shown by the higher QALYs.

Of particular interest in Australia, Segal and colleagues (60) reported that while the parent mediated iBASIS-VIPP program showed greater costs than TAU initially, the downstream costs were A\$20,707 for iBASIS-VIPP vs A\$36,533 for TAU, a mean saving of A\$15,826 per child. Further, the projected savings at age 12 were \$10,695 per child, and return on investment was calculated to be \$3.08 per \$1 invested.

A number of studies found limited or no benefits in terms of cost effectiveness. Hodgson et al. (34) reported on a comprehensive cost-effectiveness comparison of all subtypes of Early Intensive Behavioural Intervention against TAU and found that EIBI may yield slightly higher QALYs than TAU but at substantial additional cost and thus would be unlikely to meet UK implementation criteria under any scenario. Randell et al. (42) concluded that Sensory Integration Training incurred significant extra costs and showed no added clinical benefit to TAU. Finally, a comparison of two types of parent training program (53) found that while both groups benefitted, the novel program (Understanding Repetitive Behaviours) was less cost effective than the treatment as usual.

Intensity

The variations in intensity across the interventions are extremely wide and preclude a clear analysis within this review's methodology. The interventions ranged from a single conversation with a follow-up phone call (61, 62), through to 25+ hours per week of therapy delivered by a clinician (32). Some programs that taught, coached or trained parents to support their children, or to deliver an intervention often included fewer sessions (e.g. 5 – 10 sessions) over a number of weeks or months e.g. (39, 41, 48, 49, 52, 63). Others involved greater intensity, such as 2 sessions per week for 12 weeks (25, 30, 31, 64). In a study comparing two provinces in Canada (28), the authors considered outcomes for programs of different intensity in New Brunswick (provision of 20 hours per week of clinician delivered EIBI from diagnosis to school age) and Nova Scotia (provision of PRT for one year, tapering from 15

hours a week to 6 hours a week with high parent training). In this case there was broadly similar progress across the groups as reported in an earlier study (29), with both groups making progress over time, even though the children in the relatively lower intensity group were older and had more significant symptoms. Interestingly, in this study, children with higher level abilities showed greater improvement with the lower intensity program. Parent satisfaction in the PRT group (moderate intensity, parent involved intervention) was also higher, with this, and other studies suggesting that parent-mediated and flexible interventions were valued for their accessibility and feasibility, even when delivered at a relatively lower intensity. Importantly, economic analyses (as noted earlier (27, 60) suggest that investment in early intervention at sufficient intensity and duration can reduce downstream costs and service use, but do not specify a universal “optimal” dose. Both higher intensity programs (for example, Early Intensive Behavioural Intervention at 27 hours per week) and relatively lower intensity or flexible models (such as weekly parent coaching or brief interventions) were found to be effective for improving communication, social, cognitive, and adaptive functioning skills. The fit between the intensity of support and the needs and circumstances of the child and family may be a key factor in effectiveness.

Duration

Program duration varied widely across the research from short-term programs (e.g. 8–12 weeks) to long-term interventions delivered over 12–24 months. It is important to note that the duration reported in research may be an artefact of funding and scheduling limitations and may not reflect a recommended duration. For example, it was common for studies to report outcomes on a 20-26 week weekly program delivered by clinicians (21-24, 26, 27, 38, 40, 42, 47, 51) even though these programs may continue for longer outside of a research context.

In contrast, some effective parent training programs often appeared to be structured around a smaller, finite number of sessions of around 5 – 10 sessions, for example, Hanen (9 weeks with up to 5 group sessions and 3 home visits (39); 8 groups and 3 individual sessions (41)), AutInsight ((63) with 5 weekly group sessions), EarlyBird ((49), 8 weekly group sessions and 3 home visits), Stepping Stones Triple P ((48) up to 6 group sessions), iBASIS-VIPP ((52), 10 sessions over 5 months), and a parent training motor interventions ((45), 8 sessions). Some parent training was also short term, but with limited benefit compared with control (‘Prevent-teach-reinforce’ (56), 6 – 8 sessions in 8 weeks and a repetitive behaviours program (53) with 8 parent sessions).

A small number of programs showed good effectiveness in a specific area from a very short duration (e.g. (57, 61, 62)) but these were the exception rather than the norm. Some cohort studies (19, 20, 32) reported on results of interventions that had variable duration for different children, with averages of a year or longer.

Age

Several studies examined outcomes of interventions delivered in infancy or early toddlerhood (0 – 36 months), targeting children at risk of autism or developmental delay, showing positive outcomes. For example, Kauley et al. (20) studied 64 children aged 2 to 6 years (mean age 4.1 years) who received the Early Start Denver Model (ESDM) at an Autism Specific Early Learning and Care Centre in Australia. The intervention was delivered intensively and in-person, both one-on-one and in groups, over an average of 15.1 months. The study found that younger children at enrolment showed

significantly greater improvements in receptive and expressive communication, as measured by the ESDM Curriculum Checklist and Mullen Scales of Early Learning, even after accounting for differences in verbal ability.

Other studies have also focused on young children, with good effectiveness demonstrated. Whitehouse and colleagues in Australia (52) conducted a randomised controlled trial with 104 infants aged 9 to 14 months (mean age 12.4 months) using the iBASIS–Video Interaction to Promote Positive Parenting (iBASIS–VIPP) intervention. This parent-mediated program consisted of 10 sessions over five months, delivered in the home setting. Results showed significant and lasting improvements in expressive and receptive vocabulary, gestures, and reduced autism severity at 24 months post-baseline, highlighting the impact of intervening during the earliest stages of development. A more intensive model of intervention with children aged 12 – 39 months (21) showed significant positive change in communication, pre-academics, early learning and other adaptive functioning skills after a 20 week P-ESDM program delivered by clinicians to parents and children. Again, children with a mean age of 2.75 years in an RCT of caregiver mediated JASPER (Joint Attention, Symbolic Play, Engagement and Regulation intervention) (31) showed significant growth in communication and program that was implemented as 2 60-minute sessions per week for 12 weeks. Parent implemented movement interventions for premature (45) and vulnerable (44) infants, and communication interventions for very young late talkers (39) have also shown some positive outcomes.

It is important to note, however, that the majority (34 of 47 studies) focused on children of preschool or school age and that many of these interventions have shown effectiveness for these older children as well. These include speech pathology focused (36-38), peer mediated (50, 57), sleep (62) school based supports (43) and parenting/behaviour support (48) utilising a range of supports in terms of intensity, duration and mode of delivery. These interventions and supports are specifically designed for, or targeted towards, these older children (ages 3 – 8) and underline the need for a range of individualised supports.

Severity

A small number of studies compared subgroups of children. Kauley et al., (20) reported that autistic children who were already verbal on entry to the preschool based ESDM program showed a higher magnitude of improvement. Few other comparisons can be drawn regarding comparison between severity groups because the studies included were specifically selected to include children with a mild to moderate degree of delay or with mild to moderate autism. It is important to note the positive outcomes and cost effectiveness of the studies that have provided interventions and supports to this group of children.

Generalisation

Generalisation of skills to other settings (e.g., home to school) was observed in some studies e.g. (26), but not all. Long-term maintenance of gains was infrequently assessed and, when measured, sometimes not sustained (39, 53). Very few studies measured outcomes beyond the cessation of programs.

Table 2. Effective* interventions, grouped by outcomes of interest

*if there was no significant effect, positive change or difference between intervention and control groups, outcomes are not reported here (see full table in Appendix 3 for all studies)

Outcomes of interest	Findings	Intervention type	Level of evidence*
Age-appropriate developmental outcomes and related therapy goals and indicators			
Developmental outcomes including communication, fine and gross motor skills	<i>Communication</i>		
	• Generalisation of social communication skills to school and clinic (Carruthers et al., 2025)	PACT	II
	• Significant gains in social language and pragmatic skills (Adams & Gaile, 2020)	SCIP	II
	• Significant intervention effect on speech (McLeod et al., 2020)	Speech pathology intervention	II
	• Improved joint attention (Shire et al., 2021)	JASPER (Parent mediated)	II
	• Children showed progress on communication goal ratings (Adams et al., 2020)	SCIP	III-2
	• Significant improvements between entry and exit in receptive communication, expressive communication (Kauley et al., 2024). Greater improvements for the verbal group	ASELCC (ESDM)	III-2
	• Significant positive change in communication (Gaines et al., 2022)	ESDM /P-ESDM	III-2
	• Significant positive change in gestures, words and phrases used and understood (Gaines et al., 2021)	ESDM /P-ESDM	III-2
	• Significant positive effect for receptive language, speech skills, symbolic abilities (Parsons et al., 2020)	TOBY app	III-2

Outcomes of interest	Findings	Intervention type	Level of evidence*
	Clinically significant improvements in communicative participation, significant improvement in receptive and expressive vocabulary (Kwok et al., 2020)	Hanen (Target Word)	IV
	Gains in imitation and participation (Waddington et al., 2024)	ESDM /P-ESDM	IV
	Parent reported improvements in communication (Miletic et al., 2024)	Hanen More Than Words	IV
	Improved responsiveness and initiations, increased complexity of communication (Kossyvaki et al., 2022)	i-PICS (homebased, telehealth)	IV
	Improved joint attention (Shire et al., 2021)	JASPER (telehealth)	IV
	<i>Motor</i>		
	Significant improvement in motor skills (STEP protocol; Lima et al., 2022)	STEP protocol	IV
	<i>Play skills</i>		
	Improvement in pretend play skills (Learn to Play therapy; Davidson & Stagnitti, 2021)	Learn to Play	IV
	<i>Cognitive</i>		
Educational parameters including literacy/numeracy improvement, engagement in the school curriculum, school readiness, and school attendance	Significant positive change in rate of early learning (McKinnon et al., 2024)	ABA	III-2
	Significant improvement in visual reception skills on the MSEL (Kauley et al., 2024). Greater improvements for the verbal group	ASELCC (ESDM)	III-2
	Significant positive change to pre-academic domain (P-ESDM; Gaines, 2022)	P-ESDM	III-2
	Improved use of cognitive strategies in the classroom (Mills et al., 2021)	Sensory activity schedule	III-2

Outcomes of interest	Findings	Intervention type	Level of evidence*
Mental health indicators	Improved attention and sensory perception (Sensory activity schedule; Mills et al., 2021)	Sensory activity schedule	III-2
	Significant improvements in parent reported child conduct problems and prosocial behaviour (Lee et al., 2025)	AutInsight parent group program	II
	Significant impact on child emotions and behaviour (Lewis et al., 2024)	Sleeping Sound Autism	II
	Significant improvement in child behavioural and emotional problems (Scripps et al., 2025)	Stepping stones Triple P	III-2
Physical health indicators	<i>Sleep</i> Significantly greater improvement in sleep at both 3 months and 6 months post intervention (Lewis et al., 2024)	Sleeping Sound Autism	II
Quality of life including engagement in everyday tasks and social interaction	Significant growth in play diversity (Shire et al., 2022)	JASPER (parent mediated)	II
	Significant positive effect on play (Kent et al., 2021)	Play, Language and Friendship (PLF)	II
	Significant difference on parent rated social emotional strengths (Kent et al., 2021)		
	Significant improvement in overall family experience (Lee et al., 2025)	AutInsight parent group program	II
	Improved joint engagement (Thompson-Hodgetts et al., 2023)		III-2
	Improved adaptive behaviour across communication, daily living and socialisation (McKinnon et al., 2024)	Peer-mediated – day camps ABA	III-2
	Significant improvement in adaptive functioning (Lee et al., 2025)	AutInsight parent group program	II
	Small significant positive change for adaptive behaviour and communication (VABS) (Palmer et al., 2020)	EarlyBird	III-2
Safety	Significant positive effect for playfulness (Parsons et al., 2020)	TOBY app	III-2
	Significant improvement on parent rated risky social behaviours (Kent et al., 2021)	Play, Language and Friendship (PLF)	II
Cost-effectiveness			

Outcomes of interest	Findings	Intervention type	Level of evidence*
Does the monetary value of benefits (outcomes) achieved outweigh the costs?	Greater cost, but mean child QALYs significantly higher for intervention, reduced visits to health practitioners, reduced use of pharmaceuticals. Cost is similar to 5 sessions of allied health (Engel et al., 2025)	Sleeping Sound ASD	II
	Reduced use of services; reduced societal costs at post-follow up (Tsiplova et al., 2022)	Community based P-ESDM	II
	Significant initial costs, but downstream savings (\$20,707 for intervention vs \$36,533 for TAU) (Segal et al., 2023)	iBASIS-VIPP	II
	Cost per avoided autism diagnosis calculated, net savings estimated at \$10,695 per child. Program breaks even by age 5.3 (Segal et al., 2023)	iBASIS-VIPP	II
Autism symptomatology			
Social communication	Statistically significant improvement in autism characteristics (Carruthers et al., 2025)	PACT	II
	Reduced autism severity maintained at 24 months (DSM-5 criteria and ABC; Whitehouse et al., 2021)	iBasis-VIPP	II
Repetitive behaviours/restricted interests	Statistically significant improvement in autism characteristics (Carruthers et al., 2025)	PACT	II
Additional outcomes			
Parenting efficacy	Increase in 'parent empowerment' and confidence (Miller et al., 2023)	ENVISAGE	III-3
	Significant improvements in parenting self efficacy (May et al., 2022)	Text2Dads	IV
	Increased confidence in parenting (Kossyvaki et al., 2022)	iPiCS (homebased, telehealth)	IV
Parenting stress	Significantly reduced parent stress (ESDM; Green et al., 2024)	ESDM /P-ESDM	III-2
	Significant improvement in parent stress (Scripps et al., 2025)	Stepping Stones Triple P	III-2
	Significant reductions in parenting stress (May et al., 2022)	Text2Dads	IV

Outcomes of interest	Findings	Intervention type	Level of evidence*
Parent well-being	• Significant positive impact on parent mental health (Lewis et al., 2024)	Sleeping Sound Autism	II
	• Moderate improvements in parent mental health (Leadbitter et al., 2025)	Empower-Autism (ACT)	II
	• Significant improvement in parent depression and anxiety (Scripps et al., 2025)	Stepping Stones Triple P	III-2

*Levels of evidence: Level II - Randomised control trial, the highest level of evidence in this review); Level III: 2 - Comparative studies with concurrent controls (non-randomised), case-control; Level III: 3 - Comparative studies case control and cohort studies; Level IV - Case series, either post-test or pre-test and post-test.

Discussion

This rapid review regarding effective interventions for young children with mild to moderate autism and/or developmental delay evaluated the evidence of 47 studies from Australia and other countries with similar healthcare systems. The evidence included randomised control trials (n=22), non-randomised and cohort studies (n=18), as well as case level studies (n=6) and an economic evaluation. The overwhelming majority of the included studies focused on autism, rather than developmental delay, despite specific efforts to hand search for relevant papers. The included studies varied widely in terms of age of children, intervention philosophy, parent involvement, delivery method and intensity, as well as in the outcomes measured and the tools used to evaluate these. The limitations of the literature make it challenging to provide one size fits all guidance for children with mild to moderate autism and/or developmental delay, but there is evidence that a range of programs can help children and their parents. It remains essential to maintain a spectrum of high-quality options for older children and those with varying levels of need, ensuring that all families can access the right support at the right time. There is good evidence that parent-involved, naturalistic developmental behavioural interventions, and those that focus on communication and movement, can support children to develop communication, social, cognitive, motor and other adaptive functioning skills, from infancy (as early as 0–3 months corrected age) through to primary school.

The evidence suggests that:

- Effective programs can be delivered by clinicians and through well-structured parent training/coaching by clinicians
- Effective supports may be delivered in individual, group and preschool based settings in person, and via telehealth
- Parent training, support and coaching can help support parent well-being as well as some outcomes for the children (e.g. communication, movement)
- Intensity, duration, the program adopted, and multidisciplinary support may play an important role in positive outcomes
- The earlier the intervention, the more effective in many cases, but intervention and supports are beneficial at any age
- Investment in children who are more mild in their presentation has a significant impact, and therefore mild should not mean less intervention
- Economic evaluations suggest that investment in early intervention at sufficient intensity and duration may have a significant impact by reducing downstream costs and service use

Several areas of interest are discussed, as follows:

Parent involvement

Across almost all included studies parents played a central role in intervention delivery. Nearly all interventions involved some form of parent implementation, whether through direct parent-mediated programs or direct implementation of strategies, parent coaching, structured training, or collaborative

approaches where parents were trained to apply strategies at home. Programs such as the iBASIS-VIPP (52), Quickstart (21), community based P-ESDM (22), iPics (40), AutInsight (63) and PRT (28), exemplify models where parents received structured training or ongoing support to facilitate their child's development. Parent involvement was integral across various intervention types including communication-focussed interventions, behavioural, sensory, motor and sleep, and across modes of delivery including in-person, via telehealth, or through digital resources (e.g. apps, websites).

Parent outcomes, such as stress, confidence, and mental health, showed mixed results. Many studies reported benefits such as increased parental confidence and empowerment, however effects on other outcomes such as parental stress and wellbeing were mixed, with some studies noting no significant change or even increased stress (19). It is interesting to note, however, that in a study comparing the characteristics of matched groups of children and parents in an ESDM program before and after the introduction of the NDIS (65) the authors found higher parental stress in NDIS families than in matched families on the same program prior to the introduction of the NDIS, despite the same level of disability in the children. They suggested that the uncertainty of NDIS may be a contributing factor, rather than the specific program.

Others highlighted the importance of tailoring coaching approaches to family needs, including engaging fathers and considering booster sessions (24). The widespread adoption of parent-implemented models reflects the recognition of parents as partners and as key agents of change, however it will be important to understand individual families' abilities to engage fully in parent-mediated interventions and to tailor potential interventions appropriately. It is important to note that many of these studies involved only parents who were able to actively participate in this type of intervention, and many excluded families where English was not the primary language.

The collective evidence suggests that the effectiveness of early intervention is not dependent on the presence of parent coaching alone. Overall, parent coaching is valued for its potential to involve families more directly in intervention and to embed strategies in family contexts, but its specific impact remains inconclusive (22, 23). For instance, Green et al. (19) found that children made similar and significant gains in cognitive skills and adaptive behaviour whether they received parent-mediated ESDM, group-based ESDM, or standard community services, although it is important to note the children in the community services group received between 0 – 25 hours per week of service, ranging from early intensive behaviour intervention, to lower intensity speech pathology and occupational therapy. Additionally, Waddington et al. (24) found that both parent-implemented and therapist-delivered interventions resulted in gains in child imitation and participation, indicating that positive developmental outcomes are achievable across different models of early intervention, not solely those that rely on parent coaching.

In a related RCT, Waddington et al. (2024b) found that low-intensity parent- and clinician-delivered support led to improvements in child engagement and communication, but these gains were not significantly different from those seen in the control group for broader developmental or family outcomes. Developmental gains appear broadly achievable across diverse models, and as above, understanding individual families' needs, preferences and capacity will be crucial.

Broader outcomes

While much of the evidence is on child outcomes such as communication, cognitive skills, and adaptive function, many studies also reported important impacts beyond such outcomes. These included changes in parental stress, confidence, empowerment, and mental health, as well as

improvements in family functioning and overall quality of life. Physical and mental health indicators, such as sleep quality and parental wellbeing, were also considered in some research. Parent satisfaction, acceptability, and engagement with interventions were also frequently described, reflecting the value families placed on programs that supported their involvement. In addition, several studies examined economic and service use outcomes. Recognising these broader outcomes is essential for understanding the full impact of early intervention programs, as they demonstrate the importance of considering family wellbeing, service delivery, and economic factors alongside child development, and support a more holistic approach to evaluating and implementing interventions.

Education and group settings

The relative paucity of group studies was striking and may reflect the current state of intervention as funded under the current NDIS system (15). Two studies based on current Australian programs (19, 20) showed good evidence for positive outcomes for children with autism, and particularly for younger children and those with stronger verbal skills at commencement (20) of autism specific preschool programs. These programs have relatively high intensity, with one study (19) reporting 15 hours per week attendance in preschool programs based on ESDM. These programs were well supported in terms of trained staff and multidisciplinary clinicians.

It is important to note that no Australian or comparable country evidence was found for any type of supported playgroup or other similar, low intensity group models. It appears that intensity, the program adopted, and multidisciplinary support may play an important role in positive outcomes. Similarly, there were very few studies focused on school-based interventions, with only one study (43) of a sensory schedule based in Australia. There was no evidence found regarding existing Australian school-based programs for parent or teacher support for this age group.

Equity

There is need to ensure that programs, interventions and supports are available regardless of location, home language, cultural background or socioeconomic status. No studies in this review focused specifically on Aboriginal and/or Torres Strait Islander families, despite the unique cultural contexts and systemic barriers these communities may face. One study was considered for full text review but not included as it did not focus on intervention. This study (66) addressed the use of a culturally appropriate developmental screener for Aboriginal and Torres Strait Islander children (ASQ-TRAK) and reported that these communities need specific tools, flexible delivery that is tailored to local communities, adequate resourcing and strong collaboration across systems. It is important that interventions be designed with culturally safe care and all aspects of equity in mind, ensuring accessibility for families in rural, remote, or socioeconomically disadvantaged settings by reducing cost and complexity barriers.

Cost considerations

Included studies that incorporated consideration of costs, including costs to families, training costs, and projections of downstream costs and savings, highlighted a critical tension in early intervention and in designing and allocating effective interventions for families with children with autism and developmental delays. *Effective programs* must not only be beneficial in improving measured outcomes, but they must be affordable, scalable and as discussed above, inclusive and equitably accessible.

There were several studies that showed improved outcomes as well as cost effectiveness. Of particular interest are the Australian studies by Whitehouse and colleagues on the iBASIS-VIPP program (52) and the associated economic evaluation (60). The iBASIS-VIPP randomised control trial showed significant improvements in several child outcomes, including a reduction in autism severity. The economic findings suggested that while the initial training costs were high, the downstream savings were significant, as was the return on investment. Similarly, in the economic evaluation (25) which completed a cost analysis of a community-based P-ESDM RCT(22), showed that while parent coaching involved higher upfront costs, families receiving this intervention used fewer health and social services during the study period compared to those receiving usual care. Costs were also higher initially in the PACT intervention (27) but again, over time the children in the treatment group showed less use of community services; long term benefits and reduced downstream costs suggest it becomes cost-saving over time. These findings suggest potential for longer-term savings through reduced service reliance, which are considerations that should be weighed alongside the clinical benefits observed. Ultimately, ensuring equitable access to evidence-based interventions requires a commitment to system-level investment, not just program-level efficiency.

Challenges and limitations

The recent evidence base for early intervention for children with mild to moderate autism and particularly those with mild to moderate developmental delay, is marked by considerable heterogeneity in both intervention models and outcome measures. Importantly, there is a marked paucity of studies that focus specifically on children with developmental delay alone. This presents significant challenges for measurement and interpretation, including limits to the reliability and generalisability of study findings. Additionally, the use of many different outcome measures and intervention types across studies complicates efforts to consolidate findings and build a coherent evidence base. Further, studies can only report on outcomes of children and parents who participate in programs; we have little understanding of the reasons parents might choose not to engage, for example, with parent mediated programs. These factors, along with the predominance of lower-level study designs (e.g., feasibility studies, single-arm trials, case-series, designs without control groups etc), which, while valuable in exploring implementation process outcomes such as acceptability, fidelity and feasibility, suggest that care, and ongoing evaluation, is needed in decisions around implementing programs. Considering the heterogeneity of the focus population of this review, the breadth of the literature is not surprising. Again, the need for tailored and differentiated supports is emphasised.

Given the limitations of the timeframe of this review (research published 2020 – 2025), it is likely that the current review has not captured some of the evidence regarding therapeutic interventions (including speech pathology, occupational therapy, physiotherapy and psychology) as current practice in these disciplines may reflect previously established evidence. While this review features few studies of the typical practice of these allied health professions, this work should continue to be valued and supported.

A notable limitation across the 47 included studies is the scarcity of long-term follow-up data. While many interventions reported immediate or short-term improvements in child or parent outcomes based on data collection at immediate post intervention, few studies extended their assessment beyond several months post-intervention. Most follow-up periods ranged from immediate post-intervention to 6 or 12 months, with only a handful reaching one year or longer. This lack of longitudinal data restricts understanding of the durability and sustainability of intervention effects,

including whether initial gains are maintained, diminish, or evolve over time. As a result, the long-term impact of early interventions for autistic children and children with developmental delays remains uncertain, and investment in extended follow-up periods presents as one area for improvement in future research. Well-designed, prospective, well-targeted evaluation of any programs proposed will be crucial in not only addressing this research gap but providing cumulative evidence of effectiveness.

Another key gap in the evidence base is the limited analysis of intervention intensity, length, and dose. Although studies frequently reported the number of sessions, duration, and delivery format, few systematically examined how these variables influenced outcomes. There was a lack of comparative analysis regarding optimal dosage or the relationship between intervention intensity, length, mode, dose and effectiveness. This omission makes it challenging to draw conclusions about the most effective intervention schedules or to provide evidence-based recommendations for clinical practice and again highlights another need for future research. The absence of systematic analysis regarding intervention intensity, length, and dose as well as child and other therapy setting characteristics across the included studies limits the ability to determine which approaches are most effective, for whom, and under what circumstances. This gap restricts clinicians, parents and caregivers, families, communities and policymakers from making evidence-informed decisions about tailoring interventions to individual needs, to maximising benefit and limiting harm or null effect, or optimising service delivery and resource allocation. Addressing this limitation in future research, including through methods such as meta-regression analysis, which was outside of the scope of this review, is essential to strengthen the evidence base and improve outcomes for children and families.

A notable challenge in consolidating the available evidence on early intervention for children with mild to moderate autism or developmental delay is the substantial heterogeneity in both the types of interventions and the outcome measures used across studies. The frequent use of acronyms reflected quite starkly and simply in the key terms table of this document, demonstrates the diversity of intervention models and assessment tools utilised across the included studies. This variability complicates direct comparison and synthesis of findings, as studies may target multiple domains (e.g., communication, adaptive behaviour, parent outcomes) and use distinct measurement instruments. Such heterogeneity can limit the ability to draw firm conclusions about the relative effectiveness of each approach. It also underscores the need for caution when interpreting aggregated results, as differences in intervention intensity, delivery format, and outcome measurement may influence reported effects. Clinicians and policymakers should be aware that the evidence base is complex and nuanced, and that “best practice” may vary depending on the context, population, and goals of intervention. It is notable that this finding is consistent with previous reviews published over the past 20 years (1, 4).

Another key limitation of the current evidence base is the lack of clarity and consistency in how “mild to moderate delay” is defined across studies. Many interventions and outcome measures do not specify the criteria used to classify autism or developmental delay severity, and these descriptors are not currently part of DSM-5-TR definitions, making it difficult to interpret findings or generalise results to specific subgroups. This ambiguity can affect the applicability of evidence to clinical practice, as practitioners may be unsure which children are most likely to benefit from particular interventions. These definitions will need clarification in order to be operationalised by assessors and decision makers.

Finally, relevant guidelines and frameworks regarding autism and early childhood intervention should be consulted to provide context and broader recommendations. The recent release (May 2025) of the

National Best Practice Framework for Early Childhood Intervention (The Framework) highlights principles that are recommended for delivery of supports to young children and their families that are not specifically reflected in the evidence base included in this rapid review (15). The description of interventions as reported, do not address the ecosystem of supports that are articulated in The Framework and lack detail about the family centred, collaborative, neuro-affirming and rights-based principles that are at the heart of best practice in supporting young children with developmental concerns, delay and disability. The information provided in this rapid review must be integrated into the context of the Australian system as articulated in The Framework to support appropriate application of this evidence. Similarly, recommendations outlined in the 2022 *National Guideline For supporting the learning, participation, and wellbeing of autistic children and their families in Australia* (2) should be considered in planning any programmes of support or intervention. These include recommending that supports be individualised, family-centred, strengths based, holistic and culturally safe, while being coordinated, timely and accessible. This guideline notes that there is no blanket approach that will be beneficial for all children and their families.

While this review has focused primarily on interventions for autistic children and those with developmental delay, it is important to acknowledge that many early intervention approaches are also relevant to children with a broader range of neurodevelopmental and behavioural conditions. For example, some interventions included in the review, such as parent coaching, behavioural strategies, and sleep interventions, may also benefit children with intellectual developmental disorder, language disorders, ADHD, or other neurodevelopmental profiles.

Conclusions

The current review offers a strong, methodologically sound synthesis within its defined scope. The targeted approach taken in this evidence check has enabled clear, actionable insights for practice and policy, and provides a solid foundation for future work. Expanding the scope in subsequent reviews, and/or focusing on more discrete or specific populations or outcomes would build on these strengths, allowing for greater inclusivity and relevance across diverse populations. However, the methodological rigour and clarity of focus in this evidence check should be acknowledged as key contributors to its value. Despite the limitations in the literature, the evidence suggests that there are several interventions and supports for young children with mild to moderate autism and developmental delays that have the potential to support development across a range of areas. Recognising the heterogeneity of these populations in terms of skills and needs, family and community contexts, and response to different interventions will be key to providing effective, and cost-effective supports. It will be important to ensure that supports are well tailored to individual children, their families and communities. Crucially, given the limited findings in the studies regarding generalisation and sustainability, consideration must be given to systematically and adequately measuring and evaluating clinical and meaningful functional outcomes, as well as economic and operational considerations of any intervention or support models adopted. It also highlights an urgent need for more comprehensive RCTs that also examine a sufficient breadth of outcomes over time. This evidence check provides a spotlight on recent evaluative studies, informing policy and practice in the local context, that builds on other past evidence syntheses (e.g. (1-4)).

Recommendations

This rapid review evidence check identified 47 studies that described interventions and supports for children with mild to moderate autism and/or developmental delay and their families. The principal findings were that while the limitations of the literature make it challenging to provide one size fits all guidance, there is evidence that a range of programs can help children and their parents. There is good evidence that naturalistic developmental behavioural interventions, with parent involvement, and those that focus on communication and movement development, can support children to develop communication, social, cognitive, motor and adaptive functioning skills. The evidence suggests that:

- Effective programs can be delivered by clinicians and through well-structured parent training/coaching by clinicians
- Effective supports may be delivered in individual, group and preschool based settings in person, and via telehealth
- Parent training, support and coaching can help support parent well-being as well as some outcomes for the children (e.g. communication, movement)
- Intensity, duration, the program adopted, and multidisciplinary support may play an important role in positive outcomes
- The earlier the intervention, the more effective in many cases, but intervention and supports are beneficial at any age
- Investment in children who are more mild in their presentation has a significant impact, and therefore mild should not mean less intervention
- Economic evaluations suggest that investment in early intervention at sufficient intensity and duration may have a significant impact by reducing downstream costs and service use

Based on the findings of the review, and the limitations of the literature, the following are recommended:

Program planning recommendations

- To ensure that children are allocated to the most appropriate forms of support, a clear, operationalised definition of ‘mild to moderate autism and/or developmental delay’ is required in addition to consideration of the age and stage of the child and the child and family strengths and needs
- Any interventions, programs or supports should be provided with sufficient intensity; even programs described as ‘low intensity’ included at least 2 hours per week of individual, clinician implemented intervention over 3 – 6 months (23). Many effective programs reported much higher intensity over longer periods of time.
- Duration should be sufficient to meet children’s and families’ needs and may need to adapt to the child, their family and their context
- Consideration of provision of naturalistic developmental behavioural interventions which focus on developing child strengths as well as addressing needs. In studies included in the present

review, these programs were delivered in a range of modes, but all included high levels of training for clinicians, and parents (in parent mediated programs) and sufficient intensity

- Consideration of programs to build capacity in the child's social and educational environments (e.g. pre-school and school) as an adjunct to other, more targeted services. These will inevitably benefit many children
- Clear understanding that parent mediated interventions require high engagement from families and clinicians and may not be suitable or even possible for all families
- A range of models and options should be considered including 1:1 therapy/interventions as well including specialist preschool and group models
- Both short-term and longer-term programs should be available, and measurement of response will be needed to guide review of child progress and family needs. This flexible approach is particularly important given the current evidence is not of sufficient power to provide certainty about who will respond to lower and higher intensity therapies.
- Consideration of family centred collaborative, neuro-affirming and rights-based principles that are at the heart of best practice in supporting young children with developmental concerns, delay and disability is essential. The information provided in this rapid review must be integrated into the context of the Australian system as articulated in The Framework to support appropriate application of this evidence
- Cost effectiveness of any proposed programs, supports or interventions will require thorough investigation and evaluation, which was beyond the scope of this review
- A clear, feasible and accessible review mechanism will be required to account for child change over time and child response to intervention. The focus should be on functional outcomes which may also include the development of neuro-affirming attitudes and beliefs in the child's social environment
- It will be important to note that children needing early intervention are likely to need a mix of interventions described in this review to address different needs; integrated, multidisciplinary models of care addressing multiple early intervention targets may be of significant benefit
- For this reason, we recommend the need for longitudinal research to better capture and measure the impact of integrated care models on long term outcomes for this population
- A flexible approach to both intensity and duration, grounded in individual assessment and family partnership, will deliver the best outcomes for children with mild to moderate autism or developmental delay. Policies should prioritise access to a spectrum of evidence-based supports, rather than rigid prescriptions, to ensure that every child receives the right level and length of support for their unique situation. Sustained access to intervention throughout early childhood is important, as children's needs and child and family capacities can change over time

Research recommendations:

- To strengthen the evidence base for early childhood disability interventions, future research should prioritise higher-level study designs, such as well-powered controlled trials, to move beyond the limitations of feasibility and single-arm studies. Improving implementation fidelity through clearer protocols and monitoring systems is essential to ensure consistent delivery and reliable outcomes

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- There is a clear need for larger well powered RCTs that can deliver outcomes that inform on the types of children and families that benefit the most, the intensity of treatment required for those children and the format that delivers the best outcomes.
 - Future reviews could focus on more targeted areas such as specific populations (including those with mild to moderate delay), outcomes or settings of interest as well as expanding the evidence base for group programs
 - It is strongly recommended that proactive, systematic and well-designed evaluation and measurement of clinical and meaningful functional outcomes, as well as economic and operational considerations, are built into any intervention or support models adopted. Longitudinal data collection is recommended to better capture and measure the impact of integrated care models on long term outcomes for this population

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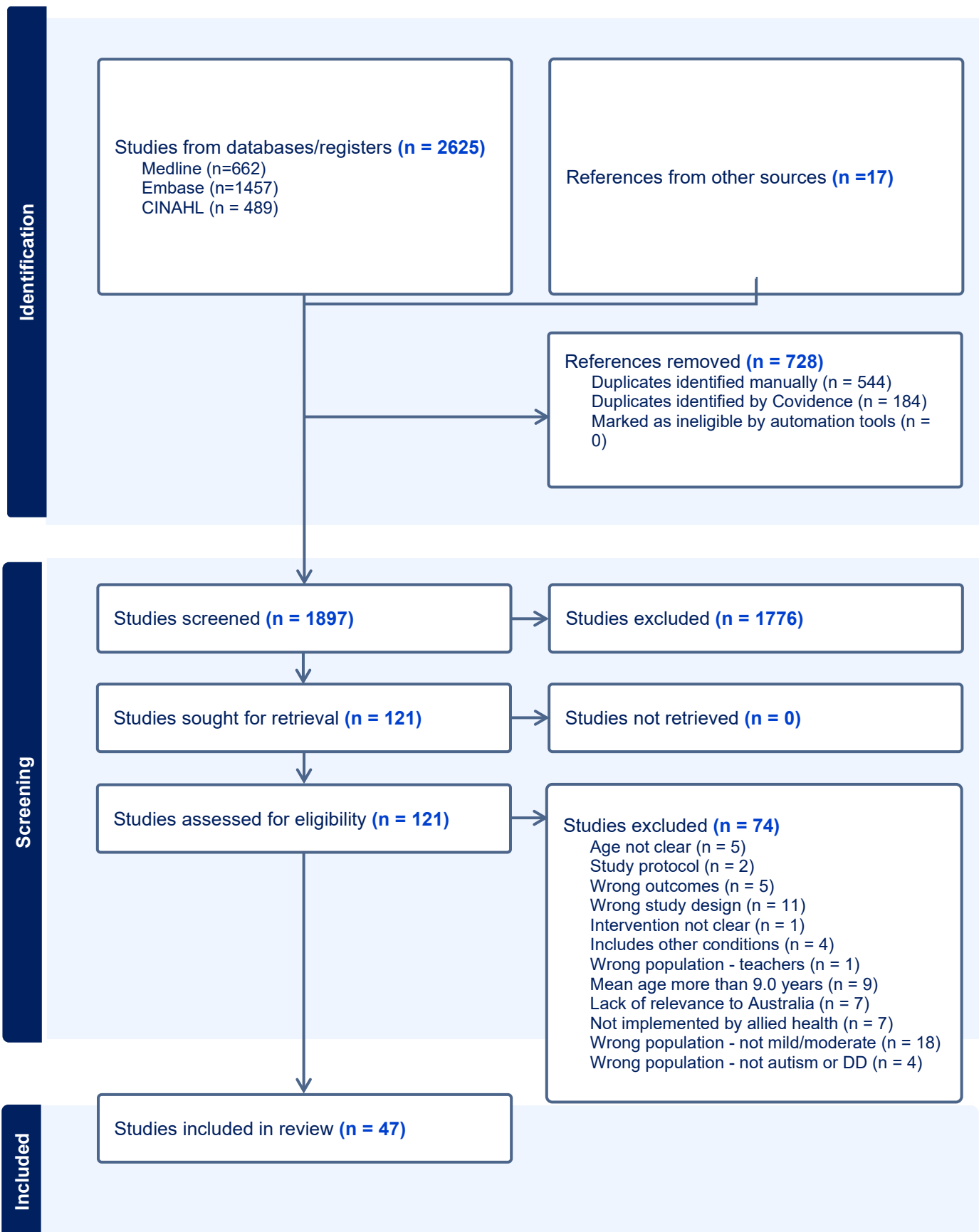
Appendices

Appendix 1— Search Strategy

No.	Search term/strategy
1	Autistic disorder.mp. or exp autism (autis* or asperger* or ASD).mp.
2	(autis* or asperger* or ASD).mp.
3	(Developmental* adj2 (delay* or disorder* or global or disabilit*))
4	(neurodevelopmental disorder* or DD)
5	child/ or child, preschool/ or infant/
6	(young children or preschool* or pre school* or pre kindergarten or pre kindy or kindergarten or center* or centre* or childcare* or daycare* or p?ediatric or nursery or infant* or toddler* or long day care or classroom or schoolchild*)
7	(early adj2 learn*)
8	(primary adj2 (school or child or grade))
9	5 or 6 or 7 or 8
10	Allied Health Personnel/
11	occupational therapy/ or speech therapy/ or counsellors/ or social workers/
12	Physical Therapy Modalities/
13	(allied health or speech therap* or speech language therap* or occupational therap* or "OT" or "OTs" or physio* or physical therap* or psychologist* or counsel* or social work or social worker* or multidisciplinary care or telehealth or "telehealth practice" or "early intervention" or "parent training" or therapy)
14	(care adj2 (model or package))
15	(service delivery or clinical pathway or early intervention or private practice or hospital or home)
16	("Delivery of care" or "Delivery of health care" or "model of care").

17	school health service
18	(school* adj3 (based or intervention* or program* or course* or polic* or practice* or curricul* or environment* or service*))
19	(out of school care or OOSH)
20	Health Services, Indigenous/
21	(Aboriginal Medical Service or Aboriginal Community Controlled Health Organisation* or AMS or ACCHO or Indigenous health service* or First Nations health service*)
22	(intervent* or teach or program* or package* or treat* or therap*)
23	10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22
24	exp Australia/
25	(Australia* or western Australia or WA or south Australia or SA or northern territory or NT or Queensland or QLD or new south Wales or NSW or Victoria or VIC or Tasmania or TAS or Canberra or Australian Capital Territory or ACT)
26	exp Canada/
27	(Canada* or Alberta or British Columbia or Manitoba or New Brunswick or "newfoundland and labrador" or northwest territories or nova scotia or Nunavut or Ontario or Prince Edward Island or Quebec or Saskatchewan or Yukon territory)
28	United Kingdom/ or England/ or Northern Ireland/ or Scotland/ or Wales/
29	(United Kingdom or Great Britain or England or Northern Ireland or Scotland or Wales)
30	exp New Zealand/
31	(New Zealand or NZ or Aotearoa)
32	24 or 25 or 26 or 27 or 28 or 29 or 30 or 31
33	1 or 2 or 3 or 4
34	9 and 23 and 32 and 33
35	limit 34 to (human and English language and yr="2020 -Current")

Appendix 2— Prisma Flow Diagram



Appendix 3 – Results of included papers

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Early Start Denver Model - ESDM						
Green et al., 2024 (19) An Evaluation of Child and Parent Outcomes Following Community-Based Early Intervention with Randomised Parent-Mediated Intervention for Autistic Pre-Schoolers Australia	Non-randomised experimental study	53 participants (10 ESDM: 26 G-ESDM: 17 community services), aged 17-44 months (mean: 35.44 months)	Autism	Compared outcomes for: clinician delivered ESDM, group delivered (G-ESDM) and community TAU. ESDM within ASELCC preschool Intensity and length: 10 hours 1:1 per week (ESDM group); 15 hours group per week (G-ESDM group); 0 – 25 hours per week (community services group, TAU); 12 months. Target of intervention: Child and parent/caregiver. Facilitator(s): Therapy aide or assistant, ESDM certified therapists, parent/caregiver, early childhood educators. Mode: In person, individual and group. Dose: Unclear.	Child developmental outcomes: cognitive. Longest follow-up: Immediate post. - Positive, similar gains in cognitive skills and adaptive behaviour (VABS, ABC) across time for all groups. No difference by group. - No effects for ADOS CSS. - Parents reported significantly increased parenting stress over time. - No effect on parent mental health and wellbeing (DASS-21 total score or WEMWBS total score). - Coaching group showed a trend towards feeling less	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					confident in their parenting over time. Overall, no clear benefit on parent outcomes.	
Tsiplova et al., 2022 (25) Parent coaching intervention for children with suspected autism spectrum disorder: Cost analysis Canada	Economic evaluation, of RCT (Mirenda et al., 2022; included in this review)	48 participants (24 in PC group; 24 in ECT group), aged 15 to 36 months (mean: 27.2 months).	Suspected autism.	PACE coaching (modified, community-based P-ESDM), public clinic or centre based and home-based. Transdisciplinary – non discipline specific, notes inclusion of allied health professionals such as speech pathologists and occupational therapists, as well as infant development program (IDP) consultants. Intensity and length: one session and one phone call weekly for 24 weeks. Target of intervention: child and parent/caregivers. Facilitator(s): parent. Mode: both in person and telehealth, individual. Dose: 1 hour per session and 15 to 20 minutes per phone call, each week.	Longest follow-up: immediate post (6 months). Implementation process outcomes: interaction with allied health services, and cost effectiveness. - Cost of PACE per child: The total time investment translated to an average coaching cost of \$3118 per family (range \$1033–\$5892; SD = \$1451) for 24 families. - Service use was tracked over 6 months and during intervention (RUQ). PC families had fewer paediatrician and social work visits, while TAU families used more services at T2. - Overall, TAU families used more services than PC families.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					- From a societal perspective, the mean cost per family at baseline was \$8,617 (SD \$12,979) for PC and \$9,938 (SD \$11,565) for ECT, with productivity losses as a major cost driver. - At the immediate post-follow-up, total societal costs were \$15,308 (SD \$12,943) for PC and \$6,993 (SD \$11,407) for ECT; excluding coaching costs, PC costs were \$10,233 (SD \$12,055). Across both periods (baseline and follow-up), excluding intervention costs, PC families incurred \$2,560 CAD less in public costs than ECT families, though they reported greater productivity losses.	
Waddington et al., 2024a (24) Evaluation of Low-intensity Therapist-Delivered	Case series	4 children with ASD, aged 3.1 to 3.11 years (mean: 3 years).	Autism	Low-intensity direct ESDM, in addition to parent implemented intervention, compared to parent-implemented alone; public clinic/centre and home-	Child developmental outcomes: communication. Child quality of life outcome: participation.	IV

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Intervention in Addition to Parent Coaching for Young Children with Autism Spectrum Disorder New Zealand				based. Transdisciplinary, non-discipline specific. Intensity and length: 24 weeks total, 12 week parent coaching program, followed by 12 week therapist-child intervention. Target of intervention: child and parents/caregivers. Facilitator(s): ESDM trained psychologist and psychology Masters students, and parents/caregivers. Mode: In person, individual. Dose: 1 hour, per session, 1 session per week (parent training), and 2 sessions per week (child program).	Longest follow-up: 4 weeks post intervention. - Gains in child imitation, and functional utterances (communication). - Three children showed somewhat greater gains in imitation of the therapist with the addition of direct therapy and both interventions were minimally effective for functional utterances. - Increased child participation during both the coaching and therapist phases. Implementation outcomes: fidelity. - Fidelity varied between parents and across stages, however was mostly 80% or above. - Therapist fidelity was generally higher than parent fidelity.	
Waddington et al., 2024b (23)	RCT	45 participants (21 intervention; 24 control) aged 1 to 4.5 years	Autism	Low intensity ESDM, public clinic or centre based and home-based.	Child developmental outcomes: communication, cognitive and child engagement.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Low-intensity parent- and clinician-delivered support for young autistic children in Aotearoa New Zealand: a randomised controlled trial New Zealand		(mean: 41 months)		Transdisciplinary – non-discipline specific. Intensity and length: weekly clinic-based session, and 18 home based coaching across 24 weeks. Target of intervention: child and parent/caregivers. Facilitator(s): ESDM clinicians and parents. Mode: in person, individual. Dose: 2 hours/week clinic based, clinician implemented + 18 weekly home-based coaching sessions (over 24 weeks)	Quality of life outcomes: family QoL, child adaptive functioning and child social interaction. Parent/carer outcomes: parenting stress and sense of competence. Longest follow-up: immediate post. • Significant, large effect on child engagement (10-min parent-child interaction recording). • Significant difference in communication (increased number of utterances and number of different words; parent-child interaction videos ELSA-T). • No effect on early learning composite scores (MSEL), adaptive functioning (VABS-II), and family quality of life (FQOL). • Reduction in parenting stress and increase in sense of competence for intervention group, but difference between	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					groups was not significant (APSI and PSOC respectively).	
Gaines et al., 2022 (21) Quickstart for toddlers with autism spectrum disorder: A preliminary report of an adapted community-based early intervention program Canada	Non-randomised experimental study	89 participants aged 12 to 39 months (mean: 27.1 months).	Autism, and at-risk for Autism and developmental delay (language)	Quickstart (based on P-ESDM), public centre and clinic, and home-based. Multidisciplinary speech pathologists, occupational therapists, and ESDM certified behavioural assistants and early childhood educators Intensity and length: 20 weeks (7 sessions of individual SLP and/or OT; 1 home visit with a parent coach; 12 weeks P-ESDM). Target of intervention: child and parents/caregivers. Facilitator(s): clinician and parent. Mode: In person, individual. Dose: Weekly, 1 to 1.5 hours per session, plus daily practice in P-ESDM (15 to 25 hours per week).	Child developmental outcome: communication. Child educational outcomes: preacademics. Quality of life: adaptive functioning. Parent/carer outcomes: parenting confidence. Longest follow-up: Immediate post intervention. - Significant positive change to communication domain on ABAS-II Positive changes in response to name, response to 'no', imitation, labelling on MB-CDI, gestures, words and phrases produced and understood. - Significant positive change to preacademics domain on ABAS-II.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					- Children showed significant improvements in communication, early learning, self-care skills, and adaptive functioning. - No changes to parenting competence. Parents reported less than moderate self-confidence in their parenting at both times (PSOC). Implementation process outcome: acceptability. - Parents felt “to a great extent” that they received the information, support, and care they needed while enrolled.	
Gaines et al., 2021 (54) Act Early Autism Project: The Feasibility of an Early Pathway to Care for Toddlers at	Non-randomised experimental study	Families of toddlers aged 16 to 27 months (mean: 20.3 months), 17 families	Suspected autism.	P-ESDM, home-based. Multidisciplinary: speech pathologists, occupational therapists, and ESDM certified early childhood educators. Intensity and length: weekly, 12 weeks. Target of intervention: child and parent/caregiver.	Child developmental outcomes: communication and motor. Quality of life: adaptive functioning. Parent/carer outcomes: parenting stress. Longest follow-up: immediate post.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Risk of Autism Spectrum Disorder Canada				Facilitator(s): clinician certified in ESDM. Mode: in person, individual. Dose: 1 hour.	- Positive change on MBCDI on words and phrases understood, words used and gestures used (wide range of scores). - Significant decrease in motor skills on VABS. - No other changes on other VABS domains. - No changes on MSEL (low baselines noted). - Qualitative reports of beginning word use. - No change on the parent PSI. Implementation process outcomes: acceptability. - Parents rated the program using the MPOC-20 survey; six out of 14 items scored low (2 or below on a 7-point scale), suggesting some areas could be improved.	
Kauley et al., 2024 (20)	Cohort study	64 participants aged 2 to 6 years (mean:	Autism and developm	ESDM at an Autism Specific Early learning and Care Centre (ASELCC).	Child developmental outcomes: communication and cognitive.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Predicting Communication Skills Outcomes for Preschool Children with Autism Spectrum Disorder Following Early Intervention Australia		4.1 years); two groups: 38 children classified as verbal, and 26 as minimally verbal.	ental delay	Transdisciplinary – non discipline specific. Intensity and length: 15.1 moths (mean; range 4 to 29 months). Target of intervention: child. Facilitator(s): ESDM trained early educators. Mode: 'intensive', in person, one-on-one and group. Dose: Unclear.	Quality of life outcome: adaptive behaviour and social skills. - Significant within group (entry and exit) and between group (verbal/minimally verbal) differences on ESDM receptive communication, expressive communication and social skills scales (ESDM Curriculum Checklist for Young Children with Autism). - Significant within group and between group differences in visual reception, receptive language, and expressive language scores (MSEL). - Higher magnitude improvement for the verbal group. - Age at enrolment was a key predictor where younger children showed higher magnitude of improvement in receptive communication and expressive communication following the intervention (ESDM).	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					No effect on adaptive behaviours (VABS-II).	
Mirenda et al., 2022 (22) A Randomized, Community-Based Feasibility Trial of Modified ESDM for Toddlers with Suspected Autism Canada	RCT	49 participants (24 in PC group; 25 in ECT group).	Developmental delay and suspected autism	Parent and Child Early (PACE) Coaching - several components, including a modified community-based version of P-ESDM, with Parent coaching (PC) and Enhanced Community Treatment (ECT) groups, community and home-based. Multidisciplinary: psychology, occupational therapy, speech pathology and ESDM trained coaches. Intensity and length: 24 sessions over 30 weeks. Target of intervention: child and parent/caregivers. Facilitator(s): clinicians and parent/caregivers. Mode: in person, individual. Dose: 1 hour per session.	Child developmental outcomes: communication, cognitive, fine motor, and receptive language (MPR). Parent/carer outcomes: carer quality of life, attitude, knowledge, skills and ability to access resources, and family level of distress. Longest follow-up: - PC group showed significantly greater gains in words understood (CDI). - No group difference for words produced (both groups improved; CDI), joint engagement (JERI; both groups increased though larger increase for PC group), family level of distress (BRIEF). - Significant effect for carer quality of life (CarerQoL).	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					- Significant difference in parent attitude, knowledge, skills and ability to access resources in favour of the PC group. Implementation process outcomes: acceptability. - Parent satisfaction was significantly higher in the PC group.	
Paediatric Autism Communication Trial - PACT						
Carruthers et al., 2025 (26) Generalisation of Social Communication Skills by Autistic Children During Play-Based Assessments Across Home, School and an Unfamiliar Research Setting	RCT	248 autistic children aged 2 to 11 years (mean 4.1 years; N=121 treatment, N=127 treatment as usual control), school, preschool, clinic	Autism Developmental delay	Paediatric Autism Communication Trial-Generalised (PACT-G). Intensity and length: 12 parent sessions (median of 10 sessions), 12 LSA sessions, and 6 joint sessions, over 6 months. Target of intervention: individual parents, carers and teachers. Facilitator(s): Trained clinicians (including SP, OT, psychologists).	Child developmental outcome: communication. Longest follow-up: immediate post. BOSCC scores showed consistent reductions across home, school, and researcher (clinic) modules, indicating fewer autistic characteristics over time, with statistically significant improvements confirmed by strong model fit and path coefficients.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
UK		and home based.		Mode: Both telehealth and in person. Dose (time per session): Unclear	- Children's midpoint social communication generalised to school and to clinic at endpoint. - Generalisation was stronger from home to school then school to home and clinic.	
Tinelli 2023 (27) Economic analysis of early intervention for autistic children: findings from four case studies in England, Ireland, Italy, and Spain 4 country analysis - UK, Ireland, Italy, Spain	Economic Evaluation	143 participants (74 intervention; 69 TAU), aged 2 to 4.11 years.	Autism	Preschool Autism Communication Trial (PACT). Transdisciplinary – non-discipline specific. Intensity and length: 1 session per fortnight for 12 sessions total, across 6 months. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinician. Mode: in person. Dose: unclear.	Cost effectiveness outcomes: - PACT was not cost-effective at 13 months post-delivery, with higher service costs for PACT + TAU compared to TAU alone. - From a healthcare perspective, costs were €7,651 for PACT + TAU vs. €1,723 for TAU (difference €5,928), and €4,510 when considering broader services. - Societal cost difference was smaller (€3,619; €95,689 vs. €99,308) as PACT did result in reduced informal care. - At 6 years, PACT + TAU remained more expensive (service cost difference €6,198; total cost difference €4,604), but long-term benefits and	III-3

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					reduced downstream costs suggest it becomes cost-saving over time.	
ABA/EBI						
McKinnon et al., 2024 (32) A programmatic description of an early, intensive behavioral intervention program in Australia Australia	Cohort (pre-post)	154 participants, aged 16 to 61 months at intake (mean: 41 months), home-based and private clinic/centre, mainstream educational environment (e.g. daycare, kindergarten)	Autism	EIBI, multidisciplinary. Intensity: 27 hours a week (21 individual and 6 hours group), across 7 to 21 months. Target of intervention: Child. Facilitator(s): Clinicians (including speech pathologists, psychologists and behaviourists). Mode: In person, individual and group sessions. Dose: Ranged from 15 minutes to 1hr and 15 min (individual sessions) or 2hrs and 40 mins (group sessions).	Child developmental outcomes: communication, motor and cognitive. Quality of life outcomes: adaptive functioning and social interaction. Longest follow-up: immediate post from 12 months. - Significant positive change on MSEL (rate of early learning, verbal and non-verbal) and VABS (communication, daily living, socialisation, ABC). - Older children made modestly greater gains (chronological age), however developmental age at intake did not predict response to intervention.	III-3
D'Entremont et al., 2022 (28)	Cohort study	478 parent participants,	Autism	Early Intensive Behavioural Intervention (New Brunswick) vs	Parent/carer outcomes: Parent self-efficacy.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Comparing the Impact of Differing Preschool Autism Interventions on Parents in Two Canadian Provinces Canada		312 parents from New Brunswick (NB) and 166 from Nova Scotia (NS), with children aged mean 3.5 years (NB) and 4.5 years (NS).		Pivotal Response Treatment (Nova Scotia). Discipline unclear, potentially could be implemented by many allied health professions including psychologists, speech pathologists and occupational therapists. Preschool setting and home-based. Intensity and length: NB group received 20 hours EIBI per week from diagnosis until school entry (5 to 6 years of age). NS group received PRT and positive behavioural support, over 1 year from time of diagnosis. Target of intervention: child and parent/caregivers. Facilitator(s): NB group: clinician; NS group parent: trained in implementation. Mode: in person individual (NB and NS). Dose: NB group: 20 hours EIBI per week. NS Group: 15 hours PRT per	Longest follow up: school entry. - Parent distress levels were generally low at baseline and decreased over time across both groups. - No significant group differences in self-efficacy domains. Implementation process outcome: acceptability. - Parents in the NS group reported significantly higher satisfaction across: location of services, team coordination, parent learning of helpful strategies, team supported involvement, intervention team provided high quality treatment.	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				week (first 6 months), 10 hours/w (next 3 months), 6 hours/w (final 3 months).		
Hodgson et al., 2022 (34) Intensive behavioural interventions based on applied behaviour analysis (ABA) for young children with autism: A cost-effectiveness analysis UK	Economic evaluation	Time horizon in analysis of 15.5 years (age 3 years to 18.5 years). Mean age: 36 months. Sample size not reported.	Autism	Economic evaluation only of ABA (EIBI) compared to TAU. Any type of intensive ABA-based intervention. Transdisciplinary, non-discipline specific. Target of intervention: child.	Implementation process outcomes: cost effectiveness and QALYs. Early intensive ABA-based intervention may yield slightly higher QALYs than TAU but at substantial additional cost; unlikely to meet UK implementation criteria under any scenario.	NA
Kang et al., 2024 (33) Initial evaluation of an environment-based intervention for participation of autistic children: a randomized controlled trial Taiwan	RCT	24 participants (12 intervention; 12 TAU) aged 6 to 10 years (mean: 7.7 years).	Autism	PREP, environment-based intervention targets individualised participation goals in leisure and community activities through changing environment and activity demands; community and home-based setting with occupational therapist and physiotherapists. Transdisciplinary – not discipline specific.	Child quality of life outcome: everyday activity goals in self-care, productivity and leisure (participation and attainment). Parent/carer outcomes: perceived empowerment and parenting efficacy. Longest follow-up: 24 weeks (12 weeks post).	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				Intensity and length: 6 biweekly (mean 5.4 sessions) therapist coaching sessions over 12 weeks. Target of intervention: child and parent/caregiver. Facilitator(s): clinicians. Mode: in person, individual. Dose: 2.1 hours (mean).	- Non-significant increase favouring intervention in performance and satisfaction with participation and attainment goals (COPM; GAS). - No significant differences for parent outcomes (PEEM).	
Peer mediated						
Thompson-Hodgetts et al., 2023 (57) Influence of a Brief Autism Education Intervention on Peer Engagement and Inclusion at Mainstream Day Camps: A Mixed-Methods Pilot Study Canada	Non-randomised experimental study, including qualitative analysis.	15 participants (10 intervention; 5 control) aged 4 to 12 years (median: 9 years).	Autism	Brief, peer-directed autism education intervention, mainstream day camps. Transdisciplinary, non-discipline specific. Intensity and length: 1 session during a 5-day summer camp. Target of intervention: Peers. Facilitator(s): Researchers and camp staff. Mode: In person, group. Dose: 1 session, 5-10 minutes.	Child quality of life outcomes: peer engagement and inclusion. Longest follow-up: immediate post. Joint engagement increased significantly in the intervention group (from 30% to 87%) and decreased in the control group (from 50% to 30%), with strong statistical support for change in the intervention group only.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Kent et al., 2021 (50) Can I Learn to Play? Randomized Control Trial to Assess Effectiveness of a Peer-Mediated Intervention to Improve Play in Children with Autism Spectrum Disorder Australia	RCT	71 participants aged 7 to 11 years (mean: 8.68 intervention; 8.44 control).	Autism.	Play, Language and Friendship (PLF), home-based and university setting. Single discipline: speech pathology or occupational therapy. Intensity and length: 10 weeks Target and intervention: child. Facilitator(s): clinician, parent, peer. Mode: Dose: 60 mins	Child quality of life outcomes: play, social behaviour, social competence, antisocial behaviour, and parent-child relationship (subdomains: attachment, communication, discipline practices, involvement, parenting confidence, satisfaction with school and relational frustration). Longest follow-up: 3 months post. • Significant positive effect on play (Test of Playfulness - ToP). • Significant difference on parent rated social emotional strengths and risky social behaviours (Piers-Harris 2). • Significant difference on teacher reported child social competence, however not for antisocial behaviour (HCSBS; SSBS). • No significant change was identified for the child's self-concept or parents' perspective	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					on the parent–child relationship (PRQ).	
Other parent mediated and parent support programs						
Argumedes et al., 2021 (56) Using the Prevent-Teach-Reinforce model to reduce challenging behaviors in children with autism spectrum disorder in home settings: A feasibility study Canada	RCT	23 participants (12 intervention; 11 TAU group), aged 2 to 10 years (mean: 4.3 years).	Autism, with at least one challenging behaviour .	Prevent-teach-reinforce (behaviour strategy), home-based. Single discipline: Psychoeducation. Intensity and length: 1-2 sessions per week, 8 weeks (6 - 8 sessions, mean total intervention 8.5 hours, range 6 - 11.5 hours). TAU was one 3-hour home based education session with parents. Target of intervention: child and parent/caregivers. Facilitator(s): parent. Mode: in person, individual. Dose: 2 hours per session.	Quality of life: Behaviours of concern. Longest follow-up: 5 months post intervention. - Frequency and severity of behaviours improved for both groups, maintained or improved at follow-up. - However no significant difference between groups for challenging or desirable behaviours. Implementation process outcomes: fidelity and acceptability. - Fidelity was high (≥ 70) for majority of participants (64%). The scores ranged from 50%	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					to 100%, showing some variation in how consistently the intervention was implemented across the group. Scores indicated high overall acceptability.	
Grahame et al., 2025 (53) Understanding Repetitive Behaviours: A clinical and cost-effectiveness, multi-site randomised controlled trial of a group for parents and carers of young autistic children UK	RCT, with economic analysis.	220 parents, and 227 children aged 3 years to 9.11 years (mean: intervention 6.16 years; control 6.23 years).	Autism	Understanding Repetitive Behaviours (URB) parent mediated program with focus on RRBs, and control group TAU 'Learning about Autism' (LAA). Transdisciplinary, non-discipline specific. Intensity and length: 8 weekly parent training sessions. Target of intervention: child and parent/caregivers. Facilitator(s): Clinician, two trained multi-agency professionals with knowledge and experience of working with young autistic children and families; and parents. Mode: in person, group.	Child developmental outcomes: sensory and RRBs. Child quality of life outcomes: adaptive functioning. Parent/carer outcomes: self-efficacy stress, family functioning and wellbeing. Longest follow-up: 52 weeks. - No difference between groups on global clinical judgment of RRBs (CGI-I). - Repetitive behaviours with negative impact significantly improved on clinical ratings (RBQ-2, motor sensory behaviour score). - Children in the URB group were more likely to be	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				Dose: 2 hours per session (total of 8 hours).	responders in target impactful RRBs at 24 weeks, not maintained at 52 weeks. • Improvements in adaptive functioning (VABS-3) in both groups. • Motor sensory behaviour scores improved in the control arm. • No difference between groups in parent outcomes (APSI, WEMWBS, AFEQ, PSE), parents in both groups benefitted, largely maintained at 52 weeks. Implementation process outcomes: engagement and fidelity. • Excellent fidelity in both groups. • Engagement measured as attendance and ranged from 0 to 8 sessions. Economic outcomes: cost effectiveness analysis.	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					• URB programme is unlikely to be cost-effective compared with the LAA. There is an incremental cost per additional child achieving the target difference of over £35,000 for URB compared with LAA. Meaning that URB is less cost effective than LAA in achieving the same result for children.	
Miller et al., 2023 (58) Impact of "early intervention" parent workshops on outcomes for caregivers of children with neurodisabilities: a mixed-methods study Australia and Canada	Mixed methods, cohort study.	65 families, with children aged 1 to 6 years.	Neurodevelopmental disability	ENVISAGE (ENabling Visions And Growing Expectations)-Families, a parent-researcher co-designed and co-led program for parents/caregivers raising children with early-onset neurodisabilities. Home-based. Transdisciplinary, non-discipline specific. Intensity and length: 5 sessions, weekly synchronous plus resources, learning package. Target of intervention: Parent/caregiver.	Parent/carer outcomes: wellbeing, parenting confidence, empowerment, family functioning, physical health. Longest follow-up: 3 months post intervention. • Significant increase in parent empowerment (Family Empowerment Scale), parenting confidence (Parenting Confidence Scale) and family functioning (Family Hardiness Scale).	III-3

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				Facilitator(s): researchers, clinicians and parents. Mode: telehealth, group. Dose: Unclear	- Evidence of improved physical health however not significant (PROMIS). - No change in parent wellbeing (PROMIS). Implementation outcomes: feasibility and acceptability. - No effect on parents perceptions of the family-centeredness of service experience (MPOC).	
Lee et al., 2025 (63) AutInsight: A Pilot Randomised Controlled Trial (RCT) of a Consumer-Informed Parent Support Program for Parents of Autistic Children Australia	RCT	41 participants, parents of autistic children aged 1 to 10 years (intervention: 20; TAU: 21).	Autism	AutInsight - online group program designed to improve parental acceptance, understanding and sensitivity, home-based. Transdisciplinary – non-discipline specific. Intensity and length: 1 session weekly for 5 weeks. 2 hours per session. Target of intervention: parent/caregivers. Facilitator(s): clinician.	Child quality of life outcomes: child behaviours. Parent/caregiver outcomes: parental sensitivity, acceptance and understanding, psychological flexibility, mindful parenting, parent mental health, quality of life and overall family experience. Longest follow-up: 3 months post intervention. Child: Significant improvements in parent	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				Mode: telehealth, individual and group. Dose: 2 hours per session.	reported child conduct problems and prosocial behaviour (SDQ), adaptive functioning (AFEQ), child involvement and responsiveness towards caregiver (EA; EA-SR). • Child: No significant effects for emotional problems and hyperactivity (SDQ), and child behavioural flexibility (BFRS-R). • Significant improvement in overall family experience (AFEQ). • Parent: No significant difference in effect between groups on mindful parenting (BMPS), parental quality of life (QoLA), parental sensitivity (EA) and emotional availability (EA-SR), parental acceptance and understanding (PAUACS), psychological flexibility (CompACT), parental mental health (DASS-21), parental	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					mental health and wellbeing (AFEQ). Implementation process outcomes: fidelity, feasibility and acceptability via recruitment, retention, adherence rates and qualitative parental feedback. • Parents highly likely to recommend the program to another parent and rated the program highly neuro-diverse affirming. • Parents provided a range of logistic suggestions to improve the program such as organising groups by child's age and receiving prompts in between sessions to reflect on weekly material. • Adherence: 85% of parents attended all 5 sessions or a catch-up session for any missed, 10% attended 3 or less, and 5% did not attend any sessions. • High dropout/attrition: 31%.	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					Fidelity: Overall, 100% of content was covered, with 100% agreement between the facilitator and a researcher not involved in program delivery.	
May et al., 2022 (67) Fathers Raising Children on the Autism Spectrum: Lower Stress and Higher Self-Efficacy Following SMS (Text2dads) Intervention Australia	Cross sectional study	184 male parents of autistic children aged two to 16 years (mean: 6 years).	Autism	Text2dads home-based intervention. Transdisciplinary – non-discipline specific. Intensity and length: messages for 12 to 16 weeks. Target of intervention: parent/caregiver. Facilitator(s): clinician. Mode: telehealth, individual. Dose: 56 messages plus welcome and exit survey link; plus 17 surveys.	Parent/carer outcomes: parenting stress and parenting self-efficacy. Longest follow-up: immediate post. Significant reductions in parenting stress and improvements in parenting self-efficacy.	IV
McConkey et al., 2020 (68) Promoting the Social Inclusion of Children with ASD: A Family-Centred Intervention	Evaluation of ongoing service	92 families and 96 children aged 3.4 to 11.8 years (mean: 7.7 years).	Autism.	Community and home-based intervention including introducing children to community activities aligned with goals, quarterly family fun days, parent networking meetings, and	Child developmental outcomes: communication. Child quality of life outcomes: social and mental health outcomes.	IV

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
UK				sibling groups. Transdisciplinary – non discipline specific. Intensity and length: fortnightly home visiting to work directly with the family for 12 months. Target of intervention: child and parent/caregiver. Facilitator(s): clinicians in psychology and social works. Mode: in person, individual. Dose: Not stated.	Child physical health indicators: sleep and eating. Child quality of life outcomes: safety and personal care. Parent/caregiver outcomes: parenting issues and family outcomes. Longest follow-up: immediate post. • Most children improved on common difficulties (communication, social interaction, coping with change, safety, anxiety), mental health outcomes (anxious, agitated, nervous), eating, problems with bedtime, and sleeping, awareness of dangers, road safety (all descriptively measured via staff ratings). • Approximately 20% of children showed improvements relating to peers, awareness of danger, managing change.	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					- Parents showed improved confidence and reduced stress in the family. - Improvements in knowing the supports and services available, having time to spend with other children, gained communication with schools child going out of the house, meeting other parents, and finding activities for the whole family to join.	
Palmer et al., 2020 (49) Feasibility study of the National Autistic Society EarlyBird parent support programme UK	Non-randomised experimental study	17 parents of children ages 2 to 5 years (mean: 4.34 years).	Autism	EarlyBird group-based psychoeducation intervention for parents of young children with autism, public clinic or centre and home-based. Transdisciplinary – non-discipline specific. Intensity and length: 8 weekly group sessions with three interposed home visits. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinicians (psychologists, speech pathologists,	Child developmental outcomes: communication, motor and social skills. Child quality of life outcomes: adaptive behaviour, and mental health. Parent/carer outcomes: parent sense of competence, mental health and wellbeing, parental stress, autism knowledge. Longest follow-up: immediate post.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				childcare workers and mental health workers). Mode: in person, group and individual. Dose: unclear.	• Small significant positive change for adaptive behaviour and communication (VABS). • No effect on socialisation and motor skills (VABS), conduct problems and hyperactivity (SDQ) • Significant negative effect on emotional problems (SDQ). • Significant improvement in peer problems (SDQ). • No change for parental stress (PSI-SF), parent sense of competence (PCOS), mental health and wellbeing (WEMWBS), and autism knowledge (APQ). • Positive effects on parent autism knowledge and skills, and wellbeing qualitatively described in parent interviews. Implementation process outcomes: acceptability. • Parents attended an average of 6.6 out of the 8 sessions indicating that the intervention	

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					and number of sessions were acceptable to families.	
Scripps et al., 2025 (48) Psychological Distress Trajectories of Parents of Children With Developmental Disabilities Participating in a Parenting Intervention Australia	Cohort study	365 parents of children aged 2 to 10 years (mean: 6.07 years).	Autism and developmental delay including intellectual disability	Stepping Stones Triple P (SSTP), community setting based. Transdisciplinary – non discipline specific. Intensity and length: varies depending on level. STP consists of five levels that increase in intensity (this study evaluated three levels). Level 2 = 3 seminars providing advice concerning minor child behaviour problems. Level 3 = 4 individual 15- to 30-min, narrow-focus training sessions. Level 4 = 6 group sessions and 3 phone sessions; broader focus with delivery possible in a variety of formats. Target of intervention: parent/caregiver. Facilitator(s): clinician (psychologist). Mode: in person, group and individual. Dose: 15-30 mins (individual) to 2.5 hours (group sessions, level 4).	Child mental health outcome: behavioural and emotional problems. Parent/carer outcomes: depression, anxiety and stress. Longest follow-up: 12 months post intervention. Significant improvement in child behavioural and emotional problems (DBC2-P), and parent depression, anxiety and stress (DASS-21).	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Segal et al., 2023 (60) 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 Australia	Economic evaluation (of an RCT)	99 participants (45 intervention, 44 TAU), data analysed at 3 years old (intervention at age 12 months).	Autism and developmental delay	iBASIS-VIPP (Promote Positive Parenting), home-based. Transdisciplinary – non-discipline specific. Intensity and length: 10 sessions over 5 to 6 months. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinician (speech pathology and psychology). Mode: in person, individual. Dose: unclear, parents asked to undertake daily home practice.	Cost effectiveness outcomes: program delivery cost, downstream costs, cost effectiveness, return on investment. Longest follow-up: 24 months post intervention. - Program delivery costs: Total cost of iBASIS-VIPP delivery (including TAU services) was estimated at A\$5477 (US \$3850) per child. For the TAU group, the estimated cost was A\$346 (US \$243) per child. - Downstream costs: Discounted downstream support costs were A\$20,707 for iBASIS-VIPP vs A\$36,533 for TAU, a mean saving of A\$15,826 per child. - Cost effectiveness: Cost per avoided ASD diagnosis at age 3 was A\$37,181; projected to age 12, net savings estimated at A\$10,695 per child. - Return on investment: iBASIS-VIPP breaks even by age 5.3;	II

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					by age 13, savings estimated at A\$3.08 per A\$1 invested (NPV savings A\$10,695 per child).	
Shire et al., 2022 (31) Exploring coaching and follow-up supports in community-implemented caregiver-mediated JASPER intervention Canada	RCT	56 participants (30 in coach group; 26 in observe+coach group) plus mean age: 2.75 years)	Autism and suspected autism	Caregiver mediated model of JASPER (Joint Attention, Symbolic Play, Engagement and Regulation intervention). Transdisciplinary – non-discipline specific. Intensity and length: 24 sessions over 12 weeks, (coach = 24 coaching sessions; Observe then coach = 8 observe + 16 coach). Target of intervention: child and parent/caregiver. Facilitator(s): parent and clinician (psychology, social work, special education and general education). Mode: in person, individual and group. Dose: 60 mins per sessions, 2 per week.	Child developmental outcomes: communication, play and children's engagement. Parent/carer outcome: implementation of intervention (use of JASPER strategies). Longest follow-up: immediate post. - Significant growth in child communication (ESCS: IJA and IBR) and play diversity (SPA). - Both groups improved in child initiated and adult directed joint engagement; no difference between groups. - Both groups improved use of JASPER strategies.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Shire et al., 2021 (30) A Technology-Enabled Adaptation of Face-to-Face Caregiver-Mediated JASPER Intervention: Preliminary Examination of Video Conferenced Caregiver Coaching Canada	Case series, proof of concept study.	6 participants, aged 36 to 94 months (mean: 53.5 months).	Autism	Caregiver mediated model of JASPER (Joint Attention, Symbolic Play, Engagement and Regulation intervention), community and home-based. Transdisciplinary – non-discipline specific. Intensity and length: 2 sessions per week for 12 weeks. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinicians (psychologists and health science graduate interventionists). Mode: in person and telehealth, individual. Dose: 30+ mins coaching per session	Child developmental outcome: joint attention. Child quality of life outcome: social interaction. Parent/carer outcomes: implementation of intervention (strategy use). Longest follow-up: 3 months post intervention. - All children improved in joint attention. - Joint engagement generally increased across sessions for all dyads, with large effect sizes, though progress fluctuated with dysregulation. - All caregivers increased in strategy use. Implementation process outcomes: acceptability; assessed qualitatively. - Social validity (acceptability) - Families viewed remote support as equally effective as	IV

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					face-to-face, with advantages of home-based flexibility and reduced travel. Challenges included tech setup, time, and managing children, mitigated by clinician rapport, skills, and paced sessions.	
Whitehouse et al., 2021 (52) Effect of Pre-emptive Intervention on Developmental Outcomes Among Infants Showing Early Signs of Autism A Randomized Clinical Trial of Outcomes to Diagnosis Australia	RCT	104 participants (51 intervention; 53 TAU), aged 9 to 14 months (mean: 12.40 months in the iBASIS-VIPP group and 12.38 in TAU)	Suspected autism	iBASIS-VIPP (iBASIS–Video Interaction to Promote Positive Parenting), home-based. Transdisciplinary – non-discipline specific. Intensity and length: 10 sessions over 5 months. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinician (psychology) Mode: in person, individual. Dose: Unclear session duration; daily home practice requested.	Child developmental outcomes: cognitive, motor and communication. Child quality of life outcomes: autism severity. Parent/carer outcomes: efficacy, interest, satisfaction and parent-child interaction. Longest follow-up: 24 months post baseline. Significant improvement for communication outcomes (expressive and receptive vocabulary and gestures; ABC; MB-CDI).	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					- Reduced autism severity maintained at 24 months (DSM-5 criteria and ABC). - No effect on cognitive or motor outcomes (MSEL). - No effect on parent efficacy, interest or satisfaction (PSOC) or parent-child interaction (MACI).	
Williams et al., 2020 (64) The Incredible Years Autism Spectrum and Language Delays Parent Program: A Pragmatic, Feasibility Randomized Controlled Trial UK	RCT	58 participants (28 intervention; 28 TAU waitlist), aged 3 to 8 years (mean: 68.03 months intervention; 67.93 months control).	Autism and suspected autism	Incredible Years Autism Spectrum and Language Delays Parent Program (IY-ASLD), public clinic or centre based and home-based. Transdisciplinary – non-discipline specific. Intensity and length: one session per week, plus weekly phone calls, for 12 weeks. Target of intervention: parent/caregivers. Facilitator(s): clinician. Mode: in person, group and individual. Dose: 2 hours per session.	Child developmental outcomes: social-emotional skills, school readiness and self-regulatory skills (parent end-course survey). Longest follow-up: approximately 2 months post intervention. Implementation process outcomes: feasibility measured as fidelity, satisfaction, retention and acceptability. - Fidelity: an average of 88% of program content was delivered (range: 85-93%. - Acceptability and retention: All questionnaires showed good internal consistency	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					(Cronbach's $\alpha > 0.70$) with minimal missing data (<1%). Some missing data occurred for parental depression and parent–child observation tasks due to sensitivity and engagement challenges. Satisfaction and child outcomes: High parental satisfaction in post -course questionnaire and improvements in child social-emotional skills, school readiness and self-regulatory skills described by parents.	
Sensory/motor specific (OT/Physio)						
Lee et al., 2024 (45) The Effect of Group-Based Early Parent Education on	Retrospective cohort study	246 pre-term infants with CA 0-3 months (mean: NR; N=101 intervention,	Potential developmental delay	Group based parent intervention programs, delivered when child 0-6 months CA. Multidisciplinary: physiotherapists and occupational therapists.	Child developmental outcome: communication, motor, cognitive. Longest follow-up: 18 months post intervention when the cohort was CA 24 months.	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Development in Preterm Infants Republic of Korea		N=145 control group), hospital.		Intensity and length: 8 sessions delivered over 6 months (4 at 0-3 months CA, 4 at 3-6 months CA). Target of intervention: child and parent/caregiver. Facilitator(s): clinician and parent. Mode: in person, group. Dose: 30 mins.	- While both groups showed improved outcomes overall, gains were greater for pre-term infants born before 28 weeks. - Lower developmental scores observed at 3 months for the education group, which reversed by 24 months. However, there were no significant differences in motor, cognitive and communication scores (AIMS, BSID-II, and SELSI RLI and ELI) at 12 or 24 months.	
Lima et al., 2022 (44) Early Intervention Involving Specific Task-Environment-Participation (STEP) Protocol for Infants at Risk: A Feasibility Study Brazil	Randomised controlled trial	28 participants, aged 3-9 months (mean corrected age: 6.03 for intervention; 6.34 for control)	Potential developmental delay, prematurity	STEP protocol; single discipline: physiotherapy. Both groups received physio intervention, STEP protocol was related to individualisation of goals, home environment, infant qualities Intensity and length: 2.5 hours therapy/week for 10 weeks. Target of intervention: child and parents/caregivers.	Child developmental outcome: motor. Quality of life: participation. Parent/carer outcomes: home environment. Longest follow-up: immediate post. Significant improvement as measured by the Alberta Infant Movement Scale (AIMS).	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				Facilitator(s): Parents. Mode: Telehealth, individual. Dose: 30 minutes a day, 5 times a week.	- Significantly higher participation (YC-PEM). - No difference for home environment (AHMED). Implementation process outcomes: acceptability and feasibility. - Most families classified the protocol as “Easy” to carry out, and all would recommend this type of treatment model. - High completion rate (90%).	
Mills et al., 2021 (43) Impact of a sensory activity schedule intervention on cognitive strategy use in autistic students: A school-based pilot study Australia	Non-randomised experimental study	30 participants (13 intervention; 17 TAU) aged 4 to 12 years (mean: 7.4 years)	Autism.		Child educational outcome: classroom cognitive strategy use. Longest follow-up: immediate post. - Improved overall cognitive strategy use (Perceive, Recall, Plan, Perform Stage Two Cognitive Task Analysis). - Improved attention and sensory perception (PRPP Stage Two Cognitive Task Analysis).	III-2

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Davidson & Stagnitti, 2021 (51) The process of Learn to Play Therapy with parent–child dyads with children who have autism spectrum disorder Australia	Case series	6 participants aged 2.5 to 5.9 years (mean:3.8 years).	Autism	Learn to Play Therapy, University setting. Single discipline: Occupational Therapy. Intensity and length: weekly sessions for 24 weeks. Target of intervention: child. Facilitator(s): clinician. Mode: in person, individual. Dose: 1 hour/session.	Child developmental outcome: pretend play skills. Longest follow-up: 6 months. Children showed significant improvement in all six pretend play skills: pretend play ability for play scripts, sequences of play actions, object substitution, doll/teddy play, social interaction and enjoyment.	IV
Hirschmann et al., 2023 (55) Group versus individual occupational therapy for toddlers with autism as a means to improve access to public health-care services. Randomised controlled pilot study	RCT	20 of 60 originally analysed participants (10 individuals and 10 groups), children aged 2 to 4 years (mean: 2.2 years).	Autism	Occupational therapy group vs individual. DIR floor time principles. Single discipline: occupational therapy. Intensity and length: 3 months; 12 weekly sessions for the group intervention; individual intervention longer on average 16.4 weekly sessions (+/- 3.56 weeks). Target of intervention: child Facilitator(s): clinician. Mode: in person. Individual and group.	Child physical health indicators: fine motor. Child quality of life outcome: quality of life and adaptive behaviour. No difference between groups across all outcomes.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Israel				Dose: 45 minutes/session, weekly.		
Randell et al., 2022 (42) Sensory integration therapy for children with autism and sensory processing difficulties: the SenITA RCT UK	RCT	138 participants (69 SIT; 69 TAU) aged 4 to 11 years (mean: 7.87 years), analysis on 106.	Autism	SenITA (SENSory Integration Therapy), public and private clinic and centre based. Single discipline: occupational therapy. Intensity and length: 26 weeks; 2 x weekly for 10 weeks, 2 x per month for 2 months, 2 phone calls in 2 months. Target of intervention: child and parent/caregivers. Mode: in person and telehealth, and individual. Dose: 1 hour per session.	Child developmental outcomes: sensory, and severity of problem behaviours. Child quality of life outcomes: quality of life and adaptive functioning. Parent/carer outcomes: carer quality of life, goal performance and satisfaction., parenting stress. Longest follow-up: 12 months from baseline. - No effect on severity of problem behaviours: lethargy/social withdrawal, stereotypic behaviour, hyperactivity or inappropriate speech (ABC). - No effect on carer quality of life (EQ-5D-5L and CarerQoL), parenting stress (APSI). - Significant effect on carer-rated and child-rated goal	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
					performance and satisfaction (COPM). - No effect on adaptive behaviour (VABS-II). Implementation process outcomes: acceptability, cost-effectiveness and satisfaction. - Significant effect on carer-rated satisfaction (COPM). - No significant total mean societal cost difference between groups: £6784.2 and £6418.9 for the intervention and control groups, respectively. - Overall, SIT incurred significant extra costs and showed no added clinical benefit to TAU; low probability of cost-effectiveness vs usual care.	
Sleep						

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
Engel et al., 2025 (59) Sleeping Sound Autism Spectrum Disorder (ASD): Cost-Effectiveness of a Brief Behavioural Sleep Intervention in Primary School-Aged Autistic Children Australia	Economic evaluation, alongside an RCT.	245 participants (123 intervention; 122 TAU control), age 5 to 13 years (mean intervention: 8.45; control: 9.18).	Autism	Sleeping Sound intervention, home-based. Single discipline: psychology, paediatrics. Intensity and length: 2 sessions, 2 weeks apart, plus follow-up phone call, total intervention length of 6 weeks. Target of intervention: child and parent/caregiver. Facilitator(s): clinicians and parent/caregivers. Mode: in person, individual. Dose: 50 minutes.	Cost effectiveness outcomes: cost and child and parent/caregiver QALYs. Longest follow-up: 6 months post intervention. - Mean child QALYs were significantly higher for the intervention group. - There was no significant difference between groups for parent/caregiver QALYs. - Children allocated to the intervention accrued higher cost however also more QALY. 'The costs of the Sleeping Sound intervention (healthcare sector perspective: A\$1079; societal perspective: A\$1333 per participant) are similar to five occupational therapy, speech therapy or behavioural support sessions (A\$214.41 per hour) in Australia (Autism Spectrum Australia (Aspect), 2023).'	II

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					The intervention also reduced visits to health professionals, use of pharmaceuticals and out-of-pocket costs associated with healthcare services.	
Lewis et al., 2024 (61) A pilot randomised controlled trial of a telehealth-delivered brief 'Sleeping Sound Autism' intervention for autistic children Australia	RCT	61 participants aged 5.49 to 12.41 years (intervention; mean: 8.54), and 5.28 to 12.82 years (TAU; mean: 9.14)	Autism	Sleeping Sound Autism, home-based, disciplines of psychology and paediatricians. Intensity and length: 2 sessions, across 4 weeks plus one follow-up phone call. Target of intervention: child and parent/caregiver. Facilitator(s): clinician and parents. Mode: telehealth, individual. Dose: session 1 - 50 minutes; session 2 - <50 minutes; session 3 <30 minutes.	Child physical health indicators: sleep. Child quality of life outcome: quality of life, emotion and behaviour. Parent/carer outcomes: quality of life, and mental health. Longest follow-up: 6 months post intervention. - Participants in the intervention group reported significantly greater improvement in sleep at both 3 months and 6 months post intervention (total CSHQ). - No difference for child (CHU9D) or parent quality of life (AQoL4D), or child sleep hygiene (SHS).	II

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					• Significant effect on child emotion and behaviour (DBC2). • Significant effect on parent mental health (K10). Implementation process outcomes: feasibility and acceptability. • Most caregivers were positive about telehealth (86.8%) and the sleep program (86.9%), confident in delivery (83.6%), and believed it would improve sleep (75.4%). • 95.8% of parents would recommend the program. • Caregivers strongly supported intervention coherence (82%), perceived effectiveness (64%), and affective attitude (45%). • Half of parents reported burden with implementing strategies. • There were no issues accessing the intervention. • Caregivers found participation acceptable (83.4%), felt confident (87.5%), preferred	

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					telehealth (70.9%), and rated consultations useful (100%).	
Papadopoulos et al., 2022 (62) Sleeping Sound Autism Spectrum Disorder (ASD): a randomised controlled trial of a brief behavioural sleep intervention in primary school-aged autistic children Australia	RCT	245 children (123 intervention; 122 control) aged 5.09 to 13.01 (mean: 8.45).	Autism	Sleeping Sound Autism program, public clinic or centre based. Intervention intensity and length: 2 sessions (2 weeks apart) and a follow-up phone call across 4 weeks. Target of intervention: child and parent/caregivers. Facilitator(s): parent and clinicians (psychologist and paediatrician). Mode: in person and telehealth, individual. Dose: 50 minutes per sessions.	Child quality of life outcome: quality of life. Child mental health outcome: anxiety, behavioural disturbance, and emotional problems. Child physical health indicators: sleep problem areas, and daytime sleepiness. Parent/carer outcomes: parental stress, parent/carer QoL, mental health. Longest follow-up: 6 months post. - Significant improvement in anxiety, behavioural disturbance (DBC), emotional problems (SDQ). - Significant, lasting improvements in most child sleep problem areas, with moderate to large effects (CSHQ), and small effects for child quality of life (CHU9D).	II

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					- No effect on child daytime sleepiness (TDSQ) - Small significant effect on parental stress (PSI-4SF), non-significant when adjusted for multiple comparisons. - No effect on parent mental health (K10) and quality of life (AQoL4D). - Measured cognitive functioning and academic achievement (WRAT, spelling and math computation skills), child sleep hygiene, social communication, school attendance, and parent work attendance. However, did not provide results for these outcomes.	
Communication specific (speech path)						
Kossyvaki et al., 2022 (40) Telepractice parent-implemented training	Case series	4 mother-child dyads, children aged 5.5 to 7.3 (mean 75.5months; 6	Autism	Internet-Based Parent Implemented Communication Strategies [i-PiCS], home-based intervention.	Child developmental outcomes: communication. Parent/carer outcomes: parenting confidence.	IV

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
and coaching in a rural area in the UK: Impact on mothers and their children with autism UK		years and 3.5 months).		Transdisciplinary – non-discipline specific. Intensity and length: 29 to 35 sessions over 4 - 6 months (based on parent need). Five training video modules (62 minutes total duration; each 9 minutes 6 seconds to 14 mins 14 seconds per module; average: 12 mins and 24 seconds). Three recordings of child interactions: (a) pre-observation planning, (b) 5 to 7 min mother–child observation, (c) post-observation feedback between parent and coach. Target of intervention: child and parent/caregiver. Facilitator(s): parents and researchers in disciplines of psychology and special education. Mode: telehealth and individual. Dose: Weekly coaching sessions 20 to 60 minutes each.	Longest follow-up: a few months post (times varied for each family). - Children's responsiveness and initiations of communication increased and mostly maintained. - Parent reported increase in complexity of children's communication. - Some increased frequency of child initiation of communication. - All parents felt an increase in confidence in parenting skills and empowered by their acquired knowledge. Implementation process outcomes: fidelity, parent quality and rate of each strategy. - Mothers rated high satisfaction with the goals, procedures and outcomes, and overall felt they had learnt new skills.	

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					All mothers used the learned i-PiCS strategies to different extents. All mothers felt comfortable teaching others (e.g., spouse, grandparents, school staff) how to use the strategies as well as recommending i-PiCS to other parents.	
Kwok et al., 2020 (39) Effectiveness of a parent-implemented language intervention for late-to-talk children: a real-world retrospective clinical chart review Canada	Real-world retrospective clinical chart review	59 participants, mean age: 1.92 years (reduced to 38 at post, 23 at follow-up data).	Developmental delay (late talkers)	Target Word - the Hanen Program for Parents of Children Who are Late Talkers, public clinic/centre and home-based. Single discipline: speech pathology. Intensity and length: 9 weeks, 4 to 5 group sessions and 3 home visits. Target of intervention: child and parent/caregivers. Facilitator(s): parents/caregivers. Mode: in person, individual and group. Dose: 2.5 to 3 hours per session.	Child developmental outcomes: communication. 3/4 of children made clinically significant improvements in communicative participation (FOCUS). - Significant change in child vocabulary: children gained an average of 55 words expressively and 53 words receptively (CDI). - Significant improvements in communicative functioning (CFCS) at post only, not at later follow-up.	III-3

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					Longest follow-up: 12 to 18 weeks (average 3 months).	
Adams and Gaile, 2020 (37) Evaluation of a parent preference-based outcome measure after intensive communication intervention for children with social (pragmatic) communication disorder and high-functioning autism spectrum disorder UK	Non-randomised experimental study	20 participants, aged 5.1 to 10.11 years (mean: 8.6 years).	Autism, suspected autism and social communication disorder.	Social Communication Intervention Programme, school setting and home-based. Single discipline: speech pathology. Intensity and length: 20 sessions over 12 to 20 weeks Target of intervention: child. Facilitator(s): clinician. Mode: In person, individual. Dose: Unclear.	Child developmental outcomes: communication. Longest follow-up: immediate post. Most children showed progress on goals; parents reported more goal achievement than practitioners. Significant gains were seen in social language and pragmatic skills, but not in general communication (SCIP-GAS).	III-2
Adams et al., 2020 (38) Evaluation of a manualised speech and language therapy programme for children with	Cohort study (survey and single arm feasibility intervention trial)	15 speech pathologists and 24 children aged 61 to 131 months (mean: 102 months).	Autism and Social Pragmatic Communication	Social Communication Intervention Program (SCIP), school setting and home-based. Single discipline: speech pathology. Intensity and length: 20 sessions, across 20 weeks. Practitioner training:	Child developmental outcome: communication. Longest follow-up: All children, except one, showed progress on goal	III-3

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social communication disorder: the SCIP feasibility study UK			Disorder (SPCD)	1 day workshop, plus 6 hours supervision across 20 weeks. Target of intervention: child. Facilitator(s): Speech pathologists, clinicians. Mode: in person, individual. Dose: Practitioners delivered intervention with the child in school or at home up to a maximum of 20 direct therapy sessions.	ratings; practitioners rated progress higher than parents. Implementation process outcomes: engagement, acceptability. Speech pathologists valued SCIP therapy and chose to continue using it but found it complex and felt they needed more preparation (qualitative outcomes).	
McLeod et al., 2020 (36) Waiting for speech-language pathology services: A randomised controlled trial comparing therapy, advice and device Australia	RCT	101 participants aged 3 to 6 years (mean: 53.1 years). Three groups: therapy, advice and device, 38, 33 and 38 participants respectively.	Developmental delay (language, speech, or speech and language).	Speech pathology therapy or access to web-based "Waiting for Speech Pathology" with individualised goals/intervention, public clinic or centre and home-based. Intensity and length: therapy group - 14 weeks total, 12 weekly sessions; advice - 1 session, access to resources, caregiver training (TAU waitlist); device - access to handouts	Child developmental outcomes: communication. Parent/caregiver outcome: parent empowerment. Longest follow-up: 6 months after pre-assessments. Significant intervention effect on speech however no effect on intelligibility, language scores and literacy scores.	II

Author, year, title, country	Study Type	Population, setting	Condition/diagnoses	Intervention	Outcomes and findings	NHMRC grade
				for speech, language and literacy. Single discipline: speech pathology. Target of intervention: child and parent/caregivers. Facilitator(s): clinician for therapy and advice groups; website for parents to implement in device group. Mode: in person, individual. Dose: 45 minutes per session.	- No effect for parent empowerment. Implementation process outcome: acceptability. - Significantly higher parent satisfaction in intervention group.	
Miletic et al., 2024 (41) Do Caregiver Perceptions of the Virtual More Than Words® Program Differ Based on Autistic Children's Attributes? Canada	Cross sectional study	31 participants aged 37 to 96 months (mean: 67.07 months).	Autism	Hanen More Than Words (virtual), home-based. Single discipline: speech pathology. Intensity and length: 8 group training sessions and 3 individual coaching/feedback sessions across 13 weeks. Target of intervention: parent/caregivers. Facilitator(s): clinician. Mode: individual and group, telehealth. Dose: variable.	Child developmental outcomes: communication. Parent/carer outcomes: knowledge of strategies, impact on family and recommendations to others. Longest follow-up: immediate post. 74% of caregivers changed how they interact and communicate with their child; 74% reported child's communication improved (55% 'a lot').	III-3

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					45% said others noticed changes; improvements varied by communication stage, not age. - Many caregivers reported a better understanding of their child's communication and increased ability to develop realistic communication goals for their child. 87% caregivers felt the MTW program had an impact on their family as a whole. - All (100%) would recommend the program to others. Implementation process outcomes: acceptability. - Caregivers rated group sessions and video-feedback as highly helpful, with mean scores of 4.71 and 4.77 out of 5.	
Parsons et al., 2020 (35)	Cohort study	15 participants, developmental age of 2 to 6	Autism	TOBY app, home-based and facilitated by the app. Transdisciplinary – non-discipline specific.	Child developmental outcomes: communication, motor, cognitive, play, playfulness, speech skills,	III-2

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A twelve-month follow-up of an information communication technology delivered intervention for children with autism spectrum disorder living in regional Australia Australia		years at intake (mean: 79 months).		Intensity and length: daily, for 3 months. Target of intervention: child and parent/caregiver. Facilitator(s): parent and clinician (psychology and occupational therapy). Mode: telehealth, individual. Dose:	social-affective skills, symbolic abilities. and social interaction. Longest follow-up: 12-18 months (mean 14.5 months). - Significant positive effect for, playfulness (ToP), receptive language (MSEL) and all scales of CSBS (speech skills, social-affective skills, symbolic abilities) and social interaction (POM). - No effect for motor skills (MSEL) and play (SPT).	
Acceptance and Commitment Therapy (ACT)						
Leadbitter et al., 2025 (46) Clinical effectiveness of an online psychoeducational and psychotherapeutic programme for	RCT	379 parents and caregivers (255 intervention; 124 TAU) of children aged 2 to 15 years and 11 months	Autism	Empower-Autism – home-based, group-based programme for caregivers of recently diagnosed autistic children, which integrates autism psychoeducation and ACT-informed psychotherapeutic Home-based. Single discipline: psychology.	Child quality of life outcome: adaptive functioning. Parent/carer outcomes: caregiver mental health and wellbeing, parenting stress and self-efficacy, autism knowledge and adjustment to diagnosis, and family wellbeing.	II

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caregivers of children newly diagnosed as autistic: a parallel, assessor-masked, randomised controlled trial in the UK (REACH-ASD) UK		(mean age: 8.9 years).		Intensity and length: 15 hours, across 5 sessions, timeframe unclear. Target of intervention: parent/caregivers. Facilitator(s): clinician. Mode: online via videoconferencing, group. Dose: 3 hours per session.	Longest follow-up: 52 weeks post randomisation. - No difference between groups for adaptive behaviours (VABS-III). - Moderate significant improvement in caregiver mental health (GHQ-30). - Small significant improvement in parent/caregiver wellbeing (WEMWBS) and psychological flexibility (AAQ-II; at 26 weeks, lost at 52 weeks). - Improvements on autism knowledge (KAQ-UK), adjustment to diagnosis (RDQ) and family wellbeing (AFEQ). - No differences on parenting stress (APSI), and self-efficacy (TOPSE).	
Marino, et al 2021 (47) The Effect of Acceptance and Commitment	RCT	20 pairs of parents (10 in intervention and 10 in control), of children aged 30 months to 13	Autism	ACT, single discipline: psychology. Intensity and length of intervention: 24 weekly sessions.	Child quality of life outcomes: parent perceptions of child's disruptive behaviour. Parent/carer outcomes: psychological flexibility, awareness	II

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Therapy for Improving Psychological Well-Being in Parents of Individuals with Autism Spectrum Disorders: A Randomized Controlled Trial Italy		years (mean age: 6.9 years).		Target of intervention: parent/caregivers. Facilitator(s): clinicians. Mode: in person, group. Dose: 90 minutes per session.	states, personal values in everyday life and parental stress. Longest follow-up: immediate post. - Significant improvements in parent psychological flexibility (AAQ-II), awareness states (MAAS), personal values in everyday life (VLQ) and parental stress (PSI-SF). - Significant reductions in parent perceptions of child disruptive behaviour (HSQ-ASD).	