Review of Best Practice in Early Childhood Intervention

Desktop Review Report

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The University of Melbourne

THE UNIVERSITY OF MELBOURNE

Acknowledgements

The University of Melbourne acknowledges the Traditional Owners of the unceded land on which we work, learn and live: the Wurundjeri Woi-wurrung and Bunurong peoples (Burnley, Fishermans Bend, Parkville, Southbank and Werribee campuses), the Yorta Yorta Nation (Dookie and Shepparton campuses), and the Dja Dja Wurrung people (Creswick campus).

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We recognise the unique place held by Aboriginal and Torres Strait Islander peoples as the original owners and custodians of the lands and waterways across the Australian continent, with histories of continuous connection dating back more than 60,000 years. We also acknowledge their enduring cultural practices of caring for Country.

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Introduction

Project rationale and aim

This report has been prepared as part of an independent review of early childhood intervention (ECI) best practice commissioned by the Department of Social Services (DSS). The review is being undertaken in fulfilment of Action 2.4 of the Early Childhood Targeted Action Plan, which is part of the implementation of Australia's Disability Strategy 2021-2031:

Review guidance for best practice in early childhood intervention, seek to review current guidance and prepare a framework for best practice in early childhood intervention that reflects current research and evidence

This project will contribute to the second objective of the Early Childhood Targeted Action Plan, which is to:

Strengthen the capability and capacity of key services and systems to support parents and carers to make informed choices about their child.

The primary objective of this work is to co-produce an Australian Early Childhood Intervention Framework that is founded on the best available evidence and can be implemented and evaluated for effectiveness and impact. The goal is that all children growing up in Australia live in thriving families and communities that support their health, development and wellbeing, and that children with developmental delay/concerns, or disability receive the support they need to participate fully in their families and community.

This is the Full Report of the Desktop review that was undertaken as a first step in gathering evidence and designing the Australian Early Childhood Intervention framework. Both the Full Report and an Executive Summary will be available from the Healthy Trajectories ECI Review website.

Aim and methodology

This paper reports a series of three desktop reviews that address the overarching question posed by DSS: What is best practice in ECI?

- The first review paper (covered in sections 1 to 5) provides an overall picture of key developments in policy, research and practice relating to young children with and without developmental disabilities and their families. The paper uses a narrative review approach to make sense of key developments in policy, research and practice. Narrative reviews are scholarly summaries along with interpretation and critique and are useful for topics that are complex or broad and that require nuanced description and interpretation (Greenhalgh et al., 2018; Sukhera, 2022). The paper builds upon an earlier comprehensive overview of policy and practice relating to early childhood intervention (Moore, 2019) and draws on a wide range of research and policy analyses from both peer reviewed journals and grey literature publications by key institutes and organisations.

- The second paper (section 6) explores what can be learned from a comparison between the frameworks/guidelines developed in Australia, including for Aboriginal and Torres Strait Islander contexts, NZ, the USA, Europe and UK, and includes a scoping review of related literature. The key questions addressed include how best practice is defined, what principles are

identified, and what are the strengths, weaknesses and challenges of the different frameworks' approaches?

- The third review (section 7) is a systematic review of the evidence regarding the effects and impacts of the ECI frameworks/guidelines on child, family and/or service outcomes.

Terminology

The desktop reviews contained in this report use the term *early childhood intervention* (ECI) to refer to specialist services for young children with developmental concerns, delays and disability. However, we note that, as the ECI sector has evolved, questions have been raised regarding the continued use of the term *intervention*. Parent groups have indicated that the term can be problematic for parents, as have Aboriginal and Torres Strait Islander groups where it is commonly and negatively associated with child protection 'interventions.' Johnsson and Bulkeley (2024) strongly advocate for the replacement of the term 'intervention' with strengths-based language. Whether a change is recommended will be determined through the consultation process. Whatever term is used, it needs to convey to parents and others that these specialist services are the additional supports needed by children with developmental concerns, delays and disability and their families to ensure that they have the conditions they need to thrive.

We also use *Aboriginal and Torres Strait Islander*, *Indigenous* and *First Nations* throughout the report, depending on context. We use Aboriginal and Torres Strait Islander when referring to Aboriginal and Torres Strait Islander people in the Australian context, and Indigenous and/or First Nations when referring to peoples from jurisdictions outside Australia and when the terms Indigenous or First Nations are used in an article or other titles.

Outline of paper

The paper is divided into three parts.

Part One provides an overview of the context in which a best practice framework is being developed. It includes three sections, each concluding with general implications for ECI services and specific implications for an ECI practice framework. It begins with an outline of the Australian policy context relating to early childhood and children with disability in particular. This is followed a section that summarises the major developments in policy, research and practice that have occurred over the past two decades that are of relevance to ECI services. The third section looks at the evidence base for ECI services and discusses eight sources of evidence that ECI practices draw upon.

Part Two reviews what is known about early childhood intervention and ECI practice frameworks. consists of three sections. The first looks at what we know about the aims, principles and practices of ECI services, and what form a practice framework should take. The second section is a review of six practice frameworks from different national jurisdictions. The third section reports a systematic review of ECI strategies. As before, each section concludes with a consideration of the general implications for ECI services and the specific implications for an ECI practice framework.

Part Three discusses the implications for ECI services and an ECI practice framework.

Part One: The Context

Part One provides an overview of the context in which a best practice framework is being developed. It includes three sections, each concluding with general implications for ECI services and specific implications for an ECI practice framework. It begins with an outline of the Australian policy context relating to early childhood and children with disability in particular. This is followed a section that summarises the major developments in policy, research and practice that have occurred over the past two decades that are of relevance to ECI services. The third section looks at the evidence base for ECI services and discusses eight sources of evidence that ECI practices draw upon.

1 Australian Policy Context

1.1 Disability and early years policies, reviews and frameworks

In developing an ECI best practice framework, we need to consider several major policy reviews that have been published recently. Some of these have addressed disability services directly while others have focused on general issues regarding early years services.[1] In addition, there are various quality, safeguarding and accountability frameworks and clinical guidelines that directly or indirectly affect ECI services and therefore may have implications for a national ECI best practice framework.

These policies, reviews and frameworks are summarised below.

Disability policies and reviews

- **Australia's Disability Strategy 2021-2031 – Early Childhood Targeted Action Plan[2]**

    The Early Childhood Targeted Action Plan (TAP) is part of the implementation of Australia's Disability Strategy 2021-2031 and focuses on children from infancy to school age with disability or developmental concerns, their families and caregivers. Key objectives of this TAP are:

    o Enable early identification of disability or developmental concerns and develop clearer pathways and timely access to appropriate supports.

    o Strengthen the capability and capacity of key services and systems to support parents and carers to make informed choices about their child. (This includes reviewing guidance for best practice early intervention', the subject of the current project).

    o Encourage a stronger sense of inclusion and provide opportunities for parents, carers and children to build peer networks, including for Aboriginal and Torres Strait Islander and culturally and linguistically diverse parents and carers.

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[1] The policies summarised here are national policies. State / territory policies are not listed.
[2] https://www.dss.gov.au/disability-and-carers-programs-services-for-people-with-disability/early-childhood-targeted-action-plan-early-childhood-tap

- **Independent Review of the National Disability Insurance Scheme (2023)[3]**

  The first of the NDIS review's 26 recommendations was for the establishment of a separate tier of disability services, to be called 'foundational supports', sitting outside the NDIS and accessible to many more people with disability: This was to be part of a continuum of mainstream, foundational and specialist supports to address the needs of all children with disability and developmental concerns. Supports provided outside the NDIS should include: mainstream supports (including early identification of children with developmental concerns and inclusive education), and foundational supports (including expanded supports for children with emerging developmental concerns and disability and programs. Within the NDIS, children under the age of 9 with higher levels of need should receive specialist support through a reformed early intervention pathway. This should include an agreed definition of 'likely to benefit', that is, who would be likely to benefit from the specialist support and whose needs could be appropriately met through the reformed foundational supports system.

  Another recommendation of the Review was that federal and state governments should jointly invest in a capacity building program for families and caregivers of children with development concerns and disability. This would take the form of universally available family programs which include information, peer support and creating and implementing a vision for their child for a valued and included life. This will mean families have access to timely support, be empowered with information and resources and connected with other families so they can build skills and confidence to support their child. This should be underpinned by building the capacity of mainstream services and practitioners to identify developmental concerns and disability, and providing greater support for families to navigate mainstream, foundational and NDIS service systems.

  A further recommendation was that federal and state governments should jointly invest in early supports for children with emerging development concerns and disability. This should include support from a Lead Practitioner to help children who are not eligible for the NDIS to build their skills and participate in everyday activities. The Lead Practitioner should provide families with information about child development, building their confidence and knowledge to support their child in everyday routines. It should also include implementing and evaluating a range of other early support models. The delivery of these early supports should be closely linked to and integrated with mainstream services, particularly education and early childhood services.

  The Federal government has not yet announced its response to these recommendations. If the recommendations were accepted and acted upon, this would have a significant impact on the ECI service sector.

- ***National Autism Strategy*** [4]

  This Strategy, still being developed, will be for all Autistic Australians. It will cover key reform areas including access to services, healthcare, education, and employment. It will help to guide a more coordinated, national approach supporting autistic people at each stage of life. The draft National Autism Strategy was released by the Department of Social Services for public feedback

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[3] https://www.ndisreview.gov.au/
[4] https://www.dss.gov.au/disability-and-carers/national-autism-strategy

in April and it is expected that the final Strategy will be considered by Government by the end of 2024.

- ***National Fetal Alcohol Spectrum Disorder (FASD) Strategic Action Plan 2018–2028*** [5]

    This Plan aims to improve the quality of life for children and adults who have FASD. The Plan is built around 4 key national priorities: prevention, screening and diagnosis, support and management, and priority groups and people at increased risk. A National FASD Advisory Group (FASD Advisory Group) has been established to monitor and report on the implementation progress of the plan. A three-year implementation review of the Plan has been published.[6]

- ***The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023)*** [7]

    Established in 2019, the Royal Commission sought to examine and expose violence against, and abuse, neglect and exploitation of, people with disability in all settings and contexts. It recognised that Australia has international obligations to promote the human rights of people with disability, including the protection of people with disability from all forms of exploitation, violence and abuse under the Convention on the Rights of People with Disabilities (2008). The Commission's final report, published in 2023, contained 222 recommendations. These were based upon a common vision: a future where people with disability live free from violence, abuse, neglect and exploitation; human rights are protected; and individuals live with dignity, equality and respect, can take risks, and develop and fulfil their potential.

    In its response to the Commission's recommendations[8], the Government commits to enabling policy and delivering services that realise the vision set out by the Commission of an Australian community where people with disability: live free from violence, abuse, neglect, and exploitation; where human rights are protected; and individuals live with dignity, equality and respect and can fulfil their potential. This includes a future where people with and without disability:

    - o live, learn, work, play, create, and engage together in safe and diverse communities,

    - o have the power of choice, independence, and the dignity to take risks,

    - o make significant contributions to communities that value their presence and treat them with respect, and

    - o are culturally safe and belong in families, communities, and peer networks.

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[5] https://www.health.gov.au/resources/publications/national-fetal-alcohol-spectrum-disorder-fasd-strategic-action-plan-2018-2028

[6] https://www.health.gov.au/resources/publications/national-fetal-alcohol-spectrum-disorder-fasd-strategic-action-plan-2018-2028-three-year-implementation-review

[7] https://disability.royalcommission.gov.au/publications/final-report

[8] https://www.dss.gov.au/disability-and-carers-disability-royal-commission-support-services/australian-government-response-to-the-disability-royal-commission

Early years policies and reviews

In addition to the disability-specific policies and strategies, there are numerous policies, strategies and reviews of the early years services in general. Many of these have implications for ECI services and best practice.

- *National Early Years Strategy (2024-2034)* [9]

  This is the Australian Government's overarching framework which sets out the Government's vision to best support Australia's children and their families in the early years. The aims are to reduce silos across Government programs, integrate and coordinate early childhood initiatives for greater impact, achieve better outcomes for children and their families, and meet Australia's commitments under human rights treaties. This Strategy aims to empower and support those who form foundational relationships with children, including parents, caregivers, kin, family and the early years workforce.

  The Strategy's vision is *that all children in Australia thrive in their early years. They have the opportunity to reach their full potential when nurtured by empowered and connected families who are supported by strong communities.*

  The specific outcomes that that the Strategy is seeking to achieve are:
  - Children are nurtured and safe
  - Children are socially, emotionally, physically and mentally healthy
  - Children are learning
  - Children have strong identities and connections to culture
  - Children have opportunities to play and imagine
  - Basic needs are met
  - Families are empowered, connected and supported
  - Communities are strong and inclusive places for children and their parents or caregivers to live, grow, play and connect

  The Strategy is based on the following principles: child- and family-centred; strengths-based; respect for families and communities; equitable, inclusive and respectful of diversity; and evidence-informed.

- *Improving Outcomes for All: The Report of the Independent Expert Panel's Review to Inform a Better and Fairer Education System (Department of Education, 2023)* [10]

  This Review outlines a roadmap to strengthening Australia's school education system, including both government and non-government sectors, to ensure it delivers excellence and equity for the whole Australian community. The Panel recommended seven reform directions to be considered by all parties to the next Agreement, including improving equity. Far too many students face barriers to participation and achievement, particularly those who come from priority equity

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[9] https://www.dss.gov.au/families-and-children-programs-services-early-years-strategy/early-years-strategy-2024-2034

[10] https://www.education.gov.au/review-inform-better-and-fairer-education-system/review-inform-better-and-fairer-education-system-reports

cohorts, including First Nations students; students living in regional, rural and remote locations; students with disability; and students from educationally disadvantaged backgrounds.

Regarding students with disability, the Panel considered that more should be done to strengthen the quality of inclusive education, and that there is an urgent need to better support students with disability. Governments, school systems and approved authorities must commit to continuing to build the capability of schools and educators to embed inclusive education in their school culture and teaching practices. This would ensure every student with disability receives an education that values their strengths and capabilities. Accordingly, the Panel recommended that all governments, school systems and approved authorities jointly develop an implementation plan to deliver on their commitment under Australia's Disability Strategy 2021–2031 to build capability in delivery of inclusive education for students with disability.

The Panel also commented on the importance of all students coming to school ready and able to learn. To ensure that this happens, the Panel recommended that all governments take steps to embed and strengthen linkages between schools and other services, such as community, family, health (including speech and occupational therapists), and disability support services, by implementing full-service school models that better integrate these services within schools and improve partnerships between schools and external agencies, institutions and community members.

- ***Australian Consumer and Competition Commission childcare inquiry (2023)*** [11]

  This report focused on the market for the supply of childcare services. The review found that childcare markets under current market settings are not delivering on accessibility and affordability for all children and households across Australia. The report also notes that childcare services and government support and regulation (across different levels of government) are highly interconnected. A change to one aspect of the system can have wide-ranging impacts across the sector. Issues and policy responses cannot be considered in isolation and must be assessed across the whole childcare sector.

- ***Review of Inclusion Support Program (Department of Education, 2023)*** [12]

  This review by Deloitte Access Economics found that the Inclusion Support Program (ISP) was aligned with the broader government focus on inclusion and ECEC was not adequately connected or integrated with other Commonwealth and state inclusion and early intervention services or programs. It also found that although the ISP is intended to develop workforce capability, it is not optimised to do so. Instead, the supports provided tend to be interpreted and applied as relief or capacity measures. While ISP is intended to focus on a broad measure of inclusion, the program has a strong focus on disability and prioritises funding based on diagnosis. Further, it does not effectively allocate resources to proactively invest in capability building, reflective practice and service improvement. Program monitoring has a strong focus on payment acquittal and

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[11] https://www.accc.gov.au/inquiries-and-consultations/childcare-inquiry-2023
[12] https://www.education.gov.au/early-childhood/resources/inclusion-support-program-review-final-report

short-term KPIs; it is not presently focused on outcomes or practice improvement.

- ***Productivity Commission Inquiry into the Early Childhood Education and Care Sector (2023-24)*** [13]

  Among other issues, the draft report from the Productivity Commission (2023) notes that ECEC services should be inclusive of all children, including those with disability and those from diverse cultural backgrounds. But current government supports fail to reach many children who require them. The report recommends that the Australian Government should significantly increase funding for the Inclusion Support Program and streamline the requirements of the program to expand its reach.

- ***Belonging, Being and Becoming — The Early Years Learning Framework for Australia V2.0 (2022)*** [14]

  This Framework provides broad direction for early childhood educators to facilitate all children's learning, development and wellbeing and ensure children are supported, celebrated, and connected to their community. Fundamental to the Framework is a view of children's lives as characterised by *belonging, being* and *becoming*.

  - *Belonging.* Experiencing belonging – knowing where and with whom you belong – is integral to human existence. Children belong to diverse families, neighbourhoods, local and global communities. Belonging acknowledges children's interdependence with others and the basis of relationships in defining identities. In early childhood, and throughout life, trusting relationships and affirming experiences are crucial to a sense of belonging. Belonging is central to being and becoming in that it shapes who children are and who they can become.

  - *Being.* Childhood is a time to be, to seek and make meaning of the world. Being recognises the significance of the present, as well as the past in children's lives. It is about children knowing themselves, developing their identity, building and maintaining relationships with others, engaging with life's joys and complexities, and meeting challenges in everyday life. The early childhood years are not solely preparation for the future but also about children being in the here and now.

  - *Becoming.* Children's identities, knowledge, understandings, dispositions, capabilities, skills and relationships change during childhood. They are shaped by different events and circumstances. Becoming reflects this process of rapid and significant change that occurs in the early years as children learn and grow. It emphasises the collaboration of educators, families and children to support and enhance children's connections and capabilities, and for children to actively participate as citizens.

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[13] https://www.pc.gov.au/inquiries/completed/childhood#report
[14] https://www.acecqa.gov.au/sites/default/files/2023-01/EYLF-2022-V2.0.pdf

- ***The Nest (ARACY, 2014)*** [15]

  Developed by the Australian Research Alliance for Children and Youth (ARACY), The Nest is a national plan for child and youth wellbeing. It's shared vision for Australia's children and youth (aged 0-24) is an Australia where *All young people are loved and safe, have material basics, are healthy, are learning and participating and have a positive sense of identity and culture*. This vision applies to all Australian children and youth, regardless of age, gender, ability, ethnicity, race and socio-economic status.

  The Nest identifies six child outcomes:

  o *Valued, loved and safe* - feels loved and secure, and aware environment is protected

  o *Material basics* – feels provided for

  o *Healthy* - emotionally and mentally well and supported, and physically healthy and active

  o *Learning* - goes to school or early education and enjoys learning

  o *Participating* - feels heard, plays, and has opportunities to have a say

  o *Positive sense of identity and culture* - belonging, positive sense of self, and positive cultural and spiritual identity.

- ***The Alice Springs (Mparntwe) Education Declaration (2020)*** [16]

  This Declaration sets out a vision for a world class education system that encourages and supports every student to be the very best they can be, no matter where they live or what kind of learning challenges they may face. The Declaration places students at the centre of their education by emphasising the importance of meeting the individual needs of all learners, and outlines education's role in supporting the wellbeing, mental health and resilience of young people.

  The Declaration has two distinct but interconnected goals:

  o The Australian education system promotes excellence and equity

  o All young Australians become confident and creative individuals, successful lifelong learners, and active and informed members of the community.

  Through the Declaration, Australian Governments also renewed their commitment to celebrating and learning from Aboriginal and Torres Strait Islander cultures, knowledge and histories and ensuring that Aboriginal and Torres Strait Islander peoples are supported to imagine, discover and unlock their potential.

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[15] http://www.aracy.org.au/documents/item/182

[16] Department of Educations, Skills and Employment (2020). *The Alice Springs (Mparntwe) Education Declaration.* Canberra, ACT: Department of Educations, Skills and Employment. https://www.education.gov.au/alice-springs-mparntwe-education-declaration/resources/alice-springs-mparntwe-education-declaration

- ***Safe and Supported: National Framework for Protecting Australia's Children 2021 – 2031*** [17]

  Safe and Supported sets out how all governments, Aboriginal and Torres Strait Islander leaders, the non-government sector and the Australian community will work together to help children, young people and families in need of support. The focus areas are: a national approach to early intervention and targeted support for children and families experiencing vulnerability or disadvantage; addressing the over-representation of Aboriginal and Torres Strait Islander children in child protection systems; improving information sharing, data development and analysis; and strengthening the child and family sector and workforce capability. The first of six guiding principles is ensuring access to quality universal and targeted services designed to improve outcomes for children, young people and families.

- ***National Principles for Child Safe Organisations (2019)*** [18]

  Developed by the Australian Human Rights Commission, these principles are designed to build capacity and deliver child safety and wellbeing in organisations, families and communities and prevent future harm. To allow flexibility in implementation and in recognition of the variety of organisational types, sizes and capacities, the National Principles outline at a high level the 10 elements that are fundamental for making an organisation safe for children. The principles emphasise the importance of culturally safe environments and practices for Aboriginal and Torres Strait Islander children and young people. Aboriginal and Torres Strait Islander families and communities are more **likely** to access services that are culturally safe and experience better outcomes in such services. This includes improving the way organisations engage with Aboriginal and Torres Strait Islander children and their families, recognising the impact of intergenerational trauma, and respecting cultural diversity.

- ***The National Children's Mental Health and Wellbeing Strategy (2021)*** [19]

  This Strategy provides a framework to guide critical investment in the mental health and wellbeing of children and families. The Strategy provides clear pathways for proactively promoting child wellbeing and helping those who are struggling as early as possible to reduce long-term impacts of poor mental health. The Strategy adopts a broad scope to consider all settings in which children should be supported.

  Eight principles have been used as the foundation of the Strategy's development.

  o *Child-centred.* Giving priority to the interests and needs of children.

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[17] https://www.dss.gov.au/sites/default/files/documents/12_2021/dess5016-national-framework-protecting-childrenaccessible.pdf

[18] https://childsafe.humanrights.gov.au/sites/default/files/2019-02/National_Principles_for_Child_Safe_Organisations2019.pdf

[19] Australian Government (2021). *The National Children's Mental Health and Wellbeing Strategy*. Canberra, ACT: Australian Government. https://www.mentalhealthcommission.gov.au/mental-health-reform/childrens-mental-health-and-wellbeing-strategy

- *Strengths-based.* All services have a perspective that builds on child and family strengths, to inform a holistic and family-centred approach.

- *Prevention-focused.* Both universal and targeted prevention of mental illness by promoting mental wellbeing.

- *Equity and access.* Ensuring that all children and families have access to health, education and social services.

- *Universal system.* Programs and services are developmentally appropriate, culturally responsive and treat children in the context of families and communities.

- *Evidence-informed best practice and continuous quality evaluation.* The use of data and indicators to create a continuous feedback loop between research and clinical practice.

- *Early intervention.* Early intervention for those in need, while addressing the impacts of trauma and social determinants.

- *Needs based, not diagnosis driven.* Service delivery based on individual needs and reduced focus on requiring a diagnosis to access services.

Importantly, beyond individual objectives and focus areas, the Strategy proposes a *fundamental, cultural shift in the way we think about the mental health and wellbeing of children*. This shift includes a change in language, adopting a continuum-based model of mental health and wellbeing. This moves away from terminology that may be stigmatising or too narrow to capture the full range of a child's emotional experiences. The continuum approach highlights that there are opportunities to promote improved wellbeing and possibly intervene before a child becomes unwell. It also focuses on a *child's functioning rather than diagnosis*.

- **National Agreement on Closing the Gap (2020)** [20]

  The National Agreement on Closing the Gap (the Agreement) aims to overcome the entrenched inequality faced by many Aboriginal and Torres Strait Islander people so that their life outcomes are equal to all Australians. The Agreement recognises that when Aboriginal and Torres Strait Islander people have a genuine say in the design and delivery of services that affect them, better outcomes are achieved. It sets out a strategy for closing the gaps in life outcomes that embeds the priorities of Aboriginal and Torres Strait Islander peoples.

  The Agreement is built around four priority reforms for transforming how governments work with and for Aboriginal and Torres Strait Islander peoples:

  - *Shared decision-making*. Outcome: Aboriginal and Torres Strait Islander people are empowered to share decision-making authority with governments to accelerate policy and place-based progress on Closing the Gap through formal partnership arrangements.

  - *Building the community-controlled sector*. Outcome: There is a strong and sustainable Aboriginal and Torres Strait Islander community-controlled sector delivering high quality services to meet the needs of Aboriginal and Torres Strait Islander people across the country.

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[20] https://www.closingthegap.gov.au/national-agreement

- *Improving mainstream institutions*. Outcome: Governments, their organisations and their institutions are accountable for Closing the Gap and are culturally safe and responsive to the needs of Aboriginal and Torres Strait Islander people, including through the services they fund.

- *Aboriginal and Torres Strait Islander-led data*. Outcome: Aboriginal and Torres Strait Islander people have access to, and the capability to use, locally relevant data and information to set and monitor the implementation of efforts to close the gap, their priorities and drive their own development.

Closing the Gap Target 4 seeks to increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all five domains of the Australian Early Development Census (AEDC) to 55% by 2031 compared to the 2018 baseline of 35%. Data is presented by jurisdiction, by remoteness, by disability status, and by socio-economic status, based on data from the AEDC (Productivity Commission, 2023).

Quality, safeguarding and accountability frameworks and clinical guidelines

In addition to this array of disability and early years policies, strategies and reviews, there are various quality, safeguarding and accountability frameworks and clinical guidelines that directly or indirectly affect ECI services and therefore may have implications for a national ECI best practice framework.

- *National Quality Framework [21]*

  The National Quality Framework (NQF) is Australia's system for regulating early learning and school age care including: legislation and national quality standard, sector profiles and data, and learning frameworks. The NQF applies to most childcare providers and services, including: centre based day care, family day care, outside school hours care, and preschool and kindergarten. Under the National Law and Regulations, services are required to base their educational program on an approved learning framework.

- *Australian Children's Education and Care Authority (ACECQA) [22]*

  The Australian Children's Education and Care Quality Authority (ACECQA) is the independent national authority that assists governments in administering the National Quality Framework (NQF) for children's education and care. ACECQA works with the Australian and state and territory governments to:

  - implement changes that benefit children birth to 13 years of age and their families

  - monitor and promote the consistent application of the Education and Care Services National Law across all states and territories

  - support the children's education and care sector to improve quality outcomes for children.

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[21] https://www.education.gov.au/early-childhood/national-quality-framework
[22] https://www.acecqa.gov.au/

- ***National Safety and Quality Health Service (NSQHS) Standards (2021)*** [23]

  Developed by the Australian Commission on Safety and Quality in Healthcare Commission, in partnership with the Australian Government, states and territories, and other stakeholders, these standards are designed to protect the public from harm and to improve the quality of health service provision. The eight NSQHS Standards provide a nationally consistent statement about the level of care consumers can expect from health services.

  The Commission has also developed an ***Australian Charter of Healthcare Rights*** [24] that describes the rights that consumers, or someone they care for, can expect when receiving health care. These rights apply to all people in all places where health care is provided in Australia. This includes public and private hospitals, day procedure services, general practice and other community health services.

- ***NDIS Quality and Safeguarding Framework (Department of Social Services, 2016)*** [25]

  The NDIS Quality and Safeguarding Framework is designed to ensure high quality supports and safe environments for all NDIS participants. The overall objectives of the NDIS Quality and Safeguarding Framework are to ensure NDIS funded supports:

  - uphold the rights of people with disability, including their rights as consumers

  - facilitate informed decision making by people with disability

  - are effective in achieving person-centred outcomes for people with disability in ways that support and reflect their preferences and expectations

  - are safe and fit for purpose allow participants to live free from abuse, violence, neglect and exploitation, and

  - enable effective monitoring and responses to emerging issues as the NDIS develops

  The Framework itself consists of measures targeted at individuals, the workforce and providers within developmental, preventative and corrective domains.

  - Measures in the developmental domain are intended to strengthen the capability of people with disability, the workforce and providers. While these are not regulatory functions, they are included in the Framework because they are fundamental to supporting quality and safeguarding.

  - Measures in the preventative domain are intended to prevent harm and ensure quality services are delivered to people with disability.

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[23] https://www.safetyandquality.gov.au/publications-and-resources/resource-library/national-safety-and-quality-health-service-standards-second-edition

[24] https://www.safetyandquality.gov.au/our-work/partnering-consumers/australian-charter-healthcare-rights

[25] https://www.dss.gov.au/disability-and-carers/programs-services/for-people-with-disability/ndis-quality-and-safeguarding-framework-0

- o Measures in the corrective domain are intended to resolve problems, enable improvements to be identified to avoid the same problems recurring, and provide oversight of the system.

- **NDIS Quality and Safeguards Commission** [26]

  The NDIS Commission works with participants and providers to improve the quality and safety of NDIS services and supports. The Commission has produced an Evidence-Informed Practice Guide that outlines the NDIS Commission's position on evidence-informed practice and what is expected of NDIS providers. It describes what evidence-informed practice is, why it is important, how it can be implemented by NDIS providers, and where to find further information. For the NDIS Commission, evidence-informed practice means integrating the rights and perspectives of the person with disability, with the best available research with professional expertise and information from the implementing or practice contexts.

There are also several sets of clinical guidelines for specific disabilities and conditions. These include:

- **National Autism Guideline (Autism CRC, 2022)** [27]

  The National Guideline for supporting the learning, participation, and wellbeing of autistic children and their families in Australia focuses on practitioners delivering supports in community and clinical settings. The Guideline provides clear and consistent Recommendations and Practice Points for practitioners who deliver supports to autistic children and their families, to ensure they are doing so in ways that are effective, safe and desirable to children and their families. The Guideline has a lifespan perspective, recognising that early supports should lay the foundation for a positive future and focuses on the delivery of non-pharmacological supports in community and clinical settings that aim to support children aged 0-12 years.

- **Interventions to improve physical function for children and young people with cerebral palsy: international clinical practice guideline (Jackman et al., 2022)**

  This paper provides recommendations for interventions to improve physical function for children and young people with cerebral palsy. An expert panel prioritized questions and patient-important outcomes. Using Grading of Recommendations Assessment, Development and Evaluation (GRADE) methods, the panel assessed the certainty of evidence and made recommendations, with international expert and consumer consultation.

  The guideline comprises 13 recommendations (informed by three systematic reviews, 30 randomized trials, and five before–after studies). To achieve functional goals, it is recommended that intervention includes client-chosen goals, whole-task practice within real-life settings, support to empower families, and a team approach. Age, ability, and child/family preferences need to be considered. To improve walking ability, overground walking is recommended and can be supplemented with treadmill training. Various approaches can facilitate hand use goals: bimanual therapy, constraint-induced movement therapy, goal-

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[26] https://www.ndiscommission.gov.au/
[27] https://www.autismcrc.com.au/best-practice/supporting-children

directed training, and cognitive approaches. For self-care, whole-task practice combined with assistive devices can increase independence and reduce caregiver burden. Participation in leisure goals can combine whole-task practice with strategies to address environmental, personal, and social barriers. Intervention to improve function for children and young people with cerebral palsy needs to include client-chosen goals and whole-task practice of goals. Clinicians should consider child/family preferences, age, and ability when selecting specific interventions.

- ***Guideline for Growth, Health and Developmental Follow-Up for Children Born Very Preterm (2024)*** [28]

Specific follow-up services for children born very preterm vary considerably across Australia. Many children may miss out on assessments important for identifying growth, health and developmental difficulties and therefore miss the opportunity for timely referrals for support, interventions and services for children and families. This guideline makes recommendations for a structured, preterm specific post-discharge follow-up.

1.2 Discussion and implications

The very existence of these various disability and early years policies and reviews illustrates a problem related to coordination and collaboration between jurisdictions and levels of government. All of these reviews need to be considered together and a new integrated vision for a truly inclusive early childhood sector developed, along with a new national agreement and mechanism to improve policy coordination and implementation. This is the stated aim of the National Early Years Strategy, but it is not yet clear how that will be achieved.

What is clear is that ECI services need to be considered as part of a wider system of services, embedded across and throughout services rather than being a separate disability service stream. It is also clear that a national ECI best practice framework needs to be consistent with national quality, safeguarding and accountability frameworks, which are then adopted and practiced in all jurisdictions.

There are several recurrent themes evident in these various strategies and reviews. Those of particular relevance to ECI services are outlined in the following two text boxes (below). The first box outlines the themes relating to ECI services, with the second shaded box outlining implications for the ECI practice framework.

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https://www.crenewbornmedicine.org.au/media/dhgapqa3/02072024_preterm_followup_guideline.pdf

Implications for ECI services

- ECI services need to be considered as part of a wider system of services, embedded in the mainstream services rather than being a separate disability service stream

- the importance of early identification of disability or developmental concerns and of establishing clearer pathways and timely access to appropriate supports for families of children with developmental concerns

- the need to strengthen the capability and capacity of key services and systems to support parents and caregivers to make informed choices about their child

- the need to build the capacity for parents to be able to make informed choices about their child and family

- the importance of promoting inclusion and participation and of ensuring that services and communities are able to meet the needs of all children and families

- the need to provide opportunities for parents, caregivers and children to build peer networks, including for Aboriginal and Torres Strait Islander and culturally and linguistically diverse parents and caregivers.

- the overall aim should be to ensure that all children (including those with developmental concerns or disabilities) and their families are thriving

- the importance of shared decision making, especially with Aboriginal and Torres Strait Islander people

- the need for quality guidelines and some form of regular monitoring to ensure that best practice is being implemented consistently by ECI service providers.

Implications for ECI practice framework

- It is recommended that the ECI Practice Framework:
- is consistent with the aims of the key national early childhood strategies and frameworks
- is consistent with national quality, safeguarding and accountability frameworks
- has a positive focus, seeking to ensure that the children with developmental concerns, delay or disability and their families are thriving
- seeks to ensure that needs of children with developmental disabilities for being, belonging and becoming are met
- has a major focus on inclusion and participation – ensuring that children and families have opportunities to participate in community and ECEC activities, as well as building the capacity of mainstream services to meet the needs of all children.
- focuses on building parental capacity to make decisions on behalf of their child and family.
- highlights the need for ECI practitioners to be able to provide opportunities for parents to connect with supportive peer networks.

2 Developments in policy, research and practice in ECI

There have been numerous developments in policy, research and practice over the past decade or so that are of relevance for ECI services. These are discussed below under four headings: changing social conditions and their impact; child development and the early years, changing ideas about disability issues, and changing models of service delivery.

2.1 Changing social conditions and their impact

Over the last half century, high-income Western nations such as Australia have experienced a series of social, economic, demographic and technological changes that are unprecedented in their rapidity and scale (Turner, 2023). Many of these changes in conditions have been beneficial. The rapid economic, technological and public health improvements have produced a steady rise in general prosperity and quality of life, from which many people have benefited (Galor, 2022; Pinker, 2018; Rosling et al., 2018). However, these benefits have not been evenly distributed: there is a wide gulf between those with the lowest and those with the highest incomes in Australia, and wealth inequality has grown strongly over the last 20 years or so (Davidson et al., 2020). There are many communities in Australia experiencing entrenched disadvantage (Committee for Economic Development of Australia, 2015; Davidson, 2020a; Davidson et al., 2022; McLachlan et al., 2013; Miranti et al., 2018; Save the Children, 2016; Vinson, 2007).

These changes have dramatically altered the conditions under which families are raising young children (Keeley, 2015; Li et al., 2008; Putnam, 2015; Silbereisen & Che, 2010; Trask, 2010; Wells, 2021) and the social and economic challenges they are experiencing. As a result of these changes, many families feel disconnected from their neighbourhoods and communities (Leigh, 2010: Ulferts, 2020). This has weakened the informal social support and safety net for a lot of families, requiring more families to assume full responsibility for their children's welfare, rather than relying on the extended family and community as a whole to join in the oversight, protection, and nurturing of children (Ulferts, 2020).

While most families have benefited from the increased prosperity, those with fewer resources have not, and are struggling to cope with the demands of parenting in a rapidly changing world. This is a concern because sustained poverty early in life directly impacts children's developing brains, placing children at risk of short and long-term detrimental effects on multiple aspects of their development, health and learning (Berry, 2017; Cooper & Stewart, 2017; Goldfeld et al., 2018b; Kruk, 2013; Luby, 2015; Monks et al., 2022; Piccolo & Noble, 2018). The most disadvantaged children can have as much as seven times the risk of poorer developmental outcomes compared with those who are most advantaged (Goldfeld et al., 2018b). Poverty compromises family functioning and limits parents' capacity to provide the conditions children need for healthy development and learning (Axford et al., 2018; Braveman et al., 2018; Cooper & Stewart, 2017; Monks et al., 2022; Moore et al., 2017; Noble et al., 2015; Yoshikawa et al., 2012). Poverty adds to parental stress and increases the likelihood of maternal mental health problems, hence compromising caregiving. It can also reduce the quality and regular availability of nutrition provided, limit the capacity of families to provide their children with adequate

learning opportunities, and expose children to sustained levels of stress (Axford et al., 2018; Braveman et al., 2018; Cooper & Stewart, 2017; Moore et al., 2017; Yoshikawa et al., 2012).

As a result of these economic inequities, ***there are significant inequities in children's health and wellbeing*** (Cattan et al., 2022; Goldfeld et al., 2018a, 2019; Keeley, 2015; Marmot, 2015, 2016; Sollis, 2019). These inequities have been growing over the past decades (ACOSS, 2015, 2023; Galor, 2022, Leigh, 2013; Piketty, 2014; Putnam & Garrett, 2020). Inequities in health, development and wellbeing are evident from birth, and, despite overall improvements in health outcomes, continue to grow (Berry, 2017; Monks et al., 2022). Gaps in both cognitive and noncognitive skills between children from advantaged and disadvantaged backgrounds open up in infancy and widen progressively in the preschool years (Heckman & Mosso, 2014; Prior et al., 2011). These disparities compromise future education, employment and opportunities (Brinkman et al., 2012; Goldfeld et al., 2018a, 2021; Heckman & Mosso, 2014; Woolfenden et al., 2013).

A contributing factor to the inequities in outcomes is the difficulties that some groups in society have in accessing services. For a variety reasons, vulnerable and marginalised families find accessing and making good use of services difficult (Centre for Community Child Health, 2010). As a result, an inverse care law applies: those with greatest needs make least use of services (Eapen et al., 2017; Hart, 1971; Marmot, 2018; Woolfenden et al., 2020). Groups that are disadvantaged in this way include families living in rural and remote areas (Arefadib & Moore, 2017), non-English speaking families (Woolfenden et al., 2015), Aboriginal and Torres Strait Islander communities, and families living in socioeconomically deprived areas (Laxton et al., 2024). All these groups have been shown to have difficulty access NDIS services and were more likely to receive smaller funding packages when they did so (Arefadib & Moore, 2019).

These inequities are evident among children with disabilities and their families in Australia and elsewhere. In their review of changes in disabilities over the past half century, Halfon and colleagues (2012) note that the social gradient in prevalence of childhood disability has changed little in that time: there has been no reduction in socioeconomic disparities in disability. A study by the European Commission (2020) found that families of children with developmental disabilities are more likely to lack access to core conditions such as healthy nutrition and adequate housing, and were likely to have very different life experiences from their peers without disabilities:

These social changes have also had a significant ***impact on services***. The changes have been so rapid that our institutions have struggled to keep up with them – to adapt to rapid technological change, to limit the concentration of power, to deal with complex social problems. The service system is still planned, funded and administered in ways that were originally designed decades ago when society was less diverse and social conditions were simpler. Services continue to be compartmentalised – focused on separate needs and delivered by different departments – and hence unable to respond to the needs of children and families in a holistic and integrated fashion (Barnes et al., 2018). There is no high-level central policy and planning forum to coordinate the supports and services for young children and their families. This makes it difficult for services to address all the factors we have been considering – the social determinants of health, the need for social supports etc. – in a consistent and coordinated way. Overcoming the silo effect

continues to be a challenge for many service systems (Barnes et al., 2018; Moore & Skinner, 2011).

Services and supports can be described in relation to the level (or tiers) of support they offer. Universal services (described as tier 1) are well developed (albeit not universally accessible or well-integrated), but many service sectors lack a coherent second tier set of services (those that provide targeted supports). This has been dubbed the problem of the 'missing middle'. The lack of a second tier of services leads to increased demand for scarce and more expensive third tier services (intensive or specialised supports) which struggle to meet the demand. In the disability sector, this is the problem identified by the Independent Review of the National Disability Insurance Scheme (2023), prompting the recommendation that a second tier of disability services, to be called 'foundational supports', be established.

The other major social change that has occurred over the past half century has been **the increase in social diversity**. Due to globalisation and other factors, society has become more culturally and ethnically diverse (Chaney, 2022; Maté and Maté, 2022; Walsh, 2012b), with Australia being one of the most culturally diverse in the world (Megalolanis, 2019). There is a greater variety of family structures, cultural backgrounds, languages and circumstances (Kiernan et al., 2022). What was once the common or default pattern (what was considered 'normal') has become less common (e.g., standard 'nuclear' family with a bread-winner father and a stay-at-home mother).

In the general population, *intersectionalities* have become more common (or more evident). These are overlapping marginalised identities that amplify health and other inequities (Collins & Bilge, 2020; Lamont, 2023; Michaels et al., 2023). There is also a greater awareness of cultural and structural forms of discrimination – racism, sexism, ableism, ageism, sexism and gendered beliefs – that produce these inequities (e.g., Ellis et al., 2022). This is creating tensions within society between those who are prepared to recognise these forms of discrimination as needing to be addressed and those who do not. In early childhood, it has been argued that genuine inclusion and participation will only occur when these various forms discrimination have been identified and challenged (Bailey et al., 2017; Cologon & Thomas, 2014). This will require going beyond cultural competency and adopting cultural safety practices as well as addressing both cultural and structural forms of racism (Hicken et al., 2021; Michaels et al., 2023; Priest et al, 2021).

Some children and families belong to several intersecting marginal groups that amplify inequities and require that several factors must be addressed simultaneously for such children/families (Viding & McCrory, 2023). In the case of children with disability, intersectionalities such as those between disability and adversity (Nelson et al., 2024) or between autism and gender dysphoria (Kahn et al., 2023; Hadland et al., 2023) create particular challenges for those affected as well as for services. In supporting people with disability, it is important to consider the other points of identity or marginalization such as race, gender, and sexuality that shape their lives (Edwards & Schippers, 2024).

All of this makes society more diverse and complex and presents challenges for services providers and service systems.

Implications for ECI services

- The growth of inequities and social diversity challenges the ability of early childhood services, including ECI services, to meet the needs of all families. In the case of inequities, families of young children with developmental concerns, delay or disability are more likely to be experiencing multiple challenges and having difficulty in accessing services, especially if they are living in rural or remote areas, or do not speak English. The ECI service system needs to be organised so as to provide support to all young children with developmental concerns or disability in an equitable and timely manner.

- We need to cater for complexity. There are more families experiencing multiple challenges and more children with multiple health and developmental problems. Rather than continuing to provide services that are targeted at the average family and the 'normal' child, we need to design systems that cater for the full range of families and children.

- We need to be aware of and challenge the underlying causes of inequities among various marginalised groups, including Aboriginal and Torres Strait Islander peoples and ethnic groups. This means going beyond cultural competence and adopting cultural safety practices, as well as addressing cultural and structural forms of racism. (See section 4.7 for further discussion of these issues.)

- To address inequities and diversity, the service system needs to be better integrated and ECI services need to be part of a wider system of services capable of addressing the needs of families varying greatly in composition, culture and resources.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- emphasises the importance of being aware of and the many ways in which families may be marginalised and have difficulties in accessing all the supports and services they need

- specifies the need for ECI practitioners and services to have well developed links with other ECEC and family support services

- stresses the need for ECI services to use cultural competency and cultural safety practices

2.2 Child development and the early years

Our understanding of the child development and the early years has grown steadily over the past decades. These developments include new knowledge about child development and increasing recognition of the importance of the early years, greater awareness of the importance of responsive caregiving in the early years, and greater understanding of the impact of environmental conditions on child development and family functioning. These developments are discussed in the following sections.

New knowledge about child development and the early years

Over the last two decades, there has been an increasing awareness of the importance of the early years. This awareness is based upon new knowledge about child development and biological embedding. Key findings include:

- ***The early years are critically important for development*** (Black et al., 2017; Britto, 2017; Britto et al., 2017; Nelson et al., 2024; Richter et al., 2016; Shonkoff & Richter, 2013; World Health Organisation and the United Nations Children's Fund, 2018). What happens during this period can have lifelong consequences for children's health and wellbeing (Centre on the Developing Child at Harvard University, 2010; Fox et al., 2010; Halfon et al., 2018; NASEM, 2019a; National Scientific Council on the Developing Child, 2020; Shonkoff et al., 2012; Zeanah & Zeanah, 2018). They establish a foundation of development that will help children grow, learn and thrive.

- ***The first 1000 days*** – *the period from conception to the end of the second year – are particularly important* (Berry, 2017; CCCH, 2018; Darling et al., 2020; Karakochuk et al., 2017; Kolb et al., 2017; Miguel et al., 2019; Moore et al., 2017; Nelson et al., 2024). This is the period when we are most 'developmentally plastic', that is, most responsive to external influences (Ismail et al., 2017). As a result, experiences and exposures during this period have a disproportionate influence on later health and development (Gluckman et al., 2015; Heindel & Vandenberg, 2015; Prescott, 2015).

- ***Early developmental plasticity is a double-edged sword*** – the fetus and infant are more susceptible to both positive and negative experiences (Nelson et al., 2024). If the conditions are positive, children will thrive, but exposure to adverse experiences in utero and early in life can lead to alterations in brain development that can be damaging for long-term development and learning (Allen & Donkin, 2015; Asmussen et al., 2020; Bellis et al., 2019; Berens et al., 2017; Friedman et al., 2015; Guinosso et al., 2016; Hughes et al., 2017; Quach et al., 2017; Nelson, 2018; Nelson & Gabard-Durham, 2020; O'Hare et al, 2023; Shonkoff et al., 2012, 2021; Teicher & Samson, 2016), and even lead to accelerated ageing (Rentscher et al., 2020). Child maltreatment, particularly emotional abuse and neglect is associated with a wide range of long-term adverse health and developmental outcomes (Nemeroff, 2016; Strathearn et al, 2020; Teicher & Samson, 2016) that can affect adult functioning, including parenting.

  Infants and young children can also be affected by intergenerational trauma, when the effects of trauma are passed down between generations (Heim et al., 2019; Shafer & Easton, 2021). This could occur if a parent experienced abuse as a child or compromised parenting, and the cycle of trauma and abuse impacts their parenting. Aboriginal and Torres Strait Islander children and families are particularly likely to experience intergenerational and other forms of trauma, especially descendants of the Stolen Generations (AIHW, 2018; The Healing Foundation, 2021). These descendants were consistently more likely to experience adverse outcomes over a broad range of health, socioeconomic and cultural indicators, including being removed from their own families (AIHW, 2018). For such populations, trauma-informed practice is essential (Munisamy & Elze, 2020; Wall et al., 2016). Trauma-informed care is a framework for human service delivery that is based on knowledge and understanding of how trauma affects people's lives, their service needs and service usage (Wall et al., 2016).

- ***All human development is contextual*** (Bronfenbrenner, 1979, 1986, 1992,1993; Barrett et al., 2010; National Scientific Council on the Developing Child, 2023; Mayes & Lewis, 2012). Children's development is shaped by ongoing, reciprocal interactions between children's biology, their developing brains, and their physical and social contexts, with relationships as the key drivers (Cantor et al., 2019; Grace et al., 2016: Osher et al., 2020).

This new knowledge has led to a greater recognition, among policy makers at least, of the importance of intervening early (Australian Prevention Partnership Centre and CERI, 2022; Barrett et al., 2014; Moore & McDonald, 2013). It strengthens the case for early childhood intervention and provides a deeper understanding of the experiences and exposures that shape development, and the long-term implications for development and wellbeing.

This heightened awareness of the importance of early childhood is reflected in the 2030 Agenda for Sustainable Development adopted by the United Nations General Assembly in 2015.[29] Containing 17 Sustainable Development Goals (SDGs), the Agenda emphasises a holistic approach to achieving sustainable development for all. Australia is one of the signatories to this Agenda (Brolan et al., 2019).

Early childhood development is included in Goal 4: *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.* It is specifically mentioned in Target 4.2: *By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education*. Investments in early childhood development are seen as being central to the achievement of many of the Sustainable Development Goals (Britto, 2017; Britto et al., 2017). To promote early childhood development, the evidence now strongly suggests that parents, caregivers, and families need to be supported in providing nurturing care and protection (Britto et al., 2017).

Whether families and communities share these goals or understand the nature and importance of the early years is unclear. Less well-resourced families of infants often find themselves in a position of needing mothers to return to work as soon as possible and face considerable challenges in finding childcare that is affordable and of high quality. This is also a preoccupation of government: economic considerations drive policies that are more focused on getting parents of young children back into the workforce rather than ensuring that the early experiences of children are optimal. There needs to be much more debate on how to resolve the clash between the importance of early experiences and the government's focus on getting parents back into the workforce.

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[29] https://www.un.org/sustainabledevelopment/sustainable-development-goals/

Implications for ECI services

- The aims of ECI in Australia are now merging with those of the international community as it seeks to recognise the importance of the early years and build more inclusive social environments and service systems. While these emerging ideas and policies strengthen the case for early intervention and are an affirmation of what ECI has been striving towards for the last 50 years, they also represent a valuable challenge to the field: how to blend ECI services with these new efforts to create environments and service systems that meet the needs of all children and families.

- The new knowledge about the nature and significance of the first 1000 days is of particular relevance for ECI. This casts new light on the factors that impact development in this period, and how these can best be addressed. The ECI sector has much to learn from this new picture of development. It can also play a role in conveying these messages to the general public.

- The evidence regarding the importance of the early years heightens the need for ECI service provision to begin as early as possible. This will mean that ECI services need to develop a better understanding of how to work with infants and their parents in developmentally appropriate ways.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework

- Is founded on a comprehensive understanding of how young children with and without disability develop and the conditions they need to thrive

- is based on an understanding that the importance of the first 1000 days and what experiences during this period shape subsequent development for better or for worse

- Is based on an understanding of the impact that environmental factors have on development

- specifies the need for ECI practitioners to be able to provide developmentally appropriate guidance to parents of very young children with developmental concerns, delay or disability

- highlights the importance of ensuring that children and families are protected from adverse experiences and are provided with the conditions they need to thrive

- promotes the use of trauma-informed and culturally safe practices

Greater awareness of the importance of responsive caregiving

There has been a growing awareness of the importance of responsive caregiving in the early years. Experiencing nurturing and responsive caregiving in the early years is vital for later development and wellbeing (Axford et al., 2018; Britto et al., 2017; Cozolino, 2014; Curley & Champagne, 2016; Dykas & Cassidy, 2013; Garner et al., 2021; Gee & Cohodes, 2021; Gerhardt, 2014; Luby, 2024; NASEM, 2019a, 2019b;

Nelson et al., 2024; Siegel, 2020; van der Voort et al., 2014; World Health Organisation, UNICEF and World Bank Group, 2018).

The primary mechanisms through which children develop and learn are the social relationships they form with parents, caregivers, teachers and peers (Cozolino, 2014; Immordino-Yang et al., 2019). Responsive caregiving promotes the development of secure attachments in infants, builds their emotional and self-regulatory skills, and provides them with a secure base from which to explore the world (Atzil et al., 2018; Feldman, 2012a, 2012b). The quality of the attachment relationship between children and their parents is important for children's social-emotional development and can have profound consequences for adaptational processes in later life (Cozolino, 2014; Feldman, 2012a, 2012b; Siegel, 2020; van der Voort et al., 2014).

Having positive relationships and attachments with caregivers is just as important for children with developmental disabilities as it is for other children (Moore, 2009). Responsive caregiving has the same positive impacts on children regardless of whether they are typically developing, developmentally at risk, developmentally delayed, or have an identified disability (Mahoney & Perales, 2011; Raab et al., 2013).

However, children with developmental disabilities may have difficulty having these relational needs realised because of the nature of their disabilities. They may initiate interactions less frequently and give cues that are more subtle and difficult to read (Biringen et al., 2005; Howe, 2006; Kelly & Barnard, 2000). As a result, children with a developmental delay or disability may be at greater risk of insecure or disorganised attachment than children without disabilities (Alexander et al., 2023; Moore, 2009). Moreover, children with disability, as a group, have a nearly four times higher risk of experiencing violence than their non-disabled peers (Wayland & Hindmarsh, 2017).

Responsive interaction interventions have been found to be effective in promoting parental responsive behaviours and children's emotional and social-communicative outcomes (Kong & Carta, 2013; Mahoney & MacDonald, 2007; Mahoney & Nam, 2011; Mahoney, 2018). Alexander et al. (2024) have developed a framework for ECI services that focuses specifically on the promotion of attachment. Roggman and colleagues (2013) have developed an observational tool designed to assess and monitor the quality of parent–child interactions.

Emerging research indicates that early intervention may be effective in improving attachment security (Alexander et al., 2024). Recent work by Andrew Whitehouse and colleagues in Western Australia used iBASIS–Video Interaction to Promote Positive Parenting (iBASIS-VIPP) therapy as a pre-emptive intervention for families of infants displaying early behavioural signs of autism (Whitehouse et al., 2021). Preliminary evidence is promising, with support for reduced symptom severity in children and increased caregiver responsiveness at 2 years. Segal et al. (2023) have shown that the cost of this form of intervention is greatly outweighed by the expected net cost savings to the government, making iBASIS-VIPP a good-value societal investment.

Implications for ECI services

- The implication of this evidence is that supporting parents and caregivers in developing positive and responsive relationships with children with developmental delays or disabilities from as early an age as possible should be a major focus of early childhood intervention services. All those involved in working with young children with disabilities – parents, caregivers, early childhood interventionists – should seek to establish relationships with these children that reflect the key qualities of effective relationships. It is the combined effect of such relationships that will ensure the effectiveness of interventions (Moore, 2009).

- In ECI, an overarching role is to promote the parent / caregiver's ability to provide the child with the conditions they need to flourish (Moore, 2012, 2024). This includes learning how to provide responsive caregiving and build secure attachments. An important goal of intervention is to help parents become good observers of their own babies so that they can recognise their cues and respond contingently.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- promotes responsive caregiving and secure attachments as a major focus in ECI practice

Environmental conditions for health and well-being

Inspired by the seminal bioecological approach developed by Urie Bronfenbrenner (Bronfenbrenner, 1979, 1986, 1992, 1993; Bronfenbrenner & Morris, 2007), there has been growing recognition the major role that environments play in shaping human development and functioning (Barrett et al. 2010; National Scientific Council on the Developing Child, 2023; Mayes & Lewis, 2012). Children's development is shaped by ongoing, reciprocal interactions between children's biology, their developing brains, and their physical and social contexts, with relationships as the key drivers (Cantor et al., 2021; Grace et al., 2016: Osher et al., 2020). These physical and social conditions, known as social determinants, play a major role in shaping developmental and wellbeing outcomes. (Link & Phelan, 1995; Lovell & Libby, 2018; Marmot, 2015; Marmot & Wilkinson, 2006; Phelan et al., 2010; Ratcliff, 2017; WHO Commission on the Social Determinants of Health, 2008). Key social determinants include socioeconomic status, educational attainment, employment status, poverty, geographic location, disability, gender, and social connectivity. Social determinants play a critical role in the first 1000 days as it is during this period that a number of vital skills and abilities develop (Moore et al., 2015, 2017; Dyson et al., 2010; Hertzman & Boyce, 2010).

The conditions in which people live have a greater impact on their health and development than the health and other services they receive (Braveman & Gottlieb, 2014; CCCH, 2018; Moore, 2024; Moore et al., 2017; Prevention Institute, 2019). Thus, how well families can perform their caregiving role depends greatly upon the

social and physical circumstances in which they are living. The capacity of parents / caregivers and families to provide children with the conditions they need to flourish depends upon whether their own needs are being met (Bronfenbrenner, 1992; Moore, 2024). This includes having strong social support networks as well as access to material basics. The adequacy of family resources is significantly related to levels of parental distress, child-related stress, and positive parent-child interactional patterns (Dunst, 2022).

There is a wealth of evidence now available regarding the environmental factors that shape child development and learning and the core conditions that the children need to flourish. Several frameworks have been developed to capture these key factors. These include the Nurturing Care Framework (WHO, UNICEF and World Bank Group, 2018) and The Nest (ARACY, 2014). Drawing on these frameworks and other research and analyses (e.g., Luby, 2024), Moore (2024) has summarised the core care conditions that children, parents and families need to flourish. These core care conditions have a cumulative impact – the more we can put in place, the greater the likelihood of positive outcomes. Overall, these social determinants and core care conditions can have a greater impact on children's health and wellbeing outcomes than do the services they and their families receive (Braveman & Gottlieb, 2014; CCCH, 2018; Moore et al., 2017; Prevention Institute, 2019).

All this applies just as much to children with developmental delays and disabilities as to normally developing children – they have the same core needs as all children – needs for attachment, nurturance, emotional responsiveness, care, safety and security and so on (Moore, 2024). However, as already noted, they may have difficulty having these needs realised because of the nature of their disabilities. They may have reduced access to the range of environments and experiences that other children have, and fewer opportunities to participate (World Health Organisation and UNICEF, 2012, 2023). Their families may also have reduced opportunities to work and to participate in community life. Thus, it is important in seeking to meet the needs of children with developmental disabilities and their families, particular attention should be paid to ensuring that their core care conditions are met, and that additional support and adaptations are provided.

The cumulative negative effects of experiencing multiple adverse conditions have been well documented (Bellis et al., 2019; Hughes et al., 2017; Petrucelli et al., 2019). Adverse childhood experiences, defined as various forms of child abuse and neglect and family exposure to toxic stress, become biologically embedded, that is, they change the child's neural and biological infrastructure in ways that have a negative impact of developmental trajectories and outcomes (Nelson, 2013; Nelson & Gabard-Durham, 2020). Individually, these adverse experiences have a small to moderate effect but cumulatively the effect is much greater (Kim & Royle, 2024). The more adverse experiences in early life, the greater the likely incidence of later health, mental health and developmental problems (Anda et al, 2006; Bellis et al., 2019).

Adverse circumstances can have a considerable negative impact on families of children with developmental delays or disabilities and compromise their ability to support their children as they (and we) would wish (Corr et al., 2015; Dunst, 2017; Hughes-Scholes et al., 2019; Swafford et al., 2015; Trivette & Corr, 2018). These include family circumstances (such as insecure housing, limited income, or lack of social support), parental issues (such parental mental and physical health), and family functioning (such as family violence). Families living in poverty are particularly

disadvantaged, and additional supports to supplement their ECI services are needed to help them meet the challenges they face (Corr et al., 2016; Trivette & Corr, 2018).

Regardless of their circumstances, families of children with developmental disabilities are likely to be facing additional financial burdens. An Australian study (Bourke-Taylor et al., 2014) explored the costs to families of raising a child with cerebral palsy and complex needs and found there were both direct and indirect additional costs. Direct costs included extensive equipment and out-of-pocket expenses, while the indirect costs included loss of income due to the need to be involved in supporting the child's medical, intervention and recreational activities.

ECI models have long recognized the importance both of social support and of access to material basics. Guralnick's Developmental Systems Approach (Guralnick, 2011, 2019) emphasised how family resources, including social support and material basics such as finances, can shape the capacity of families to provide their children with the learning opportunities they need.

Despite the existence of these models, there does not appear to be any consistent practice across the ECI sector on how to identify and respond to the psychosocial issues that can compromise parenting and family functioning. Ways of identifying family circumstances include the use of scales such as the Family Resources Scale (Dunst and Leet, 1985, 1987) which assesses the adequacy of basic resources (food, house or apartment, utilities, etc.), financial resources (good job, money to buy necessities, money to pay monthly bills, etc.), time to be alone or engage in desired activities (exercise, staying in shape, etc.), time to spend with family and friends (e.g., time to socialize or talk to), health care (medical care for family members, dental care), childcare (babysitting, childcare), and the availability of expendable income (money for family entertainment, travel, vacation, etc.). Another tool that could fill this gap is the Parent Engagement Resource (PER) (Centre for Community Child Health, 2013, Moore et al., 2012). Based on principles of family-centred practice, the PER is a tool that helps practitioners who are working with families identify any major personal or family issues that may be adversely affecting the family's capacity to care for their children.

Implications for ECI services

- ECI services need to shift to a positive focus on the conditions children and families need to thrive, in line with the national Early Years Strategy. ECI services need to be part of collective efforts to ensure that all young children and families have the conditions they need to thrive. These conditions affect the capacity of the family to provide their children with the nurturing care that all children need, and the extra supports that children with developmental delays or disabilities need.

- Some families will experience conditions that are not optimal and that may compromise their ability to provide their children with the conditions they need to thrive. ECI practitioners need to be able to recognise when this is happening, and ECI services need to have strong links with other services that can help families facing multiple environmental challenges. Service plans need to include actions that are being taken to help families address these challenges.

- ECI services cannot be expected to address all the social determinants that impact on the families they work with. However, they should be part of a wider system of integrated services that can address the factors that may be compromising their family's ability to meet their children's needs.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- specifies the need for ECI practitioners to have a good understanding of the core care conditions that children, parents/caregivers and families need to flourish and how these conditions can be met

- specifies the need for ECI services to be part of a network of services seeking to ensure that all children and families have the conditions they need to flourish

- specifies the need for ECI practitioners to have tools for identifying family circumstances that may be compromising parenting and family wellbeing

- specifies the need for ECI practitioners to be part of a network of services able to meet the diverse needs of families

2.3 Changing ideas about disability

Over the past decades, there have been significant changes in how disabilities are understood, both at the policy and professional level, and in public perceptions. These changes include a shift from biomedical to biopsychosocial models that has informed both policy and practice. It also includes the rise of disability advocacy groups and a higher public profile for people with disabilities.

From biomedical to biopsychosocial models

Over the past few decades there has been a major shift in how disabilities are understood. This has involved a shift from medical models of disability to social construction and biopsychosocial models of disability (Bach, 2017; Barnes & Mercer, 2010; de Carmargo, 2019; Goering, 2015; Halfon et al., 2012; Hebbeler & Spiker, 2016; Law & Darrah, 2014; Rosenbaum & Gorter, 2012; Shakespeare, 2014; Vargus-Adams & Majnemer, 2014). The medical (or biomedical) model views disability as a feature of the person, directly caused by disease, trauma or other health conditions, which requires medical care provided in the form of individual treatment by professionals. In this model, it is the person with a disability who needs to be changed, through medical or other treatment or intervention to 'correct' the problem with the individual. This model remains pervasive in medical care and persists as the basis for eligibility for many public programs (Halfon et al., 2012).

In contrast to this medical model are the social and biopsychosocial models of disability. The social model of disability sees disability as a socially created problem and not an attribute of an individual. In the social model, it is the environment that needs to be changed to enable the person to participate in the social and economic life of the community (Halfon et al., 2012; Shakespeare, 2014). Disability exists when the social and physical environment restricts the person's participation in specific life areas that are important to them. Disabilities are thus not absolute, nor do they reside within the person, but are relative to life areas and the 'fit' between person and environment (de Carmargo, 2019). This means that improving functional health in people with disabilities is not a job for healthcare professionals alone but is a collective responsibility of society to shape the environment in a way that allows the full participation of people with disabilities in all areas of social life (Cieza et al., 2018; de Carmargo, 2019).

Driving this paradigm shift has been the World Health Organisation's (WHO) International Classification of Functioning, Disability, and Health (ICF) (2001). The ICF formalised the new paradigm of disablement – the biopsychosocial model of disability – in which disability is viewed as the product of person–environment interaction. It provided a multidimensional framework and taxonomy of four components of body functions and structures, activities/participation, and environmental factors. The WHO subsequently published a version of the ICF for children and youth, ICF-CY (WHO, 2007), that includes details of the body functions and structures, activities and participation, and environments of particular relevance to infants, toddlers, children and adolescents. The ICF-CY offered a common language that can be used by professionals in allied health, rehabilitation, social work, and education to describe the functioning of children and adults with disabilities across settings and disciplines (Colver, 2005; Simeonsson, 2009). In 2012, the ICF-CY was fully merged back into the ICF.

The ICF has continued to drive innovative thinking and practice over the past decade. Practical applications of the ICF have been described by de Carmargo and colleagues (2019). Rosenbaum and Gorter (2012) and Rosenbaum (2015) have proposed mapping a series of what they call 'F-words' onto the ICF framework. These words or concepts – function, family, fitness, fun, friends and future – allow service providers to 'populate' the ICF framework with each individual's special issues – focusing on their strengths – in order to personalise interventions.

Primarily a classification scheme, the ICF does not provide a formal definition of disability. Building on the ICF framework, the UN Convention on the Rights of Persons with Disabilities (2006) adopted the following definition:

> Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others. (United Nations, 2006, Article 1)

Halfon and colleagues (2012) propose the following definition of disability in children:

> A disability is an environmentally contextualised health-related limitation in a child's existing or emergent capacity to perform developmentally appropriate activities and participate, as desired, in society.

These definitions highlight the fact that disability is a product of the interaction between individuals and the context in which they live (Halfon et al., 2012; King et al., 2018). Instead of a simple dichotomy, disability is understood as a dynamic continuum, influenced by biology, social factors, environmental conditions, health services, and personal preferences (Halfon et al., 2012).

Viewing disability in this way means examining the extent to which a child can or cannot participate with family members and peers in day-to-day activities at home, in early childhood services, and in community activities (Hebbeler & Spiker, 2016). The goals of intervention planning should be based on the possibilities for children to engage in activity and participation in their environment, not necessarily related to the 'normalisation' of specific body functions (de Carmargo, 2019). Thompson and colleagues (2014, 2016, 2017) argue that the most relevant difference between people with developmental disabilities and the general population is that people with former need different types and intensities of support to fully participate in and contribute to society. Environments that are not adapted to meet children's level of functioning restrict their participation in everyday activities, thus impairing their ability to develop and learn. Missing opportunities to learn is especially harmful for young children because it limits their future ability to fully participate in everyday activities (Hebbeler & Spiker, 2016).

One outcome of the shift in thinking about disability has been the adoption of functional approaches to assessment, planning and service delivery. This has been especially marked in rehabilitation services for children with physical impairments. Here there has been a paradigm shift from direct therapeutic interventions that sought to modify children's physical functioning to functioning in real life settings (Darrah et al., 2011; Jackman et al., 2022; King et al., 2018; Law & Darrah, 2014; Vargus-Adams & Majnemer, 2014).

It is important to note, that there are significant differences in cultural understandings of disability. In particular, disability is a Western concept that was not familiar to Aboriginal and Torres Strait Islander people (Avery, 2018). Aboriginal and Torres Strait Islander organisations tend to accept a social model of disability which views the systems as limiting rather than anything intrinsic to the individual. The way different cultures define 'disability' and thus 'interventions' to it is not incidental but highly pertinent to reviewing the evidence and the approach to services and supports.

Despite the shift to a more biopsychosocial view of disability, there continues to be a tension between whether we should be changing the environment to match the

needs of the person or changing the person to match the demands of the environment (KPMG, 2011). These two approaches lead to very different ways of providing services that parents may find hard to choose between (McDonald et al., 2016). Some take a strong view that it is the environment that needs to change. For instance, Potvin and colleagues (2018) have developed a Coaching in Context model for supporting children with autism and their families that focuses on improving the child's everyday life by changing the task demands rather than attempting to remediate the impairment of the individual. Similarly, Darrah and colleagues (2011) describe context therapy, an intervention approach for working with children with cerebral palsy. The unique feature of this approach is that therapists were explicitly trained to change only the characteristics of the task and/or environment and not to try to change the child's impairments. Evidence for the efficacy of this approach is accumulating (Anaby et al., 2022; Law et al., 2011; Paithankar & Jaywant, 2018). According to Law and Darrah (2014), the clinical long-term objective of most contemporary rehabilitation interventions is not to 'fix' cerebral palsy but rather to optimize the functional and social independence of persons with the condition, with an emphasis on family involvement and practical, functional interventions. Rehabilitation interventions that use a family-centred approach and that focus on functional improvement can be more effective in promoting participation. Anaby and colleagues (2022) argue that it is time for a paradigm shift towards participation-focused practice in paediatric re/habilitation, placing participation at the forefront of what is done in rehabilitation. They note that participation is both the means for gaining skills and a desired outcome in its own right.

While the consensus of opinion in the ECI literature favours this approach as more effective and as having a more powerful rationale for young children, the allure of the first approach is enduring (Moore et al., 2019). This is especially so when combined with strong claims about evidence-based programs and their proven efficacy. As Valentine (2010) has documented, such claims can make parents feel that they have no choice but to go with whatever program is deemed most effective, regardless of the financial or personal cost. What this highlights is that choices about interventions are not value-free and are political in the sense of being shaped by a swirling mix of ideologies, personal preferences and instincts, and misinformation (Siegel, 2018).

There are significant differences across cultures in understandings of disability. In particular, disability is a Western concept that is not familiar to Aboriginal and Torres Strait Islander people (Avery, 2018). Aboriginal and Torres Strait Islander organisations tend to accept a social model of disability which sees systems as limiting rather than attributing limitations to intrinsic attributes of individuals. Views of disability are highly pertinent to reviews of evidence.

Other changes in ideas about disability

Over the past decade, there have been other significant shifts in attitudes and ideas about disability.

- There is greater awareness of disabilities and what people with disabilities can achieve. This is partly due to accounts by autistic people of their lives (e.g., Grandin & Panek, 2013; Wylie et al., 2016), and to greater acceptance and public profile of people with disabilities (e.g., Down syndrome people in

television shows, events such as the Paralympics and Special Olympics). Even children's television shows are acknowledging disabilities. Sesame Street introduced Julia, a character with autism, to its television program in 2017, and now has a website dedicated to autism that highlights Julia's family (http://autism.sesamestreet.org/).

- Another development has been the emergence of the shared citizenship paradigm (Schalock et al., 2022; Luckasson et al., 2023). This paradigm is one that envisions, supports, and requires the engagement and full participation of people with intellectual and developmental disabilities as equal, respected, valued, participating and contributing members of every aspect of society. The core components include a holistic approach to intellectual and developmental disabilities, a contextual model of human functioning, disability rights principles, and person-centred implementation strategies. The term citizenship refers to the state of belonging and includes an acknowledgement that each person is not only included in the group, but has the privileges, rights and obligations that such belonging entails. Shared refers to the experience of each person who belongs to the group having a common stake in the past, present and future of the group and its resources. Shared citizenship is the state of belonging and experiencing the common stake by every person in the group (Luckasson et al., 2023).

- Disability groups have also become more vocal in their insistence on the positive aspects of disabilities rather than the deficits. Examples include the Deaf rights movement beginning in the 1980s, and the more recent autism rights movement (Solomon, 2008), both demanding that the mainstream world make greater accommodations to meet their needs. There has also been a push to view autism and other neurological conditions in terms of the neurodiversity paradigm (Dwyer, 2022; Sonuga-Barke, 2023; Walker, 2014), the notion that they represent variations in functioning rather than disorders to be cured (Reber, 2018). We are being urged to celebrate the 'other side of normal' (Armstrong, 2010; Smoller, 2012), to acknowledge the spectrum of neurodiversity (Casanova and Casanova, 2016), and to recognise the existence of 'neurotribes' (Silberman, 2015).

On the basis of the neurodiversity paradigm, the autism rights movement wants greater acceptance of autistic behaviours, therapies that teach autistic individuals coping skills rather than therapies focused on imitating behaviours of 'neurotypical' peers, the creation of social networks and events that allow autistic people to socialise on their own terms; and the recognition of the autistic community as a minority group.[30]

Some parents of children with neurological conditions have become champions of the neurodiversity paradigm, arguing that that some children are more properly understood as being 'differently wired' rather than neurologically disabled (Lee, 2015; Reber, 2018; Snow, 2013). Adopting this perspective has implications for early childhood intervention. As put by one parent (Lee, 2015):

> *In most places, as soon as a child is identified as autistic, they are funnelled straight into early intervention therapies. Based on a medical model of disability, these therapies see autistic children as disordered, and aim to*

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[30] https://en.wikipedia.org/wiki/Autism_rights_movement)

change autistic children so that they will play, communicate and move more like their 'typically developing' peers…

If families, caregivers and health professionals accept the neurodiversity paradigm, 'autism early intervention' looks very different. The target of intervention is not autistic children, but their social and physical environments. Autistic children are supported in families and communities to develop as unique and valued human beings, without conforming to the developmental trajectory of their neurotypical peers.

Even professionals who would not espouse such a strong view of neurodiversity argue that we should promote more positive views of disability by changing the way that we talk about it. Rosenbaum (2016) suggests that professionals can help by replacing the pejorative 'D-words' (damage, disability, defect, deficit, devastating, and depressing) that still colour the public perception of impaired child development with ideas like diversity, difference, and especially development – words that are neutral with respect to problems, and are positive insofar as they remind us about variability in the world in general and in child development in particular. Sonuga-Barke (2023) proposes that, rather than assuming that neuro-developmental conditions, such as autism and ADHD, are disorders resulting from brain dysfunction, we view them instead as divergence in thought and action underpinned by brain atypicality. This shift would help us focus more on understanding the way environments shape experience to either stifle or promote the well-being and development of neurodivergent people.

The WHO has continued to develop work on understanding and managing disability. Summarising this ongoing work, Cieza and colleagues (2018) identify three principles on which this work is based: that disability is a universal human experience; that disability is not determined solely by the underlying health condition or predicated merely on the presence of specific health conditions; and finally, that disability lies on a continuum from no disability to complete disability. Because disability is continuous, it is also universal, since over the course of a person's life the chances are extremely high that, in some domain, he or she will experience some decrement in functioning. In other words, human functioning ranges from full functioning to some limitation in functioning to complete loss in functioning (Cieza et al., 2018).

Another major shift in thinking about disability has been around the ***usefulness of diagnosis in determining what form of support or intervention is required***. Astle and colleagues (2022) argue that discrete diagnostic categories that are used to classify individuals are ill-suited to explaining the variability and complexity of conditions, understanding the underlying mechanisms or guiding support decisions. Stein and Jessop (1989) have demonstrated that there is more variability within diagnostic groupings than between them and suggest that diagnosis is not a helpful categorization in the examination of psychological and social variables. Similarly, Rosenbaum (2019) notes that, while a diagnosis appears to explain a condition, it is not as useful or as explanatory as it seems. Diagnosis rarely leads to condition-specific interventions. Interventions for the wide range of neurodisabilities are almost never diagnosis- or condition-specific. Rather, the best of these interventions addresses functional impairments, be they in communication, mobility, self-care, learning, or behaviour.

However, diagnosis is often valuable for families (as well as for practitioners), providing emotional relief and even helping with family planning (Dikow et al., 2024). It also gives a sense of what 'it is' and what 'it is not' (Rosenbaum, 2021). In seeking to balance these two perspectives, Rosenbaum proposes -

> The search for the biopsychosocial underpinnings (perhaps the 'causes') of children's impairments is very important for both individual children and families, and for people with phenomenological characteristics similar to those children. Simultaneously, however, we need to recognise the huge advantages of adopting a non-categorical approach to our work. This way of thinking encourages all of us to look beyond individual diagnoses in order to recognize the many ways that all the conditions with which we work share common elements. These include the impact of the condition on children's and families' predicaments; the threats to children's developmental trajectories; the need for broad multi-system engagement both within and beyond the medical community; the life-course impact of all these conditions. The list is long and complex, and virtually none of these issues is diagnosis specific.

Others have shared these concerns about the usefulness of diagnostic approach and have argued it would be more helpful to focus on functioning (Law & Darrah, 2014; Rosenbaum, 2019, 2021; Rosenbaum & Gorter, 2012; Stein & Jessop, 1989). This new focus encourages an approach that puts a primacy on promoting child development and achievement in whatever way works (Rosenbaum, 2021). Others have supported a shift to a non-categorical approach (Miller et al., 2023) or a transdiagnostic approach (Astle et al., 2022; Fletcher-Watson, 2022).

Implications for ECI services

- All these different ways of reframing disability have implications for early childhood intervention. An issue of particular importance is the tension between approaches that aim to meet the needs of people with disabilities by changing the person to fit in with the existing environments or changing the environments to enable the person to participate more fully. Efforts to change the child directly include behaviour modifications strategies or direct therapy, while interventions that focus more on changing the environments include naturalistic teaching strategies such as responsive caregiving and teaching practices, interest-based and self-directed practices, and use of everyday naturally occurring activities.

- This is not an either/or debate: both approaches may be needed under different circumstances, and the functioning of people with disabilities is properly understood as the product of an interaction between person and environment, not of one alone. However, in the case of very young children, the case for efforts to change the child directly is weakened by the lack of evidence for the effectiveness of such approaches. Based upon such evidence, Dunst and Espe-Sherwindt (2017) make the strong claim that highly structured and non-contextualised intervention practices are neither necessary nor appropriate for promoting the learning and development of infants and toddlers with developmental disabilities.

- Another important consideration is that these different approaches lead to very different ways of providing services that parents may find hard to choose between (McDonald et al., 2016). As noted by Moore and colleagues (2019), while the consensus of opinion in the ECI literature favours the second approach as more effective and as having a more powerful rationale for young children, the allure of the first approach is enduring. This is especially so when combined with strong claims about evidence-based programs and their proven efficacy. As Valentine (2010) has documented, such claims can make parents feel that they have no choice but to go with whatever program is deemed most effective, regardless of the financial or personal cost.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- recognises the parents' needs for a diagnostic explanation for their child's developmental challenges but encourages a focus on building the particular functional skills the child needs, regardless of the diagnosis.

- encourages approaches that seek to change environmental experiences and opportunities rather than trying to eliminate behaviours which may have an adaptive function for the child.

Increasing focus on children with disabilities

The last twenty years has also seen growing attention being paid to children and young people with developmental delays or disabilities. With the international endorsement of the United Nations Convention on the Rights of the Child (United Nations, 1990) and the Convention on the Rights of Persons with Disabilities (United Nations, 2006), the majority of countries in the world have now committed to implementing the human rights articulated in these treaties (Brown & Guralnick, 2012; Collins et al., 2017; Vargas-Barón et al., 2019). Both these documents envision an inclusive society in which health and education contribute to the well-being of all. This vision is also reflected in the UN's SDGs (United Nations, 2015) endorsed by member states, including Australia, in 2015 (Brolan et al., 2019). The Sustainable Development Agenda builds on the principle of 'leaving no one behind' and envisions a fully inclusive society. The SDGs also explicitly include disability and persons with disabilities a number of times, and achieving many of the goals will ensure the inclusion, participation and development of persons with disabilities.

To achieve the vision of a fully inclusive society, children with developmental delays and behavioral, cognitive, mental, and neurological disabilities need greater access to health care, early childhood care and development services, and education (Collins et al., 2017). Although the UN's SDGs emphasise inclusive education for children under 5 years with disabilities, there is no global strategy for achieving this goal since the launch of the SDGs (Olusanya et al., 2024). Despite being more vulnerable to risks which could harm their development, young children with disabilities are often overlooked in mainstream programmes and services designed

to ensure child development (Olusanya et al, 2022; World Health Organization & UNICEF, 2023). In a report to the United Nations General Assembly (2019), the United Nations High Commissioner for Human Rights provided an overview of the legal framework and practical measures to empower children with disabilities. This highlighted empowerment through participation and inclusive education, and analyses how to foster the personal and public decision-making of children with disabilities, their inclusion and participation in the community and their protection from abuse, exploitation and violence.

Based on the principles, values, and recommended practices articulated by these Conventions, Guralnick (2008) and Brown and Guralnick (2012) present a set of principles consistent with those of the Conventions but providing more specific guidance with respect to developing and refining early intervention programs that will yield the most optimal outcomes:

Principle 1:   A developmental framework informs all components of the early intervention system and centres on families

Principle 2:   Integration and coordination at all levels of the early intervention program are essential

Principle 3:   The inclusion and participation of children and families in community programs and activities are maximised

Principle 4:   Early detection and identification procedures are in place

Principle 5:   Surveillance and monitoring are integral parts of the system

Principle 6:   All components of the program are individualised

Principle 7:   A strong evaluation and feedback process is evident

Principle 8:   True partnerships with families cannot occur without sensitivity to cultural differences and an understanding of their developmental implications

Principle 9:   Recommendations to families and intervention practices must be evidence based

Principle 10: A systems perspective is maintained, recognising interrelationships among all components

Some of these principles relate to direct work with children and families while others describe the service system that is needed to support this work.

Implications for the ECI services

- This increased focus on children with disabilities is clearly welcome as it supports the efforts of the ECI sector to ensure that the needs and rights of children with disabilities are being met. The ECI sector needs to be an active participant in these ongoing efforts to ensure that the needs of young children with developmental delays or disabilities are understood and included in the actions taken.

- Inclusion needs to be understood as much more than just having access to the same ECEC and community environments as all other children. It involves ensuring that children with disabilities are provided with the supports and

environmental adaptations that enable them to participate meaningfully in all the activities as other children. It is participation that drives development and learning, not access (Imms et al., 2017).

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- promotes inclusion and participation as a major goal for all children with developmental concerns, delays and disability.

Changes in incidence and prevalence of developmental disabilities

Although attention to childhood developmental delays or disabilities is increasing, we still do not have a comprehensive picture of the prevalence, epidemiology, and causes of disabilities around the world (Black & Lawn, 2018). An international effort to identify the prevalence and years lived with disability among children younger than 5 years is being undertaken by the Global Research on Developmental Disabilities Collaborators (2018). They are concentrating on six developmental disabilities: epilepsy, intellectual disability, vision loss, hearing loss, autism spectrum disorder, and attention deficit hyperactivity disorder (ADHD).

US surveys of the prevalence of childhood disability found that rates of childhood disability are increasing (Halfon et al., 2012; Zablotsky et al., 2017) and that emotional, behavioural, and neurological disabilities are now more prevalent than physical impairments (Halfon et al., 2012). While the overall rate has risen, there are variations in the rates observed in different disabilities. The rates for autism diagnosis have risen in Australia (Bent et al., 2015; Williams et al., 2014) and the US (Kogan et al., 2018). However, since the publication of the revised definition of autism in the fifth edition of the *Diagnostic and statistical manual of mental disorders (DSM-5)* (American Psychiatric Association, 2013), rates of diagnosis of autism have dropped (Kulage et al., 2019). A UK survey (Pinney, 2017) found that the numbers of disabled children with complex and life-limiting needs have increased by over 50% since 2004, while US data show an increase in the number of children with medical complexity and associated neurodevelopmental and mental health disorders (Levenaar et al., 2024; Oreskovic & Cohen, 2024). However, Australian data shows a decrease in the number of children born with cerebral palsy, as well as a decrease in the severity of cerebral palsy (although at least a quarter of children with cerebral palsy still have severe motor difficulties and used a wheelchair for mobility) (Australian Cerebral Palsy Register Group, 2018).

There is no single explanation for why rates of some childhood developmental disabilities have increased so dramatically. This trend could reflect a real change in the incidence of conditions caused by changing risk exposures during pregnancy and early childhood, or it could result from changes in recognition, screening, and diagnostic criteria (Halfon et al, 2012; Williams et al., 2014). These include earlier identification of disabilities due to improved screening methods, changes in definitions of some disabilities (such as autism), increased community and professional awareness resulting in more children being identified and more services being offered and shifting expectations of what a typically developing child 'should'

be able to do (Halfon et al., 2012; Williams et al., 2014). The decline in rates of cerebral palsy probably reflect advances in research and practice in all areas including the health and care of pregnant women and their babies, particularly high-risk pregnancies, neonatal intensive care, and the impact of public health initiatives for healthy pregnancies and to prevent accidents (Australian Cerebral Palsy Register Group, 2018).

Funding may also play a role in the changing rates of disability diagnoses. Siegel (2018) suggests that some of the increase in identification of young children with autism in the US is likely to be due to the much greater level of intervention funding that an autism diagnosis attracts, making this a particularly desirable diagnosis. This is also the case with the NDIS where an extraordinarily large number of children on the NDIS have autism diagnoses, much higher than would be expected. This is seen as the result of the NDIS becoming the only form of service available, with the state-based services which catered for many of these children being withdrawn when the NDIS was introduced.

Another contributing factor is that children with autism often have other developmental problems such as intellectual developmental disorder, language disorder, and ADHD. Gilberg and Fernell (2014) suggest that in the past, these comorbidities were given diagnostic priority over the autistic features of behaviour, but nowadays autism is increasingly considered the primary diagnosis.

One reason for the higher rates of developmental disability is the success of efforts to identify developmental concerns, delay or disabilities at an earlier age. The unqualified success story in this regard has been the introduction of hearing screening for newborns. All Australian states and jurisdictions now have infant hearing screening programs, and a national framework for screening has been developed (Department of Health, 2013).

In the case of cerebral palsy, early identification is seen as critical in providing earlier access to cerebral palsy interventions that will lead to improved outcomes (Graham et al., 2017; Morgan et al., 2018; Novak et al, 2017). More than half of infants with cerebral palsy are born at or near term, with the vast majority having pre- or perinatally acquired cerebral palsy (Morgan et al., 2018). A diagnosis of cerebral palsy can be accurately made before 6 months' corrected age (Novak et al., 2017), allowing prompt referral to diagnostic-specific early intervention to optimize infant motor and cognitive plasticity, prevent secondary complications, and enhance caregiver well-being.

Screening for autism spectrum disorders (ASD) is more challenging (Dissanayake, 2012). While many diagnostic tests have been developed (Randall et al., 2018), there is a substantial gap between the age at which a reliable and accurate diagnosis of ASD is possible and the average age that children in Australia are currently diagnosed (Bent et al., 2015; Dissanayake, 2012). In a promising Victorian initiative, a developmental surveillance tool for use by MCH nurses has been trialled, focusing on children below the age of 2½ years (Barbaro & Dissanayake, 2010,

2013). The Victorian government has now provided funding to train all MCH nurses in the use of this tool.[31]

Screening for developmental difficulties in early infancy is desirable if it leads to early identification and referral to early intervention programs that are effective. Prenatal screening is more problematic. There have also been improvements in prenatal screening for developmental disorders, and their use is becoming more widespread. However, their use raises a number of ethical issues. Should parents terminate a pregnancy when the foetus has been identified with a known disability? The incidence of Down syndrome is dropping in places where diagnostic testing in pregnancy is available. A recent Western Australian study (Maxwell et al., 2015) found that, while there has been an increased rate of Down syndrome pregnancies, the overall rate of births has been dropping. This is due to the availability of neonatal screening: nearly all women for whom a prenatal diagnosis of foetal Down syndrome is made chose to terminate the pregnancy. As one mother who chose not to terminate has observed (Callinan, 2019), this is occurring at a time when prospects for those born with Down syndrome are brighter than ever. Some are fully included in mainstream education, attend university, hold down jobs, live independently and find love. Advancing technology means that some of the health problems that affect people with Down syndrome (such as heart conditions, affecting about half of all babies born with Down syndrome) can be corrected soon after birth.

These ethical questions will only increase as improved screening techniques, such as non-invasive prenatal screening (NIPS) (Leonard, 2017), become available. NIPS is a method of determining the risk that the foetus will be born with certain genetic abnormalities. This testing analyses small fragments of DNA that circulate in a pregnant woman's blood. NIPS is most often used to look for chromosomal disorders that are caused by the presence of an extra or missing copy of a chromosome and can provide a more accurate and earlier result about the likelihood of the foetus having a condition such as Down syndrome. Research is also being undertaken to identify genetic and other biomarkers of a range of disabilities. If screening for these becomes available, it will again raise ethical questions about what to do with the information.

There are also developments in the treatment of disabilities. For instance, Donoghue and Amor (2024) describe new techniques such as enzyme replacement therapy, gene therapy and molecular therapies that can change neurodevelopmental outcomes in genetic forms of intellectual disability. They argue that this makes intellectual disability a potentially treatable condition and therefore a strong candidate for precision medicine.

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[31] https://www.premier.vic.gov.au/early-support-for-children-with-autism/ This tool is also available for parents in the form of a free app (www.asdetect.org) that empowers parents and caregivers to assess the social attention and communication behaviours of their children younger than 2½ years.

Implications for ECI services

- Improved screening is desirable both because it offers opportunities for intervention at earlier ages and because it can drive innovation and new knowledge. However, knowing how to intervene effectively with very young children is challenging – they are at their most developmentally plastic stage and their disabilities are still in a relatively undifferentiated state and have not yet evolved into a more distinct form for which proven interventions exist. Further research on how to best support development in very young children with developmental delays or disabilities is needed.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Practice Framework:

- provides guidance to practitioners regarding ethical challenges involved in decisions regarding screening and early intervention.

2.4 Developments in service delivery

There have been a number of new models of service delivery in disability and other sectors that are relevant for ECI services. These are discussed below under two headings: changing models of service delivery and changing ideas about evidence and implementation.

Changing models of service delivery

Old models of service delivery are being challenged in various ways. Some of these involve changes in relationships between government and consumers – these include people-centred health care, co-design and co-production approaches, self-managed and personalised funding models, and an increasing focus on outcomes. All of these are relevant for ECI services in one way or another.

People-centred health care

The WHO (2016) has developed a framework on integrated, people-centred health services that involves a fundamental shift in the way health services are funded, managed and delivered. It proposes that everyone should have access to health services that are co-produced in ways that are coordinated around their needs, respect their preferences, and are safe, effective, timely, affordable, and of acceptable quality. As described by Ahmad and colleagues (2014), in a person-centred health care system, people are supported to make informed decisions about and successfully manage their own health and care. Shared decision making and self-management support are important elements of this approach, which is based upon active collaborative relationship between patients and health care professionals. While the evidence base for self-management support and shared decision making continues to grow (Ahmad et al., 2014), delivering person-centred services presents some challenges, especially in meeting the needs of the most vulnerable and disadvantaged (Joyce, 2017). In addition, consumers, caregivers and

communities need to actively participate in the design, implementation and evaluation of service systems, not just their own individual service needs (Joyce, 2017).

Co-design and co-production

There has been increasing interest in co-production and co-design approaches to developing and delivering services (Blomkamp, 2018; McMillan, 2019; Moore et al., 2016; Needham & Carr, 2009; Pennington et al., 2017, 2018; Slay & Stephens, 2013). Co-design seeks to make public services match the wants and needs of their beneficiaries (Bradwell & Marr, 2017). The rationale for this approach is that people's needs are better met when they are involved in an equal and reciprocal relationship with public service professionals and others, working together to get things done (Boyle et al., 2010). This is especially important for the most disadvantaged and marginalised families (CCCH, 2010). Co-production involves a relationship where professionals and citizens share power to plan and deliver support together, recognising that both partners have vital contributions to make in order to improve quality of life for people and communities (Slay & Stephens, 2013). This is in contrast to approaches that treat people as passive recipients of services designed and delivered by someone else. It emphasises that the people who use services have assets which can help to improve those services, rather than simply needs which must be met (Needham & Carr, 2009). Evidence for the positive impact of involvement in decision-making is accumulating (McMillan, 2019; Pennington et al., 2017, 2018; Whitehead et al., 2014; What Works Centre for Wellbeing, 2018).

In a similar vein, governments are being encouraged to adopt an enablement mindset rather than a delivery mindset (Althaus & McGregor, 2019; Centre for Public Impact, 2018). Inspired by management practices from the private sector, a delivery mindset assumes that the way to achieve better outcomes is to examine the evidence of what does and does not work, design services based on this understanding and manage those services efficiently. In this approach, people are treated as customers, and the same improvement strategies used by businesses are applied to human services such as welfare services. In contrast, an enablement mindset does not seek to improve services directly but aims to cultivate the conditions from which good solutions are more likely to emerge. This shift involves a much greater recognition of the role that relationships play in effective human services, and how a greater attention to relationships could revolutionise how governments can best support its citizens (Cooke & Muir, 2012; Cottam, 2018; Mulgan, 2012).

Another significant shift is the move to self-managed/self-directed funding for people with disabilities. (Note that the discussion that follows addresses the evidence regarding the general issue of self-managed funding. This should not be confused with the option available to parents under the NDIS ECEI approach to manage their own funding.32 The conclusions should not be taken as a comment on or endorsement of this option.)

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32 Under the NDIS ECEI approach, parents have three options to manage their NDIS funding - self-managed, plan-managed and NDIA-managed. In the self-management option, the NDIA provides parents with the funding so they can purchase the supports that choose need directly. In the plan-managed option, the NDIA provides funding in the plan to pay for a Plan Manager who pays providers

Self-managed/self-directed funding[33]

Individualised or personalised budgeting models for people with a disability have been widely adopted around the world (Brown et al., 2018; Dickinson, 2017; Fisher & Purcal, 2010; Fisher et al., 2010; Harkes et al., 2014; Laragy & Ottmann, 2011; Murray, 2010; Needham, 2010; Needham & Dickinson, 2018; Pearson et al., 2014: Pike et al., 2016). There is a good case to be made for self-directed approaches (Leadbeater, 2004, Duffy, 2006). As championed by Leadbeater (2004), the rationale for personalisation is that, by putting users at the heart of services and enabling them to become participants in the design and delivery, services will be more effective by mobilising millions of people as co-producers. This participative approach should deliver personalised, lasting solutions to people's needs at lower cost than traditional, inflexible and top-down approaches (Leadbeater et al., 2008).

Duffy (2010) describes this as a shift from a paternalistic model of service delivery (a 'professional gift' model) towards a model which treats people as citizens, not service users (a 'citizenship-based' model):

Professional gift model - In this model the taxpayers give money to the government, the government gives money to the professionals who turn that money into services that are offered to the needy person as a gift - that is, something that cannot be defined, shaped or controlled by the individual.

Citizenship-based model - In this model the taxpayers give money to the government, the government defines that money as an entitlement, and the individual (with their community) uses this entitlement to negotiate any professional support necessary.

Originally developed in the adult care services sector, this approach has been extended to children's services and health care. The UK In Control charity (Crosby, 2010; Crosby et al., 2012) has promoted personal budgets for children with disabilities and their families. They see these as depending upon the development of a new relationship between statutory agencies, services, and children with disabilities and their families. According to Crosby (2012), this new relationship is based on an approach that sees:

> **The child and the family at the centre***:* Families are the experts. They may need knowledge, skilled support and expertise from others to help with their child, but it is essential to remember they hold the lead caring role, and this should not be compromised by professional intervention.

> **The recognition of a family's 'real wealth'**: The child and the family have a range of existing resources that they can draw upon. They may simply need good support to enable them to recognise and utilise these resources.

> **A whole system**: All support needs a joined-up approach focused on strategic outcomes.

> **Clear and simple outcomes**: Outcomes agreed at the outset which set out simply and clearly what services will achieve for children, young people and families.

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on behalf of the parents, helps them keep track of funds, and takes care of financial reporting. In the NDIA-managed option, the NDIA pays the providers on behalf of the parents.

[33] This section draws on accounts by Moore (2016) and Moore et al. (2019).

A simple pathway: A set of steps clearly identifying the process for how children and young people will be assessed, eligibility criteria, allocation of personal budgets and review (Crosby et al., 2012).

Despite the persuasive rationale, switching to personalised funding is not a simple matter (Laragy & Ottmann, 2011; Manthorpe et al, 2011; Pearson et al., 2014) and is sometimes done without clear evidence of the effectiveness of the approach (Harkes et al., 2014; Needham, 2010). Needham & Dickinson (2018) argue that 'individualized funding has in part become so widely popular because it knits together two dominant policy narratives in advanced democracies: neo-liberal public sector reform that seeks to strip power away from large government bureaucracies, and human rights discourses that aim to maximize the scope for self-actualisation amongst people who have been denied full citizenship in the past'. These twin lines of thought are certainly evident in the in the Productivity Commission's report on disability care and support that recommended the establishment of the NDIS (Productivity Commission, 2011).

What is the evidence regarding the effectiveness of personalised budgets? In the case of adults with disabilities, there have been a number of evaluations of personalised budgets with adults, including case studies of personalised budgets as a way of providing better support people at times of crisis or vulnerability (Keilty, 2014), reviews of evidence regarding personalised budgets for adults needing social care (Manthorpe et al., 2011), and review of self-management strategies for adults with health problems (Da Silva, 2011). A recent review of the evidence by Dickinson (2017) found mixed results for both satisfaction and outcomes. This review suggested that it may not be the funding that has the impact, but the care planning process: there was improved satisfaction only where there are appropriate management systems and supports were in place.

Australian studies suggest that individualised and self-managed funding can significantly enhance the choice, dignity, control and empowerment of adults who have a disability, their families and carers, as well as improving their wellbeing, independence, resilience and social participation (Fisher & Purcal, 2010; Fisher et al., 2010; Gendera et al., 2011 Pearson & Hill, 2012).

In the case of personalised budgets for children with disabilities, there have been evaluations of pilot programs of Individual Budgets for Families with Disabled Children, in the UK, mostly involving older children rather than those involved in early intervention services. These studies have looked at the progress of the individual budgets program (Prabhakar et al., 2011; Prabhakar & Thom, 2012) and the impact on family outcomes (Johnson et al., 2011; Johnson & Thom, 2012). A summary report of these evaluations (Thom & Prabhakar, 2011) suggested that the individual budget programs clearly demonstrated an increased sense of choice and control, improved access to social care services, shifts in the types of service that families used, greater satisfaction with the services they received, and some flow through benefits for improved wellbeing.

According to Murray (2009, 2010), families of children with disabilities report that the personalised approach gives them a range of benefits, including a sense of being valued, a positive view of their disabled child, ability to respond to the fluctuating needs of illness and impairment, transparency and greater understanding of what services and support costs, opportunities to try things out to see what works best, and control over how the money allocated to them is spent.

Despite these claims, the idea that personalised and self-directed budgets always lead to better use of resources has been challenged. On the basis of an analysis of policies and their impacts in the UK, Spicker (2013) concluded that personalisation works in some circumstances and not in others: 'there are many … cases in which markets do not work—where imperfect information, locational costs, externalities and disadvantage conspire to limit choice, control and responsiveness'. Parents who are poorly informed, who do not have a range of services to choose from or have few resources themselves do not make good choices or use funding to their best advantage.

What conditions are needed for self-managed funding schemes to have positive outcomes for participants? Based on a qualitative case study conducted in an Australian not-for-profit disability agency over a 4-year period, Laragy and Ottman (2011) identify the following factors that need to be in place to support individual funding schemes:

- Choice over whether to receive traditional services or self-manage
- Support appropriate to cognitive, physical and cultural needs to be an active participant in planning
- Mechanisms to review appropriate to capacity and individual needs
- Culturally appropriate information and support services
- Provision of adequate resources to meet needs and the ability to quickly reassess when needed
- Support services to manage administrative responsibilities
- Clear guidelines about what is allowed and what not, allowing for maximum flexibility and creativity
- Support from peers (i.e. other consumers or families)
- Support for support workers and to protect working conditions.

Using data from Australian studies of individualised funding programs, Laragy et al. (2016) have identified the conditions needed to ensure that people with disabilities have access to reliable information on which to base informed choices about funding. Information needs to be:

- Accessible and diverse in format, mode, source and location
- Personalised and targeted
- Accurate, consistent and timely
- From a trusted source
- Independent
- Culturally appropriate
- Actively promoted to 'hard to reach' groups; and
- Gender appropriate.

Increasing focus on outcomes

There is an increasing emphasis on outcomes in public services (Miller, 2012; Miller et al., 2009). As defined by the Institute for Research and Innovation in Social Services (IRISS) (2012), outcomes refer to the impact of support on a person's life and not the outputs of services. Outcomes are the answer to the question: So, what difference does it make? Outcomes are changes or benefits for individuals who access support and those of their informal/family caregivers. Focusing on the outcomes important to individuals is an underpinning principle of personalised support. As Glendinning and colleagues (2006) have said, 'Outcome-focused services and support therefore aim to achieve the aspirations, goals and priorities identified by service users (and carers) – in contrast to services whose content and/or form of delivery are standardised or determined solely by those who deliver them'.

Making the switch from focusing on 'outputs' to 'outcomes' is challenging. According to Miller (2012), part of the problem lies in competing agendas:

> Two core outcomes paradigms are currently at play: the improving and the proving agendas. The improving agenda involves putting the person at the centre with a change management agenda which focuses on culture, practice and flexible approaches to communication. The proving agenda, more consistent with managerialism, centres on evaluating and evidencing improvement, leaning towards measurement and standardisation, and has a focus on tools. It is essential to strike the right balance between these approaches.

The Institute for Research and Innovation in Social Services (IRISS) in Scotland has produced a series of guides to help services adopt an outcomes-focused approach (IRISS, 2010, 2012, 2013).

Implications for ECI services

- Both the person-centred health care and the co-production/co-design movements are highly congruent with the principles of family-centred practice and suggest that other service sectors are beginning to understand what the ECI sector has long understood. However, some of the ideas being developed go beyond family-centred practice as traditionally practised and may challenge the ECI sector to engage with families of children with disabilities in new ways.

- There are also lessons to be learned from the various efforts to implement self-managed funding models. This has direct relevance for ECI services under the NDIS. Although such models can have positive benefits, these are only likely to be experienced if certain conditions are in place. We need to identify those conditions and ensure that they in place so that families entering the NDIS can experience the full benefits of self-directed funding. Choice is meaningless for those who have no viable support services to choose from. Choice is also compromised when parents are not well informed about ECI services, which may result in them making choices that are not in their best

interests of the child or family or that make poor use of funding, all through no fault of their own.

- The increasing focus on outcomes has lessons for ECI services. Not only should they be based on a clear understanding of the overall aims of ECI (as discussed earlier), they should also be clear about what outcomes they are seeking for children and families, and be able to monitor whether these are being achieved.

Implications for ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- is based on a clear understanding of the conditions that families need to make informed choices regarding goals, funding and services

- specifies the outcomes that are being sought for children and families

- provides ways of measuring child and family outcomes

Changing ideas about evidence and implementation

Another major feature of service delivery over the past two decades has been the emergence of the evidence-based practice and implementation science movements. The term evidence-based practice is usually understood as the use of programs and interventions that have been demonstrated to be effective through a particular set of methods – randomised controlled trials with replications and longitudinal follow ups, and systematic reviews of such trials. It has been argued that interventions that have not been subjected to these tests and shown to be effective should be avoided. This has led to the generation of lists of evidence-based programs that practitioners were advised or even required to choose from.

This approach has been criticised on several grounds (Fonagy et al., 2014; Greenhalgh, 2012, 2018; Hammersley, 2013; Moore, 2016). While existence of evidence increases the chances of a treatment being effective, it is no guarantee. Fonagy and colleagues (2014) state that we now know that evidence-based practice cannot be assured by 'choosing' a treatment from a list of approved options, an approach they describe as a parody of evidence-based practice.

One of the problems with this approach is that programs that have been shown to be effective in controlled trials are not so easy to implement (and therefore less effective) in real world settings, which are invariably less well controlled (Greenhalgh, 2018). One response to this problem has been the implementation science movement, which argues that better outcomes will be achieved if programs that have been shown to be effective are delivered as designed. Implementation science involves developing ways of ensuring that practitioners deliver intervention with greater program fidelity (Fixen et al., 2005; Kaiser & Hemmeter, 2013). The evidence shows that stronger outcomes result when implementation is better, and that one can fail to achieve desirable outcomes if implementation is poor (Durlak, 2016). Numerous implementation science frameworks have been developed, and there are

ongoing efforts to identify the common elements, and the conditions needed to ensure that interventions known to be effective are implemented with fidelity (Fixsen et al., 2019, 2021).

However, there can also be problems with this approach, as illustrated by a study by Kilburn and colleagues (2017) of an intervention to improve parenting style in a sample of parents of young children with disabilities. Among other factors, they measured how faithfully the practitioner followed the intervention protocols and found that high implementation fidelity was associated with poorer parenting outcomes. They had two possible explanations for this unexpected finding. One was that the process or quality of intervention delivery is more influential than content fidelity, which considers only adherence to the intervention manual. The second possibility was that, in ECI services, working with families calls for a greater focus on relationships between practitioners and parents and on building parental capabilities, and less on the content of the specific intervention.

There are good reasons for thinking that both these explanations may be true. Focusing solely on program fidelity ignores other dimensions of practice that are vital for interventions to be effective. Evidence-based practice is multidimensional and cannot be reduced to a single dimension. In medicine, evidence-based practice has been defined as 'the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients' (Sackett et al., 1996). In the ECI field, Buysse and Wesley (2006) define evidence-based practice as 'a decision-making process that integrates the best available research evidence with family and professional wisdom and values.' In other words, it involves a balance of scientific evidence, family and professional wisdom, and family and professional values.

This indicates that the tendency to equate evidence-based practice with evidence-based programs or treatments does not capture its true multidimensional nature: properly understood, evidence-informed practice involves three key components: evidence-based programs, evidence-based processes, and client and professional values and beliefs:

- Evidence-based programs refer to interventions or programs that have been shown through rigorous formal testing to be effective in building client competencies and changing behaviour and functioning.

- Evidence-based processes refer to the way in which service providers and the service system as a whole engage and work with families, individually and collectively (Moore, 2016, 2017).

- Client and professional values and beliefs refer to the crucial role played by values and beliefs in determining what goals are important, what interventions and programs are acceptable, and how effective these are (McCarthy & Rose, 2010).

The evidence regarding the three elements indicates that all three make important contributions to achieving positive outcomes. The overall process (called evidence-informed practice to distinguish it from the common usage of evidence-based practice) should be understood as a decision-making process, a way of blending the three major sources of 'evidence' in practice (Moore, 2016). For the NDIS Quality and Safeguards Commission (2016), evidence-informed practice is a process for making informed decisions about the delivery of supports and services that involves

integrating the rights and perspectives of the person with disability, with the best available research with professional expertise and information from the implementing or practice contexts. Several evidence-informed decision-making models that take account of the various sources of evidence in service delivery have been developed (An & Palisano, 2014; Kuhn & Marvin, 2016; Moore, 2018; NDIS Quality and Safeguards Commission, 2016; Palisano et al., 2012).

In addition, there is an important role for theory. Odom (2016) argues that the selection of intervention strategies should be informed by theory as to how the interventions have their effects. Whether practitioners choose to follow a single theory or draw on multiple theories in designing programs, they should select practices that are not only firmly based on scientific evidence and professional judgment but are also informed by theory. This suggests that ECI provision should be based on a clear theory of change that describes how the practices and strategies used achieve the outcomes that are desired.

Implementation issues

Implementation science has emphasised the importance of program fidelity – delivering programs exactly as designed. Program fidelity only applies to one of the three elements of evidence-informed practice. To capture the other two elements, we need strategies for measuring process fidelity and values fidelity (Moore, 2016). This means obtaining feedback on the way in which services are provided as well as the impact they are having. Feedback is increasingly seen as essential for service improvement (Gawunde, 2009; Syed, 2015), and plays an essential role in improving the effectiveness in psychotherapy (Miller & Bargmann, 2012; Duncan et al., 2017).

Ensuring that ECI services are implemented with fidelity has long been recognised as a challenge. Issues include whether ECI practitioners know about and implement evidence-based practices, and the extent to which they are able to implement best practices such as family-centred practice with fidelity. It also involves the extent to which practitioners are able to engage children and families effectively, and the extent to which the strategies chosen are acceptable to families and able to be incorporated into family routines.

The extent to which new knowledge about evidence-based strategies is being incorporated into practice is unclear. For instance, reviews suggest that many of the interventions used by paediatric therapists working with children with cerebral palsy in Australia do not typically seek research evidence when selecting interventions (Kerr et al., 2015) or use interventions that lack evidence of efficacy (Novak et al., 2013). Another Australian study (Luskin-Saxby et al., 2024) investigated the use of evidence-based practice by Australian autism early intervention service providers and found that participants reported using practices supported by research evidence, but also some emerging and unsupported practices.

Another issue is how ECI practitioners learn about evidence-based strategies. A survey by Kong and colleagues (2024) explored this question and found that most respondents reported being familiar or somewhat familiar with research evidence for their practices and chose discussion with colleagues as the most frequently used strategy to learn and make decisions about a new practice.

Implementing family-centred practice is another challenge. While accepted as a core plank of ECI services, family-centred practice has been difficult to operationalise (Bailey et al., 2011; Epley, 2010), and to implement consistently (Bruder, 2000;

Darrah et al., 2012; Dempsey & Keen, 2017; Dunst & Espe-Sherwindt, 2016; Dunst et al., 2014; Epley et al., 2010; Fordham et al., 2012; Hiebert-Murphy et al., 2017; Johnston et al., 2017; Wright et al., 2010; Ziviani et al., 2011). There are many factors that can contribute to this shortfall, such as parental expectations, lack of appropriate training, and lack of managerial support. Although family-centred practice encourages negotiation and collaborative goal setting, parents may not always be ready to take on highly collaborative roles (Forsingale et al., 2013), and there is a danger that too much will be expected of them (Cameron, 2018; Lord et al., 2018). Being the parent of a child with a disability comprises multiple roles, and some parents express the desire to 'just be parents' and separate themselves from the duties of the professionals responsible for supporting their children (Cameron, 2018). This is a question of balance: an over-reliance on parents' participation has the potential to undercut a sense of normalcy in families' lives and emphasise the child's disability (Cameron, 2018).

Several factors need to be in place for parent-delivered interventions to be successful. These include developing positive, trusting and reciprocal relationships between the parent, child, and health care professionals; parents having strong support networks including support for their own needs to feel capable to deliver the intervention; and all involved parties need to see the intervention as a priority (Lord et al., 2018). Implementation of family-centred practices by individual practitioners is more likely to be effective within a whole-of-organisation framework where the organisational culture supports the use of evidence-based practices (Dempsey & Keen, 2017; Summers et al., 2005).

To promote the adoption of evidence-based strategies, performance checklists have been developed (ECTA Centre - http://ectacenter.org/decrp/type-checklists.asp), along with family and practitioner practice guides that include descriptions and examples of how to use evidence-informed interventions as part of everyday practice (Dunst, 2017b, 2017c, 2018). However, neither performance checklists nor training are sufficient to ensure the implementation of evidence-based practices with fidelity (Artman-Meeker et al., 2015; Bransford et al., 2000). To promote the use of recommended practices, Dunst and colleagues (2020) recommend providing evidence-based capacity-building professional development, while others are exploring the use of practice-based coaching (Fox et al., 2017; Jayaraman et al., 2015; Snyder et al., 2015, 2022) and job-embedded hands-on professional development conducted in real time to bridge the research-practice gap (Luskin-Saxby et al., 2024).

Implications for ECI services

- What these new ideas about evidence indicate is the importance of relational practice and of having a decision-making framework that incorporates the three elements of evidence-informed practice: evidence-based programs, evidence-based processes, and client and professional values and beliefs. This way of working is implied in family-centred practice but needs to be made more explicit so that it can be practised more purposefully and effectively.

- Guralnick (2017) has described ECI as a problem-solving process involving the family, the intervention team and other supports within the community. Several step-by-step models for decision-making, implementation and

evaluation have been developed (An & Palisano, 2014; Kuhn & Marvin, 2016; Moore, 2016, 2018; Palisano et al., 2012).

- Australian ECI practitioners need an authoritative source of information about evidence-based strategies and best practices. The Early Childhood Technical Assistance (ECTA) centre performs this function in the US and could serve as a model for a similar resource in Australia. The ECI sector also needs a theory of change that shows how the practices and strategies being used achieve the desired outcomes.

- To ensure the implementation of evidence-based strategies and best practice, on-the-job support, coaching, and continuous learning strategies are needed.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- includes a description of a decision-making process that incorporates evidence-based programs, evidence-based processes, and client and professional values and beliefs

- specifies the importance of preferencing family values and cultural beliefs

- specifies the importance of ECI practitioners keeping up to date with evidence-based strategies and processes

- specifies the importance of implementing such strategies and processes with fidelity

- provides ECI practitioners with guidance and tools monitoring both program and process fidelity

- provides ECI practitioners with guidance and tools to monitor the extent to which they have engaged effectively with children and families, and the extent to which the strategies chosen have been accepted and used by families

2.5 Discussion and implications

This section has discussed a number of developments in policy, research and practice over the decades that are of relevance for ECI services.

The first development discussed was the impact that dramatic social changes have had on families, communities and services. These changes have led to a growth of economic and social inequities as well as social diversity, and have challenged the ability of early childhood services, including ECI services, to meet the needs of all families. In the case of inequities, families of young children with developmental concerns, delay or disability are more likely to be experiencing multiple challenges and having difficulty in accessing services, especially if they are living in rural or remote areas, or do not speak English. The ECI service system needs to organise to

provide support to all young children with developmental concerns or disability in an equitable and timely manner. To address inequities and diversity, the service system needs to be better integrated and ECI services need to be part of a wider system of services capable of addressing the needs of families varying greatly in composition, culture and resources.

The second topic discussed was our expanding knowledge about **the nature and importance of development in the early years**, particularly the first 1000 days. While this new knowledge strengthens the case for early intervention and is an affirmation of what ECI has been striving towards for the last 50 years, they also represent a valuable challenge to the field: how to blend ECI services with these new efforts to create environments and service systems that meet the needs of all children and families. The evidence regarding the importance of the early years heightens the need for ECI service provision to begin as early as possible. This will mean that ECI services need to develop a better understanding of how to work with infants and their parents in developmentally appropriate ways.

There has also been growing awareness of the importance of responsive caregiving in the early years. The implication of this evidence is that supporting parents and caregivers in developing positive and responsive relationships with children with developmental delays or disabilities from as early an age as possible should be a major focus of early childhood intervention services.

We have also become much more aware of the major role that environments play in shaping human development and functioning. ECI services need to shift to a positive focus on the conditions children and families need to thrive, in line with the national Early Years Strategy. ECI services need to be part of collective efforts to ensure that all young children and families have the conditions they need to thrive. These conditions affect the capacity of the family to provide their children with the nurturing care that all children need, and the extra supports that children with developmental delays or disabilities need. ECI services cannot be expected to address all the social determinants that impact on the families they work with. However, they should be part of a wider system of integrated services that can address the factors that may be compromising their family's ability to meet their children's needs.

The third development concerns the significant changes in how disabilities are viewed and understood, both at the policy and professional level, and in public perceptions. These changes include a shift from biomedical to biopsychosocial models that has informed both policy and practice. It also includes the rise of disability advocacy groups and a higher public profile for people with disabilities. All these different ways of reframing disability have implications for early childhood intervention. An issue of particular importance is the tension between approaches that aim to meet the needs of people with disabilities by changing the person to fit in with the existing environments or changing the environments to enable the person to participate more fully. Efforts to change the child directly include behaviour modifications strategies or direct therapy, while interventions that focus more on changing the environments include naturalistic teaching strategies such as responsive caregiving and teaching practices, interest-based and self-directed practices, and use of everyday naturally occurring activities.

This is not an either/or debate: both approaches may be needed under different circumstances, and the functioning of people with disabilities is properly understood as the product of an interaction between person and environment, not of one alone.

However, in the case of very young children, the case for efforts to change the child directly is weakened by the lack of evidence for the effectiveness of such approaches. Based upon such evidence, Dunst and Espe-Sherwindt (2017) make the strong claim that highly structured and non-contextualised intervention practices are neither necessary nor appropriate for promoting the learning and development of infants and toddlers with developmental disabilities.

The fourth development of relevance to ECI services is *the emergence of new models of service delivery*. Old models of service delivery have been challenged in various ways. Some of these involve changes in relationship between government and consumers – these include people-centred health care, co-design and co-production approaches, self-managed and personalised funding models, and an increasing focus on outcomes. These emerging models are highly congruent with the principles of family-centred practice and suggest that other service sectors are beginning to understand what the ECI sector has long understood. However, some of the ideas being developed go beyond family-centred practice as traditionally practised and may challenge the ECI sector to engage with families of children with disabilities in new ways.

There are also lessons to be learned from the various efforts to implement self-managed funding models. This has direct relevance for ECI services under the NDIS. Although such models can have positive benefits, these are only likely to be experienced if certain conditions are in place. We need to identify those conditions and ensure that they in place so that families entering the NDIS can experience the full benefits of self-directed funding. Choice is meaningless for those who have no viable support services to choose from. Choice is also compromised when parents are not well informed about ECI services, which may result in them making choices that are not in their best interests of the child or family or that make poor use of funding, all through no fault of their own.

The increasing focus on outcomes has lessons for ECI services. Not only should services be based on the clear understanding of the overall aims of ECI (as discussed earlier), ECI service providers they should also be clear about what outcomes they are seeking for children and families and be able to monitor whether these are being achieved.

Another major feature of service delivery over the past two decades has been the emergence of the evidence-based practice and implementation science movements. What these new ideas about evidence indicate is the importance of relational practice and of having a decision-making framework that incorporates the three elements of evidence-informed practice: evidence-based programs, evidence-based processes, and client and professional values and beliefs. This way of working is implied in family-centred practice but needs to be made more explicit so that it can be practised more purposefully and effectively. Australian ECI practitioners also need an authoritative source of information about evidence-based strategies and best practices. The ECTA centre performs this function in the US and could serve as a model for a similar resource in Australia. To ensure the implementation of evidence-based strategies and best practice, on-the-job support and coaching is needed.

3 The evidence base for ECI services

This section reviews what is known about ECI services. ECI is informed by evidence drawn from a variety of sources. There are eight main sources of evidence (Moore, 2022):

- **Biological / developmental evidence about children** – what we know about how children with and without disabilities develop and learn

- **Socioecological evidence about families** – what we know about the factors that shape family functioning and development

- **People's lived experience** – people's direct experiences and views about what matters to them

- **Service delivery evidence** – convergent evidence about effective ways of working with families

- **Published research findings about ECI practices** – evidence-based practice (randomised controlled trials and systematic reviews)

- **Practice wisdom** – what practitioners know about what works with particular families and contexts

- **Indigenous and other cultural systems** – alternatives to Western positivist science and cultural assumptions

- **Data** – audits and evaluations, outcome measurements, and feedback from families

Each of these sources are addressed below, and the implications for ECI services and an ECI practice framework are discussed.

3.1 Biological / developmental evidence about children

ECI services should be informed by what is known about how young children develop and learn, and what factors shape their development. The key features of early childhood development have already been discussed (section 3.2), including increasing recognition of the importance of the early years, greater awareness of the importance of responsive caregiving in the early years, and greater understanding of the impact of environmental conditions on child development and family functioning.

This section begins with consideration of what we know about the development of children with developmental delays and disabilities, then looks at how children with and without disabilities develop and learn.

Developmental disabilities and delays

The terms *developmental delay* and *developmental disability* are a common source of confusion in early childhood services, especially for parents (Cohen & Houtrow, 2019; Grech, 2021; Olusanya, 2023). The Centre for Disease Control and Prevention in the US[34] describes developmental disabilities as a group of conditions due to an impairment in physical, learning, language, or behaviour areas that begin during the developmental period (conception and birth to age 18 years) and usually impact day-to-day functioning throughout a person's lifetime. The conditions typically include

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[34] https://www.cdc.gov/child-development/about/developmental-disability-basics.html

cerebral palsy, epilepsy, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), intellectual disability, autism spectrum disorder, and attention-deficit/hyperactivity disorder.

While a developmental delay may be one of the manifestations of a developmental disability, the two terms are not the same (Cohen & Houtrow, 2019; Grech, 2021; Olusanya, 2023). Developmental delays are delays in some aspect of functioning in relation to general developmental milestones in typically developing children and can be constitutional, transitory, and self-limiting (Olusanya, 2023). Unlike developmental delays, developmental disabilities are specific conditions that require a lifetime of support (Patel et al., 2010). To avoid confusing parents, it is important that, once a developmental disability has been identified, it should not be presented to parents as a developmental delay (Olusanya et al., 2023). Families report lower satisfaction when information is withheld, the diagnosis and labels are ambiguous, and the diagnostic process is unduly lengthy (Grech, 2021). Early intervention is critical regardless of whether the child is temporarily delayed in some aspect of their development or has a disability that will be with them for life.

Disabilities in young children are developmental in two senses. First, they occur in the early years when development is most rapid and consequential. Second, they are developing *with* the child – they are not fixed conditions that can be remediated or rehabilitated as is the case with adults (Rosenbaum, 2015). Instead, they evolve with the child, making services for children with developmental disability very different from services for adults with disability. Just as early experiences become biologically embedded and alter brain development, early intervention is part of these experiences and can therefore be understood as being embedded in the developing brain (Nelson et al., 2024).

The most common developmental disabilities – autism, cerebral palsy, developmental delays – occur in the womb or at birth (Beopoulos et al., 2022; Courchesne et al, 2020; Hadders-Algra, 2014). This means that we are missing many opportunities to support children and parents during the most sensitive periods of development. For instance, by the time a child has been identified and diagnosed with autism, many of the best opportunities to capitalise upon brain plasticity very early in development are not realised (Whitehouse, 2017).

All disabilities form continua – Disability lies on a continuum from little or no disability to extreme disability (Cieza et al., 2018; McLennan, 2016). In discussing the WHO's ongoing work on understanding and managing disability, Cieza et al. (2018) state that:

The lesson learned from WHO's activities is that disability is a universal human experience, in the sense that everyone can be placed on a continuum of functioning and either currently experiences or is vulnerable to experiencing disability over the course of their lives. This understanding of disability is the key to mainstreaming disability within the public discourse.

If all forms of disability form continua, this means that the cut off points for determining whether people have a disability are arbitrary. Therefore, determining eligibility for disability services is problematic and likely to be contested, especially if eligibility gives access to money and services. It also means that those who have marginally less severe forms of impairment may get no services. The continuous distribution of abilities challenges us to rethink the concept of 'normal' (Rosenbaum,

2015). There is no such thing as normal (Chaney, 2022): we are all on multiple spectrums of ability, functioning and health.

Children with disabilities are not a homogenous group and they often have multiple developmental and health problems (Dewey, 2018; Olusanya et al., 2023). Neurodevelopmental disorders including attention-deficit/hyperactivity disorder, developmental coordination disorder, autism spectrum disorder, and learning disorders co-occur more commonly than would be expected by chance, and there has been an increase in diversity in many developmental disabilities such as autism (Happé & Frith, 2020; Ure et al., 2018). There are several likely causes for these co-occurrences - genetic, epigenetic, neurobiological, and environmental (Dewey, 2018). The existence of multiple problems means that an individualised approach is needed, considering the nature of the disability, the pattern of comorbid problems, and the unique challenges of the child's social context (McDowell, 2018).

There are many commonalities between different forms of disability. We have already considered the arguments for adopting a non-categorical approach to disability services (section 3.3). Further support for this idea comes from the fact that children with developmental disability share the same core needs with other children and with each other. Moreover, the same principles of service apply to all children regardless of their diagnostic category. In addition, there are many common strategies that are effective with children who have diverse conditions.

The evidence indicates that ***children with developmental disabilities have the same core needs as all children*** – needs for attachment, nurturance, emotional responsiveness, care, safety and security and so on (Biringen et al., 2005; Moore, 2009, 2024; World Health Organisation and UNICEF, 2012). Moreover, these crucial conditions have the same impact on their development as they do on typically developing children.

However, children with developmental disabilities may have difficulty having these needs realised because of the nature of their disabilities. They may initiate interactions less frequently and give cues that are more subtle and difficult to read (Biringen et al., 2005; Howe, 2006; Kelly & Barnard, 2000). As a result, children with a developmental delay or disability may be at greater risk of insecure or disorganized attachment than typically developing children (Alexander et al., 2023; Moore, 2009; van Ijzendoorn et al., 1999). However, in the case of children with autism, although they may display aberrant behaviours and are at increased risk for disorganised attachments, it is clear that they can and do form selective attachments that are functionally similar to those seen in other children (Dissanayake & Crossley, 1996, 1997; Dissanayake & Sigman, 2001; Zeanah et al., 2011).

Children with developmental disability may also have reduced access to the range of environments and experiences that other children have, and fewer opportunities to participate (World Health Organisation and UNICEF, 2012, 2023). Their families may also have reduced opportunities to work and to participate in community life. As a result, these children and families will be deprived of some of the core care conditions they need, making it harder for them to flourish. Thus, in seeking to meet the needs of children with developmental disabilities and their families, it is important to make special efforts to ensure that their core care conditions are met, and that any additional support and environmental adaptations they need are provided.

How children develop and learn

Children learn in every environment in which they spend time (Shuey & Kankaraš, 2018). This means that all environments can be considered early childhood intervention environments, and that ECI is not restricted to the time ECI practitioners spend with families. Children's development and learning are shaped by the nature and quality of these environments, and the physical, social and learning opportunities these environments provide. Hence the core aim of ECI is to promote the capacity of parents and other caregivers to provide positive learning environments. That principle extends to the other environments in which young children spend time – community and ECEC settings.

There is a question of what constitutes a suitable environment for young children. Because of young children's needs to build secure attachments with their parents or core caregivers, the home environment is most appropriate. Some forms of early intervention seek to replace the home environment with centre-based programs or with high levels of therapy support, inside and outside the home This practice has become more prevalent under the NDIS in Australia and results in children spending too much time in intervention activities at the expense of learning in the natural home environment.

Children learn by having multiple opportunities to practice functional skills in everyday settings – what Mahoney (2013) calls massive practice. A major aim in ECI should be to ensure that children with developmental disabilities have as many opportunities as possible to actively practice key functional skills (Rosenbaum & Gorter, 2012). This is best achieved by capitalising on the naturally occurring opportunities that arise in everyday home and community settings (Dunst, 2020; Johnson et al., 2015). This is in contrast to expecting parents to add additional 'therapy' activities to their schedules. Versions of this strategy include activity-based intervention (Johnson et al., 2015), naturalistic instructional techniques (Dunst et al., 2011; Meadan et al., 2016; Snyder et al., 2015), and the Coaching in Context approach that aims to enhance functioning in everyday activities of children with autism and their families (Potvin et al., 2018).

Participation is a major driver of development and should be seen as a major goal of ECI (Imms et al., 2017). Participation drives development through active engagement with others in home, community and ECEC settings. Participation can be seen as both a means to an end and an end in its own right (Imms et al., 2017). It is a means to an end in that it is a driver of development, and an end in its own right in that the ultimate purpose of working with children and their families is to promote optimal participation throughout life (Imms, 2020).

The extent to which a child or person is able to participate is largely a function of what the social and physical environment allows them to do and to be, rather than their gender, sexual identity, race, or whether they have developmental concerns, delay or disability. We need to design community environments and service systems that provides all children and families – regardless of their race, age, disability, location – with the social and physical environments that do not place any restriction on what they can do and what they can become.

Building a sense of agency and self-determination is an important goal for any child. It is especially important for children with developmental disability as they are at risk of not being given the opportunities to choose and have a say that other

children are. It is important therefore to understand the pathway from total dependence in infancy to independence in adulthood, and how to build a sense of agency at each step of the way (Erwin et al., 2015; Palmer et al., 2013, 2019; Summers et al., 2014).

The origins of agency lie in infancy and arise in the context of responsive caregiving through the infant's participation in the give and take of early reciprocal interactions with parents and caregivers. The basic foundational skills for developing self-determination in later life are choice-making and problem solving, self-regulation, and engagement. (Erwin et al., 2015; Palmer et al., 2013). This is how they build a sense of agency, of being able to make choices and decisions to influence events and to have an impact on their world (ACECQA, 2018; EYLF). Families are often well aware of the need to promote agency in their children and report a variety of strategies used to develop choice-making, self-regulation, and engagement skills (Summers et al., 2014).

Building a sense of agency can also be promoted through use of interest-based and self-directed practices (Dunst & Espe-Scherwindt, 2017; Dunst et al, 2012, 2016; Novak & Honan, 2019; Palisano et al., 2012). For instance, incorporating the interests and preferences of young children with autism spectrum disorders into interventions has been shown to be effective in increasing prosocial and decreasing aberrant child behaviour (Dunst et al., 2012, 2016). Dunst and colleagues (2011) conducted an analysis of naturalistic language teaching strategies, such as enhanced milieu teaching, incidental teaching and responsive parenting. One of the most important common features among these approaches was interest-based child learning. (Other common features included use of everyday naturally occurring activities as contexts for child-initiated interactions; adult sensitivity and contingent social responsiveness to child initiations; and joint attention plus turn taking as activities for sustaining adult-child interactive exchanges.) Another systematic research review, this time of paediatric occupational therapy for children with disabilities, found that the most effective therapies all began with the child's goal in order to maximise motivation and saliency of practice (Novak & Honan, 2019).

All these core features of how children learn applies just as much to children with developmental delays and disabilities as to normally developing children. They also learn in every environment in which they spend time, benefit from having multiple opportunities to practice functional skills, benefit from meaningful participation, and from building a sense of agency.

Implications for the ECI services

- These findings regarding how children with and without developmental disabilities develop and learn reinforce many of the key features of ECI best practice. This includes promoting the capacity of parents and other caregivers to provide children with environments and opportunities to practise functionals skills and participate meaningfully and providing multiple opportunities for children to practise functional skills in everyday environment. It Is also useful to be reminded of how important it is to ensures that all children's core needs are met, not just those needs relating to their disability.

- Some of these findings highlight some factors that impact on development that ECI may not yet have incorporated into best practice. These include

being aware of the possible presence of multiple health conditions and ensuring that they are addressed in a holistic way. The goal of building the child's sense of agency and 'voice' is also an important consideration for ECI services.

- Since abilities and disabilities are continuous, ECI practitioners need to be able to meet the needs of any child with developmental concerns and their families.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- focuses on promoting the capacity of parents and other caregivers to provide children with environments and opportunities to practise functionals skills and participate meaningfully, being actively involved in all activities

- specifies the need to provide multiple opportunities to practise functional skills in everyday environment

- promotes participation in home, community and ECEC

- ensures that all children's core needs are met, not just those needs relating to their disability

- encourages and awareness of the possible presence of multiple conditions and ensures that they are addressed in a holistic way

- identifies building the child's sense of agency and 'voice' as an important goal – and how to promote agency at every stage of the child's life

- is based on a clear understanding of what child's agency and voice looks like at different ages and how to help families and others promote the child's growing ability to participate

- specifies the need to build on children's interests and self-directed activities

3.2 Socioecological evidence about families

ECI services work in partnership with parents and other caregivers. It needs to be based on what we know about the factors that shape family functioning and development and the conditions caregivers and families need to flourish. This section looks at some key features of families and how they apply to families of children with disability.

Family development

Families of young children are on a developmental journey just as much as their children are. Having a child is a radical change both biologically and in lifestyle. There are neurobiological changes associated with becoming a mother that are so

significant and lifechanging that they constitute a distinct phase of development that is as significant as adolescence and has been dubbed matrescence (Conaboy, 2022; Jones, 2023; McKay, 2023). Fathers also experience significant changes, both biologically and in lifestyle (Hrdy, 2024).

The core conditions that parents and families need in order to flourish have been identified (Moore, 2024). Foremost among these is *social support and peer support*. Positive personal relationships and social networks are essential for our health and wellbeing throughout our lives. Biologically, we are a relational species, built for attunement and engagement with others of our kind (Christakis, 2019; Cozolino, 2013; Lieberman, 2013). Our health and wellbeing are shaped by the quality and extent of our close personal relationships, our wider social networks, and even the general level of civility in the wider society (Barnes et al., 2006; Dunbar, 2021; Edwards & Bromfield, 2009; Hawkley & Cacioppo, 2013; Hertz, 2020; Pinker, 2015; Lieberman, 2013; Popkin et al., 2010; Seeman, 2000). Our immediate social networks – those people we mix with on a regular basis – have a significant influence on our ideas, emotions, health, relationships, behaviour, and even our politics (Christakis & Fowler, 2009; Pinker, 2015).

Positive social support has many beneficial effects on parenting. Support during pregnancy reduces the likelihood of maternal stress, depression and risk-taking behaviours during and after pregnancy (Kawachi & Berkman, 2001; Rini et al., 2006). Social support also greatly affects parental care-giving capacity by promoting positive mental health and resilience during challenging periods (Green et al., 2007; Palamaro Munsell et al., 2012) and by providing peer advice, support, and connections to other resources (Plesko et al., 2021). Importantly, positive social support reduces the likelihood of child maltreatment, especially for those families experiencing multiple challenges (such as poverty, depression, unemployment) (Bishop & Leadbeater, 1999; MacLeod & Nelson, 2000). The more adverse a person's circumstance and the fewer resources they have, the more important it is for them to have secure supportive relationships with one or more people in their lives (Plesko et al., 2021; Ungar, 2013; Ungar et al., 2013).

There is another key reason why having strong support networks is important for all parents. Just as children depend upon the nurturing care they receive from parents, so parents' capacity to provide their children with nurturing care is in turn shaped by the nurturing care they receive from others. In order to be able to provide responsive caregiving to their children, parents need to be provided with responsive caregiving themselves. Urie Bronfenbrenner also said, 'To help meet a child's needs, the primary caregiver should also have the support of another adult, such as a spouse or grandparent'. Just as every child needs someone who, in Bronfenbrenner's words, 'is irrationally crazy about him or her', so every parent needs someone who is irrationally crazy about them.

Beyond this need for intimate support, we also need support from a core group of social partners with whom we have regular contact (Dunbar, 2021). In the case of parents, this often takes the form of other parents who have children of the same age. These can provide practical assistance, advice and emotional support. These informal supports have a greater influence on the personal functioning of parents than formal supports (Dunst et al., 1997). The formal services that are available to families of young children often neglect this aspect of parents' lives. Given the importance of social support for personal wellbeing as well as for parenting, there

should be a much more purposeful focus on ensuring that all parents have opportunities to meet and build positive social support networks with other parents. For families of children with disabilities, family support provides an enhancing effect to family quality of life, family functioning, and family satisfaction and a buffering effect on family stress (Hauser-Cram et al., 2013; Kyzar et al., 2012). Parents need strong support networks, including support for their own needs, to feel capable of implementing interventions with their child (Lord et al., 2018).

Families of children with developmental concerns, delay or disability

Families of children with developmental concerns, delays or disabilities have the same core needs as other families – for nurturing care and support, for material basics, for opportunities to participate in community activities. However, families of children with disabilities may have difficulty having these needs realised because of the nature of the child's disabilities and the constraints that these place upon the family's ability to work and to participate in community activities. Moreover, having a child with developmental disabilities can disrupt previous social support and leave parents in an isolated and vulnerable position.

The importance of social support for families of children with developmental disabilities has long been recognized (Bailey et al., 2007; Bronfenbrenner, 1979, 1992; Dunst, 2000, 2017; Guralnick, 2011, 2019). Social isolation is one of the main risk factors for families of children with disability (Cheng & Lai, 2023; Smith et al., 2023). Social participation can be reduced in some families because of the behavioural and functional challenges of taking the child into community environments. The resulting isolation can affect the child's and parent's mental health (Smith et al., 2023).

The benefits of social support for caregivers raising a child with a disability include improvement of the mental and physical well-being and empowerment of the caregivers, improvement in caregiving styles, and overall improvement of family quality of life (Lancaster et al., 2024; Mantri-Langeveldt et al., 2019; Postma et al., 2024). Such support is particularly important during the early years when core patterns of responsive caregiving are being laid down. Evidence of importance of such support for families of children with developmental disabilities has been summarised (Bailey et al., 2007; Chakraborti et al., 2021; Dunst, 2021, 2022a, 2022b; Espe-Sherwindt and Serrano, 2020; Kyzar et al., 2012; Strawa & Sartore, 2023).

By virtue of its capacity to influence child, parent and family functioning, social support functions as a form of early intervention (Dunst et al., 1997). Therefore, it needs to be an important focus of early childhood intervention support to parents. An important source of support for many families of children with developmental delays or disabilities comes from other families in similar circumstances (Heyworth, 2018; Hiebert-Murphy, 2013; Pang & Yarborough, 2023; Shilling et al., 2015a, 2015b). Parent-to-parent peer support can buffer the early isolation and stress (Yamoah & Brown, 2023), and start parents of children with disability on a transformational journey from a 'surviving' mindset (just 'getting by') to embrace a 'thriving' mindset in which parents feel supported by their peers and able to thrive, grow and flourish (Heyworth, 2018). Individual peer-to-peer support has shown to have a positive impact on the emotional and psychological well-being of parents, as well as the overall quality of life for families caring for children with developmental disabilities (Postma et al, 2024).

Parents of children with developmental delays or disabilities can also act as peer workers in supporting other parents (Heyworth, 2018). Examples of peer support-based programs include

- the Now and Next program run by Plumtree, an ECI service in New South Wales (Heyworth et al., 2017; Lancaster et al, 2024; Mahmic et al., 2018; Moore et al., 2018),

- the Healthy Parent Carers program in the UK (Borek et al., 2018; Garrood et al., 202); Lloyd et al., 2021); and

- the ENVISAGE program in Canada and Australia (Miller et al, 2022a, 2022b; Pozniak et al., 2022; Rosenbaum et al., 2024).

Family experiences of having a child with a developmental disability

Parenting a child with developmental disability can be stressful (Cheng & Lai, 2023; Guralnick, 2019; Matthews et al., 2017; Novak-Pavlic et al., 2023). Parents and caregivers of children with additional needs such as disabilities and chronic health conditions are often required to adopt 'informal caregiving careers' that can span the child's lifetime, a responsibility exceeding that of typical parental care. A survey of Victorian parents of children with additional needs (Matthews et al., 2017) found that poor parent physical and mental health were associated with having a child with additional needs. Compared to other parents, parents whose child had psychological or behavioural difficulties were less likely to have confidence in their parenting. Parents of children with additional needs were more likely to be single, female and not in full-time paid employment than parents who did not have children with additional needs. Other studies have confirmed the mothers of children with disabilities or special health care needs tend to have poorer general health and mental health than mothers whose children do not have special needs (Dikow et al., 2024; Dillon-Wallace et al. 2014, Gilson et al., 2018).

Morning, dinnertime, and bedtime routines can be particularly stressful and chaotic times of the day for families because of time pressure, tiredness, and their children's behaviour (Boyd et al., 2014; Hughes-Scholes et al., 2019). The demands of caring for a child with a disability can affect family quality of life. Children with development disabilities tend to have a lower quality of life than other children (Ncube et al., 2018), so ensuring positive family quality of life is an important outcome for ECI (Bhopti et al., 2016), and monitoring family quality of life should be a consideration for ECI service providers (Bhopti et al., 2016; Zuna et al., 2014). ECI services can contribute to family stress by expecting too much of families. In some cases, the additional stress caused by the demands of ECI can cause parents to give up on therapy entirely (e.g. Lee, 2017). Other factors that adversely affect parental wellbeing include lack of continuity in services and having to deal with multiple service providers (Hodgetts et al. (2017).

Managing uncertainty is one of the major challenges faced by parents of children with disability (Aldiss et al., 2021: Fortune et al., 2023; Reeder & Morriss, 2021). Parents caring for a child with an undiagnosed genetic condition face unique challenges, particularly in relation to managing uncertainty (Aldiss et al., 2021). This has an Impact on their emotional and physical wellbeing. They report times of feeling stressed, worried and anxious, and being confused due to being overloaded with information, and frustrated by a lack of care coordination. Parents did not appear to prioritise their own wellbeing and held back their emotions to protect themselves and

others. As a result, they had many unmet needs, particularly relating to emotional support (Aldiss et al., 2021). Not surprisingly, parents of children with intellectual disabilities report experiencing emotional relief when they receive a genetic diagnosis (Dikow et al., 2024).

Reeder and Morriss (2021) discuss how to help parents to manage the uncertainty associated with having a child with a long-term disability. They suggest that support needs to move beyond the provision of accurate and timely information, to include measures/strategies that help parents to accept and make sense of their situation. Re-centering the child and reducing focus on diagnosis may help to allow space for continued hope.

The family 'journey'

There has been an important reframing of the experience of families of children with developmental delays or disabilities from a story of trauma and 'chronic sorrow' to one of adaptation and hope (Hauser-Cram et al., 2013). As discussed by Moore (2016), a family's adaptation to having a child with a disability emerges over many years and takes many forms. As Landsman (2005, 2009) has shown, mothers of children with disabilities may begin by subscribing to the medical model of disability, one in which the disability is seen as being in the body or mind of the child, and therefore as something to be 'cured'. However, over time, they often gravitate towards a social mode, one in which the barriers to a high quality of life are not within the child but rather the product of environments that do not make accommodations to enable the child to participate meaningfully. The changes that mothers experience on this journey include embracing the exceptional qualities of the child as the essence of who they are, or even reassessing the very concept of normality itself (Landsman, 2005).

Many other studies and accounts of the impact on families of having a child with a disability have shown that some families go well beyond mere 'acceptance' of the child, and consider themselves changed for the better (e.g. Corman, 2009; Dykens, 2005, 2006; Flaherty & Glidden, 2000; Hastings & Taunt, 2000; Kausar et al., 2003; King et al., 2006; Schwartz, 2003; Solomon, 2013; Thompson-Hodgetts et al., 2024).

Families of children with developmental disability are on a developmental journey just as much as their children (Bhopti et al., 2022; Nelson Goff et al., 2016). In the early stages of the family journey, there is much uncertainty – about the future for the child and about what can be done – so support needed during initial period of uncertainty (Fortune et al., 2023). The hardships and challenges of caregiving increase as the child gets older, but can be offset by positive adaptations, beliefs and transformations (Bhopti et al., 2022). ECI services can provide many forms of support to help. Building parental capabilities is one key way to support positive adaptation. Coaching can play a key role in this regard (Kemp & Turnbull, 2014; McLeod et al., 2024; Meadan et al., 2018; Novak, 2014; Salisbury et al., 2018; Simpson, 2015; Tomeny et al., 2019; Vismara & rogers, 2018; Ziegler & Hadders-Algra, 2020).

Implications for the ECI services

- These findings about families reinforces some of the existing best practices in ECI services and highlights some other aspects that deserve to become part of best practice.

- The fact that families of children with disability have the same core needs as other families should remind ECI services of the importance of thinking about the family as a whole and including parent and family goals, as well as child goals, in family service plans. It also highlights the need to think more broadly about family needs and ensure that they have the same opportunities as other families to participate fully in community and work settings, and that their core needs are met so that they can provide their children with the core conditions the children need to flourish (Moore, 2024). In particular, ensuring that families have positive social support should be a priority.

- Another valuable implication concerns the need to adopt a positive approach regarding the child and family's future, not being pessimistic or conclusive about the child's future but offering families realistic hope (Hauser-Cram et al, 2013; Kern et al., 2019; Mahmic et al., 2021).

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- adopts a positive approach regarding the child and family's future, offering families realistic hope

- specifies the need to help families develop positive social networks

- ensures that all parents and family core needs are met, not just those relating to the child's disability

- includes goals for the child, the parents and the family as a whole in service plans

3.3 People's lived experience

A vital source of evidence for ECI services is what can be learned from the lived experience of children with developmental concerns, delay or disability and their families. This includes their views about what matters to them and what they say about services they need, those they receive, and what helps most.

There are many studies that have explored parental experiences and reports of receiving services. They include accounts of early identification of child developmental concerns (Smith et al, 2023), expectations of ECI services (Phoenix et al., 2019), experiences of and responses to diagnosis of autism (Carlsson et al., 2016; Edwards et al, 2016; Grant et al., 2016; Hennel et al., 2016), expectations of genetic diagnosis of children with intellectual disability (Dikow et al., 2024), parent decision-making processes (Carlon et al., 2013, 2014, 2015; Hennel et al., 2016), experiences of family-centred practice (e.g., Batz & Yadav, 2024; Lietz & Geiger, 2017; Pighini et al., 2014; Ziviani et al. 2011), and experiences of empowerment (Cameron, 2018). In a Canadian study (Pighini et al., 2014), parents reported how empowering they found it when professionals embraced collaborative practices, sharing strategies and information to support parents in gaining a deeper understanding of their children's individual developmental characteristics. Cameron (2018) also focused on empowerment and found that parents struggled with navigating a system that was perceived as rigid and cumbersome, that they often found themselves in the position of having to 'police' the professionals involved in supporting them, and that they expressed a desire to 'just be parents' and relinquish a degree of control to professionals.

These and other studies (e.g., King et al., 2023; Lord et al., 2018; Reid et al., 2011) can provide valuable guidance for ECI practice. For instance, the study by Phoenix and colleagues (2019) suggested that service providers can improve family-centred care and collaboration with parents by explicitly discussing parents' expectations when beginning, and throughout, therapy. The study by Edwards and colleagues (2016) highlighted the need for allied health professionals to communicate openly with parents about the anticipated outcomes of ECI programs. In an Australian study, Hennel and colleagues (2016) surveyed parents of children with autism regarding their experiences of diagnostic consultation sessions with paediatricians. The found that parents wanted more information than can be conveyed in a single diagnostic consultation and concluded that developing a tailored 'autism action plan' with written materials could improve parents' understanding of and satisfaction with children's autism diagnoses. The importance of attending to parents' need for information was also highlighted in a study by Ziviani and colleagues (2011).

A Canadian study (Pozniak et al., 2023) of parental experiences of ECI services found that parents want care that is individualized, coordinated, easily accessible, and takes into account the entire family dynamic. They want service providers to be informed and invested in their child's care, and to provide parents with practical assistance. They also want to be treated with respect, caring and empathy, and to work together with service providers in developing a service plan. They also valued responsiveness to needs and mental health; effective communication (vs information giving); practical support (in addition to emotional and informational support); and availability and scheduling.

A particularly illuminating study by Grant and colleagues (2016) explored how parents of children with autism spectrum disorders made decisions and what form of information they preferred. Parents described a journey from the point of diagnosis that involved seeking information on autism interventions from multiple sources, with the Internet being the primary source. They were overwhelmed by the sheer volume of information available, and their preferences for information varied according to their stage in the journey post diagnosis. Parents had a 'trial and error' approach to choosing interventions, with their confidence increasing as they became more familiar with their child's condition and had opportunities to explore numerous information sources about their child's diagnosis. While their confidence increased over time, they gave little consideration to the effectiveness or evidence supporting interventions throughout the journey. This study highlights the need for parents of children with autism to be supported to make informed intervention decisions, particularly with consideration for research evidence.

Consultations and engagement with Aboriginal and Torres Strait Islander families and communities, consistently highlight the impact of fear of child removal or other 'interventions' on family engagement with services (e.g., SNAICC 2021, 2021; Kral at al., 2021). Concerns are underpinned by the higher likelihood of being Aboriginal or Torres Strait Islander child in out-of-home care (Delfabbro 2018), and the history of inter-generational trauma associated with the Stolen Generation (AIHW, 2018). The need to fund and embed community-led, trusted systems of support are consistently recommended (SNAICC 2023; 2021).

Implications for the ECI services

- ECI services should be informed by what parents and others identify as the issues that are of most importance to the, and the ways in which services can be of most help. The evidence considered earlier (section 3.4) about the importance of co-design suggests that ECI should do more to engage parents as co-designers, co evaluators and co-deliverers of ECI services. For Aboriginal and Torres Strait Islander families, community-led service development is key to addressing the need to build trust and culturally responsive services.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- specifies the need for basing service delivery on an understanding of what families say they value and want from services

- ensures that family values and cultural practices are understood and respected

- bases services on the issues that parents say they most want help with

- identifies ways in which ECI service providers can be supported to make informed decisions

3.4 Service delivery evidence

Convergent evidence from a variety of forms of service sectors, including medicine, psychology, and social work. Key finding include:

Human services are fundamentally relational, dependent upon the quality of the relationships between service provider and client (Ingram & Smith, 2018; Moore, 2017). Convergent evidence from many service sectors indicates that the quality of the relationships between practitioners and parents are central to achieving the objectives of services (Bell & Smerdon, 2011; Braun et al., 2006; CCCH, 2021; Greenhalgh et al., 2014; Lord et al., 2018; McColgan & McMullin, 2017; Moloney, 2016; Moore, 2017; Scott et al., 2007). The way in which services engage and work with families is critical: professionals need to respond to family priorities, build on family strengths and establish partnerships that involve shared decision-making, thereby giving families greater control over their lives (CCCH, 2010; Kennedy, 2017).

The way in which support services engage vulnerable families is as important as the actual programs they provide (CCCH, 2010, 2021; Dunst & Trivette, 2009; Moore, McDonald et al., 2012; Moore, 2017; Saleebey, 2006; Trivette & Dunst, 2014). Parents benefit most when they are actively involved in deciding what knowledge is important to them, and how they want to access that information. Changes in actual parenting practices are more likely when professionals use strength-based, capacity-building, help-giving practices they need, seeking to build parents' capacity to meet the needs of their children more effectively (Harper Browne, 2014; Pattoni, 2012; Moore & Larkin, 2005; Trivette & Dunst, 2014). The more vulnerable the parents are, the more important it is to establish effective relationships (CCCH, 2010). For those who are better resourced and supported, effective engagement is not as critical, but still important. The quality of the relationships that practitioners develop with parents and caregivers affects how effective they are as helpers and change agents.

Training in the key skills of relational practice is needed (Gadsen et al., 2016). Effective communication is an essential part of effective human services, and professionals need to learn about and practice communication and listening skills (King, 2021; Law et al., 2003). The key elements of effective relationships and therapeutic relationships are now sufficiently well understood and can form the basis of what Norcross and Wampbold (2011) call evidence-based therapy relationships. There are many valuable accounts of the key skills needed to build effective relationships with others (for example, Geldard et al., 2021; Harms, 2015; Miller & Rollnick, 2013). In Australia, the most relevant and accessible training for human service providers is the Family Partnership Model, developed at the Centre for Parent and Child Support in the UK (Davis & Day, 2010).

Training is also needed in cultural responsiveness and cultural safety practices, as well as trauma and healing-informed practices. These are particular skills sets in relational practice.

Engaging with families is a necessary but not sufficient condition for change. Effective partnerships provide the platform for change – for the families to learn how to provide children with the conditions they need to develop functional skills. However, change only occurs if the caregivers learn to apply new strategies and environmental adaptations that ensure that the child benefits. Families will vary in their capacity to change, with some living in circumstances that compromise their

ability to provide their children with the core care conditions they need. In ECI practitioners need to be mindful of these circumstances and be careful not to blame parents.

Monitoring the quality of relationships is important for ensuring effective implementation. Getting feedback from parents and gathering data about the overall levels of relational practice are essential tools for improving the efficacy of ECI services.

Implications for the ECI services

- These findings support some of the central planks of ECI best practice, especially family-centred practice. They provide convergent evidence from a variety of allied fields for the importance of relational-based practice and the importance of authentic engagement and partnership with parents (Centre for Community Child Health, 2021). Maintaining authentic engagement can be challenging (Moore, 2017).

- The findings are also a reminder that ECI services are not simply about developing positive relationships with families. Positive relationships are both an end in their own right and a means to an end. They are an end in their own right in that any positive relationships are beneficial for parents' wellbeing. They are a means to an end in that that they are the medium through which practitioners can help parents develop the skills they need to meet their children's need. For children to benefit, the environment they live in needs to become more optimal.

- Training in the core skills of effective help-giving is essential for ECI practitioners.

Implications for the ECI Practice Framework

It is recommended that the ECI Practice Framework:

- places authentic engagement and partnership building at the centre of ECI practice

- specifies the importance of practitioners receiving training in core skills of effective help-giving

- endorses family-centred practice as a core principle of ECI service delivery

3.5 Evidence-based practice

All best practice guides state that ECI practitioners should only be using strategies that are evidence-based, that is, that have been demonstrated to be effective. However, the deployment of these strategies needs to be part of a process of negotiation with families. As the previous section has demonstrated, how services are delivered is as important as what is delivered. It is critical that practitioners engage effectively with families and understand their goals and circumstances if they are help them build their capabilities to meet the child and families' needs.

Once a partnership has been established and parent priorities agreed, the selection of strategies to address these strategies can begin. Choosing strategies needs to be part of an evidence-informed decision-making process (Moore, 2016) that takes account of what is acceptable to the families and what can realistically be implemented in the family circumstances. The strategies that ECI practitioners share should be evidence-based, known to be effective. The final choice of strategies should be made by parents.

It is possible for strategies to be effective but to be used to cause harm. It is important therefore that the strategies chosen are used to achieve goals that are desired by the family, and that the family are fully informed about the strengths and weaknesses of different strategies. In determining goals on behalf of young children who are unable to articulate their own preferences, we need to be sure that they are goals that are truly in the child's interest and not solely in the interests of caregivers or service providers.

The ECI field is now sufficiently well-established that there are many systematic reviews that can be used to identify effective intervention strategies, as well as those that are unproven or ineffective. (This evidence is addressed in the systematic review reported in Section 7). As this evidence is constantly expanding, it is important that ECI practitioners have access to a continuously updated evidence base (Chakraborty et al., 2024).

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- ensures that the strategies that ECI providers use to address family needs should be evidence-based, adapted as necessary to meet family circumstances

- ensures that the choice of strategies should be guided by an evidence-informed decision-making process that preferences family values, priorities and goals

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3.6 Practice wisdom / practice-based evidence

As noted already, evidence-informed practice is decision-making process that blends evidence-based practice, practice-based evidence, and parental views and values.

Practice-based evidence (also referred to as practice wisdom) can take several forms, including the use of clinical expertise, the synthesis of evidence obtained from programs with similar (but not necessarily the same) aims and outcomes, and the gathering of evidence during practice (Centre for Community Child Health, 2011, Moore, 2016).

In the context of ECI services, practice-based evidence refers to the accumulated knowledge that practitioners develop regarding how evidence-based strategies can be applied in real world settings and what works with particular families and contexts. To comprehensively meet the needs of families, early childhood practitioners will need to not only he able to apply evidence-based practices, but they also will need to know how to adapt these practices to support families who are raising young children with disabilities in complex situations (Trivette & Corr, 2018). For example, embedded learning opportunities and routines-based approaches require practitioners to adapt effective strategies to fit in with the many different family environments and routines. This means that practitioners can build up a knowledge of a range of ways in which this has been done successfully with different families (Hughes-Scholes et al. 2015, 2019) and can then draw on this knowledge when working with new families.

Implications for ECI services

- The relationship between evidence-based practice and practice-based evidence is a dynamic one in which both influence each other. As noted already, choosing strategies to address the goals that parents' choice requires an evidence-informed decision-making process that gives equal weight to evidence-based research findings, practice-based evidence and learnings, and parental values and priorities. Any adaptation of evidence-based strategies should be made in the light of the acceptability to the parents and the practitioners' knowledge of effective ways of adapting strategies in ways that will enable them to be embedded in the family's daily routines.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- supports the adaption of evidence-based strategies to meet the needs and circumstances of individual children and families.

- encourages the use of an evidence-informed decision-making process for determining what strategies to use and how to adapt them

3.7 Indigenous and other cultural systems

For ECI services to be effective, they need to be able to understand, engage with and learn from people from backgrounds that are different to their backgrounds. This includes First Nations groups, such as Aboriginal and Torres Strait Islanders, and other cultural groups, including people of different faith denominations or immigrant and refugee families from different countries.

For Western policy makers and services, what is understood to be true and effective is based on a conception of evidence based on positivist science and ways of establishing what is true or demonstrated in research. However, for other cultures and other families, what is deemed to be true and valuable may is often based on very different sets of assumptions and beliefs. These alternative understandings are just as valid and powerful for these groups as the assumptions of Western science are for Western-trained service providers. Services will be less effective in helping those from groups with different world views and values if they do not seek to understand and respect them. Not only is it important that those trained in the dominant Western way of understanding health and wellbeing understand alternative world views, it is also important that they be open to learning new ways of framing health and wellbeing (Gordon, 2023; McDonald et al., 2022).

There are also significant differences in cultural understandings of disability. In particular, disability is a Western concept that was not familiar to Aboriginal and Torres Strait Islander people (Avery, 2018).

Aboriginal and Torres Strait Islander peoples

As highlighted earlier, there are also significant differences in cultural understandings of disability and Aboriginal and Torres Strait Islander organisations tend to accept a social model of disability which views the systems as limiting rather than the individual (Avery, 2018). In seeking to engage with the belief systems and cultural values of Aboriginal and Torres Strait Islander families and communities, ECI services need to be aware that there are several different levels involved – the spiritual belief systems (including connection to country), the governance systems (including legal systems), and the cultural practices (including health and child rearing practices). To accommodate these various levels, ECI services need to respect Aboriginal and Torres Strait Islander peoples' ways of knowing, being and doing (Parter et al., 2024).

For instance, many Aboriginal parents see learning Aboriginal culture in the home and community, within large extended family groups, as the most significant of their children's learning. This learning is understood to take place through land, language, history and story with the concept of respect as an overarching concept linking traditional cultural values and everyday life. For parents, their major role is encompassed in teaching and learning 'respect', an overarching concept that encompasses traditional cultural values and contemporary everyday life (Woodrow et al., 2016).

Practitioners also need to be mindful of the cultural determinants of health – the ways in which damage can be done when Western ideas about disability are imposed and Indigenous peoples' perspectives ignored (Ineese-Nash, 2020).

As with any families, the conditions under which Indigenous families are living shapes their capacity to provide their children with the conditions that the children

need to thrive (e.g., Axford et al., 2018). For instance, the engagement of Aboriginal and Torres Strait Islander families in ECEC and other services is reduced when they are living in precarious financial circumstances – their preoccupation with safety and survival reduces the time and capacity to work with their children to create an environment of learning (Somerville, 2016). These findings reinforce that the basic needs of families in low-socio-economic contexts, regardless of cultural context, need to be met in order to free up time and resources for them to focus on family-led learning (Core, 2015; Luby et al, 2015).

The consensus from the many reports, reviews and studies is that better outcomes for Aboriginal and Torres Strait Islander communities, families and children will only be achieved when there is an authentic partnership approach with families that is strength based, focuses on mutual goal setting, and implemented with appropriate cultural sensitivity, shared responsibility, dignity and respect (Sprigg dos Santos et al., 2022). At a community level, there needs to be a greater degree of power sharing with Aboriginal and Torres Strait Islander communities having the final say over the goals, services and practices (Parter et al., 2024). Co-designing services is another important strategy (Sherriff & Gwynn, 2024).

The National Aboriginal and Torres Strait Islander Early Childhood Strategy (NIAA, 2021) identifies goals and opportunities for Aboriginal and Torres Strait Islander children (0-5 years) so that they are born healthy and remain strong, nurtured by strong families and thrive in their early years. The Framework to inform the development of this strategy (SNAICC and NIAA, 2021) identifies the following best practice principles for working with Aboriginal and Torres Strait Islander families and communities:

- **Adopting a holistic view of early development** (and health/wellbeing) that place children at the centre and which encompasses physical, mental, cultural and spiritual health and addresses social, historical and political determinants including maternal and child health, housing, early education and care, disability, family, and parenting supports, ensuring child and family safety, and promoting cultural identity development.

- **Self-determination at all levels.** This means empowering parents and kin as first teachers and primary caregivers for their children, and empowering Aboriginal and Torres Strait Islander communities and their community-controlled services to lead responses to children's needs.

- **Recognising the centrality of Aboriginal and Torres Strait Islander family and kinship** as well as the broader concepts of family and the bonds of reciprocal affection, responsibility and sharing.

- **Respecting the human rights of Aboriginal and Torres Strait Islander people**. The full scope of children's rights recognised in the UN Convention on the Rights of the Child (United Nations, 1990) must be upheld and promoted to ensure the best interests of the child are the primary consideration. Human rights articulated in the Convention on the Rights of Persons with Disabilities (United Nations, 2006) and the Declaration on the Rights of Indigenous Peoples (United Nations, 2007) must also be embedded into practice.

- **Supporting strength-based, locally led trauma-aware and healing-informed approaches** that recognise (a) the strengths, knowledge, creativity

and endurance of Aboriginal and Torres Strait Islander peoples, and (b) the ongoing impact of colonisation including intergenerational experiences of trauma, structural racism and poverty so that children grow up loved and cared for within their families, communities and cultures. Healing informed approaches are by definition locally led and determined and have cultural connection at their heart.

- **Culturally valid understandings and evidence-based approaches** must shape program design and service delivery. Consistent with the intent of the Closing the Gap National Agreement, this requires partnering with Aboriginal and Torres Strait Islander communities and organisations to establish coordinated, cross portfolio, whole of governments, and whole of community response and investments to address children's needs. Programs and practices must be flexible in order to recognise and accommodate the diversity of Aboriginal and Torres Strait Islander cultures.

In working with families from different cultural backgrounds, it is important that service providers such as ECI service practitioners seek to understand and respect the belief systems and values of the people they are working with (Hauser-Cram et al., 2013). While the experience of disability is universal, cultures differ in how disability is interpreted. A medical model dominates Western approaches to defining disability, and within this approach, relevant factors such as gender, socioeconomic status, and religion are largely ignored. Cross-cultural research shows that disability is a social construction, with definitions of disability being influenced by the unique and long-standing cultural beliefs and practices, as well as the social and legal histories, of groups of people. How different cultures perceive the causes of a disability or impairment plays a significant role in determining community and family attitudes toward a child with a disability (Hauser-Cram et al., 2013). The extent to which ECI providers understand and respect these perceptions shapes how well they are able to engage with and support families from different backgrounds effectively.

Services need to be open to diversity and consider cultural differences in family support (Federation of Ethnic Communities' Councils of Australia, 2019; Thackrah & Thompson, 2013; Ulferts, 2020). Having people from the same cultural group act as 'cultural brokers' shows promise as a way of supporting culturally diverse families of children with developmental disabilities and helping them navigate complex systems (Pang & Yarbrough, 2023).

To be effective in working with people from diverse cultural backgrounds, organisations and practitioners need to become culturally competent (Thackrah & Thompson, 2013). *Cultural competence* is the ability to understand, communicate and effectively interact across cultures (Federation of Ethnic Communities' Councils of Australia, 2019). At an organisational level, cultural competence involves developing systems, policies and processes that ensure cultural diversity and difference are considered in all aspects of an organisation's work. This includes understanding the needs and preferences of a diverse range of consumers and provide products and services that are appropriate, accessible and inclusive (Federation of Ethnic Communities' Councils of Australia, 2019).

Culturally sensitive practice is a key aspect of best practice in ECI service delivery (Este, 2013; Goode et al., 2017; Hanson & Lynch, 2010; Hanson & Espinosa, 2016). According to Hanson and Espinosa (2016), culturally and linguistically sensitive and

individually tailored services are essential to the effective delivery of human services. The key features of culturally sensitive practice have been identified by Este (2013) as follows:

> *The general consensus is that practitioners (a) need to be aware of their specific cultural, racial, and ethnic identity and experiences; (b) need to be informed about different racial, cultural, ethnic, and diverse groups; (c) must possess strong empathy and skills in order to work with clients from diverse backgrounds and experiences; and (d) must have intrinsic values that truly reflect their willingness and commitment to work in an ethical manner with different client systems.*

Developing cultural competence is a process, not an endpoint (Hanson & Lynch, 2010). It is not a set of skills that can be checked off a list and considered mastered but requires lifelong attention. Although cross-cultural competence may never be fully achievable, there are a number of steps that professionals can take to increase and enhance their skills.

As early childhood learning environments grow more and more diverse, schools and ECEC programs must learn how to address inequitable practices and policies so that every child learns, belongs, and thrives (Reinking & Thigpen, 2023). Thomas and colleagues (2019) have developed Diversity-Informed Tenets for Work with Infants, Children, and Families. These are based on a recognition that social forces conspire to interfere with the capacity of some groups of children and families to thrive. Reinking and Thigpen (2023) provide practical advice on how to coach early childhood educators in diversity, equity, inclusion, accessibility, and belonging in early childhood settings.

To achieve true equity in health and wellbeing, services need to be ***culturally safe*** rather than just seeking to be culturally competent (Commissioner for Children and Young People – Vic, 2024; Curtis et al., 2019; Smith, 2021). Cultural safety involves providing culturally safe relationships and environments for those they seek to help (Curtis et al., 2019; Smith, 2021), welcoming Aboriginal children and young people, and their families into organisations and activities, and supporting them to express their culture and enjoy their rights (Commissioner for Children and Young People – Vic, 2024). This involves practitioners understanding how their own cultural values can impact on others and what changes they need to make to ensure that there is an equal balance of power between them and their clients. Practitioners must necessarily engage in a process of self-reflection about the rights of those they work with and the power that may exist in family/practitioner relationships. Cultural safety, in effect, asks that practitioners step out of our own cultural value system and into the cultural value system of the client (Smith, 2021). National principles for child safe organisations have been identified by the Australian Human Rights Commission (2019).

It is also important that we address both cultural and structural forms of racism as well as cultural racism (Bailey et al., 2017; Michaels et al., 2023; Priest et al., 2021; Slopen & Heard-Garris, 2022). ***Cultural racism*** is defined by Priest and colleagues (2021) as

> … an organised system of oppression that classifies and ranks social groups into 'races' and devalues, disempowers and differentially allocates power and resources to those considered inferior. Race has no biological basis and is not

a biological reality. Yet race is a powerful predictor of which groups have access to opportunities and resources in society and which groups face barriers.

Racism and racial discrimination are fundamental causes and determinants of health and health inequalities globally. Racial discrimination is frequently experienced by children and young people from Aboriginal and Torres Strait Islander backgrounds, and from some ethnic minoritised groups. Children and young people are particularly vulnerable to racism's harms (Shonkoff et al., 2021). Racism harms child and youth health through direct exposure to racism and pathways of stressor exposure as well as through the structural and societal legacies of historical and contemporary racism on communities, families and caregivers and their access to resources (Priest et al., 2021).

Structural racism refers to the totality of ways in which societies foster racial discrimination through mutually reinforcing systems of housing, education, employment, earnings, benefits, credit, media, health care, and criminal justice. These patterns and practices in turn reinforce discriminatory beliefs, values, and distribution of resources (Bailey et al., 2017).

Implications for the ECI services

- ECI services need to be able to engage effectively with all groups within our increasingly diverse society. The evidence considered here clearly shows that this requires a true willingness to engage with, understand and learn from the belief systems and cultural practices of these groups.

- ECI services need to ask whether diversity of their own workforce reflects that of the communities they work with, and to consider employing people from these groups (Centre for Community Child Health, 2021).

- The ECI workforce needs to be trained in culturally sensitive and culturally safe practices.

3.8 Data and feedback

Another key source of evidence that should inform ECI practice is the information gathered from audits and evaluations, outcome measurements, and feedback from families.

Feedback from families has an important role to play in ECI service delivery. Dunst and Espe-Sherwindt (2016) recommend routinely collecting feedback from parents and other family members to detect any slippage in the use of family-centred practices so that prompt action can be taken to improve practitioner help giving.

Implications for the ECI Practice Framework

It is recommended that the ECI Practice Framework:

- specifies that practitioners should seek and use feedback from parents to ensure that they are delivering services in a way that is respectful of family wishes and beliefs and that builds family capabilities

- encourages ECI services to monitor the extent to which services are being delivered in ways that are consistent with best practices

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3.9 Discussion and implications

In this section, we have reviewed what is known about ECI services, drawing on evidence from eight different sources. Key findings from this review include the following:

- All disabilities form continua: disability lies on a continuum from little or no disability to extreme disability This continuous distribution of abilities challenges us to rethink the concept of 'normal'. Since abilities and disabilities are continuous, ECI practitioners need to be able to meet the needs of any child with developmental concerns and their families.

- There are many commonalities between different forms of disability and there are many common strategies that are effective with children who have diverse conditions. Moreover, the same principles of service apply to all children regardless of their diagnostic category.

- Children with disabilities are not a homogenous group and they often have multiple developmental and health problems. The existence of these multiple problems means that an individualised approach is needed, taking account of the nature of the disability, the pattern of additional health and other conditions, and the unique challenges and opportunities provided by the child's social context.

- Children with developmental disabilities have the same core needs as all children but may have difficulty having these needs realised because of the nature of their disabilities. The focus of support services should be on providing the additional support they need to ensure their core needs are met.

- Children learn in every environment in which they spend time, and they develop new skills by having multiple opportunities to practice functional skills and participate meaningfully in everyday settings. Participation is a major driver of development, so ensuring that children with developmental disabilities are able to participate meaningfully should be a major goal of ECI services.

- Building a sense of agency and self-determination is an important goal for any child. It is especially important for children with developmental disability as they are at risk of not being given the opportunities to choose and have a say that other children are.

- Families of children with developmental disabilities have the same core needs as other families – for nurturing care and support, for material basics, for opportunities to participate in community activities. However, families of children with disabilities may have difficulty having these needs realised because of the nature of the child's disabilities and the constraints that is placed upon the family's ability to work and to participate in community activities.

- Positive social support and peer support are critical for all families, and families of children with developmental disabilities are no exception. Ensuring that such families have positive social support networks, including to other parents of children with disabilities, should be a major focus of ECI services.

- There has been an important reframing of the experience of families of children with developmental delays or disabilities from a story of trauma and 'chronic sorrow' to one of adaptation and hope. ECI services need to adopt a positive approach regarding the child and family's future, not being pessimistic or conclusive about the child's future but offering families realistic hope.

- A vital source of evidence for ECI services is what can be learned from the lived experience of children with developmental concerns, delay or disability and their families. This includes their views about what matters to them and what they say about services they need, those they receive, and what helps most. ECI should do more to engage parents as co-designers, co evaluators and co-deliverers of ECI services.

- Convergent evidence from a variety of allied fields has highlighted the importance of relational-based practice and the importance of authentic engagement and partnership with parents. Human services such as ECI services, are fundamentally relational, dependent upon the quality of the relationships between service provider and client. The way in which support services engage vulnerable families is as important as the actual programs they provide.

- Training in the key skills of relational practice is needed for effective ECI support. Ongoing monitoring the quality of relationships is important for ensuring effective engagement and support.

- Engaging with families is a necessary but not sufficient condition for change. Positive relationships with parents are both an end in their own right and a means to an end. They are an end in their own right in that any positive relationships are beneficial for parents' wellbeing. They are a means to an end

in that that they are the medium through which practitioners can help parents build the capabilities they need to meet their children's needs and address the barriers that that prevent them from doing so.

- All best practice guides state that ECI practitioners should only be using strategies that are evidence-based, that is, that have been demonstrated to be effective. However, choosing strategies needs to be part of an evidence-informed decision-making process that considers what is acceptable to the families and what can realistically be implemented in the family circumstances.

- One of the key elements of evidence-informed decision-making is practice-based evidence or practice wisdom. This refers to the accumulated knowledge that practitioners develop regarding how evidence-based strategies can be applied in real world settings and what works with particular families and contexts. To comprehensively meet the needs of families, early childhood practitioners will need be able to apply evidence-based practices, and also will need to know how to adapt these practices to support families who are raising young children with disabilities in complex situations.

- For ECI services to be effective, they need to be able to understand, engage with and learn from people from diverse backgrounds. This includes First Nations groups, such as Aboriginal and Torres Strait Islanders, and other cultural groups, including people of different faith denominations or immigrant and refugee families from different countries.

Part Two: ECI Services and Frameworks

Part Two reviews what is known about early childhood intervention and ECI practice frameworks. consists of three sections. The first looks at what we know about the aims, principles and practices of ECI services, and what form a practice framework should take. The second section is a review of six practice frameworks from different national jurisdictions. The third section reports a systematic review of ECI strategies. As before, each section concludes with a consideration of the general implications for ECI services and the specific implications for an ECI practice framework.

4 Aims, principles and practices of ECI services

This section sets the scene by discussing the overall aim of ECI services, the principles upon which these are based, and what these look like in practice. It concludes with a discussion of the core features of a best practice framework.

In the discussion that follows, the following distinctions are made between aims and outcomes, underlying principles, best practices, and strategies / evidence-based interventions. **Table 1** provides a definition of these key terms.

Table 1. Definitions of key terms

Terms	Definition
Aims	Statements of what ECI services are seeking to achieve.
Outcomes	Benefits/changes experienced because of services and supports provided to children and families.
Principles	Rules, beliefs, or ideas that guide behaviour.
	Principles can serve as the foundation for a system of belief or behaviour or for a chain of reasoning (i.e., a theory of change). Principles are independent of context and apply in all circumstances. They are based on three sources: values, rights and evidence.
Practices	Specific actions or behaviours that put principles into effect.
	Practices are context-dependent and are methods whereby principles are applied in particular circumstances.
	Practices are based on three sources of evidence: evidence-based research, practitioner practice knowledge and wisdom, and client values, priorities and circumstances.
Strategies	Evidence-based interventions or approaches.
	Evidence-based strategies or interventions are one of the sources of knowledge on which practices are based. They are interventions that have demonstrated evidence of effectiveness for one or more relevant outcomes under controlled conditions, using rigorous methods of research.

4.1 ECI aims and outcomes

An ECI practice framework needs to be based on a clear understanding of the overall *aim and rationale* of ECI services, what *outcomes* they are seeking to achieve, and a *theory of change* – how the support they provide achieves these outcomes.

Our understanding of what ECI services are trying to achieve has evolved over time. ECI services originally took the form of direct work with children, individually or in groups, in clinical settings. As the ECI field evolved and evidence accumulated, there was a major shift in thinking and practice (CCCH, 2011; Moore, 2012). This took the form of a new understanding of the aim and rationale of ECI services, summarised as follows:

> Reviewing the rationale for ECI in the light of developmental research findings leads us to conclude that the aim of ECI is not so much to be the major agent of change through direct work with children, but to work with and through the children's caregivers to ensure that the children's everyday environments provide them with the opportunities and experiences that will enable them to develop the functional skills to participate meaningfully. This same logic leads to the recognition that the learning environments that children experience outside the home are just as important for their development as their home environments. Therefore, the learning environments provided by early childhood programs are properly regarded as being a major setting for early childhood intervention, not just as a desirable addition, and the task of ECI services is the same as in the home: to work with and through the early childhood staff to ensure that the early childhood environment provides them with the opportunities and experiences that will enable them to develop the functional skills to participate meaningfully in the same social and learning activities as the other children (CCCH, 2011).

While this change in the ECI rationale led to significant changes in practice in Australia, with many services shifting from centre-based to home-based service provision (Forster, 2017), they were not consistently adopted nationally (Forster, 2017; Moore et al., 2019). Moreover, as Novak and Barry (2014) have noted, home visiting is not an intervention in its own right, but a means of service delivery. The question of whether or not a home program will produce better results depends both on what is done during home visits and how it is done, and whether there is effective follow-up. Home programs are effective if: (a) the program content is designed upon proven effective interventions; (b) the program is devised so as to respect parent implementation preferences; and (c) the parent is supported and coached to implement the program (Novak and Barry, 2014).

The overall aim of ECI just outlined is endorsed by all experts (e.g., Dunst & Espe-Sherwindt, 2017; Guralnick, 2023; Keilty, 2016; King et al., 2018; McWilliam, 2011, 2015, 2016; Mahoney & Perales, 2011; Palisano et al., 2012; Raver & Childress, 2015a). The central goal is to promote the capacity of caregivers to support the child's learning (Dunst, 2017a; Dunst & Espe-Scherwindt, 2017; Dunst & Trivette, 2009; Levine, 2013; McWilliam, 2014, 2015, 2016; Sawyer & Campbell, 2017; Whipple et al., 2014). The logic of this is that children learn most in the environments in which they spend most of their time, not in specialist intervention sessions (Dunst & Espe-Scherwindt, 2017; McWilliam, 2015, 2016; Whipple et al., 2014). As

McWilliam (2015) states, what happens between formal sessions is when the learning takes place, not in therapy sessions: children learn from their natural caregivers, whether we want them to or not. Moreover, parents spend much more time with their children than professionals do and therefore have at least ten times more opportunities to interact with their children (Mahoney & Perales, 2011).

Another reason for working primarily through parents and caregivers is that the principal way in which children learn is through what Mahoney (2013) calls massive practice, that is, having multiple opportunities to practice functional skills in everyday settings. Performance improves with practice, and hence a major aim should be to provide as many opportunities as possible to actively practice key skills (Jackman et al., 2022; Rosenbaum & Gorter, 2012). This is best achieved by capitalising on the naturally occurring opportunities that arise in everyday home and community settings (Hughes-Scholes et al., 2015, 2019; Keilty, 2020; McWilliam et al., 2020; Trivette et al., 2013).

The other core plank of early childhood intervention services identified in all current formulations is the ***inclusion and participation of children with disabilities*** and their families in community settings that serve typically developing children. As noted already, inclusion involves much more than having access to the same environments as other children, but also includes their meaningful participation in those environments. This approach continues to be endorsed both as the right of children with disabilities (Cologon, 2014) and as best practice (Boyle & Anderson, 2020; Cologon, 2014; Fordham & Johnstone, 2014; Frankel et al., 2017; Guralnick & Bruder, 2016; Hauser-Cram et al., 2017; Hebbeler & Spiker, 2016; Marshall et al., 2017; Webster & Forster, 2012; UNESCO, 2021; United Nations, 2019; U.S. Department of Health and Human Services & U.S. Department of Education, 2023; World Health Organization & UNICEF, 2023). Participation and belonging are preconditions for children to thrive and flourish, and the enhancement of participation has been described as the ultimate outcome for health and educational interventions (Adair et al., 2015). Promoting participation needs to begin early. Imms and Adair (2017) found that trajectories of participation in children with cerebral palsy showing largely stable trajectories from middle childhood on, suggesting the need to establish inclusive patterns early.

As Hebbeler and Spiker (2016) have noted, providing high-quality early learning environments is consistent with the evolving concept of disability, which emphasises functioning and sees disability as the interaction between the individual and the environment. Early educational environments are not neutral factors when it comes to existing and emerging disabilities: these environments can contribute positively or negatively to the way children will function — and even, for some children, to whether they are considered disabled at all (Hebbeler & Spiker, 2016). Focusing on participation is critical for children with disabilities because, without special efforts to support their participation, they are likely to experience lower levels of participation than other children. Sollis (2019) used data from the Longitudinal Study of Australian Children (LSAC) to assess deprivation among Australian children. She found that children with disability, while generally engaged and included in the family and home environment, are more likely to be experiencing significant social exclusion both at school and in the community. They are also more likely to experience deprivation across all dimensions including being up to three times more likely to lack relationships with friends, and around two times more likely to have mental health concerns. Compared with their non-disabled peers, children with physical disabilities

participate in fewer leisure activities that occur more at home, spend more time on quiet activities, and are involved in fewer social and physical activities compared with children without disabilities (Palisano et al., 2012).

This shift to thinking about the aim and rationale of ECI in terms of focusing on the environments in which children spend time is consistent with the evidence considered earlier about the contextual nature of development and the importance of core care conditions for children and families. However, we need to consider how this way of framing the aim of ECI fits in with aims for children that are contained in the key national early childhood policy statements – the Early Years Strategy (2024-34), the Early Years Learning Framework (EYLF) (2022), and the National Aboriginal and Torres Strait Islander Early Childhood Strategy (2021). The overall goal of the National Early Years Strategy are that all children in Australia thrive in their early years and that they have the opportunity to reach their full potential when nurtured by empowered and connected families who are supported by strong communities. The EYLF is based upon the key principles of belonging, being and becoming. These constitute the conditions that children need in order to thrive. The vision underpinning the National Aboriginal and Torres Strait Islander Early Childhood Strategy is that all Aboriginal and Torres Strait Islander children (0-5 years) are born healthy and remain strong, nurtured by strong families and thrive in their early years.

The overall aim of ECI services should be the same as that for all other children – to ensure that they thrive. As stated by the National Early Childhood Technical Assistance Centre in the US [35], *the goal of early intervention and early childhood special education is to enable young children with disabilities to be active and successful participants during their early childhood years and in the future.* The conditions that children need in order to thrive will be the same as those for all children. As stated by the EYLF, these are belonging, being and becoming. *Belonging* encompasses the child and family having positive support networks and being accepted by community. *Being* involves the child being able to be a child, enjoying the range of experiences and opportunities afforded to all children. And *becoming* involves developing functional skills that will enable them to participate meaningfully in home, community and ECEC settings, being engaged and involved and not just present.

This expanded way of thinking about the overall aim and rationale of ECI services does not invalidate the earlier framing described above. Building the capacity of caregivers to meet their children's needs is *means* by which ECI services achieves their outcomes, one of the key ways in which they contribute to the higher order aim of ensuring that the children thrive.

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[35] https://ectacenter.org/outcomes.asp

Implications for ECI services

- The ultimate goal for children with developmental concerns, delay or disability should be the same as for all children: to enable them to thrive. Building the capability of caregivers is the means by which children learn the functional skills they need in order to participate meaningfully in home and community life. Meaningful participation is a central plank in ensuring that children thrive.

- This broadening of the aims of ECI is valuable both for ECI services and for families of children with developmental disabilities. For ECI services, it promotes the idea that ECI services should be embedded in mainstream services systems rather than in a separate disability stream. For families, understanding that the overall aim is to help them and their children to thrive places the emphasis on positive aspects of child and family functioning, reminds families and others of the importance of families being able to experience as many of the same opportunities as all other families as possible, and highlights the need to maintain links with mainstream services and community activities.

Implications for the ECI Best Practice Framework

It is recommended that the ECI Best Practice Framework:

- be based on a clear understanding of the overall aims of ECI and how they relate to aims for all children

- be based on a clear understanding of the conditions that children need to thrive and how these can be met

- focuses on ensuring children's meaningful participation in home, community and ECEC/school settings

- promotes building the capabilities of caregivers to provide children with opportunities to practice functional skills

4.2 ECI principles

As already noted, principles are rules, beliefs, or ideas that guides our behaviour. They can serve as the foundation for a system of belief or behaviour or for a chain of reasoning (i.e. a theory of change). Principles are independent of context and apply in all circumstances. They are based on three sources: values, rights and evidence.

Below is a list of candidate principles for inclusion in a best practice framework. These are drawn from a variety of sources, including:

- Existing Australian principles and guidelines
  - National Guidelines: Best Practice in Early Childhood Intervention (Early Childhood Intervention Australia, 2016)
  - National Autism Guideline (Autism CRC, 2024)
  - Interventions to improve physical function for children and young people with cerebral palsy: international clinical practice guideline (Jackman et al., 2022)
- International statements of best practice principles, including from the USA (Division for Early Childhood, 2014), Canada (Hiebert-Murphy et al., 2017), Spain and Portugal (Serrano et al., 2017). (See also the review of ECI practice frameworks in Section 6)
- Other best practice summaries, including Dunst (2022), Dunst & Espe-Scherwindt (2017), Guralnick (2017), Keilty (2016), McIntyre et al. (2021), McWilliam (2016), Raver & Childress (2015), Snyder et al. (2017), Vargas-Barón et al. (2019), and Workgroup on Principles and Practices in Natural Environments (2008).

The following key principles for ECI services have been commonly identified.

- ***Family-centred.*** Family-centred is frequently listed as a key principle underpinning ECI services and is strongly endorsed as best practice (Bailey et al., 2011; Dempsey & Keen, 2017; Dunst & Trivette, 2010; Dunst & Espe-Scherwindt , 2016; Ensher & Clark, 2011; Fordham & Johnston, 2014; Hauser-Cram et al., 2017; Hiebert-Murphy et al., 2017; Keilty, 2016; Keilty et al., 2017; King & Chiarello, 2014; Law & Darrah, 2014; Palisano et al., 2012; Raver & Childress, 2015; Serrano et al., 2017; Sukkar et al., 2017; Tomasello et al., 2010; Trute, 2013; Trute & Hiebert-Murphy, 2013). Being family-centred involves more than simply focusing on the family as a whole, important though that is. It is a more comprehensive approach that includes a number of key elements and practices. A good summary is provided by King & Chiarello (2014):

  > A family-centred approach is characterized by provider practices that convey dignity and respect to families, where information is exchanged so that informed decisions can be made, where there is responsiveness to the family priorities and choices, and where collaborative family-provider partnerships are considered to be fundamentally important. The key elements of family-centred practice include an emphasis on child and family strengths rather than deficits, facilitating family choice and control, and creating a therapeutic

environment that optimizes the development of a collaborative family-provider relationship.

Being family-centred is best understood as a transactional process of care that depends as much upon how the service provider views the family as on how the family views the service provider, and how effectively they collaborate (Schenker et al, 2016).

Although commonly seen as a key principle of ECI service provision, being family-centred may be better understood as a set of practices underpinned by a number of key principles. These include: respect for parental values, knowledge and priorities; individualised services to meet families' particular needs and circumstances; focusing on the needs of the family as a whole; collaborative parent-professional partnerships; empowering parents and families as key decision-makers; and building on family strengths and resources.

A key feature of being family-centred is its whole-of-family approach. Early intervention programs must not only effectively meet the needs of the individual child but must also recognise and support the whole family (Dunst, 2017; Frankel et al., 2017; Frantz et al., 2018; Guralnick, 2017, 2019; McWilliam, 2011). The well-being of any one member of the family affects the well-being of other members. To be effective in early intervention, therefore, early interventionists need to attend to the emotional, material, and informational support needs of the parents (Guralnick, 2019). Bhopti (2017) argues that promoting occupations of parents can be an important outcome with some families. Among other things, this means that ECI service plans should include family outcomes as well as child outcomes (Bailey et al., 2011).

In addition to supporting the whole family, ECI services should explore ways of involving all family members. Involving fathers is a particular priority (Nicholas, 2013; McBride et al., 2017). While ECI providers see fathers as important contributors to children's care and development, they are reluctant to target fathers for involvement in EI services (McBride et al., 2017).

A key feature of being family-centred is parent-professional partnership (An & Palisano, 2014; An et al., 2015; Fialka et al., 2012; Frankel et al., 2017; Frantz et al., 2018; James & Chard, 2010; Keilty, 2016; Keilty et al., 2017; Kennedy, 2017; King & Chiarello, 2014; Moore, 2018; Palisano et al., 2012; Sukkar, 2017; Trute & Hiebert-Murphy, 2013). Partnerships involve shared information, shared power and decision-making, and shared actions. Parents are regarded as 'experts' on their own particular family, children and circumstances, whereas practitioners are experts in their particular discipline and what it tells them about families and children in general. Blending these two forms of knowledge and expertise produces synergistic effects – the resulting plans and actions are more effective and powerful than anything that either partner could have produced on their own (Moore, 2018).

Another key element of being family-centred is parental choice and control: support to families is based on goals that they choose, and parents remain the final decision-makers throughout (Jackman et al., 2022; King & Chiarello, 2014).

There is much research evidence demonstrating that family-centred service leads to positive outcomes for children, parents, and families (e.g. Dempsey & Keen, 2017; Gavidia-Payne et al., 2015; King & Chiarello, 2014; Moore & Larkin, 2005). Being family-centred has also been endorsed by parents (Fialka et al., 2012; Mahmic, 2016, Novak, 2011; Pighini et al., 2014). Parents report how empowering it is for them when professionals use this approach, and how it helps them articulate their children's needs for developmental, health and educational services (Pighini et al., 2014).

- ***Capacity-building and strength-based***. As noted already, building the capacity of parents and caregivers is a central aim of ECI services. Acknowledging, supporting, and building on family member strengths are defining characteristics of family-centred practice (Baldwin et al., 2013; Donaldson et al., 2017; Dunst, 2017; Dunst & Espe-Sherwindt, 2016; Palisano et al., 2012) and of human services in general (Edwards et al, 2016). Helping families make use of existing family resources is an important strength-building strategy (Dunst, 2017; McWilliam, 2011; Palisano et al., 2012). ECI services should add to and strengthen the informal supports families of young children already have, not set up interventions in isolation of the resources families already have (McWilliam, 2011).

- ***Culturally responsive and culturally safe***. Culturally sensitive practice has long been seen as a key aspect of best practice in ECI service delivery (Este, 2013; Goode et al., 2017; Hanson & Lynch, 2010; Hanson & Espinosa, 2016). According to Hanson and Espinosa (2016), culturally and linguistically sensitive and individually tailored services are essential to the effective delivery of human services. The key features of culturally sensitive practice have been identified by Este (2013) as follows:

    The general consensus is that practitioners (a) need to be aware of their specific cultural, racial, and ethnic identity and experiences; (b) need to be informed about different racial, cultural, ethnic, and diverse groups; (c) must possess strong empathy and skills in order to work with clients from diverse backgrounds and experiences; and (d) must have intrinsic values that truly reflect their willingness and commitment to work in an ethical manner with different client systems.

- **Inclusion and participation**. As we have seen in the discussion of ECI aims, inclusion and participation are foundational principles for ECI services. Inclusive and participatory practices are seen as central to best practice in ECI services (Buysse, 2011; Cologon, 2014; Frankel et al., 2017; Hauser-Cram et al., 2017; Hebbeler & Spiker, 2016; Marshall et al., 2017; Snyder et al., 2015; Webster & Forster, 2012). According to Buysse (2011), there are three defining features of high-quality inclusion:

    o *Access:* removing physical barriers, providing a wide range of activities and environments, and making necessary adaptations to create opportunities for optimal development and learning for individual children

    o *Participation:* using a range of instructional and intervention approaches to promote engagement in play and learning activities, and a sense of belonging for each child

   o *Supports:* creating an infrastructure of systems-level supports for implementing high-quality inclusion

In the United States, evidence continues to accumulate that children with developmental delays or disabilities do at least as well developmentally and socially in inclusive programs as they do in specialised programs (Guralnick & Bruder, 2016). According to Kemp (2016), there is little comparable research on inclusion in Australia. This does not mean that young children with developmental delays or disabilities do not benefit from inclusion in early childhood settings, only that we have not yet tested this proposition thoroughly. Australians have relied heavily on research from the United States to guide the delivery of early childhood intervention programs, including services provided in inclusive ECEC settings.

In a summary of inclusive education practices for school-age students with disabilities in Australia, Forlin and colleagues (2013) note that Australia, like most countries, views inclusion as a disability issue, with almost all regions maintaining some form of separate special education. All Australian jurisdictions have inclusive policies and firmly established structures for supporting students with disability, with detailed and quite complex procedures for identifying eligibility of students and the provision of support required. All use a needs-based approach and offer support at different levels through elaborately articulated frameworks. Despite the rhetoric supporting inclusion, however, as a concept and in practice there are many challenges in implementing fully inclusive education practices in Australia (Forlin et al., 2013).

- ***Engaging children in natural environments***. A key principle underpinning ECI services is that they should be delivered in natural environments such as the home, and should seek to embed opportunities for children to practice functional skills into daily family routines (Raver & Childress, 2015; Dunst & Espe-Sherwindt, 2017; Hughes-Scholes et al., 2015, 2019; Jackman et al., 2022: McConnell et al., 2015; McWilliam, 2010, 2011, 2015, 2016; Moore et al., 2012; Palisano et al., 2012; Raver & Childress, 2016). In general, early childhood home visiting is a service delivery strategy that supports a range of positive outcomes, including improved child and maternal health, children's development and school readiness, family economic self-sufficiency, and the reduction of child abuse and neglect (Kleinman et al., 2023). Moreover, the evidence shows that parents are more likely to implement therapeutic interventions when these are embedded in other daily activities and routines (McConnell et al., 2015).

- ***Collaborative teamwork.*** Another key principle is that service delivery should involve collaborative teamwork among professionals as well as with parents. Transdisciplinary teamwork and keyworker models in which a primary service provider is backed by an interdisciplinary team are seen as best practice by most experts (Alexander & Forster, 2012; Baldwin et al., 2013; Boyer & Thompson, 2014; Division for Early childhood, 2014; Frankel et al., 2017; Hauser-Cram et al. 2017; Jackman et al., 2022; King et al., 2009; Luscombe, 2009; McWilliam, 2011; Potvin et al., 2018; Rausch et al., 2021; Raver & Childress, 2015; Shelden & Rush, 2022) and by parents (Novak, 2011). The need to integrate and coordinate services is one of the core principles that

serve as the foundation for guiding practice in programs for young children with disabilities (Hauser-Cram et al., 2017).

Families of children with developmental delays or disabilities often need to make use of a variety of professional services, and this can be an added stress for mothers in particular. Providing a single point of contact has been found to improve families' abilities to navigate, organise and understand the service system, and also increase parental engagement (Myers et al., 2023). The psychological wellbeing of mothers is greatest when they have continuity of care from professionals, and steadily worsens as the number of professionals they were dealing with increased (Hodgetts et al., 2017)

A review of the research literature on the transdisciplinary approach in ECI services by King and colleagues (2009) concluded that, although the managerial and team resources required to successfully implement this model are high, the potential payoffs for children, families, and therapists' development of expertise are considerable.

- *Evidence-informed*. A key principle is that ECI services should be evidence-informed (ECIA, 2016; Whipple et al., 2014). This involves practitioners having appropriate expertise and qualifications and using intervention strategies that are grounded in research and sound clinical reasoning. The research base supporting ECI service delivery has grown considerably, with the publication of numerous systematic reviews of evidence regarding specific intervention strategies. However, the extent to which this new knowledge is being incorporated into practice is unclear. For instance, reviews suggest that many of the interventions used by paediatric therapists working with children with cerebral palsy in Australia do not typically seek research evidence when selecting interventions (Kerr et al., 2015) or use interventions that lack evidence of efficacy (Novak et al., 2013).

- *Outcomes-based approach*. Basing services on outcomes and specifying these in service plans remains a central feature of ECI practice. In keeping with the whole of family approach, these plans specify family outcomes as well as child outcomes (Bailey et al., 2011; Division for Early Childhood, 2014).

In framing goals for children, the research and practice literature continues to emphasise the importance of focusing on building children's functional skills (Darrah et al., 2011; Law & Darrah, 2014; Law et al., 2011; McWilliam, 2011; Paithankar & Jaywant, 2018; Rosenbaum & Gorter, 2012). This is particularly so in the case of children with physical impairments. As reported by Law and Darrah (2014), over the past 15 years, functional, activity-focused therapy approaches based on new models have been developed and evaluated. These emerging therapy approaches have been labelled as context-focused therapy, ecological task analysis, functional therapy, goal-directed functional therapy, activity-focused and goal-directed therapy, or task-oriented therapy. What these approaches have in common is a focus on family-identified goals, analysis of factors within the child, task and environment that are influencing performance, and performance of functional tasks and activities (Law & Darrah, 2014).

McWilliam (2011) points out that the child's acquisition of a skill is not an end in itself, but a means to ensuring participation in home, early childhood and community settings. Outcome statements should specify the increase in participation that will result from gaining the skill. Otherwise, they might teach the child the skill without applying it to a functional context, rendering the skill useless.

4.3 ECI practices

As noted earlier, practices are the specific actions or practices that put these principles into effect. In this section, we look at specific practices that operationalise the principles identified in the previous section. This is not an exhaustive list but is indicative of the kind of practices that should be included in a best practice framework.

Practices are based on three sources of evidence: evidence-based research, practitioner practice knowledge and wisdom, and client values, priorities and circumstances (Moore, 2016; CCCH, 2017).

Principle: Family-centred

Related practices. In childhood disability research, the involvement of families has been repeatedly demonstrated to be essential for optimal outcomes for all participants.

Parental choice is one of the key principles under-pinning being family centred. ECI services should be based on the goals parents wish to focus on and the strategies they wish to use. In helping parents make choices of goals and strategies, practitioners need to use an evidence-informed decision-making process (Moore, 2016; CCCH, 2017) that blends three sources of evidence: evidence-based research, practitioner practice knowledge and wisdom, and client values, priorities and circumstances.

In choosing programs for local communities and services, the National Implementation Research Network (NIRM) in the US has developed the Hexagon Tool (Metz & Louison, 2018) for guiding the selection and assessing the fit and feasibility of potential programs and practices for use. It includes three program indicators and three implementing site indicators. The program indicators assess the extent to which new or existing programs or practices that will be implemented demonstrate evidence, supports for implementation, and usability across a range of contexts. The implementing site indicators assess the extent to which a new or existing program or practice aligns with the implementing site along the following domains: population need, fit and capacity.

Building partnerships with parents is another key principle underpinning being family-centred (Fialka et al., 2012; Keyser, 2006; Keilty, 2016; Kielty et al., 2017; King & Chiarello, 2014).

Despite the strong consensus about the importance of being family-centred in ECI services, it has been challenging to operationalise (Bailey et al., 2011; Epley, 2010), and to implement consistently (Bruder, 2000; Darrah et al., 2012; Dempsey & Keen, 2017; Dunst & Espe-Sherwindt, 2016; Dunst et al., 2014; Epley et al., 2010; Fordham et al., 2012; García-Ventura et al., 2021; Hiebert-Murphy et al., 2017; Johnston et al., 2017; Lietz & Geiger, 2017; Wright et al., 2010; Ziviani et al., 2011). Factors that may hinder or facilitate the delivery of truly family-centred services

include family/professional characteristics, lack of appropriate training, lack of managerial support, family/service resources, and parent attitudes, engagement and agency (McCarthy & Guerin, 2022). Although being family-centred encourages negotiation and collaborative goal setting, parents may not always be ready to take on highly collaborative roles (Forsingale et al., 2013), and there is a danger that too much will be expected of them (Cameron, 2018; Lord et al., 2018; McConnell et al., 2015). Being the parent of a child with a disability comprises multiple roles, and some parents express the desire to 'just be parents' and separate themselves from the duties of the professionals responsible for supporting their children (Cameron, 2018). This is a question of balance: an over-reliance on parents' participation has the potential to undercut a sense of normalcy in families' lives and emphasise the child's disability (Cameron, 2018), and add to the stress on family resources (McConnell et al, 2015).

Several factors need to be in place for parent-delivered interventions to be successful. These include: developing positive, trusting and reciprocal relationships between the parent, child, and health care professionals; parents having strong support networks including support for their own needs to feel capable to deliver the intervention; and all involved parties need to see the intervention as a priority (Lord et al., 2018). Individual practitioners more likely to be consistently family-centred when they work within a whole-of-organisation framework that supports the use of evidence-based practices (Dempsey & Keen, 2017; Summers et al., 2005).

A particular challenge for parents is role negotiation, that is, determining the type and level of participation in their child's care and intervention, and the roles they wish to assume in caring for their child. They may be very unsure of their readiness and ability to be the kind of partner ECI professionals are hoping for. The development of effective partnerships with professionals depends upon the parents' readiness to engage, their understanding of systems and services, and the establishment of good rapport with the professional (Hurtubise & Carpenter, 2011) as well as on their personal circumstances.

Several programs have been developed to help parents become effective partners with professionals. Programs being used in Australia include the ENVISAGE (ENabling VISions And Growing Expectations)-Families program and the Now and Next program. ENVISAGE-Families is a group program consists of five online workshops for parents of children with neurodevelopmental disorders that aim to introduce parents to strengths-based perspectives on health and development (Miller et al., 2022a, 2022b; Pozniak et al., 2022; Rosembaum et al., 2024). Now and Next is a peer-led group program that helps parents and carers develop skills to achieve positive outcomes for their child, family and themselves (Heyworth et al., 2017; Mahmic et al., 2018; Moore et al., 2018). It is family-centred, based on strengths, and takes account of how adults like to learn.

Principle: Capacity-building and strengths-based approaches

Related practices. One of the most effective ways of building capacity – in anyone – is the use of coaching strategies. Coaching has strong evidence that it is an effective strategy to help caregivers acquire the skills to promote children's functioning (Kemp & Turnbull, 2014; McWilliam, 2015, 2016; Meadan et al., 2018; Novak, 2014; Rush & Shelden, 2020; Simpson, 2015; Snyder et al., 2015; Vismara & Rogers, 2018). Although reviews have found inconsistencies in how coaching is defined (Kemp & Turnbull, 2014; Schwellnus et al., 2015), evidence of the effectiveness of this

approach is accumulating (Novak, 2014; Rush & Shelden, 2020; Simpson, 2015). A survey of ECI practitioners' experiences of using coaching strategies (Meadan et al., 2018) found that they saw coaching as offering several benefits to both caregivers and children, including engaging and empowering caregivers and increased opportunities for children to practice and master skills.

Guidance for practitioners on how to implement coaching practices are available in the form of handbooks for ECI practitioners (Rush & Shelden, 2020; Snyder et al., 2022) and coaching strategies for use with families of children with autism (Vismara & Rogers, 2018). Several studies seeking to understand the coaching process better have also been published (Jayaraman et al., 2015; Kemp & Turnbull, 2014; Douglas et al., 2019).

Another key principle is the use of strength-based approaches. These involve focusing on child and family strengths – what they can do and what they can build on – rather than on deficits – what they cannot do or what they lack (Kielty et al., 2017). Learning how to look for and highlight strengths is a discipline that ECI providers need to practise intentionally so that it becomes a constant feature of their work with children and families. Guidance on the use of strength-based approaches is available (e.g., Kielty et al., 2017), and a case example of the application of the approach by Mahmic and colleagues (2021).

Principle: Culturally responsive and culturally safe approaches

Related practices. Developing cultural competence is a process, not an endpoint (Hanson & Lynch, 2010). It is not a set of skills that can be checked off a list and considered mastered but requires lifelong attention. Although cross-cultural competence may never be fully achievable, there are a number of steps that professional can take to increase and enhance their skills.

The concept of cultural safety is derived from Indigenous thought leadership and reflects the experiences of Aboriginal and Torres Strait Islander peoples. It goes beyond the individual practitioner to encompass the impact of service and policy systems. The outcome is judged by whether Aboriginal and Torres Strait Islander peoples feel culturally safe rather than on non-Indigenous people judging if they are culturally competent. Embedding cultural safety at individual and institutional levels in practice and policy is aimed at achieving justice and equity for Aboriginal and Torres Strait Islander peoples across human services and preferably in all life contexts (Mohammed et al, 2024).

Related practices include authentic engagement with the cultural community (not just the family), using trauma-informed knowledge and skills in engagement, building staff cultural competency (which has training and employment practice implications); engaging actively with families in context; providing support early; shared decision making; shared resources; connecting children and families to their culture, Country and language; and using strength-based assessments and practices (see Part Two, Section 7).

Principle: Inclusive and participatory approaches

Related practices. A key practice for promoting inclusion and participation in preschool programs involves the use of systematic tiered strategies for supporting children who are experiencing problems participating in and benefitting from the early childhood program. These strategies are known as Response to Intervention (Buysse & Peisner-Feinberg, 2013; Hemmeter et al, 2016a) and, more recently, as

multi-tiered support systems (Carta, 2019; Carta & Young, 2019; Carta, 2019; Division for Early Childhood, 2021; Hebbeler & Spiker, 2016; Snyder et al., 2017). Tiered approaches are those that identify increasing levels of support where, for example, universal supports are tier 1, targeted supports are tier 2, and specialised and/or intensive supports are tier 3. A multi-tiered system of support can have more than three levels. There is evidence for the effectiveness of Response to Intervention applications, such as the Pyramid Model for Promoting Social-Emotional Competence (Hemmeter et al., 2016b, 2021; Swalwell & McLean, 2021), although evidence for multi-tiered support systems is limited at this stage (Shepley & Grisham-Brown, 2019).

These tiered models of support are blurring the distinction between regular and special education (Hebbeler & Spiker, 2016). As Guralnick and Bruder (2016) observe, this change involves a move

> …to programs that are less focused on one population versus another (e.g., disability vs. non-disability) and, instead, offer a continuum of service intensity to meet the individual needs and developmental status of each child. This EC service model requires a shift in paradigm from the historical concept of inclusion focused on the placement of children with disabilities into EC programs and classrooms to the implementation of comprehensive EC programs and classrooms that promote the goals of access, accommodation, developmental progress, and social integration for all children, regardless of disability status.

If this is the path we are to follow in Australia, it will mean that ECI inclusion support practices will need to become much more aligned with the national Early Years Learning Framework (EYLF) (COAG, 2009), as noted by Fordham and Johnston (2014). The EYLF is based on the belief that children's lives are characterised by belonging, being and becoming:

From before birth children are connected to family, community, culture and place. Their earliest development and learning takes place through these relationships, particularly within families, who are children's first and most influential educators. As children participate in everyday life, they develop interests and construct their own identities and understandings of the world (COAG, 2009).

These principles apply to all children, including those with developmental delays and disabilities. The desirability of moving to a universal systems approach based on universal design for learning principles was foreshadowed in an earlier report (CCCH, 2011).

Reliable tools to measure the quality of inclusive practices have been developed, such as the Inclusive Classroom Profile (Soukakou, 2012; Soukakou et al., 2012, 2015, 2018). Recommended practices and innovative strategies in preschool inclusion have been described (Buysse, 2011; Cate et al., 2017; Hemmeter & Grisham-Brown, 2017; Marshall et al., 2017). In Australia, ECIA (NSW) has published resources help ECI practitioners promote and support inclusion in their work with families.[36] In these resources, inclusion relates to meaningful participation in home, community and ECEC settings (Moore et al., 2013, 2014; Early Childhood Intervention Australia NSW, 2014a, 2014b).

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[36] https://www.ecia.org.au/Resources/Inclusion/Inclusion-Toolkit

Principle: Engaging children in natural environments

Related practices. Engaging children in natural environments is best achieved by working with them in those environments. Hence, home visits are regarded as the central mode of service delivery by many experts (McWilliam, 2011, 2012, 2015, 2016; Novak, 2011; Novak & Honan, 2019) as well as by parents (Novak, 2011). As noted by Novak and Berry (2014), home programs are not actually an intervention in their own right, but rather a mode of delivering services. The question of whether or not a home program will work depends both on what is done and how it is done. If the aim is to ensure that parents and caregivers learn how to promote their children's functional skills, then they need to be involved in the sessions. However, simply delivering services in the home is no guarantee of this happening. For instance, a study by Sawyer and Campbell (2017) found that, even when services are home-based, practitioners still tend to work directly with the child rather than with the caregivers. While caregivers are frequently exposed to incidental learning opportunities (by watching what the professionals did), they are much less likely to be given direct help or coaching in how to best support the child (Sawyer & Campbell, 2017). This finding was confirmed by another study of home visits (Dunst et al., 2014) that found that more than half of the parents were not involved in their children's early intervention in a manner that would build their parental capacities. However, the same study found that parental involvement became minimal when the services were provided outside the home. Rosen and colleagues (2023) have developed a conceptual framework that can be used to guide efforts to strengthen family engagement in early childhood home visiting. A recent literature research synthesis by Kleinman and colleagues (2023) provides guidance on how to promote family engagement in home visiting sessions.

A commonly used tool for engaging children in natural environments is the Routines-based Interview (RBI) (McWilliam, 2010c). This is a semi-structured interview designed to help families decide on outcomes/goals for their individualised plans, based upon an understanding of family routines and circumstances. Studies have demonstrated the benefits of the routines-based approach over traditional home visiting approaches (Hwang et al., 2013). Australian studies (Hughes-Scholes et al., 2015, 2019) have shown that the RBI is positively received by ECI professionals and demonstrates that tools that carefully assess all aspects and intensity of families' concerns and priorities, such as the RBI, can assist ECI professionals to plan targeted interventions. However, it is important to embed intervention within daily routines and for the intervention to be aligned with the existing beliefs, values, hopes, aspirations, activities, and practices that the family already has in place. This will increase the likelihood that the family will adopt the intervention and sustain it over time. Situating interventions within a family's daily routines can only occur if ECI professionals fully understand what it takes for a family to sustain a routine, that daily routines do not exist in isolation and may not be easily altered (Hughes-Scholes et al., 2019). There is also the danger of overloading parents with tasks and thereby undermining family well-being. As McConnell and colleagues (2015) have noted,

> As a general rule, children do well when their families do well, and families do well when they have the resources that they need to juggle work and family and care demands. Recruiting parents as interventionists can tax family resources. Rehabilitation professionals must weigh up the pros and cons of parent-mediated intervention and look to enfolding therapy into the everyday family routine.

Other strategies for increasing children's participation in everyday learning activities include the use of activity schedules and lists (Trivette et al., 2013), activity-based intervention (Johnson et al., 2015), naturalistic instructional techniques (Meadan et al., 2016; Snyder et al., 2015), and the Coaching in Context approach that aims to enhances functioning in everyday activities of children with autism and their families (Potvin et al., 2018).

Principle: Collaborative teamwork practice

Related practices. Common practices for promoting collaborative teamwork include transdisciplinary models of service delivery where roles are shared across disciplinary boundaries (Bell et al., 2010; Boyer & Thompson, 2014; King et al., 2009; Rausch et al., 2021), key worker models, and Team around the Child approaches.

Alexander and Forster (2012) provide a guide to using a key worker approach for ECI professionals and other professionals providing family support. This identifies five key areas of support offered to families: emotional support; information and advice; identifying and addressing needs; advocacy; and service coordination. Online training in the key worker approach to ECI service delivery is available through Noah's Ark (www.noahsarkinc.org.au/training).

For children with complex medical and developmental needs, a Team around the Child approach is recommended (Limbrick, 2009, 2017). The Team around the Child approach aims to facilitate the highest degree of joint/collaborative working among the various professionals involved in supporting children and families. The aim is to provide "effective, seamless, timely support…and to provide each child [and family] with their own individual, collaborative team of practitioners" (Limbrick, 2007; p. 2).

Principle: Evidence-informed

Related practices. Another aspect of best practice involves the need for practitioners to use sound clinical reasoning. As discussed already (section 5.8), this involves evidence-informed decision-making, a decision-making process that blends three sources of information: evidence-based programs, evidence-based processes, and client and professional values and beliefs. It is unclear how practitioners are meeting this challenge, or what procedures they are using. To address this gap, an evidence-informed decision-making framework has been developed to help practitioners and families make decisions that balance evidence with practitioner experiences and family values (Moore, 2018).

To promote the adoption of evidence-based strategies, performance checklists have been developed (ECTA Centre[37]), along with family and practitioner practice guides that include descriptions and examples of how to use evidence-informed interventions as part of everyday practice (Dunst, 2017b, 2017c, 2018). However, neither performance checklists nor training are sufficient to ensure the implementation of evidence-based practices with fidelity (Artman-Meeker et al., 2015; Bransford et al., 2000), and practice-based coaching is now being explored as a way of bridging the research-practice gap (Fox, 2017; Snyder et al., 2015).

The ECI sector also needs to make better use of quality indicators. The effectiveness of early intervention services depends in part on the quality of the services delivered, including the competencies of professionals and the use of family-centered practices

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[37] http://ectacenter.org/decrp/type-checklists.asp

(Hauser-Cram et al., 2017; Trivette et al., 2010). Although researchers have developed scales to assess service quality, quality measurement has been problematic for many reasons, including the individualised nature of services.

Principle: Outcomes-based

Related practices. In the United States, the federally funded ECTA centre has developed various resources to support best practice in ECI services delivery, including outcomes (http://ectacenter.org/outcomes.asp). Both child-focused and family-focused outcomes are described.

Calder and colleagues (2018) have reviewed the use of outcome measures within multidisciplinary early childhood intervention services, and McConachie and colleagues (2015) have reviewed tools to measure outcomes for young children with autism spectrum disorder. The selection of an appropriate outcome measure depends on the age of the child, individual goals of the family, and the type of intervention. This requires the combination of measures as no one measure alone will capture all outcomes. Outcomes tools in common use in Australian ECI services include the Canadian Occupational Performance Measure (COPM) (http://www.thecopm.ca/), the Family Outcomes Survey – Revised (https://ectacenter.org/eco/pages/familysurveys.asp), and the Family Quality of Life Scale (http://www.midss.org/content/family-quality-life-scale-fqol). The Routines-based Interview (McWilliam, 2012) can also function as a useful tool in helping for identifying outcomes.

Comprehensive service models

Various service models incorporating many of the above strategies have been developed.

- *The family systems early childhood intervention model* (Dunst, 2017; Dunst & Trivette, 2009) uses capacity-building help-giving practices to help parents identify family concerns and priorities, the supports and resources that can be used to address concerns and priorities, and the family member strengths, abilities, and interests used as the skills to obtain supports and resources. This model differs from most others by its inclusion of informal supports as a focus of intervention and capacity-building as a primary consequence of the provision or mobilisation of supports and resources.

- *The Developmental Systems Approach* (Guralnick, 2005, 2017, 2019, 2023) is a relationship-oriented, family-centred framework that seeks to strengthen the quality of key family patterns of interaction that influence a child's development. This approach focuses on family patterns of interaction that are affected by the presence of a child at biological risk or one with an established disability, how those alterations in family patterns affect the provision of an optimal developmental environment for the child, and the role of early intervention in bringing about or restoring as optimal an environment as possible. The framework also takes account of environmental risk factors in the form of limited family resources, which can increase child vulnerability operating through non-optimal family patterns of interaction. This integrated system is compatible with and incorporates principles and practices from a human rights perspective, all designed to support family and child goals (Guralnick, 2023).

- *The Early Intervention Guidebook for Families and Professionals* (Keilty, 2016) focuses on how families and professionals can collaborate effectively so that infants and toddlers learn, grow, and thrive. It addresses family functioning and priorities, and stresses that early intervention is a support and not a substitute. It also provides guidance on specific components of early intervention such as evaluation and assessment, program planning, intervention implementation, service coordination, and transition.

- *The Relational Goal-Oriented Model of Service Delivery to Children with physical or mental health difficulties and their families* (King, 2009) provides a broad understanding of what effective service provision entails and requires from practitioners and services and offers a framework by which to improve the design and delivery of services. It highlights the importance of six major elements of quality care and management: overarching goals; desired outcomes; fundamental needs; relational processes; approaches, worldviews, and priorities; and strategies by which to bring about desired outcomes. The model emphasises the fundamental role of client–practitioner and practitioner–organisation relationships and goal-related aspects of practice.

- Baldwin and colleagues (2013) describe a *transdisciplinary model for solution-focused coaching in paediatric rehabilitation services*. The model exemplifies a strengths-based, relational, and goal-oriented approach to clinical practice. It provides a distinct shift from a problem-oriented, therapist-directed approach to a possibilities-oriented approach where client empowerment takes precedence. The model facilitates client change through a method of working with client strengths and resources that involves the use of strategic questions to co-construct therapy intervention. Through client–therapist collaboration, therapy goals and plans are developed that align with client hopes, priorities, and readiness for change. This model supports client self-determination and capacity for change through customized therapy goals and plans that are meaningful for the child and family.

- McColgan & McMullin (2017) focus on the importance of relationships and communication as the foundation of good social work practice. The model is built around four stages: engagement, negotiation, enabling change and valuing endings. The model is underpinned by motivational interviewing techniques, strengths-focused practice, emotional intelligence and empowerment.

4.4 ECI practice frameworks

What should a practice framework look like? What form should it take and what content should it cover?

Definitions of what a practice framework is has been provided by Connolly and Healy (2017), Stanley et al. (2021) and the UK Department of Health and Social Care (2019). According to Connolly and Healy (2017), a practice framework integrates empirical research, practice theories, ethical principles and experiential knowledge in a compact and convenient format that helps practitioners to use the knowledge and principles to inform their everyday work. For the UK Department of Health and Social Care (2019) and Stanley and colleagues (2021), a practice framework is a schematic

template designed through and informed by value-based practice, research and evidence. A practice framework offers a mapping out of what we do and why, offering a rationale for practice, while promoting a range of practice tools for assessments and interventions.

A review of practice frameworks by Stanley and colleagues (2021) identified five interconnected domains for a rigorous practice framework:

1. An espoused value, principles and ethical basis for the work drawing on local and international codes of practice, conventions and rights-based treaties

2. An evidenced informed knowledge base, supported by co-creation principles

3. An agreed set of theoretical and methodological approaches to be used

4. An agreed set of skills that are needed and supported by learning teams

5. Practitioner self-awareness, with experiential learning in focus, supported by attention to bias and patterns of practice then explored in supervision

In an operational sense, practice frameworks can help to:

- Set out and explain the agency's approach to practice

- Reinforce ethical and purposeful practice and rigor in decision making

- Reinforce an agreed set of practice methods and approaches

- Facilitate access to research, practice and discipline knowledge

- Invite reflection for and of practice

- Offer a supervision, quality assurance and practice leadership toolkit

Much of the discussion of practice frameworks comes from the social work sector. In the ECI sector, Guralnick (2023) has argued that major practice and policy advances in the field of early childhood intervention can be achieved through the application of frameworks that systematically integrate developmental science, intervention science, and implementation science. Such frameworks can provide organisation and direction in any vital and complex field but must remain flexible, open to modification, and be able to adapt to and incorporate an ever-expanding knowledge base. Guralnick (2023) presents his own Developmental Systems Approach as an example of such a framework.

Implications for ECI services

As we have seen, Australia has a set of best practice guidelines for ECI services but lacks a practice framework that provides the clear guidance as to how to implement these principles in practice, or what outcomes they are designed to produce. Such guidance is urgently needed. This project seeks to fill that gap by developing a framework that provides guidance to the ECI field (and to parents and other service provider) as to what best practice in ECI looks like, how it is delivered and what it seeks to achieve. This will a guide for ECI practitioners and will also provide guidance as to how ECI services should be organised, and what conditions are needed to support best practice.

The exact form of the framework will be based on consultations with parents, practitioners, Aboriginal and Torres Strait Islander groups, and national and international experts. However, the evidence reviewed suggest that it should include the following features:

- Statement of aims and intended outcomes

- Statement of theory of change – how ECI achieves its intended outcomes

- Statement of key principles underpinning service delivery

- Description of key practices showing what the principles look like in practice

- Description of evidence-based strategies

Implications for the ECI best practice framework

It is recommended that the ECI Best Practice Framework:

- Includes the following features: a statement of aims and intended outcomes; a statement of theory of change – how ECI achieves its intended outcomes; a statement of key principles underpinning service delivery; a description of key practices showing what the principles look like in practice; and a description of evidence-based strategies

5 Review of ECI Practice Frameworks

5.1 Introduction

This section addresses the first of two research questions posed by DSS: What can be learned from a comparison between the frameworks/guidelines developed in Australia, including for Aboriginal and/or Torres Strait Islander contexts, NZ, the USA, Europe and UK.

To answer this question, six key best practice frameworks or guidelines were compared. The jurisdictions chosen were those where ECI frameworks were known to be used to support practice. This was complemented by a scoping review of the ECI literature focusing on the frameworks of interest.

The six key frameworks were:

- Australia: *Framework to inform the development of a national Aboriginal and Torres Strait Islander early childhood strategy and National Aboriginal and Torres Strait Early Childhood Strategy*

- Australia: *National Guidelines: Best Practice in Early Childhood Intervention*

- Europe: *European Association on Early Childhood Intervention (Eurlyaid) Recommended Practices in Early Childhood Intervention*

- New Zealand: *He Pikorua Practice framework*

- UK-England: *Special Educational Needs and Disabilities (SEND) and Alternative Provision (AP) Improvement Plan 'Right Support, Right Place, Right Time'*

- UK-England: *Early years Foundation Stage Statutory Framework for Group and School-based providers: Setting the standards for learning, development and care for children from birth to five*

- USA: *Division for Early Childhood Recommended Practices in Early Intervention and Early Childhood Special Education*

Each of these frameworks was examined with the following questions in mind:

- How is best practice defined?

- To whom does the framework apply?

- To what extent are universal principles identified?

- What processes, indicators and tools to gather evidence of implementation are applied?

- How is new evidence integrated into the identified framework?

- What are the perceived strengths, weaknesses and challenges of the approaches?

One key issue not addressed by these questions concerns the overall aim of early childhood intervention. This is a fundamentally important issue since best practice should be directly related to what ECI services are seeking to achieve. Accordingly, a seventh question was added to the list of questions:

- What is the aim of ECI?

5.2 Team members

- The framework summaries were prepared by Susana Gavidia-Payne, Kerry Bull and Lyn Allen.

- The literature searches were conducted by Meghan Wilson and Francesca Lami.

- The data screening was conducted by Anne Truong, Susana Gavidia-Payne and Kerry Bull

- The comparison tables were prepared by Kerry Bull and Susana Gavidia-Payne.

- The synthesis and discussion of results were carried out by Susana Gavidia-Payne, Kerry Bull and Tim Moore.

- Draft versions of the paper were reviewed by PRECI Directors, Project Partners, Leadership team, and members of the National Advisory group and International Advisors.

5.3 Methodology

This part of the review comprised two key components.

1. Jurisdictional comparison

First, we conducted a search of the literature across six jurisdictions to determine what could be learned from a comparison among the frameworks/guidelines developed in Australia, including for Aboriginal and/or Torres Strait Islander contexts, Europe, NZ, the USA, and the UK-England. The specific questions were:

- What is the aim of ECI?

- How is best practice defined?

- To whom does the framework apply?

- To what extent are universal principles identified?

- What processes, indicators and tools to gather evidence of implementation are applied?

- How is new evidence integrated into the identified framework?

- What are the perceived strengths, weaknesses and challenges of the approaches?

We conducted a targeted search of material from key organisations, as identified by project partners. Targeted searches were also complemented by forward citation searching for references to the primary documents describing the ECI approach for each jurisdiction.

Draft papers for each jurisdiction were produced, reviewed by the project team and discussed with members of the International Advisors from the respective jurisdiction to ensure accuracy.

2. Scoping review

A scoping study methodology was chosen for this part of the review in order to gather and synthesise evidence specific to the identified frameworks. Scoping reviews are appropriate to identify the range of evidence in a field and knowledge gaps, and for clarifying concepts and their key characteristics (Peters et al., 2021). We followed the Joanna Briggs Institute's methods, which uses the PRISMA-Scoping Reviews approach.

Search strategy

Six targeted searches (one for each jurisdiction) were conducted in electronic databases including Web of Science, PubMed, ERIC, CINAHL and PsychINFO for peer reviewed research evidence, as well as a search of grey literature using Google Scholar. Consistent with scoping review methods we used a Population, Concept, Context (PCC) approach to structure the search, and determine inclusion/exclusion criteria.

Inclusion/exclusion criteria

Documents reporting the ECI frameworks principles, processes for implementation, indicators and tools, along with research evaluating implementation experiences were eligible for inclusion. The population of interest is children aged 0 to 9 years of age with developmental concerns, delays and/or disability. Excluded was research focused on specific interventions or single-discipline approaches or guidelines for ECI. We limited document selection to those published from 2010 and beyond. We excluded reports not written in English as time prohibited language translation. We excluded books, dissertations, chapters and comments.

Document selection and extraction

Following inclusion/exclusion criteria, a research assistant screened documents using Covidence software to determine eligibility using title/abstract information. Full text documents were then retrieved and independently screened by two senior researchers. A justification code was documented for excluded articles. Consensus processes were utilised to manage conflicts (see Figure 1).

Data synthesis

Core information has been tabulated to characterise the knowledge base. A synthesis and discussion follow, drawing in other ECI related papers known to the researchers based on their ECI expertise. These papers complement the scoping review findings and strengthen the concepts pertinent to the development of an ECI best practice framework.
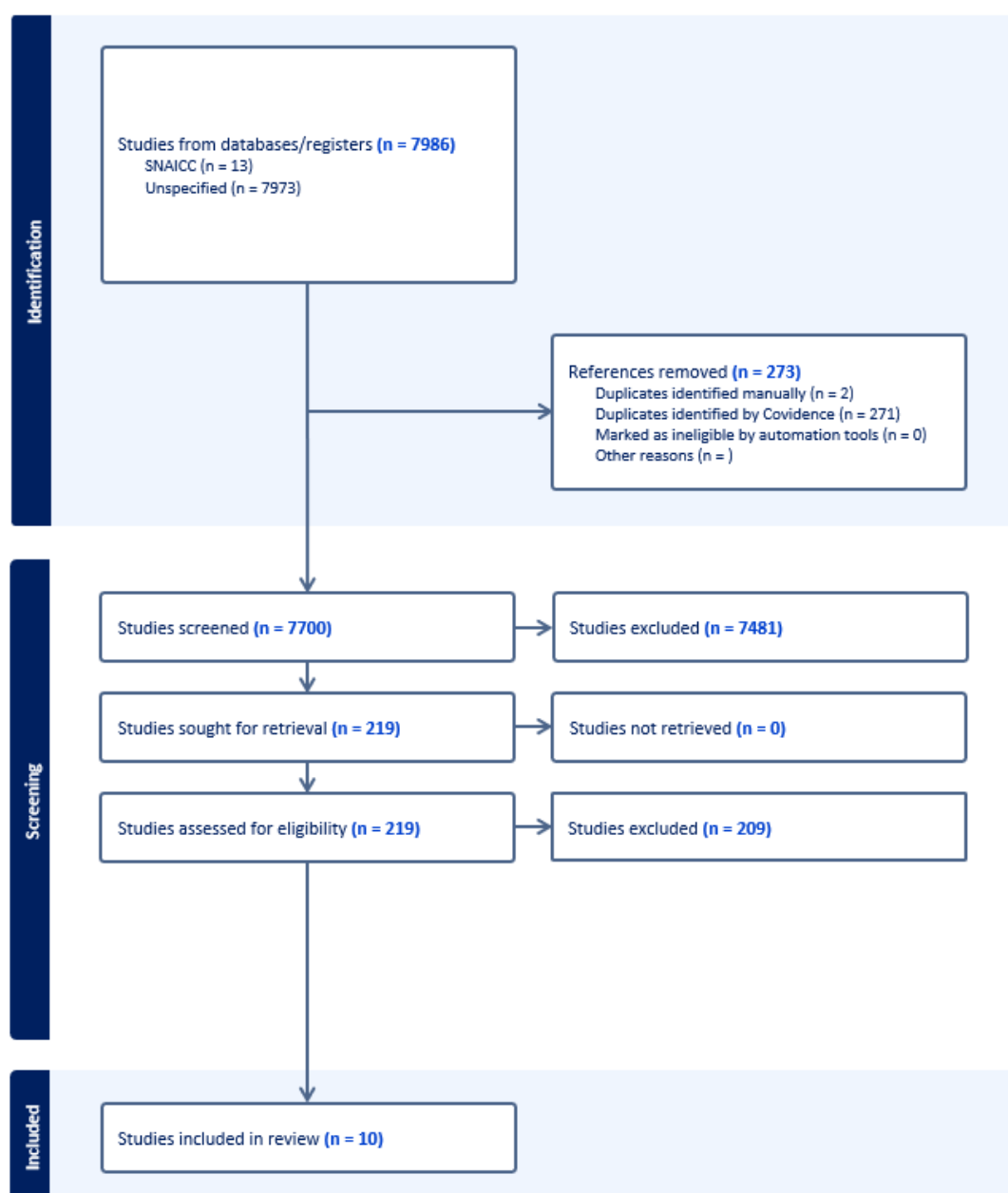
Figure 1: PRISMA Flow Diagram for scoping review

5.4 Summaries of ECI practice frameworks

This section focusses on the review and comparison of frameworks across six jurisdictions in response to the research question posed by DSS: What can be learned from a comparison between the frameworks/guidelines developed in Australia, including for Aboriginal and/or Torres Strait Islander contexts, NZ, the USA, Europe and UK? Although not the aim of the present review, it is important to note that other frameworks may offer elements relevant to the development of the ECI practice framework. Professionals that typically work in the field of ECI have guides to good practice, standards, and clinical guidelines that are relevant to their discipline. Further to this, three specific frameworks deserve attention:

- *Belonging, Being and Becoming: The Early Years Learning Framework for Australia* (V2.0) (2022)

- Australia's National Guideline for supporting the learning, participation, and wellbeing of autistic children and their families in Australia, which focuses on practitioners delivering supports in community and clinical settings (https://www.autismcrc.com.au/best-practice/supporting-children)

- Ireland's Access and Inclusion Model (AIM; https://aim.gov.ie/), that aims to create a more inclusive environment in pre-schools, so all children, regardless of ability, can benefit from quality early learning and care

Australia: Framework to inform the development of a national Aboriginal and Torres Strait Islander Early Childhood Strategy; National Aboriginal and Torres Strait Islander Early Childhood Strategy

Background/Context

"Increasing Aboriginal and Torres Strait Islander children's opportunities to thrive in their early years is foundational to improving outcomes across their life course. Evidence is clear that pathways to healthy development, educational success, wellbeing and economic security are set in the first years from conception to when a child begins formal schooling. For Aboriginal and Torres Strait Islander families and communities, these early years are vitally important years for sharing and passing on the richness and strengths of the world's oldest continuing cultures. Grounding children in the pride and strength of their Aboriginal and Torres Strait Islander identities, languages and cultural law and traditions forms the bedrock for success throughout their lives" (NIAA & SNAICC, 2021 p4).

Developmental delay and/or disability has a significant impact on Aboriginal and Torres Strait Islander children. Aboriginal and Torres Strait Islander children aged 0-14 years were more than twice as likely as non-Indigenous children to have a disability (ABS 2012 cited in NIAA, 2021). Addressing the physical, cognitive, social and psychological impacts of childhood developmental delay and disability can have life-long consequences including better health, ability to learn, pro-social behaviour, engagement with the education system and more productive and fulfilling participation in society (NIAA, 2021).

In Australia, any ECI framework should be informed and influenced by Aboriginal and Torres Strait Islander ways of knowing, being and doing (SNAICC 2024, consortium proposal).

There is no standalone framework (or strategy) focused on 'early childhood interventions' for Aboriginal and Torres Strait Islander children with developmental concerns, delays or disability. The National Aboriginal and Torres Strait Islander Early Childhood Strategy (the Strategy) (NIAA, 2021) identifies goals and opportunities for Aboriginal and Torres Strait Islander children (0-5 years) so that they are born healthy and remain strong, nurtured by strong families and thrive in their early years.

The Framework to inform the development of a national Aboriginal and Torres Strait Islander Early Childhood Strategy (the Framework) (NIAA & SNAICC, 2021) is a

useful starting point for informing the development of a new national best practice framework for early childhood intervention.

The Framework identified principles, goals and outcomes as the basis for subsequent codesign of the Strategy. The principles embedded in the Framework are consistent with the National Agreement on Closing the Gap priority reforms (2020), and with evidence-based models such as those underpinning frameworks for Aboriginal and Torres Strait Islander healing, social and emotional wellbeing, health and community safety.

1. How is the aim of ECI defined?

There are no definitions of early childhood interventions in the Framework or Strategy.

The Strategy aims to positively impact all aspects of Aboriginal and Torres Strait Islander children's lives. It seeks to heal and respond to trauma – and to empower families and communities to bring children up strong and healthy in their cultures.

The Strategy recognises that "when children and young people with disability experience inclusive early childhood and school education they experience stronger school, post-school and employment outcomes. The early years are therefore a key period where full inclusion in culturally safe and appropriate early childhood education should be prioritised for children with disability or developmental concern, with children being supported for a strong transition to inclusive education provided in mainstream schools." (NIAA 2021, p16).

The Strategy identifies several opportunities specifically related to children experiencing developmental concerns, delay or disability:

- "Gaps in early childhood disability assessments, supports and service responses persist, with a lack of culturally appropriate information and support services, and challenges for families to navigate complex service systems identified as key barriers. Assessment and diagnosis are further hampered by the limited availability of culturally appropriate assessment tools. Lack of assessment and effective responses are linked to the overrepresentation of Aboriginal and Torres Strait Islander children with disability in tertiary systems, including child protection and juvenile justice." (NIAA 2021, p11). More recent developments such as the ASQ-TRAK (Fisher, 2021) tool and Fetal Alcohol Spectrum Disorder screening assessment (Fitzpatrick et al., 2017) are seeking to provide more culturally appropriate assessment and diagnosis.

- "Improve the availability of culturally safe and appropriate information on early childhood development and disability, and formative, culturally sensitive and relevant assessment tools to improve knowledge and data required for effective policy and service responses for Aboriginal and Torres Strait Islander children with developmental delay and disability" (NIAA 2021, p14).

- "Strengthen partnerships with the National Disability Insurance Scheme (NDIS), including through Early Childhood Partners, Local Area Coordinators, National Disability Insurance Agency staff and Remote Community Connectors, to support improved access to, and utilisation of, culturally safe disability supports and services to Aboriginal and Torres Strait Islander children with developmental delay and disability and their families" (NIAA, 2021, p14).

2. How is best practice defined?

For Aboriginal and Torres Strait Islander children living with developmental concerns, delays or disability, best practice requires applying the following principles:

- Adopting a holistic view of early development (and health/wellbeing) that place children at the centre and which encompasses physical, mental, cultural and spiritual health and addresses social, historical and political determinants including maternal and child health, housing, early education and care, disability, family, and parenting supports, ensuring child and family safety, and promoting cultural identity development.

- Self-determination at all levels. This means empowering parents and kin as first teachers and primary carers for their children, and empowering Aboriginal and Torres Strait Islander communities and their community-controlled services to lead responses to children's needs.

- Recognising the centrality of Aboriginal and Torres Strait Islander family and kinship as well as the broader concepts of family and the bonds of reciprocal affection, responsibility and sharing.

- Respecting the human rights of Aboriginal and Torres Strait Islander people. The full scope of children's rights recognised in the UN Convention on the Rights of the Child must be upheld and promoted to ensure the best interests of the child are the primary consideration. Human rights articulated in the Convention on the Rights of Persons with Disabilities and the Declaration on the Rights of Indigenous Peoples must also be embedded into practice.

- Supporting strength-based, locally led trauma-aware and healing-informed approaches that recognise (a) the strengths, knowledge, creativity and endurance of Aboriginal and Torres Strait Islander peoples as well as (b) the ongoing impact of colonisation including intergenerational experiences of trauma, structural racism and poverty so that children grow up loved and cared for within their families, communities and cultures. Healing informed approaches are by definition locally led and determined and have cultural connection at their heart.

- Culturally valid understandings and evidence-based approaches must shape program design and service delivery. Consistent with the intent of the National Agreement on Closing the Gap, this requires partnering with Aboriginal and Torres Strait Islander communities and organisations to establish coordinated, cross portfolio, whole of governments, and whole of community response and investments to address children's needs. Programs and practices must be flexible in order to recognise and accommodate the diversity of Aboriginal and Torres Strait Islander cultures.

3. To whom does the framework apply?

The Framework and Strategy aim to benefit Aboriginal and Torres Strait Islander peoples – in particular children, families and communities. They are predicated on human rights conventions and on recognising intersectionality which mean that they can be more broadly applied.

4. To what extent are universal principles identified?

The guiding principles set out in the Framework are:

- Applying a child-centred approach to the design of policies, programs and service systems

- Protecting Aboriginal and Torres Strait Islander children's right to thrive in culture

- Building strong Aboriginal and Torres Strait Islander families

- Ensuring Aboriginal and Torres Strait Islander people are partners in shared decision making

- Eliminating systemic racism

- Focusing on evidence-based design

- With some changes to language, these principles can be applied universally

5. What processes, indicators and tools to gather evidence of implementation are applied?

Any frameworks that are developed (or reviewed) to inform government programs and investments in Aboriginal and Torres Strait Islander wellbeing must be consistent with the 2020 National Agreement on Closing the Gap. The National Agreement sets out four priority reforms aimed at changing the way governments work with Aboriginal and Torres Strait Islander peoples and their organisations; specific targets for improving life outcomes for Aboriginal and Torres Strait Islander peoples across a range of socio-economic areas; and mechanisms for independent oversight and accountability, including annual data compilation and reporting via a Productivity Commission-hosted dashboard (Coalition of Peaks 2023).

Closing the Gap Target 4 seeks to increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all five domains of the Australian Early Development Census (AEDC) to 55% by 2031 compared to the 2018 baseline of 35%. Data is presented by jurisdiction, by remoteness, by disability status, and by socio-economic status, based on data from the AEDC (Productivity Commission, 2023).

Closing the Gap Priority Reform Four aims to have data available at the local level, consistent with the principles and practices of Indigenous Data Sovereignty in order to inform local decision-making. There is some progress towards establishing local data systems for early childhood outcomes, for example by Connected Beginnings program and associated backbone organisations, and Early Years Support Program pilot sites in conjunction with First Nations' peaks bodies (such as SNAICC and the National Aboriginal Community Controlled Health Organisation (NACCHO)) and local participating Aboriginal community-controlled health organisations (ACHOS) and Aboriginal and Torres Strait Islander community controlled organisations (ACCOs).

The Aboriginal community-controlled sector has significant experience in measuring and reporting on indicators of change.

6. How is new evidence integrated into the identified framework?

Frameworks are generally long-duration, overarching documents. Associated strategies and action/implementation plans are more regularly reviewed to accommodate changing circumstances and emerging evidence/issues/priorities. The Strategy rather than the Framework will be subject to review, with investment occurring through commitments made in annual implementation plans.

Local Aboriginal and Torres Strait Islander community-controlled health organisations have continuous quality improvement systems that enable local responses to emerging trends. Regional, state/territory and national peak organisations have a critical role as conduits of effective practice within and across sectors.

7. **What are the perceived strengths, weaknesses and challenges of the framework?**

Strengths

- The Framework and Strategy take holistic perspectives that recognise social, historical and political determinants and which foster self-determination, service integration and collaboration, tailored and intersectional approaches, and are strength-based and healing-focused. At all times children, families and community and connection to culture are at the heart

- Aboriginal and Torres Strait Islander ways of knowing, being and doing inform the Framework and Strategy

- The Framework and Strategy are consistent with other frameworks that guide decision-making and service delivery for Aboriginal and Torres Strait Islander peoples. Frameworks such as the SEWB model are long-lived and remain fundamental and influential (Department of the Prime Minister and Cabinet, 2017; Gee et al., 2014; Social Health Reference Group, 2004)

- Implementation is evolving over time, but the model (which is founded in a ministerial/inter-jurisdictional agreement) has survived

- There are existing indicators and systems for measuring and reporting progress against nationally established targets

Weaknesses / challenges

- Moving from principles and evidence to practice requires additional investment in locally led codesign and in adapting implementation to local circumstances

- Systems transformation is slow and inevitably patchy and needs action at all levels

- Trauma-aware, healing-informed approaches require non-Indigenous services to address the historical and contemporary injustice inherent in post-colonial Australia. This is uncomfortable, and seemingly unpopular

Background/Context

The National Disability Insurance Scheme (NDIS) commissioned the development of the National Guidelines for Best Practice in Early Childhood Intervention (2016) with the knowledge that practices at that time varied across and within states and territories. As a national scheme, the NDIS required national guidelines in order to provide support for universal and equitable high quality Early Childhood Intervention (ECI) based on best practice for children with disability and/or developmental delay whether they attend government, non-government, large, small, sole not-for-profit service providers or private providers, anywhere in Australia (ECIA, 2016).

Since publication of the National Guidelines, the ECI, Early Childhood Education and Care (ECEC), health and disability service sectors have developed national frameworks, and conducted government reviews and national strategies. The wealth of information that is encompassed in the reviews and guidelines provides contemporary evidence, along with an opportunity and a challenge. Integration of commonalities across publications is important (but challenging due to the volume) as is identification of tailored or specific guidance where relevant. The volume of publications also reinforces the importance placed on the wellbeing of all children and families across Australia, including those with developmental concerns, delay or disability.

Relevant national guidelines or frameworks include:

- National Guideline for Supporting the Learning, Participation, and Wellbeing of autistic children and their families in Australia
- The Early Years Learning Framework
- The National Children's Mental Health & Wellbeing Strategy
- The Nest Wellbeing Framework for Children & Young People

Relevant reviews include:

- Australian Consumer and Competition Commission Report (2023)
- Improving Outcomes for All: The Report of the Independent Expert Panel's Review to Inform a Better and Fairer Education System (Department of Education, 2023)
- Independent Review of the NDIS (Department of Prime Minister & Cabinet, 2023)
- Productivity Commission Inquiry into the Early Childhood Education and Care Sector (2023-24)
- Review of Inclusion Support Program (Department of Education, 2023)
- Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023)

- Safe and Supported: The National Framework for Protecting Australia's Children 2021 – 2031

Policy strategies include:

- Alice Springs (Mparntwe) Education Declaration (2019)

- Australia's Disability Strategy 2021-2031

- National Aboriginal and Torres Strait Islander Early Childhood Strategy

- National Agreement on Closing the Gap

- National Autism Strategy (In development)

- National Early Years Strategy (2024-2034)

- Safe and Supported The National Framework for Protecting Australia's Children 2021-2031

Under Australia's Disability Strategy 2021-2031, governments have established Targeted Action Plans (TAPs) to make headway in achieving outcomes in specific areas of the Strategy. The Early Childhood TAP focuses on children from infancy to school age with disability or developmental concerns, their families and carers. The TAP sets out key actions including Action 2.4: To review guidance for best practice ECI.

In 2024, the University of Sydney and Reimagine Australia published a whitepaper Best Practice for Who? The role of national guidelines in best practice guidance in early childhood intervention in order to provide:

- a prompt for reflection on the purpose of practice guidelines following their best practice research project, and

- a checklist of consultation findings that could inform the review of best practice guidance that was identified as needed in the Early Childhood Targeted Action Plan 2.4.

The Department of Social Services has now funded an independent review of current best practice in ECI to inform nationally consistent guidance. This Desktop Review report is the first of seven deliverables of that review, which is led by the University of Melbourne in collaboration with a consortium that includes the Murdoch Children's Research Institute (MCRI), Professionals and Researchers in Early Childhood Intervention (PRECI), The National Voice for Aboriginal and Torres Strait Islander Children (SNAICC), and Children and Young People with Disability Australia (CYDA).

1. How is the aim of ECI defined?

ECI is defined in the current National Guidelines as:

"The process of providing specialised support and services for infants and young children with disability and/or developmental delay, and their families, in order to promote development, well-being and community participation" (ECIA, 2016).

The guidelines also reference other key aims of ECI:

- "The overall aim of ECI is to ensure that the parents or other key caregivers are able to provide young children who have disability and/or developmental delay with experiences and opportunities that promote the children's

acquisition and use of competencies which enable the children to participate meaningfully in the key environments in their lives" (Moore, 2012).

- "ECI practitioners work in partnership with parents/caregivers, families and other significant stakeholders to enhance their knowledge, skills and supports to meet the needs of the child, optimise the child's learning and development, and the child's ability to participate in family and community life" (Bruder, 2010; Dunst, 2007).

2. How is best practice defined?

The National Guidelines (2016) refer to Buysse and Wesley's definition that, 'Evidence-based practice is a decision-making process that integrates the best available research evidence with family and professional wisdom' (Buysse & Wesley, 2006, p12).

Furthermore, the guidelines indicate that to ensure that they are working from a base of evidence informed by the latest research and practice, ECI practitioners should maintain knowledge and skills through ongoing self-reflection, self-assessment and monitoring of practices (ECIA, 2016).

3. To whom does the framework apply?

The guidelines have been developed for the Australian ECI service sector.

4. To what extent are universal principles identified?

The guidelines provide eight principles under 4 quality areas.

- Quality Area 1: Family
  - Family-Centred and Strengths-Based Practice
  - Culturally Responsive Practice

- Quality Area 2: Inclusion
  - Inclusive and Participatory Practice
  - Engaging the Child in Natural Environments

- Quality Area 3: Teamwork
  - Collaborative Teamwork Practice
  - Capacity-Building Practice

- Quality Area 4: Universal Principles
  - Evidence Base, Standards, Accountability and Practice
  - Outcome Based Approach

5. What processes, indicators and tools to gather evidence of implementation are applied?

The current guidelines do not provide resources to gather evidence of implementation.

6. How is new evidence integrated into the identified framework?

The framework integrates extensive research with information sought from the sector through national consultations and submissions. The Department of Social Services

has funded an independent review of current best practice in ECI to inform nationally consistent guidance.

7. **What are the perceived strengths, weaknesses and challenges of the approaches?**

Strengths

- Clear key best practices and rationale for each one

- Accessible for practitioners – free and online

- Online training modules available

Weaknesses / challenges

- Limited translation of resources for families

- Lack of explicit links to the Early Years Learning Framework

- Implementation – lack of technical assistance and job embedded learning

- Risk of changes in policy that may not align with best practice

- Integration with current reviews

- Specific guidance on how to implement the principles

Europe: Early Childhood Intervention

Background/Context

In 2021, the European Commission adopted the recommendation by the Council of the European Union towards the establishment of a European Child Guarantee. It aims to prevent and combat child poverty and social exclusion by supporting Member States efforts to guarantee access to quality key services (i.e., free early childhood education and care, free education and healthcare, healthy nutrition and adequate housing) for children in need.

Children with disability are one of the target groups identified within the scope of the European Child Guarantee, with Early Childhood Intervention being one specific area of focus. Since the introduction of the Child Guarantee, various European countries have prepared National Action Plans (NAPs) for its implementation, to tackle issues involved in the provision of ECI services. While some jurisdictions report NAPs involving policy efforts towards the provision of ECI supports, others experience challenges in terms of insufficient data and lack of clarity about definitions of disability, special needs, and mental health.

The European Agency for Special Needs and Inclusive Education (EASNIE; https://www.european-agency.org/) has been developing a series of position papers on ECI policies, and more broadly on resources, practical tools in the implementation of inclusive education systems (https://www.european-agency.org/resources/publications). The EASNIE is an independent and self-

governing organization, co-funded by the ministries of education in its member countries and by the European Commission and supported by the European Parliament.

The contribution of Eurlyaid (The European Association on Early Childhood Intervention) has been significant in the development of an ECI best practice framework. This organisation is a participative association of persons, interested in issues of early childhood intervention as well as a working party made up of representatives of parents' associations, professionals and researchers, from various countries of the European Union. Eurlyaid has taken the lead in the last decade to develop an ECI framework with the publication of Recommended Practices in Early Childhood Intervention in 2016 and translated into various languages in 2019.

1. How is the aim of ECI defined?

UNICEF and partners (2023) adopted the definition of ECI services as proposed in various other EASNIE and Eurlyaid documents. ECI is defined as "A composite of services for very young children and their families, provided at their request at a certain time in a child's life, covering any action undertaken when a child needs special support to: a) ensure and enhance her/his personal development, b) strengthen the family's own competences, and c) promote the social inclusion of the family and the child. These actions are to be provided in the child's natural setting, preferably at a local level, with a family-oriented and multi- dimensional teamwork approach." (p.2).

Key features of ECI service provision include:

- ECI services are focused both on children and their caregivers.

- ECI services are individualized i.e., the support is tailored to the individual strengths and needs of every child and family.

- ECI services are intensive: according to the needs of each child and family, the designated member of the ECI team provides scheduled visits to families in the natural environment of the child, which is usually the child's home.

- ECI services are team-based and transdisciplinary: to address the diversity of family contexts and needs, services employ two or more specialists from different disciplines and sectors (medical doctors, physical therapists, speech therapists, psychologists, special educators, social workers, etc.) in a transdisciplinary team around the family and the child. The team members together with the parents conduct joint comprehensive assessment of the child and family needs and develop a plan for support. The work with the family is carried out by only one professional, supported and guided by the remaining members of the team.

- ECI services include the sectors of education, health, child protection and child welfare. For this reason, ECI systems and organizations are always integrated across sectors and disciplines to provide one united service to families and their children.

- ECI is family-centred and child-focused. Parents are key actors, deciding on the goals for their child, participating in the development of individualized plans and delivering ECI services in home settings in collaboration with the ECI professionals in responding to their child's and their own needs.

2. How is best practice defined?

Based substantially on the early work conducted by Portugal on the establishment of a National System for ECI, Eurlyaid (2019) and partners in the project AGORA (https://www.eurlyaid.eu/project/agora-project-developing-eci-services-through-participation-co-production/) defined best practice with the concept of family-centredeness as the main approach around which ECI recommended practices were developed.

Evidence-based practice (EBP) is defined as the process in which professionals seek to identify and make decisions concerning the most adequate practices or strategies, in close collaboration with families and always taking into consideration the specificity of the intervention context in question.

Recommended practices are:

- Intervention cycle and effective help-giving practices: Transdisciplinary practice

- Referral

- First contacts

- Assessment: identification of concerns/priorities/resources of families; identification of child's characteristics

- Development of individualised family service plan

- Implementation and monitoring intervention in the natural contexts of children

- Evaluation of intervention outcomes and family satisfaction.

- The transition process

3. To whom does the framework apply?

ECI professionals and parents of young children (birth to 6 years of age) with special needs.

4. To what extent are universal principles identified?

The adopted family-centred intervention approach utilized in the Eurlyaid framework, is underpinned by 10 guiding principles, which were first enunciated by Dunst (1997):

- The family is considered the key element in the decision-making process in in the child's care

- The intervention is built on the strengths of the child and the family

- The whole family constitutes the intervention unit

- Professionals and families work in partnership and collaboration

- The intervention responds to the priorities and goals of the families – professionals are seen as agents supporting the family

- The intervention is individualised for each family

- The intervention is conducted in the natural context and routines of the child and family as is based on the mobilization of the existing resources in the community network

- ECI system building: communication, coordination, partnerships, planning, monitoring

5. What processes, indicators and tools to gather evidence of implementation are applied?

Self-reflection exercises (Stop to think), narratives of child and family experiences, practical examples

6. How is new evidence integrated into the identified framework?

The framework integrates extensive research knowledge on child learning and development, parenting, family supports, natural contexts, community resources, and implementation around the family-centred approach. Different key sources of evidence are considered, including research data on the effectiveness of specific practices and interventions, combined with the knowledge, experience and values of the professionals and families. The framework was translated into English in 2019.

7. What are the perceived strengths, weaknesses and challenges of the framework?

Strengths

- The existence of a set of recommended practices in ECI that integrates principles, research and values

- Translation of guidelines across various languages

Weaknesses/Challenges

- Limited practical resources in the implementation of the framework

- Inconsistent application of ECI principles recommended practices across all European jurisdictions

- Incorporation of new research evidence into recommended practices is unclear.

New Zealand: He Pikorua Practice framework

Background/Context

New Zealand's Ministry of Education provides universal, targeted and tailored support for children with disability through the Early Intervention Service (EIS). The EIS is designed to provide specialist support to help families and teachers gain the confidence, knowledge and skills to support their child's learning and development.

In response to the broad range of frameworks EIS practitioners were utilising, specific to their discipline or area of work, the Ministry of Education initiated the development of a common framework. In 2020 the He Pikorua was launched online as a practice framework for Ministry of Education practitioners, Resource Teachers: Learning and Behaviour and Learning Support Practitioners. The purpose of the

online He Pikorua is to bring practitioners together alongside whānau (family) and educators to support the learning and well-being of mokopuna (children).

He Pikorua aims to support practitioners to work effectively and collaboratively within a Learning Support Delivery Model. The framework is flexible, so that support can be based on what best meets the needs of the mokopuna and their whānau in their local learning and community environments.

More specifically, He Pikorua aims to:

- bring to life the Learning Support Delivery Model
- provide clear, consistent, practical guidance
- enable mokopuna to flourish
- support competencies, standards, and codes
- strengthen working together
- provide an enduring resource

He Pikorua has been developed in conjunction with the Te Tāhuhu o te Mātauranga: Ministry of Education's 2021-2026 Statement of Intent.

1. How is the aim of ECI defined?

The Ministry of Education describes Early Intervention broadly as "identifying and providing effective early support to those at risk of poor outcomes" (2020). The term 'learning support' and other terminology is sometimes used in preference to Early Intervention.

One of the core principles of the He Pikorua framework is 'outcomes-focused'. The framework describes enhancing the learning outcomes and well-being of children by:

- keeping mokopuna and their whānau at the centre of everything
- focusing on strengths and potential, to enhance the mana of the individual and their community
- respecting and building on the diversity of expertise and knowledge across teams
- using evidence-informed strategies that are appropriate to the context
- positioning learning supports as part of day-to-day teaching and learning, across the layers of Te Tūāpapa – Te Matua (universal), Te Kāhui (targeted) and Te Arotahi (tailored).

There is no specific mention of family or community-based outcomes. However, the He Pikorua framework indicates that outcomes data "collected at individual, cluster and national levels gives evidence of the positive impact of the support provided by services and can feed into planning and practice" (2020). Practitioners can use rubrics or scaled indicators to measure key outcomes of their work for areas such as:

- mokopuna achievement
- educator perception
- home and school partnerships
- quality of service

There is also reference to the importance of outcomes data and a link to an Outcomes Measurement Tool that has privacy protection on it so is not universally accessible.

2. How is best practice defined?

Best practice is not clearly defined but is described through the seven guiding principles.

3. To whom does the framework apply?

He Pikorua is the practice framework primarily designed for Ministry of Education practitioners, Resource Teachers: Learning and Behaviour and Learning Support Practitioners. It is also available for teachers and families.

4. To what extent are universal principles identified?

He Pikorua includes seven guiding principles:

- Mokopuna & whānau-centred

- Collaborative

- Strengths-based

- Culturally affirming

- Inclusive

- Ecological

- Evidence informed

A seven-element process has also been developed to support an enquiry approach:

- Building connections

- Gathering information

- Sense making

- Planning collaboratively

- Taking action with integrity

- Reflecting together

- Empowering others

5. What processes, indicators and tools to gather evidence of implementation are applied?

Examples and reflective questions about each practice principle are available on the He Pikorua website. In 2021, Greep published the 'Bringing to Life' action research project. The project aimed to build a shared understanding of He Pikorua as a practice framework and explore how the framework and associated resources shifted the way Resource Teachers: Learning and Behaviour practised. Results of the action research study indicated that He Pikorua enhanced practitioners' practice.

6. How is new evidence integrated into the identified framework?

It is not clear how new evidence is integrated, however there are links to a broad range of current articles related to each of the guiding principles on the He Pikorua website.

7. What are the perceived strengths, weaknesses and challenges of the framework?

Strengths

- Culturally situated and grounded in The Treaty of Waitangi
- Clear practice principles
- Situated in an ecological model
- Examples of what principles look like in practice
- Accessible for practitioners – free and online
- Considers context where children learn and develop (e.g. home and ECEC) that supports inclusion and participation

Weaknesses/Challenges

- Lack of clearly articulated family and community outcomes
- Limited translation of resources for families and educators
- Limited accessibility for some associated resources (e.g. Outcomes Measurement Tool)
- Lack of explicit links to NZ curriculum for school aged children and Te Whāriki for preschool children
- Implementation – lack of technical assistance and job embedded learning.
- Unsure of ongoing financial commitment and changing policy context

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United Kingdom - England:

Special Educational Needs and Disabilities (SEND) and Alternative Provision (AP) Improvement Plan 'Right Support, Right Place, Right Time'.

Early years Foundation Stage Statutory Framework for Group and School-based providers: Setting the standards for learning, development and care for children from birth to five.

Background/Context

The Children and Families Act 2014 provides the statutory basis for the system for identifying children and young people (age 0-25) in England with special educational needs (SEN), assessing their needs and making provision for them. The statutory Special Educational Needs and Disability (SEND): Code of practice, first published in 2014, sets out detailed information on the support available for children and young people aged 0 to 25 under the 2014 Act. Special Educational Needs and Disability

services are managed by the Department of Education, which published a SEND and alternative provision roadmap in 2023. More recently, an Early Years Foundation Stage Profile handbook was published in 2024 to help teachers (i.e., early years practitioners) adhere to assessment practices.

Broadly, there are two levels of support for children and young people under 25 years of age:

- Special Education Needs support, provided to a child or young person in their pre-school, school, or college.

- Education, Health, and Care Plans which provide a formal basis for support for children and young people who need more support than is available through SEN Support.

1. How is the aim of ECI defined?

In the early years' documentation, the term early childhood intervention is not defined as such. Instead, early intervention is widely used and considered a public policy approach to identify and support children and their families at an early stage, to prevent problems developing later in life, such as poor physical and mental health, low educational attainment, crime and anti-social behaviour. It is defined as prevention for all children and young people (not necessarily in the early years) who experience vulnerability due to poverty, mental health or disability. Focus is on adverse childhood experiences.

Note then that early childhood intervention, as we have come to know it, is addressed under SEND, and is outlined further below.

A Start for Life program (Family Hubs and Start for Life programme - GOV.UK (www.gov.uk) has been set up which aims to:

- provide support to parents and carers so they are able to nurture their babies and children, improving health and education outcomes for all.

- contribute to a reduction in inequalities in health and education outcomes for babies, children and families across England by ensuring that support provided is communicated to all parents and carers, including those who are hardest to reach and/or most in need of it.

- build the evidence base for what works when it comes to improving health and education outcomes for babies, children and families in different delivery contexts.

2. How is best practice defined?

No definition as such is available. Actions to be implemented include a focus on: Best practice implementation, coordinated at a local level. However, no indication of what those best practices are, specifically for the Start for Life program- The Best Start for Life A Vision for the 1,001 Critical Days *The Early Years Healthy Development Review Report.*

In the document titled Special Education Needs and Disabilities and Alternative Provision Improvement Plan Right Support, Right Place, Right Time (2023), the following is noted:

- It appears best practice refers to specific programs "…already in the system" (e.g., Nuffield Early Language intervention; Autism Education Trust).

- Policy documents provide recommendations "…to develop and spread best practice of partnerships and plans." and identification of gaps in best practice.

- A series of 'mini guides' is available for teachers that address various areas of practice (Resources listing | Nasen).

The closest to a best practice framework is the Early Years Foundation Stage framework which is mandatory for all groups (e.g., ECEC) and school-based early years providers effective from 2024. It sets the standards for learning, development and care for children from birth to five, including those with Special Educational Needs and Disability and following the Special Educational Needs and Disability Code of Practice.

This document also refers to curriculum guidance for teachers under *Development Matters* Development Matters - GOV.UK (www.gov.uk), which, among other elements, outlines seven key features of effective practice:

- The best for every child

- High quality care

- The curriculum: what we want children to learn.

- Pedagogy: Helping children learn

- Assessment: checking what children learn

- Self-regulation and executive function

- Partnership with parents

3. To whom does the framework apply?

Teachers or teams supporting young children. They are understood to refer to any early years' practitioner working with the child and completing the Early Years Foundation Stage Profile assessment.

4. To what extent are universal principles identified?

At a policy level, the following principles are addressed:

- service partnerships across education/health and care

- creation of local inclusion plans

- creation of a three-tier alternative provision system

- assessment of functioning

- establishment of a key person

- family-centred/partnerships with parents

- child strengths

- skilling up of early years workforce (see Special Educational Needs and Disability document (2023); outcomes (see Special Educational Needs and Disability support document (2024); and Special Educational Needs and Disability code of practice

- development of national standards and accountability

5. What processes, indicators and tools to gather evidence of implementation are applied?

Two documents are particularly important:

- *Curriculum guidance (Development matters).* This guidance sets out the pathways of children's development in broad ages and stages with an emphasis on assessment leading to informed decisions about what a child needs to learn and be able to do next.

- *The Early Years Foundation Stage Profile.* This profile is a statutory assessment of children's development at the end of the academic year in which children turn 5, usually reception year. Each child's level of development is assessed against 17 early learning goals (ELGs) across all 7 areas of learning in the profile. For each Early Learning Goal, teachers must assess whether a child is meeting the level of development expected at the end of the early years' foundation stage, or if they are not yet reaching this level and should be assessed as 'emerging'. The Profile is intended to provide a reliable and accurate summative assessment of each child's development at the end of the EYFS in order to support children's successful transitions to year 1.

6. How is new evidence integrated into the identified framework?

While policy documents indicate that the goal is to use the best available evidence on what works to support a range of needs, from universal support, through SEND Support, to the more specialist support, it is not clear how new evidence is integrated.

7. What are the perceived strengths, weaknesses and challenges of the framework?

Limited information on the existence of a framework as such prevents a thorough assessment of its strengths, weaknesses and challenges.

Strengths

- Establishment of policy directions that include knowledge related to evidence-base practice

- Focus on an integrated view of children's early years encompassing education, health and social care sectors

Weaknesses/Challenges

- No evidence of evidence-based framework as such

- No clarity in the meaning of evidence-based practice when the term is used

- SEND- focus on children. Family outcomes are not addressed

United States of America: Division for Early Childhood Recommended Practices in Early Intervention and Early Childhood Special Education

Background/Context

The U.S. Department of Education Office of Special Education (OSEP) administers the Individuals with Disabilities Education Act (IDEA) which authorizes grants to lead agencies for Part C Early Intervention (EI) services for infants and toddlers with disabilities and their families, and grants to states under Part B for school aged children with disabilities.

In relation to Part C, the vision of the Department of Education is that all infants and toddlers with delays or disabilities receive high-quality EI services and supports as early as possible to empower them to thrive and meet their and their family's individualized needs (2023). To meet this vision, State and local agencies are required to have a comprehensive system in place so that all infants and toddlers who are eligible for the IDEA Part C EI services are promptly and equitably identified and evaluated.

The Division for Early Childhood (DEC) is the largest international professional organisation located in the USA whose mission is in "promoting policies and advances in evidence-based practices that support families and enhance the optimal development of young children (0-8) who have or are at risk for developmental delays and disabilities" (DEC, 2024). Formed in 1973, the Division of Early Childhood is one of 17 divisions of the Council for Exceptional Children.

In 1993 the Division for Early Childhood published the first Recommended Practices to provide guidance on a national level for the field of early intervention/early childhood special education (DEC, 1993). The practices were revised in 2000 (Sandall, McLean & Smith, 2000). An updated version was published in 2005, but the practices were the same as those in the 2000 edition. The practices were revised again in 2014 (DEC, 2014). The DEC Recommended Practices and corresponding resources aim to bridge the gap between research and practice by highlighting practices that have been shown through research to result in better outcomes for young children with disabilities, their families, and practitioners in early intervention/early childhood special education. The recommended practices in each version have also received field validation by diverse stakeholders (e.g., practitioners, families, researchers, preservice students, training and technical assistance personnel, program leaders). In addition, the 2000, 2005, and 2014 versions of the practices were informed by reviews of the empirical literature.

The DEC Recommended Practices were developed to build on the foundation of the National Association for the Education of Young Children's (NAEYC) Developmentally Appropriate Practices that relate to the promotion of learning and development for all children.

1. How is the aim of ECI defined?

The Early Childhood Technical Assistance Center (ECTA) is funded by the OSEP. The Early Childhood Technical Assistance Centre describes the goal of early intervention and early childhood special education as:

"To enable young children with disabilities to be active and successful participants during their early childhood years and in the future" (ECTA, 2024).

In Section 1431(a) of the IDEA Statute, the following two purposes point to a dual focus:

"Congress finds that there is an urgent and substantial need:

- To enhance the development of infants and toddlers with disabilities, to minimize their potential for developmental delays and to recognize the significant brain development that occurs during the child's first three years

- To enhance capacity of families to meet the special needs of their infants and toddlers with disabilities" (IDEA Statute, 2008).

2. How is best practice defined?

The term 'research-based practices' is used to inform DEC Recommended Practice revisions and is defined as "Practices that have been demonstrated to be effective and are supported by evidence in the research literature" (Odom et al., 2005). To the extent possible, the evidence base for these practices comes from studies that meet the following criteria:

- Use methodologically sound and high-quality designs (randomized control group, quasi-experimental, mixed methods, qualitative, and/or single-case experimental designs);

- Are reported in the research literature, published in peer-reviewed journals, and replicated by a variety of researchers and research teams; and

- Demonstrate positive effects on child and family outcomes" (Snyder & Ayankoya, 2015).

It is interesting to note that the Division of Early Childhood is committed to using the term 'recommended practices' in favour of 'best practice' as they determined that what is best for one child may not be best for all children, and they recognised that practices should change over time as new strategies are found through research to be more effective (Mc).

States collect, analyse, and use functional outcome data to measure individual child and family progress toward improved results and to improve their systems and services. These data also are reported annually by states to the US Department of Education, Office of Special Education Programs as part of overall federal program accountability.

Child outcomes are:

- Child has positive social-emotional skills (e.g., social relationships)

- Child acquires and uses knowledge and skills (e.g., early language/communication)

- Child uses appropriate behaviours to meet their needs

States determine how they will measure child outcomes (many use the Child Outcomes Summary process, some use a single standardized instrument (e.g., Battelle), others use multiple instruments, including curriculum-based measures).

[Family Outcomes](#) are:

- Family knows their rights

- Family effectively communicates their children's needs

- Family helps their children develop and learn (ECTA, 2024).

Many states use the [Family Outcomes Surveys](#) whilst others have developed their own.

3. To whom does the framework apply?

The DEC Recommended Practices have been designed to support better outcomes for young children with disability, their families, and practitioners in early intervention/early childhood special education.

4. To what extent are universal principles identified?

The DEC Recommended Practices (DEC, 2014) include eight domains:

- Leadership

- Assessment

- Environment

- Family

- Instruction

- Interaction

- Teaming and collaboration

- Transition

These updated recommended practices were developed within the following parameters:

- Inform interactions and interventions

- Build upon and extend foundational practices such as the National Association for the Education of Young Children's developmentally appropriate practices

- Include principles and strategies applicable to children from birth to age 5 with disabilities and other special needs and their families

- Reflect practices that have applicability across settings, contacts, and groupings

- Based on combination of research-based evidence and knowledge or wisdom gained through experience. This was done through field validation activities

5. What processes, indicators and tools to gather evidence of implementation are applied?

The US Department of Education Office of Special Education Programs funds several training and technical assistance centres with funds from IDEA. There are several key centres that provide technical assistance to support implementation including:

- [National Centre for Pyramid Model Interventions](#)

- [Early Childhood Personnel Centre,](#)

- [Centre for IDEA Early Childhood Data Systems](#)

- Early Childhood Technical Assistance Centre

The Early Childhood Technical Assistance Center has developed a suite of resources available free to support practitioners, families, and professional development providers in the use of the DEC Recommended Practices and include:

- Performance Checklists for practitioners

- Practice Guides for practitioners and families

- Guidelines for Selecting Checklists and Practice Guides

- Resources for Professional Development Providers

The Early Childhood Technical Assistance Center has also developed resources to support state capacity building around implementing and scaling up evidence-based practices to improve child outcomes. Resources include:

- Guide to Statewide Implementation and Scale-up of Recommended Practices

- State Leadership Team Benchmarks of Quality

- Benchmarks of Quality for Classroom-Based Programs and Home-Visiting Programs

- Reaching Potentials through Recommended Practices Observation Scales

- Online training modules

To implement and scale up evidence-based practices, the Early Childhood Technical Assistance Center developed the Statewide Implementation Guide, which lays out a process for improving child and family outcomes by implementing evidence-based practices.

6. How is new evidence integrated into the identified framework?

When the initial DEC recommended practices were published there was recognition that "Only a continuing process of review and revision will maintain the quality set of indicators that essentially defines the field" (DEC Task Force on Recommended Practices, 1993, p9). The DEC plan of action to update the Recommended Practices (2015) included four major components:

- appointing a national Recommended Practices commission consisting of 11-15 DEC members in good standing who would direct and oversee the revision of the recommended practices

- producing a revised set of recommended practices

- creating multiple platforms to ensure that individuals working with young children with disability and their families have access to the practices

- ensuring ongoing access to the practices and developing a plan to continually update both the practices and the supporting materials and make resources available to professionals and family members (Snyder & Ayankoya, 2015).

The review comprised an extensive process from workgroups who reviewed the 2005 Recommended Practices, considered the extant literature related to the topic, and developed a set of 15 or fewer research-based practices using established parameters and definitions. Workgroups provided supporting empirical evidence with accompanying citations for each of the nominated practices. A three-step evidence validation process followed (Snyder & Ayankoya, 2015).

It is understood that the DEC Recommended Practices Committee is developing a plan for continually updating the practices to ensure that they are supported by current research. The Commission created an Evidence Synthesis Group (ESG) to develop a system for identifying and summarizing the status of the best-available evidence in support of the 2014 practices. This system will inform updates or revisions to the practices (DEC, 2018).

7. **What are the perceived strengths, weaknesses and challenges of the approaches?**

Strengths

- A clear and rigorous process for review has been developed

- Technical Assistance is available through funded centres

- Professional, family and professional development provider resources are available

- Child and family outcomes are identified and analysed

Weaknesses/Challenges

- Federal funding is not sufficient to implement programs as intended without State support

- Ensuring resources are available from practitioner to leadership levels

- The tension between identifying recommended practices and evidence-informed approaches or models

6 Comparison Tables

Table 2. Comparison of Early Childhood Intervention Frameworks in six Jurisdictions

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
Key document	*Framework to inform the development of a National Aboriginal and Torres Strait Islander Early Childhood Strategy* *National Aboriginal and Torres Strait Early Childhood Strategy*	*National Guidelines: Best practice in Early Childhood Intervention*	*European Association on Early Childhood Intervention (Eurlyaid) Recommended Practices in Early Childhood Intervention*	*He Pikuroa Practice Framework*	*Special Educational Needs and Disabilities (SEND) and Alternative Provision (AP) Improvement Plan 'Right Support, Right Place, Right Time'* *Early years Foundation Stage Statutory Framework for Group and School-based providers: Setting the standards for learning, development and care for children from birth to five.*	*Division for Early Childhood Recommended Practices in Early Intervention and Early Childhood Special Education*
What is the aim of early childhood intervention?	There is no definition of ECI in the Strategy. The Strategy aims to positively impact all aspects of Aboriginal and Torres Strait	ECI is defined as the process of providing specialised support and services for infants and young children with disability	ECI is defined as a composite of services for very young children and their families, provided at their request at a	'Learning support' is sometimes used in preference to Early Childhood Intervention.	Early intervention is conceptualised as timely intervention but not necessarily in the early years. The term early childhood	The aim of ECI is to enable young children with disabilities to be active and successful participants during their early childhood

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
	Islander children's lives. It seeks to heal and respond to trauma – and to empower families and communities to bring children up strong and healthy in their cultures.	and/or developmental delay, and their families, in order to promote development, well-being and community participation.	certain time in a child's life, covering any action undertaken when a child needs special support to a) ensure and enhance her/his personal development, b) strengthen the family's own competencies, and c) promote the social inclusion of the family and the child. These actions are to be provided in the child's natural setting, preferably at a local level, with a family-oriented and multi-dimensional teamwork approach.	Aim is to enhance the learning outcomes and well-being of children by: • keeping mokopuna and their whānau at the centre of everything • focusing on strengths and potential • respecting and building on the diversity of teams; expertise and knowledge • using evidence-informed strategies • positioning learning supports as part of day-to-day teaching and learning.	intervention as such is not defined	years and in the future.
How is best practice defined?	• Adopting a holistic view of early development that place children at the centre. It encompasses physical, mental,	Evidence-based practice is a decision-making process that integrates the best available research evidence with family	• The family-centred approach is at the centre of the definition of best practice, that includes:	Best practice is not clearly defined.	Best practice is not clearly defined. The goal is to develop a system with National Standards for health, care and education.	Practices demonstrated to be effective and supported by evidence in the research literature.

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
	cultural and spiritual health and addresses social, historical and political determinants including maternal and child health, housing, early education and care, disability, family, and parenting supports, ensuring child and family safety, and promoting cultural identity development. • Self-determination at all levels of parents and communities that recognise the strengths, knowledge, creativity and endurance of Aboriginal and Torres Strait Islander peoples • Culturally valid understandings and evidence-	and professional wisdom.	• intervention cycle and effective help-giving practices: Transdisciplinary practice • referral and First contacts • assessment: identification of concerns/priorities/resources of families; identification of child's characteristics • development of individualised family service plan • implementation and monitoring intervention in the natural contexts of children • evaluation of outcomes and family satisfaction. • the transition process.		An Early Years Foundation Stage (EYFS) statutory framework is available for all children. Child outcomes are identified according to typical developmental domains	Child and family outcomes are clearly defined and measured.

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
	based approaches must shape program design and service delivery. • Recognising the centrality of Aboriginal and Torres Strait Islander family and kinship as well as the broader concepts of family and the bonds of reciprocal affection, responsibility and sharing. • Respecting the human rights of Aboriginal and Torres Strait Islander people. • Supporting strength-based, locally led trauma-aware and healing-informed approaches					
To whom does the	The Framework and Strategy aim to benefit Aboriginal and	Australian ECI sector	ECI professionals and families of young	Ministry of Education practitioners, Resource Teachers:	SEND services are available to children	Young children with disabilities, their families, and

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
framework apply?	Torres Strait Islander peoples – in particular children, families and communities.		children with special needs.	Learning and Behaviour (RTLB) and Learning Support Practitioners.	and young people up to 25 years of age. EYFS applies to birth to 5 years, including those with SEND. framework is for all group and school-based early years providers (teachers or	practitioners in early intervention/early childhood special education.
To what extent are universal principles identified?	• Applying a child-centred approach to the design of policies, programs and service systems • Protecting Aboriginal and Torres Strait Islander children's right to thrive in culture • Building strong Aboriginal and Torres Strait Islander families	Eight principles under four quality areas Quality Area 1: Family 1. Family-Centred and Strengths-Based Practice 2. Culturally Responsive Practice Quality Area 2: Inclusion 3. Inclusive and Participatory Practice 4. Engaging the Child in Natural Environments	• The family is the key element in the decision-making process in the child's care • The intervention is built on the strengths of the child and the family • The whole family constitutes de intervention unit • Professionals and families work in partnership and collaboration • The intervention responds to the priorities and goals of the families-	Seven guiding principles • Mokopuna & whānau-centred • Collaborative • Strengths-based • Culturally affirming • Inclusive • Ecological • Evidence informed A seven-element process has also been developed to support an enquiry approach:	At a policy level: • Service partnerships across education/ health and care, • creation of local inclusion plans, • creation of a three-tier alternative provision system • assessment of functioning • establishment of a Key person family-centred/ partnerships with parents • child strengths • skilling up of early years workforce,	• Eight domains: • Leadership • Assessment • Environment • Family • Instruction • Interaction • Teaming & collaboration • Transition.

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
	• Ensuring Aboriginal and Torres Strait Islander people are partners in shared decision making • Eliminating systemic racism • Focusing on evidence-based design.	Quality Area 3: Teamwork 5. Collaborative Teamwork Practice 6. Capacity-Building Practice Quality Area 4: Universal Principles 7. Evidence Base, Standards, Accountability and Practice 8. Outcome Based Approach.	professionals are seen as agents supporting the family • The intervention is individualized for each family • The intervention is conducted in the natural context and routines of the child and family as is based on the mobilization of the existing resources in the community network • ECI system building: communication, coordination, partnerships, planning, monitoring.	• Building connections • Gathering information • Sense making • Planning collaboratively • Taking action with integrity • Reflecting together and • Empowering others.	outcomes, and SEND code of practice • development of national standards and accountability.	
What processes, indicators and tools to gather evidence of	The aim is to develop programs and investments consistent with the National Agreement on Closing the Gap and collect data on developmental	The current guidelines do not provide resources to gather evidence of implementation.	Self-reflection exercises (Stop to think), narratives of child and family experiences, noted practical examples for	Each practice principle has examples and reflective questions.	The Early Years Foundation Stage Profile for assessment	• Performance Checklists for practitioners • Practice Guides for practitioners and families • Guidelines for Selecting

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
implementation are applied?	outcomes on the Australian Early Development Census. Closing the Gap reforms aim to have local data systems for early childhood outcomes (e.g., Connected Beginnings).		each recommended practice.		Curriculum guidance-Development matters for practitioners.	Checklists and Practice Guides • Resources for Professional Development Providers • Guide to Statewide Implementation and Scale-up of Recommended Practices • State Leadership Team Benchmarks of Quality • Benchmarks of Quality for Classroom-Based Programs and Home-Visiting Programs • Reaching Potentials through Recommended Practices Observation Scales
How is new evidence integrated into the framework?	Through: The review of strategies and action and implementation plans associated with frameworks.	The framework integrates extensive research with information sought from the sector through national consultations and	The framework integrates extensive research on child learning and development, parenting, family supports, natural	It is not clear how new evidence is integrated into the framework. However, there are links to a broad range of current articles	The goal is to use the best available evidence on what works to support a range of needs, from universal support, through SEND	An action plan is formulated with the following components: • A national recommended

Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
Continuous quality improvement systems in Local Aboriginal and Torres Strait Islander community-controlled health organisations.	submissions. The Department of Social Services has funded an independent review of current best practice in ECI to inform nationally consistent guidance.	contexts, community resources, and implementation around the family-centred approach. The framework has been revised once.	related to each of the guiding principles on the He Pikorua website.	Support, to the more specialist support. However, it is not clear how evidence is integrated into the framework	practices commission • Revision of recommended practices • Multiple platforms for access to practices by providers working with children and families. • ensuring ongoing access to practices and developing a plan to continually update both the practices and the supporting materials and make resources available to professionals and family members. The Commission created an Evidence Synthesis Group (ESG) to develop a system for identifying and summarizing the status of the best-available evidence in support of the 2014 practices. This system will inform

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
						updates or revisions to the practices.
What are the perceived strengths, weaknesses, and challenges?	Strengths • The Strategy takes holistic perspectives that recognise social, historical and political determinants and which foster self-determination, service integration and collaboration, tailored and intersectional approaches, and are strength-based and healing-focused. At all times children, families and community and connection to culture are at the heart. • Aboriginal and Torres Strait Islander ways of knowing, being and doing inform the Framework and Strategy.	Strengths • Clear key best practices and rationale for each one • Accessible for practitioners – free and online • Online training modules available. Weaknesses/ Challenges • Limited translation of resources for parents • Lack of explicit links to Early Years Framework • Implementation – lack of technical assistance and job embedded learning • Changing policy context	Strengths A set of ECI recommended practices that integrates principles, research and values. Weaknesses/ Challenges • Limited practical resources in the implementation of the framework. • No evidence of impact • Inconsistent application of ECI principles recommended practices across European jurisdictions. • Incorporation of new research evidence into recommended practices is unclear.	Strengths • Clear practice principles • Strong focus on embedding culturally affirming and responsive practice • Situated in ecological model • Examples of what principles look like in practice. Weaknesses/ Challenges • Lack of clearly articulated child, family and community outcomes • Translation of resources for families and educators • Translation of resources for	Strengths • Establishment of policy directions that include knowledge related to evidence-base practice. • Focus on an integrated view of children's early years encompassing education, health and social care sectors. Weaknesses/ Challenges • No evidence of evidence-based framework as such • No clarity in the meaning of evidence-based practice. • SEND supports focus on children.	Strengths • Process for review Early Childhood Technical Assistance Centre • Professional, family and professional development provider resources are available Weaknesses/ Challenges • Federal funding is not sufficient to implement programs as intended without added support at State level • Ensuring resources are available from practitioner to leadership levels

	Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
	• The Framework and Strategy are consistent with other frameworks that guide decision-making and service delivery for Aboriginal and Torres Strait Islander peoples. Frameworks such as the SEWB model are long-lived and remain fundamental and influential. Implementation is evolving over time, but the has survived. • There are existing indicators and systems for measuring and reporting progress against nationally established targets. Weaknesses/Challenges • Moving from principles and	• Integration with current reviews. • Specific guidance on how to implement the principles.		families and educators • Lack of plan to review and update. • Implementation – technical assistance. and job embedded learning.	Family outcomes are not addressed. • Development and implementation guidelines for a specific framework targeting children with disabilities in the early years are not available.	• Tension between identifying recommended practices and evidence-informed approaches or models.

Aboriginal and Torres Strait Islander	Australia	Europe	New Zealand	UK - England	USA
evidence to practice requires additional investment in locally led codesign and in adapting implementation to local circumstances. • Systems transformation is slow, and needs action at all levels • Trauma-aware, healing-informed approaches require non-Indigenous services and their humans to address the historical and contemporary injustice inherent in post-colonial Australia. This is uncomfortable, and seemingly unpopular.					

Table 3. Scoping review results

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
Bartolo et al. (2016). Denmark	To identify, analyse and promote the main characteristics of quality inclusive pre-primary education for all children from three years of age to the start of primary education across 32 European countries.	An inductive thematic data analysis method was used, whereby themes or issues were derived from European practitioners' descriptions (perceptions and practices) of inclusive early childhood education provisions.	Five themes were identified: ● Child belongingness, engagement and learning ● Five major processes including positive interaction with adults; involvement in play and daily activities; a child centred approach; personalized assessment for learning; and accommodations adaptations and support ● Structural factors within the early childhood education (ECE) setting including warm welcome for every child and family; family involvement within the early childhood education ECE setting; a holistic curriculum designed for all children's needs; an environment designed for all children; staff who are appropriately qualified; a culturally-responsive social and physical environment; inclusive leadership committed to respect and engagement for all individuals; collaboration and shared responsibility among all stakeholders.	The resulting formulation of an ecosystem model of inclusive early childhood education can be seen as a blueprint for the development of frameworks for specific practices. The conceptualisation of outcomes, processes, and structures highlight model elements that contribute to an understanding of the various levels of influence on child belonginess, engagement and learning.

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
			• Structural factors in the community, including ECE setting-families collaboration; Inservice training for ECE staff; wider community commitment and support for all children; interdisciplinary and interagency cooperation of services; and transitions between home and the ECE setting. • Structural factors operating at the macro-system level consisting of a rights-based approach to ECE; Provision of mainstream ECE access for all; setting up regional/national standards for all teachers and other ECE staff. • Governance and funding systems • Procedures for regular monitoring and evaluation	
Carpenter et al. (2009). England	To describe examples of evidence-based ECI practice and developments in Europe.	Across 16 chapters, and drawing from a large body of literature, European researchers report on specific ECI programs in their own countries of origin, emphasising various aspects of ECI principles and practice.	ECI practice is highlighted in regard to: • Transdisciplinary teamwork • Training curriculum of staff in specific ECI areas • Individualised intervention plan • The family as focus for planning and delivery of ECI services • Parenting	ECI practice areas are underscored, indicating the existence of an established body of work in ECI which is informed by services and programs on the ground, and that have served the establishment of recommended practices.

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
			- Strength-based approaches - Child and family development and well-being - Parent-professional partnerships	
Carvalho et al. (2019). Portugal	To provide a useful tool for professionals and others at various system levels, who seek to respond to the multiple complexities involved in early childhood intervention practice.	The set of recommended practices is based on a substantial revision of the foundations and theoretical models, including systemic, developmental, bioecological and transactional perspectives as well as the family-centred approach.	Family-centred practice is considered the main intervention tool, and grounded on the ECI integrated model, which consists of: - the promotion of children's learning opportunities in family and community life - parenting support, including information, skills, knowledge emotional and instrumental supports - the mobilization and integration of formal and informal family and community resources. Aspects of ECI implementation are also noted such as intersectoral and transdisciplinary collaboration, program evaluation, and training and supervision of staff.	Family-centred practice is at the centre of recommended practices, where the family is the main focus of intervention and support. This stresses the fundamental significance of the family in ECI service provision. The consideration of aspects of implementation of ECI recommended practices is an important addition to the development of policy and research directions.
Division for Early Childhood (2014). USA	To bridge the gap between research and practice by highlighting practices that have been shown through research to result in better outcomes for young children with disabilities, their families, and practitioners	To the extent possible, the evidence base for these practices comes from studies that: use methodologically sound and high-quality designs	The DEC Recommended Practices include eight domains: - Leadership - Assessment - Environment	DEC has demonstrated the importance of: having a federally funded technical assistance centre to support implementation

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
	in early intervention/early childhood special education.	• are reported in the research literature, published in peer-reviewed journals, and replicated by a variety of researchers and research team demonstrate positive effects on child and family outcomes.	• Family • Instruction • Interaction • Teaming and collaboration • Transition	• developing a plan to continually update practices and the supporting resources for professionals and family members • aligning with the National Association for the Education of Young Children (NAEYC) Developmentally Appropriate Practices that relate to the promotion of learning and development for *all* children.
Early Childhood Intervention Australia (2016). Australia.	To provide support for universal and equitable high quality Early Childhood Intervention based on best practice for children with disability and/or developmental delay whether they attend government, non-government, large, small, sole non-for-profit service providers or private providers, anywhere in Australia	The guidelines were developed through a review of the literature, consultations with the sector and submissions from key stakeholders. An initial discussion paper was developed as pre-reading for the consultations.	The guidelines provide eight principles under 4 quality areas. 1: Family • Family-Centred and Strengths-Based Practice • Culturally Responsive Practice 2: Inclusion • Inclusive and Participatory Practice • Engaging the Child in Natural Environments 3: Teamwork • Collaborative Teamwork Practice • Capacity-Building Practice 4: Universal Principles • Evidence Base, Standards, Accountability and Practice • Outcome Based Approach	Some professional development activities have supported implementation, though this has been limited. Australia has experienced a dramatic and changing policy context that has highlighted the need for integration with current reviews.

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
Green et al. (2016). Australia	To describe the Aboriginal and Torres Strait Islander carer journey of accessing support and services.	Qualitative design involved semi-structured interviews with nineteen parents and carers of Aboriginal children aged 0–8 years attending a child developmental clinic at a metropolitan area Aboriginal health service in Eastern Australia. Interpretive phenomenological analysis was applied to transcribed verbatim accounts.	The 'journey' metaphor was used to describe carers' pathway of accessing supports and services at the community, service and policy levels: 1. Need for 'increased signage' within communities via community education, information and awareness 2. Wrong way signs, roundabouts and roadblocks encountered when accessing services 3. Alternate routes can facilitate the journey 4. Incompatibility of inflexible bureaucratic road rules and lived realities	Recognition of the diversity of meaning of disability in Aboriginal and Torres Strait Islander contexts is critical to effective service provision.

The Aboriginal community is a key resource in supporting families that requires investment and increased capacity.

The introduction of services such as 'patient' navigators as well as a team-based approach may be key to bridging the gaps between carers and service systems. |
| Guralnick, M. (2023). USA | To present a framework for the creation of a fully inclusive and comprehensive ECI system with a primary focus on family patterns of interaction: The Developmental Systems Approach with a corresponding Practice Model. | The framework draws upon concepts, processes, and advances from several fields and integrates

developmental science, intervention science, and implementation science. | The Developmental Systems Approach consists of three interconnected levels that characterize: ● children's social and cognitive competence with connections to children's functional goals; ● a family's pattern of interactions capable of supporting the development of those child competencies and goals; ● the resources needed by families to support family patterns of interaction. | The Developmental Systems Approach and accompanying Practice Model consolidates our understanding of the importance of family patterns of interaction and family centred practices in ECI.

The importance of integrating developmental, intervention, and implementation science into an ECI framework is highlighted. |

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
McCarthy & Guerin (2020). Ireland	To identify the key processes and outcomes of family-centred care (FCC) in early intervention (EI) settings and the factors that impact FCC as reported in quantitative and qualitative literature.	A systematic review explored the processes and outcomes of FCC delivered to children aged 0–6 years with disabilities/suspected disabilities and families as part of EI or early services. The search procedure was informed by the PRISMA guidelines. Narrative analysis of data was also performed.	The majority of studies (90.5%) outlined the processes of FCC, while 59.5% of studies explored outcomes. A thematic analysis yielded: FCC processes defined as: ● service operations ● participatory caregiving ● communicating information and coaching ● relational caregiving ● child focused activities ● professional competency and development and support ● psychological support ● support network and community integration. Outcomes, including: ● child development ● parent/family/development ● attainment of family goals ● quality of life ● parent satisfaction ● community engagement ● parent-professional collaboration Factors impacting FCC: ● Service operations and resources ● Service location and logistics ● Child and family characteristic ● Family resources	The study provides important grounds for the conceptualization of FCC processes, outcomes and factors affecting it. This can in turn support the development of a framework for the implementation of family-centred practice and the various contexts of influence.

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
			• Professional characteristic • Parent attitudes, engagement and agency.	
Smith et al. (2015). USA	To provide a guide for implementing widespread use of evidence-based practices for improving the outcomes for young children with or at-risk for delays or disabilities and their families to support state-wide systems change. The evidence-based practices are the Division for Early Childhood (DEC) Recommended Practices.	The Guide details three elements that are instrumental in the process of planning and sustaining the high-fidelity implementation of the DEC Recommended Practices: • Stages of Implementation • Structures needed for high-fidelity implementation • Planning and monitoring the implementation process—the State Benchmarks of Quality.	The guide presents a comprehensive approach to the stages and structures of effective implementation, including systems-wide supports and data-based decision making required to provide evidence-informed recommended practices. The importance of implementation and practice fidelity is highlighted.	Implications include the importance of a federally funded technical assistance centre to support the implementation of evidence informed recommended practices and outcomes for children and families.
Stayton et al., (2023). USA	To develop Initial Practice-based Professional Preparation Standards for EI/ECSE to support a comprehensive, coordinated personnel development system.	An iterative process with support from the Early Childhood Personnel Center (ECPC) was used to develop the Standards, which included: • forming a 15-member Standards Development Task Force • reviewing related research and Standards • brainstorming content areas through listening sessions • requesting input from the field through a public survey	The final EI/ECSE Standards include: 1: Child Development and Early Learning 2: Partnering with Families 3: Collaboration and Teaming 4: Assessment Processes 5: Application of Curriculum Frameworks in the Planning of Meaningful Learning Experience	For the first time, the EI/ECSE field in the USA has a set of stand-alone professional Standards. Australia has previously developed National Guidelines for Best Practice in ECI (ECIA Vic/Tas, 2016), that are projected to be reviewed in 2024. However, we have not

Author, date country	Aim	Method	Key findings	Implications for an Australian framework
		- using results to make further revisions to the Standards and components, and inform initial drafts of supporting explanations - requesting a review from the CEC Professional Standards and Practices Committee, who referred them to the CEC Board of Directors, who then recommended review by the Council for the Accreditation of Educator Preparation Standards Committee - conducting additional listening sessions and a second public survey - reviewing summaries of feedback - submitting the edited Standards, components, rubrics, glossary and supporting explanations - drafting, reviewing, and editing knowledge bases and performance indicators for each standard and component	6: Using Responsive and Reciprocal Interactions, Interventions, and Instruction 7: Professional and Ethical Practice 8: Field and Clinical Experience	developed national professional Standards for the ECI sector. This article outlines the EI/ECSE Standards and describes the process of how they were developed. In doing so, the article provides guidance of how to approach the development of Standards for ECI practitioners in an Australian context to support preservice training, in-service learning and support, program accreditation, cross disciplinary collaboration, and opportunities for research and development.

6.1 Summary and discussion

Key issues emanating from the review of the literature and publicly available documents across jurisdictions are integrated in this section. Considerations about the purpose of ECI and its relevance to the definition of best practice are addressed. This is followed by a discussion of the principles and practices pivotal to the development of a best practice ECI framework. Issues associated with the implementation of an ECI framework are then discussed. Finally, implications for each of the aspects associated with the development of an ECI Best Practice Framework are drawn.

Aim of ECI and definition of Best Practice

Early childhood intervention (ECI) as a field has greatly evolved and expanded over the last 40 years, including its aims and their position in regard to a definition of ECI best practice. This is all the more evident when the ECI body of knowledge across jurisdictions is examined, highlighting two key issues: 1) a range of perspectives about what constitutes ECI and what its aims are, including the extent to which these are described; and 2) a diversity of terminologies and differing stages of development within the overall service system for all young children.

Importantly, some ECI approaches and guidelines are embedded within early years frameworks as is the case in New Zealand, and Aboriginal and Torres Strait Islander contexts; whereas others are differentiated such as those in Australia, the USA, some European countries (see Carvalho et al., 2019) and aspects of service provision in UK-England for children with special needs and disability. There is value in both approaches as stated by Olusanya et al (2024), who in their proposal for a global disability-focused early childhood development strategy, put forward a model which considers the implementation of disability-inclusive early childhood development programs alongside dedicated disability-focused early childhood development programs to optimise access to services for children with disability.

Also evident is that, while children and families are at the centre of ECI policy and practice, the extent to which these emphasise capacity building for children, families or both also varies across frameworks. Conversely, inclusion in natural environments, family-centred practice, and strength-based approaches appear to be common elements to all frameworks; however, the aim of ECI services and supports does not always seem to be predicated on those foundations (see ECI aim in ECTA, 2024 as an example). Overall, it can be argued that as the aim of ECI lacks precision, its alignment with ECI service structures and operations, and the implications for the definition of best practice is not smooth across most jurisdictions.

These reflections are important to note as they underscore the extent to which service systems have kept pace with current research evidence in ECI, which has identified best practice definitions, recommended features, structures, systems and models that work best to support children with developmental concerns, delays, or disability (Dunst, 2016; Guralnick, 2023). Despite extensive work in this area at the research level, the translation of research evidence and policies into practice and models of support and intervention has been inconsistent across jurisdictions, whereby the focus has tended to favour the enunciation of best practice principles alone or the enactment of legislative mandates and procedures. Nevertheless, it is possible that practitioners may well keep abreast of new evidence and incorporate it

in their work with children and families and develop professional expertise consistent with the definition of best practice.

A case in point is the definition of best practice adopted in Australia that has been characterised as 'evidence-informed'. It focuses on the decision process integrating available research, family and professional wisdom (Buysse & Wesley, 2006). This process is critical to the implementation of ECI best practice; however, operational procedures associated with legislative mandates such as the National Disability Insurance Scheme (NDIS) have challenged this process (Commonwealth of Australia, 2023). In this context, the limited availability of a unified set of resources, tools and practice standards for professionals and families has also precluded the systemic execution of best practice. This necessitates what Dunst et al. (2018) describe as 'knowledge management' and 'product development', which are ideally based on conceptual models, and that will, in turn, support and increase the use of evidence-informed ECI practices among all concerned.

The development of ECI best practice guidelines is only one essential component of an all-encompassing ECI framework. As Olusanya et al (2024) assert, legislative support, family involvement, coordination across agencies, performance indicators, workforce recruitment and training, as well as funding mechanisms and monitoring systems must be also considered. The consideration of these components in the development of ECI frameworks has also been inconsistent across jurisdictions. The US system is the most comprehensive jurisdiction in its delineation of systems, practices and outcomes for children with developmental concerns, delays, or disability and their families.

Implications

It is recommended that the ECI Best Practice Framework:

- specifies clear definitions of ECI, its aim and best practice, including the terminology used to describe these concepts and others associated with the development of an ECI framework. The commonality in language and meaning will be an important factor in the effective implementation of the ECI framework

- identifies and develops tools and resources that directly support family members and professionals in:

  o the decision-making process needed to plan and select best practices; and

  o the implementation of evidence-informed practices

- delineates system and practice frameworks at different levels, which support the effective execution of an ECI framework, the aim of ECI and the implementation of best practice. These include but are not limited to:

  o an overarching early years framework for all children, with a gradient of support tailored to the diversity of children with developmental concerns, delays or disabilities and their families (e.g., Nurturing Care). This fits well with the current discussion on foundational supports, particularly for outcomes for Aboriginal and Torres Strait Islander children and families

  o a framework for children with developmental concerns, delays, or disabilities and their families (e.g., Guralnick, 2023; Dunst, 2005).

  o a systems framework for early childhood such as the Multi-tiered Systems of Support (Division for Early Childhood, 2021)

  o research based models of intervention, e.g., Routines-based Model (McWilliam, 2010) Family Strengths in Constructing Learning Experiences (Keilty, 2020); SCERTS (Prizant et al., 2003)

6.2 Principles and practices

Key principles or recommended practices for ECI are provided across all jurisdictions. There are some commonalities and differences that are important to consider as we develop an ECI framework. But first, a note on terminology. The USA DEC Recommended Practices committed to using the term 'recommended practices' in favour of 'best practice' as they determined that what is best for one child may not be best for all children, and they recognised that practices should change over time as new strategies are found through research to be more effective (McLean, 2015). Most other jurisdictions, including Australia, use the term 'best practice'. In Australia we also refer to quality areas, whereas other jurisdictions use terms such as guiding principles, practice principles, or domains.

The National Aboriginal and Torres Strait Islander Early Childhood Strategy outlines a cascade of vision, guiding principles, goals and outcomes. Australia's Early Years Learning Framework (EYLF) (Australian Government Department of Education, 2022) similarly has a cohesive set of eight principles, seven practices and five learning outcomes. In both instances, the principles sit within a broader framework associated with outcomes. Other jurisdictions, including Australia's National Guidelines for Best Practice in ECI do not clearly link principles, practices and outcomes.

Some jurisdictions have developed a conceptual framework that includes a selection of broader constructs or concepts that are considered critical to the development of a framework. For example, in New Zealand one of their guiding principles is utilising an ecological framework (Brofenbrenner, 1994). Other jurisdictions have a human rights perspective and have the Convention on the Rights of the Child (UN, 1989), the Convention on the Rights of Persons with Disabilities (UN, 2006) and the Declaration on the Rights of Indigenous Peoples (UN, 2007) as a foundation to their guideline or strategy.

The terms 'principles' and 'practices' are not clearly defined, and the terms are sometimes used interchangeably. For the purpose of this section, we include both principles and practices that appear in jurisdictional frameworks and are referred as such in the discussion below.

Inclusion, natural environments, family-centred and strength-based

Inclusion, learning in natural (family and community) environments, family-centred and strength-based practices are reflected in the majority of the jurisdictional guidelines and are strongly supported in the literature (Cologon, 2014; Dunst et al., 2006; Dunst & Trivette, 2010; Espe-Sherwindt, 2008; Guralnick & Bruder, 2016; Hebbeler & Spiker, 2016; McCarthy & Guerin, 2022; Rouse, 2012; Steenberg et al., 2008; Webster, 2022; World Health Organization & UNICEF, 2023). However, translation of these critical practices from theory to practice has been a significant challenge despite this strong evidence and theoretical base. This commonality between jurisdictional guidelines provides us with a clue for how we might progress the development of the ECI Best Practice Framework.

Child centred and positive interactions

New Zealand has mokopuna (child) and whānau (family) centred practice as a practice principle. Other jurisdictions also focus on the child as well as their family. For example, the Framework to inform the development of a National Aboriginal and Torres Strait Islander Early Childhood Strategy highlights 'protecting Aboriginal and Torres Strait Islander children's right to thrive in culture', and 'applying a child-centred approach to the design of policies, programs and service systems' (SNAICC & NIAA, 2021).

This focus on the child as a principle is also evident in some jurisdictions, where other Australian frameworks such as the National guideline for supporting the learning, participation, and wellbeing of autistic children and their families in Australia (Trembath et al., 2022) include 'child and family centred' as one of the guiding principles. Furthermore, the guideline also includes the principle to 'Honour childhood'. This principle indicates that we should "honour the goals and activities of childhood including play, relationships, and personal discovery" (Trembath et al., p52).

In the USA, 'interactions' is one of the seven recommended practices and raises the importance of sensitive and responsive interactional practices. Guralnick's Developmental Systems Approach and accompanying Practice Model consolidates our understanding of the importance of promoting responsive caregiving and family patterns of interaction in ECI (Guralnick, 2023). Experiencing responsive interactions and caregiving in the early years has been found to be critical for later development and wellbeing. Specifically, responsive caregiving promotes the development of secure attachments and builds infants social-emotional and self-regulatory skills (Abraham et al., 2021; Feldman, 2021).

Evidence-based

The term 'research-based practices' is used to inform DEC Recommended Practices and is defined as "Practices that have been demonstrated to be effective and are supported by evidence in the research literature" (Odom et al., 2005). 'Evidence-informed' or 'evidence-based' practice principles are evident in New Zealand and Australian guidelines, including the Framework to inform the development of a National Aboriginal and Torres Strait Islander Early Childhood Strategy that highlights focusing on evidence-based design. In the Australian National Guidelines (2016) evidence-based practice sits alongside the broader concept of standards and accountability and also an outcomes-based approach as described in the following section.

New Zealand's He Pikorua guidelines describe evidence-informed practice as "a dynamic interaction between research and inquiry, practitioner and educator expertise, and the perspectives and experiences of whānau and mokopuna. We use approaches and interventions that are based on robust methodologies and sound evidence, and that align with mokopuna cultural perspectives and educational contexts" (Te Tāhuhu o te Mātauranga - Ministry of Education, 2020). This description not only highlights the triad of current research and perspectives of practitioners and families in their understanding of evidence informed practices, but also the integral nature of cultural perspectives.

Culturally affirming

Australia has identified cultural responsiveness as a practice area in the current National Guidelines. This practice focuses on practitioners being "aware of diversity and provide services and supports in flexible ways that are responsive to each family's cultural, ethnic, racial, language and socioeconomic characteristics" (ECIA, 2016).

In New Zealand culturally affirming practice is a practice principle, but the He Pikorua practice framework is also culturally situated and grounded in The Treaty of Waitangi. It has been suggested that in Australia, any ECI framework must be informed and influenced by Aboriginal and Torres Strait Islander ways of knowing, being and doing (SNAICC 2024, consortium proposal).

Furthermore, the review of the jurisdictional frameworks suggests that with some changes to language, the principles articulated in the Framework to inform the development of a National Aboriginal and Torres Strait Islander Early Childhood Strategy (NIAA, 2021) can be applied universally. The Framework to seeks to empower families and communities to bring children up strong and healthy in culture (NIAA, 2021). The Framework highlights the current challenges facing Aboriginal

and Torres Strait islander children and families due to a history of injustice and racism that remains embedded in laws, policies, and practices of our current society, systems and institutions and as such one of the guiding principles is 'Eliminating systemic racism'.

Teamwork, partnerships and leadership

Australia's National Guidelines for Best Practice in ECI details Teamwork as one of the four quality areas. Teamwork is described as comprising: a) collaborative teamwork practice where the family and professionals work together as a collaborative and integrated team around the child, with one team member nominated as a key worker, and b) capacity building practices that include building the capacity of the child, family, professionals and community through coaching and collaborative teamwork (ECIA, 2016). Other jurisdictions highlight capacity building practices and the ECI frameworks from Europe, New Zealand and the USA also include teaming, collaboration and partnership as recommended practices. These practices are strongly supported in the literature (Bartolo, et al., 2016; Carpenter et al., 2009; Carvalho et al., 2019; Shelden, & Rush, 2010; 2022), and it is proposed that a team-based approach may be key to bridging the gaps between parents/carers of Aboriginal and Torres Strait Islander children with disability and service systems (Green et al., 2016). Further to this, the need for cross-jurisdictional collaboration across Commonwealth, State and Territory, and local levels to support the work in communities has been highlighted to address the issues experienced by Aboriginal and Torres Strait Islander children and families (Department of Education and the Department of Health and Aged Care, 2023). Interestingly, Bricker and colleagues (2022) recently proposed a system to operationalise the infra-structure and practices associated with teaming and collaboration practices in ECI.

DEC extends the notion of partnership to describe recommended practice for those in positions of leadership, with the proposition that leaders have a professional responsibility to create the conditions needed to support practitioners in implementing recommended practices. The leadership practices include promoting adherence to ECI recommended practices, standards and ethics, advocating for policies and resources that promote the implementation of recommended practices, and developing and implementing an evidence-based professional development system or approach, amongst others important practices (DEC, 2014). No other jurisdictional guidelines feature the role of leadership in creating the conditions needed to support practitioners in providing high quality ECI services.

Assessment, Instruction, Transition and Eliminating systemic racism

Along with leadership, the USA stands alone in describing three further Recommended Practices - Assessment, Instruction and Transition. These practices apply a robust evidence base which warrants their inclusion in the DEC guidelines.

The Framework to inform the development of a National Aboriginal and Torres Strait Islander Early Childhood Strategy includes 'Eliminating systemic racism' as a guiding principle. This is in line with the guiding principles described in the National Strategic Framework for Aboriginal and Torres Strait Islander Peoples' Mental Health and Social and Emotional Wellbeing 2017-2023 (Commonwealth of Australia, 2017), that emphasises the holistic definition of health held by Aboriginal and Torres Strait Islander peoples and indicates that 'Racism, stigma, environmental adversity and

social disadvantage constitute ongoing stressors and have negative impacts on Aboriginal and Torres Strait Islander peoples' mental health and wellbeing'.

Implications

It is recommended that the ECI Best Practice Framework:

- considers developing a conceptual foundation provided by broader Australian frameworks such as the Early Years Learning Framework (Australian Government Department of Education, 2022), and the National Aboriginal and Torres Strait Islander Early Childhood Strategy (NIAA, 2021) and the Framework to inform the development of a national Aboriginal and Torres Strait Islander Early Childhood Strategy (NIAA & SNAICC, 2021)

- considers principles and practices that are included in guidelines across jurisdictions such as:
  - those that are in most guidelines: e.g., inclusion, natural environments, family-centred and strength-based practices
  - those that are in some guidelines: e.g., child-centred, culturally affirming, teamwork and partnership, evidence-based and outcomes focused
  - those that are in one guideline: e.g., leadership, assessment, transition, instruction and eliminating systemic racism

- provides clear definitions about, and differentiation between, principles and practices.

- examines the suitability of terms such as 'intervention' that has been the cause of some debate nationally and internationally

- ensures that the ECI framework, and corresponding principles and practices, are informed and influenced by Aboriginal and Torres Strait Islander ways of knowing, being and doing

- ensures that practices and principles are founded on an understanding of the importance of responsive interactions for children's learning and development

- considers the role of leadership in creating the conditions needed to support practitioners in providing high quality services

6.3 Outcomes of early childhood intervention

Conceptualisation of outcomes

The identification of outcomes for children with disability and their families, who participate in ECI programs, has long been a feature of ECI research (Bailey & Bruder, 2005; Epley et al., 2011; Hebbeler et al., 2007). Despite these developments, the gap between empirically supported practices and the actual practices used by practitioners in the field, and the need for the establishment of processes to narrow the distance between them has remained a concern (Cook & Odom, 2013; Odom, 2008). This observation is reflected in the considerable variation across jurisdictions, ranging from limited identification of outcomes to established systems and measurement of outcomes.

Australia's current ECI guidelines and the US recommended practices have adopted an outcome-based approach as an integral part of their ECI frameworks. Importantly, however, the Australian guidelines do not specify sets of outcomes compared to the US system, where they are clearly identified. Nevertheless, at a general level, they both align with contemporary ECI understandings, which focus on high quality functional outcomes for children (i.e., learning and participation in everyday environments); family outcomes (i.e., sustainability of everyday routines, advocacy skills; family and social supports) and community outcomes (i.e., engagement and participation in home and community).

In the literature, family outcomes have also been identified to include other aspects of children's and families' participation in ECI programs, such as quality of life (Bhopti et al., 2016), parent satisfaction and community engagement (McCarthy et al., 2021). The extent to which an outcome-based approach particularly for family- and community-related outcomes is understood, adopted, and used by professionals and families in service provision (e.g., information giving, planning, goal setting, ECI strategy implementation) remains unknown in the Australian context. Furthermore, how ECI best practices support child, family- and community- outcomes levels is also unclear.

Other jurisdictions consider outcomes for children with disability as those for all young children and their families regardless of ability, emphasizing well-being, inclusive, participatory, and cultural experiences of families. This is particularly the case for New Zealand and Aboriginal and Torres Strait Islander contexts. European reports indicate the need to focus on learning and developmental outcomes (Carpenter, 2009) at the intervention level, while others specify outcomes in association with inclusion and active participation, being a critical element of ECI best practice. The latter, in particular, identifies child belongingness, engagement and learning as key outcomes as part of Ecosystem Model of Inclusive Early Childhood Education (Bartolo et al., 2016). The UK England system focuses on learning, development, and health outcomes, adopting a typical developmental domain like approach to the identification of outcomes. Family and community outcomes as such are not identified in these jurisdictions while consideration is given to the importance of family engagement and parent-professional collaborations.

Measurement and tracking of outcomes

A closely aligned theme with an outcome-based approach in ECI frameworks is the issue of measurement, a crucial component of ECI frameworks for purposes of evaluation and monitoring of process and intervention outcomes for children, families

and communities (Guralnick, 2023). How the measurement of outcomes along these lines has been adopted across jurisdictions also presents large variation. Notably, the US ECI system has created extensive measurement and data collection arrangements with the aim of quality improvement and accountability (ECTA, 2024). Progress on individual and system-wide outcomes are measured in order to make decisions about system and practice improvements. A series of steps to ensure quality data includes:

- training and support for staff before and during data collection

- a good data system and data entry procedures

- ongoing supervision and feedback to implementers

- analysis of the data after data collection

- validity checks

Australia does not count on a measurement system that is aligned with the ECI practice guidelines nor does the New Zealand framework. In regard to Aboriginal and Torres Strait Islander contexts, the National Agreement on Closing the Gap has four reform areas, one of which is related to data "...that Aboriginal and Torres Strait Islander people have access to, and the capability to use, locally-relevant data and information to set and monitor the implementation of efforts to close the gap, their priorities and drive their own development." (2020). However, the extent to which this data is specific to the implementation of best practice for children with developmental concerns, delays or disability is not clearly evident. The UK-England system consists of a measure which generates individual data for monitoring of child development for all birth to 5-year-old children, not specific to young children with disability nor targeted to an ECI practice framework.

Implications

It is recommended that the ECI Best Practice Framework:

- be grounded in a conceptualisation and operationalisation of an outcome-based system for all children, families, and communities in line with identified practices and guidelines

- enables the effective delivery of services along an identified pathway of outcomes for all involved, from access to key information to planning, goal development and identification and implementation of evidence informed ECI strategies in family and community settings

- ensures the specification of child outcomes (e.g., learning and participation in everyday environments); family outcomes (e.g., sustainability of everyday routines, advocacy skills; family and social supports) and community outcomes (e.g., engagement and participation in home and community)

- contains resources for professionals and families to support understanding and adoption of child, family, and community outcomes in ECI service provision

- develops tools to support professionals and families in the measurement of outcomes at different levels of service provision

- creates evidence-based professional development initiatives for the identification of family outcomes and their inclusion in individual planning and goal development

- develops a cycle of monitoring of outcomes at a system, individual child/family level that a have a direct impact on all aspects of service provision. A data monitoring system will need to include targets specified for a diversity of children and families (e.g., National Agreement on Closing the Gap) and consideration of various data sources (e.g., Australian Early Development Census)

6.4 Implementation (processes, indicators and tools)

The current National Guidelines for best practice in ECI (2016) have a small number of associated professional development tools and resources to support high quality practice in line with the four quality areas. Other international jurisdictions also have resources and tools such as self-reflection exercises, narratives of child and family experiences, curriculum guidance and practical examples for each of their respective recommended practices.

The USA has a federally funded Early Childhood Technical Assistance Center (ECTA) that aims to bridge the gap among research, policy, and practice. The Early Childhood Technical Assistance Center develops and disseminates high-quality, evidence-based resources and practices, and provides training and technical assistance in order to build capacity and create sustainable early childhood practices at the regional, state and local levels. To the best of our knowledge, this level of support for improving systems, practices and outcomes is not available in other

jurisdictions. Several of the resources and tools provided to support practitioners, families, and professional development providers in the use of recommended practices that are useful to consider in the development of an Australian ECI framework include:

Practice guides for families

ECTA has developed [Practice Guides for Families](#) related to the seven DEC Recommended Practices for practitioners to share with families. Australia has also developed several family resources based on the National Guidelines.

Practice checklists for practitioners

Performance checklists are widely used in many fields, including ECI, for planning, monitoring, and evaluating performance, products, and procedures and typically include lists of the tasks, steps, or behaviour indicators required to complete practices in a competent manner (Dunst, 2017a). Evidence-informed performance checklists include 'indicators based on research findings establishing an empirical relationship between the checklist practice indicators and intended or expected outcomes' (Dunst, 2017a).

The Early Childhood Technical Assistance Centre has published 26 [performance checklists](#), freely available in English and Spanish. They relate specifically to the seven DEC Recommended Practices. The procedure and framework used for the development of the checklists, along with a meta-review of empirical evidence demonstrating practice-outcome relationships, has been published (Dunst, 2107a).

The scoping review highlights the work of Dunst and colleagues who conducted early childhood practitioner field tests of social validity judgements on performance checklists. They reported that practitioner feedback and suggestions yielded valuable information for improving the checklists and highlighted the importance of practitioner input, suggestions, and feedback for improving the usefulness of early childhood intervention practices (Dunst, 2017b; Dunst et al., 2017).

Self-reflection tools for practitioners working with Aboriginal and Torres Strait Islander families have been developed by SNAICC (2016)[38] and Family Matters (2020)[39]. SNAICC's *Stronger, Safer, Together* is a reflective practice resource and toolkit for services that provide intensive and targeted support for Aboriginal and Torres Strait Islander families while addressing key practice issues and using a place-based approach. This resource includes: a guide for reflection and discussion amongst family support staff teams in professional development sessions; a toolkit of ideas for good practice for individual practitioners to explore and draw upon; and an information source to inform the development of locally adapted practice resources and service manuals. Family Matters' National Reflective Practice Tool is designed to provide organisations working with Aboriginal and Torres Strait Islander children and families with a means of reflecting on their commitment to improving outcomes for children and identifying areas for improvement.

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[38] https://www.snaicc.org.au/resources/stronger-safer-together-a-reflective-practice-resource-and-toolkit-for-services-providing-intensive-and-targeted-support-for-aboriginal-and-torres-strait-islander-families/

[39] https://www.snaicc.org.au/resources/family-matters-national-reflective-practice-tool/

Professional preparation standards

The scoping review details the work of Stayton et al (2023) who developed practice-based Professional Preparation Standards for EI/ECSE in the US. The standards are part of an integrated, comprehensive system of personnel development with support provided through the Early Childhood Personnel Centre.

Statewide Implementation Guide

To implement and scale up evidence-based practices the Early Childhood Technical Assistance Center developed the Statewide Implementation Guide, which lays out a process for improving child and family outcomes by implementing evidence-based practices to support state-wide systems change (Smith et al., 2015). The Guide details three elements that are instrumental in the process of planning and sustaining the high-fidelity implementation of the DEC Recommended Practices: Stages of Implementation, Structures needed for high-fidelity implementation, and Planning and monitoring the implementation process.

State Benchmarks of Quality

The Benchmarks of Quality published by the Early Childhood Technical Assistance Center are checklists used by leadership teams to assess where they are in the process of implementing evidence-based practices. This includes developing the necessary structures for guiding and supporting the implementation of evidence-based practices and planning for full implementation, scale up, and sustainability. The benchmarks are designed to help teams move through the stages of implementation and build the systems and support needed for high-fidelity use of the evidence-based practices. There are three Benchmarks of Quality used in the guide: State leadership practices, classroom-based programs and home visiting programs.

It is important to note that resources such as the Benchmarks of Quality are grounded in implementation science, an area of research focused on identifying critical factors and conditions needed to successfully adopt, integrate, and sustain evidence-based practices (Fixen & Blasé, 2016; Fixsen et al., 2005). Guralnick (2023) also draws on implementation science in the Developmental Systems Approach outlined in the scoping review.

Data systems

The Centre for IDEA Early Childhood Data Systems is a national technical assistance centre in the USA that supports state programs in building high quality data systems and using data to improve results for young children with disability and their families.

Implications

It is recommended that the ECI Best Practice Framework:

- ensures practitioner and family input into the development of tools and resources

- updates current online professional development modules to align with the Framework

- considers job-embedded learning supports

- develops a range of resources for families that are accessible and available in community languages and are culturally appropriate

- develops resources for training providers to support them in aligning programs to the framework

- utilises active implementation frameworks to ensure that the framework results in desired outcomes for children, families, and ECI professionals

- considers resources for improving systems, practices and outcomes

6.5 Conclusion

Frameworks across jurisdictions offer a range of possibilities to the development of an ECI best practice framework for Australian children with developmental concerns, delays or disability and their families. While there is uniformity in the recognition that certain practices are central to an ECI practice framework, it is also evident that some jurisdictions, having had a longer lifespan, have benefitted from ongoing review and establishment of closer links between research evidence and practice implementation. Implications outlined in this paper are vast for the design of a framework that not only contemplates principles and practices, but also their close relationship to the design of systems of service provision that support them.

7 Review of evidence-based practices and strategies

This section addresses the section of two research questions posed by DSS: What evidence is there of the effects and impacts of the ECI frameworks/guidelines on child, family and/or service outcomes? To answer this question, a systematic review was undertaken.

7.1 Team members

The systematic review was led by Imms (UoM) in consultation with MCRI, PRECI and the SNAICC. SNAICC's involvement ensured that the research and analysis incorporated and reflected Aboriginal and Torres Strait Islander led evidence bases. The review team comprised Christine Imms, Francesca Lami, Meghan Wilson, Sarah

Knight, Nicole Merrick, Ellie Van Vellsen, and Lyn Allen, with support from librarian Poh Chua at The Royal Children's Hospital in the design of the search strategy.

7.2 Aims

This systematic review aimed to gather, report and synthesise evidence available to understand the effects and impacts of ECI frameworks. As described in Part Two (Section 5), frameworks comprise multiple components: aims, principles, practices, strategies and interventions. Practices are the specific actions or behaviours that put the ECI principles into effect: they are how principles are applied. Practices are complex, tailored to settings and families and chosen based on three types of evidence: evidence-based research, practitioner practice knowledge and wisdom, and client values, priorities and circumstances. In research, practices are typically evaluated as strategies or interventions which may also be described as approaches or programs. We sought evidence from research about strategies/interventions/programs with identifiable elements of ECI practices.

Selection of strategies or interventions for use in ECI should be based on evidence derived from the most rigorous research methods. The Oxford levels of evidence (OECBM Levels of Evidence Working Group, 2011) indicates that interventions supported by systematic reviews (SR) of randomised controlled trials (RCT) provide the highest level of evidence of effect. In the absence of focused systematic review evidence, individual randomised controlled trials provide the next highest level of evidence. Other types of design (e.g., non-randomised comparison studies, single group (uncontrolled) studies that evaluate outcomes before and after an intervention, do provide evidence, but with an increasing risk of bias. Typically, the risk of bias in non-randomised or uncontrolled studies favours the strategy or intervention under investigation, inflating the estimate of the effect size. Single-case experimental design studied (SCEDs) can also provide strong evidence of effect but may investigate a narrowly focused strategy.

Because evidence-informed decision making also relies on family values, priorities and circumstances, this review also sought to understand the perspectives of parents/caregivers and professionals on the outcomes of interventions, to provide evidence about the lived experience perspective. Therefore, this review sought to retrieve and summarise the evidence of both effects and experiences of strategies or interventions that tested principle-based practices used in ECI in the same jurisdictions included in the scoping review reported in Section 4.

7.3 Objectives

Primary objective:

To evaluate the effects and impacts of early childhood intervention frameworks as observed in research investigating practices (strategies, interventions or programs) for children with a developmental concern, delay or disability on:

- Children with a developmental disability or a developmental concern.

- Their caregivers and/or families, and/or communities.

- Service providers and/or professionals and/or organisations/services delivering early childhood interventions.

7.4 Research Questions

What evidence is there of the effects and impacts of the ECI frameworks on child, family and/or service outcomes? In addressing this question, data to answer the following questions was sought, summarised and interpreted:

a) What is the nature of research undertaken to examine effects and impacts of these frameworks/guidelines/practices on children, families or services?

b) How are the ECI practices/interventions defined and described according to what 'intervention' is provided by whom, where, when and how much (duration/intensity/dose)?

c) What child, family and service outcomes have been identified and measured and how?

d) Which children and families are included in research related to outcomes (and who is missing)?

e) To what extent does evidence apply to specific groups of children, including Aboriginal and/or Torres Strait Islander children and families, or those from culturally or linguistically diverse communities?

f) To what extent does the implementation of ECI frameworks/guidelines deliver positive outcomes for children and families? How is this demonstrated?

g) What are the identified barriers and facilitators to implementation of best practice frameworks/guidelines?

7.5 Design

This review used systematic review methods to identify evidence garnered through intervention or implementation research. We did not undertake a Cochrane review however, we followed the methods outlined in the Cochrane handbook for systematic reviews of interventions (30) and the Prisma reporting guidelines (31).

7.6 Sources of information

A systematic search using the keywords and thesaurus terms related to the inclusion criteria described in

Table 3 was developed for each of the following databases: PubMed (Medline Ovid), Web of Science, PsychINFO, CINAHL, ERIC. Keywords and thesaurus terms related to the following concepts were combined by the Boolean Operator 'AND':

- Population
- Disorder
- Intervention
- Qualifiers of intervention according to ECIA principles
- Outcome
- Setting of intervention

Keywords related to each jurisdiction framework were also combined with the above search by the Boolean operator 'OR'.

A librarian was consulted to create the specific search terms and to tailor it for each database. After consultation, the following databases were searched on 11 June 2024 for references back to 2014: Medline (Ovid), PsycINFO (Ovid), CINAHL, ERIC (Ebsco) using both thesaurus and keywords, as described in Appendix A. In addition, PubMed and Web of Science were searched using keywords only to retrieve e-publications and items not indexed in Medline. The Medline search strategy was adapted for use in other databases; the Medline search history is listed in Appendix A.

We also searched on Google Scholar (via Publish and Perish) targeted references related to each jurisdiction publication (See Appendix A). In addition, we sought relevant literature known to our partner SNAICC, specific to Aboriginal and Torres Strait Islander populations, as we anticipated this literature might be unavailable through usual searching approaches.

The structured searches on each database and Google Scholar were complemented by forward citation searching of the ECIA guidelines using Google Scholar (via Scite). Additional items were identified through hand-searching of reference lists of relevant retrieved articles.

Appendix A reports the process undertaken to perform the systematic search on each website and on Google Scholar, the search terms used, and provides the link to the permanent search strategy.

7.7 Document selection

Results of the structured searches on each database and on Google Scholar were collated together and imported to Endnote. Duplicates were removed in Endnote and then the retrieved references were imported to Covidence to support document selection and data extraction.

Inclusion/exclusion criteria

Consistent with systematic review methods the Population, Intervention, Comparison, Outcome, Research design (PICOR) framework was applied to the inclusion/exclusion criteria developed for each concept (e.g., population, intervention), sub-concept (e.g. children, parents), and other publication details including year published, language of publication, and jurisdiction (see

Table 3).

Inclusion/exclusion criteria were further refined through the article selection process, to improve reliability of selection between reviewers, and to focus the selection of reports more clearly on the outcomes of interest.

The detail and rational for inclusion/exclusion is as follows:

1. **Population:** There are three populations of interest.

   - Population 1 is children aged 0 to <9 years, identified as 'early childhood' in receipt of an intervention or approach (described in Intervention below) and occurring in the context described in item 6 below. Children of our population of interest will be those who qualify for ECI as they present with a developmental concern, delay or disability with or without a diagnosis.

- Population 2 is the parents/caregivers/extended family members and/or community (e.g., an Aboriginal or Torres Strait Islander community) of the children in population 1.

- Population 3 is the service providers and/or their staff who delivered early interventions, approaches or supports, as we seek to understand impacts of ECI approaches and interventions (e.g., new policy, professional development) on their outcomes (e.g., improved ECI framework implementation capacity, knowledge, skills, attitudes, workforce issues). Population 3 includes staff/professionals such as early childhood educators (educators for children with special needs), and allied health practitioners (speech pathologists, physiotherapists, occupational therapists, psychologists, social workers, dieticians, psychotherapists) delivering ECI (in their discipline roles and/or as key workers (ECIA, 2016)) in the jurisdictions. In Australia, this population may include staff/professionals or organisations working to deliver ECI and supports as part of NDIA/NDIS early childhood initiatives encompassing a range of roles (e.g., planners, managers, tribunal, support coordinators, support workers).

2. **Intervention.** The intervention was defined as
   - intervention procedures (or strategies) aimed to improve an outcome as listed in (4), such as child capacity or skills building programs, parent support/empowerment programs or

   - implementation of an early childhood intervention framework, guidelines, approaches or principles as defined by the jurisdictions, or

   - provision of education, service improvement/development for professionals or organisations

Studies on interventions that were not clearly related to ECI principles or guidelines were excluded. While it is understood that there are discipline specific interventions implemented to address specific goals for children with developmental concerns or disability, the scope of this review was limited to understanding the impact and effects of ECI principles, guidelines and approaches in practice. Medical and pharmacological interventions were also outside of the scope of this review.

3. **Comparator.** The review included studies with any comparator (i.e., waitlist control group or treatment as usual) or no comparator (e.g., pre-post intervention studies).

4. **Outcomes.** For this review, we were interested in a wide range of outcomes relevant to child, parent/caregiver, families, services and organisations. Working towards optimal outcomes for children in early childhood involves an understanding of the context and systems in which children live (i.e., their families and communities, their services and supports). Sub-categories of outcomes were sought for each population (i.e., child, parent/family, service/organisation).

5. **Research design.** Any study evaluating the effects or impacts of ECI approaches, including systematic reviews of intervention studies using experimental designs, randomised trials, pre-post or quasi-experimental studies, longitudinal follow up studies. Studies may use a variety of methods of data collection, including quantitative, qualitative or mixed, provided the focus is on the outcomes of the strategy, intervention or approach. For this review, documents

that report expert opinions, that did not provide data relevant to the outcomes of interest were excluded.

6. Context. We considered any interventions that were informed by the

- ECIA Best practice principles (Australia)

- National Aboriginal and Torres Strait Islander Early Childhood Strategy and Connected beginnings (Australia)

- He Pikorua practice framework (NZ)

- Recommended Practices in Early Intervention / Early Childhood Special Education (USA)

- European Agency for Special Needs and Inclusive Education

- European Association on Early Childhood Intervention Recommended Practices in Early Childhood Intervention

- Special Education Needs and Disability Code of Practice (UK)

- Access and Inclusion model (Ireland)

Because different jurisdictions may deliver 'intervention' in a broad range of settings, these were not specified and could include family homes, early learning centres, healthcare settings, community settings and so forth.

7. **Publication language.** We restricted peer reviewed literature to that published in English.

8. **Year of publication.** The search strategy was limited to the years 2014 - 2024 (current) to capture evidence published in the past decade. This decision is consistent with the fact that the publication of the ECIA guidelines in 2016, included evidence up to the year 2015. The current strategy aimed to update the knowledge since the publication of the guidelines and capture the most current evidence for the efficacy and effectiveness of early childhood intervention guiding principles.

Table 4 displays the document inclusion and exclusion criteria that were used to select sources of information.

Table 4. Document inclusion and exclusion criteria

Inclusion	Exclusion criteria
Population	
A sample or sub-sample with clear outcome data must include one of the groups as below	
Children • Children < 9 years with developmental concerns, delay or disability (with or without a specific diagnosis) Children < 9 years accessing ECI services. • First Nations children regardless of data about the presence of developmental concerns, delay or disability aged <9 years	Children • Aged 9 years or older • Samples including those <9 years as well as older children (where it is not possible to isolate the outcome data for children <9) • Studies focused on children without developmental concerns, delay or disability.
Parents/caregivers/family • parents, caregivers, family predominantly involved in raising children < 9 years with developmental concerns, delay or disability • First nations families/communities regardless of data about the presence of developmental concerns, delay or disability	Parents/caregivers • of children 9 and older • of children with no developmental disability or concern.
Professionals/service providers/ organisations • Any professional, service, or organisation that provides services in the field of ECI and support*. Examples include: • therapists, educators, support workers, • clinical settings, playgroups, kindergarten, school	Professionals/service providers/ organisations • any staff, professionals or organisations not working with the included Populations 1 and/or 2 and/or not providing early childhood intervention services.
Intervention	
Interventions or approaches that are directly related to: • implementation of early childhood intervention guidelines • implementation of key principles of early childhood interventions including: • family-centred and/or strengths-based practices • culturally responsive practices • inclusive and participatory practices • engaging the child in natural environments • collaborative teamwork practices (e.g. transdisciplinary, key worker, multi-disciplinary, team around the child) • capacity building practices (e.g., coaching, education, training) • evidence-based standards, accountability, and practice	Interventions or approaches that are: not related to ECI services. • single discipline therapies not related to an ECI service or an identified principle or guideline from the included jurisdictions • services or organisations that are not directly related to the implementation of the early childhood intervention principles from the included jurisdictions • medical procedures or intervention • pharmacological treatments

Inclusion	Exclusion criteria

- outcome based approaches (e.g., goal setting, evidence-based decision making, measurement/evaluation).
- Implementation of education or professional development activities related to ECI approaches

Comparator

Any or none	-

Outcomes

One or more of the outcomes of the study meet a criterion below.

Inclusion	Exclusion criteria
Children • Child health • Child development, • Skills development in the areas of social interaction, cognitive development, eating/feeding, motor skills, language/communication, self-care, sensory processing. • Participation • Wellbeing • Quality of life	Studies that do not report on child, parent/caregiver, family, or service/organisation outcomes listed in the inclusion criteria.

Parents / caregivers
- Satisfaction
- Empowerment
- Confidence or self-efficacy
- Skills and knowledge
- Health (physical/mental)
- Wellbeing
- Quality of life
- Family outcomes
- Family functioning

Professionals/workers change in
- Knowledge, attitudes, behaviours,
- Skills
- Competences
- Implementation behaviours/outcomes

Organisations
- Service structures, mandates, approaches

Research design

Inclusion	Exclusion criteria
• Systematic reviews published since 2019[a] of interventions/approaches will be preferentially sourced where most (>70%) of included studies were older than 2014 • Randomised trials • Quasi-experimental studies • Pre-test, post-test studies • Case series, • Single case experimental designs • Longitudinal follow up	• Systematic reviews published since 2019, in which most included studies were older than 2014 • Non-empirical research • Non-systematic literature review (i.e. narrative reviews) • Prevalence or risks studies • Measurement studies • Qualitative studies if the research objective is not to explore the outcome of an intervention or approach • Study protocols

Inclusion	Exclusion criteria
• Qualitative studies if the research objective is on the outcome of intervention/approach • Studies may employ quantitative, qualitative or mixed methods data collection approaches	• Consensus statements/guidelines • Corrigendum[b]
Context	
Early childhood or early learning settings, special education settings, healthcare, school or special schools or services delivering early intervention or support Recruitment of sample should have occurred in • Australia, New Zealand, Europe, USA, and UK or/and with Aboriginal and Torres Straits Islanders children and families.	Setting and/or countries other than those specified in the inclusion criteria.
Publication type	
• Peer reviewed full texts • Grey literature that otherwise meets criteria • Conference proceeding full paper	• Editorials, commentaries and opinion pieces • Abstracts • Letters • Blogs • Websites • Conference proceeding abstracts • Thesis dissertations
Year of publication	
Studies published between 2014-2024.	All not included in range of inclusion criteria.

Notes: **a** Where systematic reviews were available, and there were no newer publications on the topic, we used the review as the primary source of data. When they were available, and additional newer sources had been published we excluded the review and used all the relevant primary research to make meta-analysis possible. **b** Corrigendum (documents reporting errata in publications) are excluded at screening, but they were 'tagged, and retrieved if the main study was included to ensure correct data are extracted.

Document selection process

Following inclusion/exclusion criteria, pairs of reviewers independently determined eligibility at title/abstract and then full text as required. Consensus processes were used to address disagreements.

7.8 Data extraction and analysis

Due to the large volume of eligible reports retrieved through the search and data selection process, a tiered approach was taken to selecting studies for data extraction, as follows:

- Systematic reviews of the outcomes of intervention trials that otherwise met inclusion criteria were included for extraction if:
  - Published 2019 or later,
  - >70% of included papers published after 2014
  - Provided quantitative data on outcomes
  - No significant overlap of topic and included studies (where overlap occurred, the most comprehensive review was included)
- Randomised controlled trials
- Mixed methods studies that included qualitative data about the lived experience of approaches / interventions
- Qualitative studies of the lived experience of the strategies/ interventions/approaches and

The following types of studies were not included in the data extraction and synthesis but are included in the list of relevant studies providing evidence about ECI practices.

- Non-randomised comparison studies of ECI practices
- Single-case experimental designs and related experimental methods where the intervention in focus could be related to an early childhood approach/principle. Studies where the intervention in focus was a highly specific technique were excluded.
- Pilot studies and quasi-experimental studies.

Given the limited volume of research addressing the outcomes for First Nations children with developmental concerns, delay or disability, all studies (regardless of design) providing quantitative or qualitative outcome data from early childhood approaches were included and the included year range was extended to 2006. Findings from research focused on early childhood approaches for First Nations children and families are identified separately in reporting.

Data extraction process

Data were extracted using a customised data extraction form to identify and consistently extract elements of information required for data analysis and synthesis. This was done by one reviewer, and checked by a second reviewer, with consensus sought where disagreements/errors were identified.

Assessing risk of bias

Risk of bias of included randomised controlled trials was assessed using the Checklist to Evaluate a Report of a Non-pharmacological trial (CLEAR-NPT) (32). For qualitative studies, we used the Joanna Briggs risk of bias tool.[40] Assessment

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[40] https://jbi.global/critical-appraisal-tools

was undertaken by the pairs of data extractors and consensus processes used to come to agreement.

Data analysis

The included studies were summarised and tabulated to characterise the nature of the research that provides evidence about the effects of ECI (i.e., we describe country, research design, outcome focus) and populations included to address questions 2a. and 2d. To address question 2b, descriptions of approaches/interventions were summarised according to the Template for Intervention Description and Replication (TIDieR) reporting guide (34), where sufficient data were available.

To address question 2c, all included outcome variables were collated by their focus according to (i) who or what was measured (child, parent/caregiver, family or service); and (ii) the domain of interest which was subsequently categorised using the International Classification of Functioning Disability and Health (ICF) (WHO 2001) framework for outcomes related to people (i.e., body structures/function, activity, participation, environment or personal factors), and using the Environmental Chapters of the ICF to organise outcomes related to services, systems or policies (i.e., Products and technologies, Natural and human made environments, Support and relationships, Attitudes, and Service systems and policies). Mapping to ICF categories was undertaken at a broad level, based on the primary purpose of the outcome measure, not at an individual subscale or item level.

A list of measures used for each variable was collated, in preparation for a subsequent evaluation of validity, reliability, responsiveness and cultural relevance. To address question 2e. outcomes for children and families were summarised separately and collated according to the domain in focus.

Where a meta-analysis was available from an included systematic review, findings were summarised and reported. Where there was sufficient evidence from included randomised controlled trials, that a meta-analysis was valid – that is, there was homogeneity across multiple studies in relation to study purpose, population, comparisons, outcome and measures used – meta-analysis techniques were planned to be used to summarise effect sizes.

In making the decision regarding meta-analysis, the following rules were applied:

- Only RCTs were considered and
- A minimum of four studies met all the meta-analysis inclusion criteria (Myung, 2023; Ryan & Cochrane Consumers and Communication Group, 2016) and
- Interventions were the same or similar – that is,
  - targeting the same practice or principle (e.g., 'interventions' that aim to create an inclusive early childhood setting, or professional development to increase family centred approaches in practice; or a particular approach is investigated across four or more studies (e.g., ESDM))
  - at a similar age for the child and
- Population of interest is similar and
- Outcome variables were the same with effects measured in the same way, and data required are available in the published document/s.

- Timing of outcome measurement was considered, and where sufficient data available to do a meta-analysis, used to consider outcomes at different time points and

- No recent meta-analysis on the strategy/intervention available. Given the approach taken to this systematic review may have excluded meta-analysis for one or more reasons, a separate search for recent (past 5 years) meta-analyses was undertaken for approaches that otherwise met the inclusion criteria.

Data related to Question 2f, when reported in the included studies, was collated and deductively categorised as facilitators or barriers according to systems, practitioners, settings, children and families or other. Findings from all other qualitative or mixed methods studies were organised according to the intervention in focus and findings summarised.

The Leadership team and National and International Experts were invited to review the list of included studies and approach to article selection as part of an overall workshop discussing the background evidence and comparison of frameworks.

Creating a GRADE evidence profile

To support making clear recommendations about the application of evidence to practice, the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach (Guyatt et al., 2011) can be used. To be eligible for GRADE, research addressing a clearly focused research question with identified outcomes of importance is required. The GRADE profile provides information about the level of confidence in the evidence and a summary of the quality of the evidence based on risk of bias, inconsistency of evidence, indirectness, imprecision, publication bias, presence of a large effect, dose response and opposing bias and confounders (creating uncertainty). Creation of the GRADE evidence profiles are undertaken by 3-4 reviewers for each outcome, as the process involves making judgements about the evidence available.

Given the overarching question of this review involved evaluation of effects of a range of ECI practices, we sought to organise the research about the included interventions by practice approach. This was to allow us to consider the body of evidence according to GRADE on those approaches that addressed the same or similar practices (e.g., family centred practices, capacity-building, inclusion or participation as so forth).

Because a GRADE approach is not always suitable (Guyatt et al., 2011; Guyatt et al., 2008), we considered the following criteria in deciding whether it was reasonable to complete a GRADE profile for the included ECI approaches. Consistent with Guyatt et al recommendations, we did not complete GRADE on approaches where there was:

- **Limited Evidence:** In approaches where there was insufficient evidence, such as very few studies or studies with significant methodological flaws

- **Highly Context-Specific Situations:** In studies examining unique clinical or practice settings where the evidence does not generalise well to the ECI setting

- **Qualitative Evidence:** When only qualitative research was available on an approach as GRADE takes a quantitative approach

- **Intervention Complexity:** For interventions that were complex or multifaceted, where the effects were difficult to isolate or measure, as GRADE may not adequately reflect the evidence quality
- **Outcomes of importance to ECI:** Where interventions did not present outcomes addressing the overall aims of ECI related to ensuring children's meaningful participation in home, community and ECEC/school settings, and/or promoting building the capacity of caregivers to provide children with the opportunities to practice functional skills.

7.9 Results

Results of the search

The combined search strategies resulted in a pool of 7937 documents, and 5883 after duplicates were removed. The PRISMA flow diagram displays the outcome of the search (see Figure 2).

In total, 185 publications were identified as providing relevant data for ECI practices. Of these, 38 RCTs, 22 qualitative studies and 17 papers providing evidence about Aboriginal and Torres Strait Islander practices were included in the data extraction and summary of findings. **Table 21** (in the list of references) provides a full list of the retrieved papers.

Figure 2. PRISMA flow diagram for the systematic review

Identification of studies via databases and registers

Identification of studies via other methods

Identification

Records identified from*:
Databases (n = 7937)
ERIC (n = 1771)
Medline (n = 793)
PubMed (n = 580)
PsycInfo (n = 1060)
CINHAL (n = 1280)
WoS (n = 2453)
Google Scholar (n = 632)

Records removed *before screening*:
Duplicate records removed in Endnote (n = 1617) or in Covidence (n = 1068)
Records removed manually as duplicates (n = 35)

Records identified from:
Grey literature (n = 25)

Screening

Records screened
(n = 5876)

Records excluded**
(n = 4251)

Reports sought for retrieval
(n = 1625)

Reports not retrieved
(n = 181)

Reports sought for retrieval
(n = 25)

Reports not retrieved (n = 0)

Reports assessed for eligibility
(n = 1444)

Reports excluded: (n = 1260)
Wrong publication year (n = 77)
Wrong publication type (n = 384)
Wrong language (not English) (n = 35)
Wrong jurisdiction or context (n = 115)
Wrong research design (n = 312)
Wrong population included (n = 168)
Wrong intervention (n = 62)
Wrong outcomes measured (n = 106)

Reports assessed for eligibility
(n = 25)

Reports excluded:
Wrong publication type (n = 10)

Included

Studies included in review
(n = 185)

Figure format from: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

Characterising the available evidence

Figures 3 to 6 present a description of the volume of publications (n=185) according to year published (Figure 3), study design (Figure 4), children in focus (Figure 5), population in focus in the outcomes (Figure 6). Of note, there has been an increase in the volume of research published in the past 5 years (71.2% published between 2019 to 2024) in comparison to the preceding five years (2014 to 2018). Forty-four (23.8%) of the included studies were RCTs, and a further 57 (30.8%) were SCEDs, suggesting experimental designs comprise approximately 55% of the research designs investigating ECI practices. The population of interest in the included studies was predominantly children (rather than parents/caregivers or practitioners), and most studies (52.9%) were focused on children with, or showing early signs of, autism (commonly defined in the studies as 'at risk').
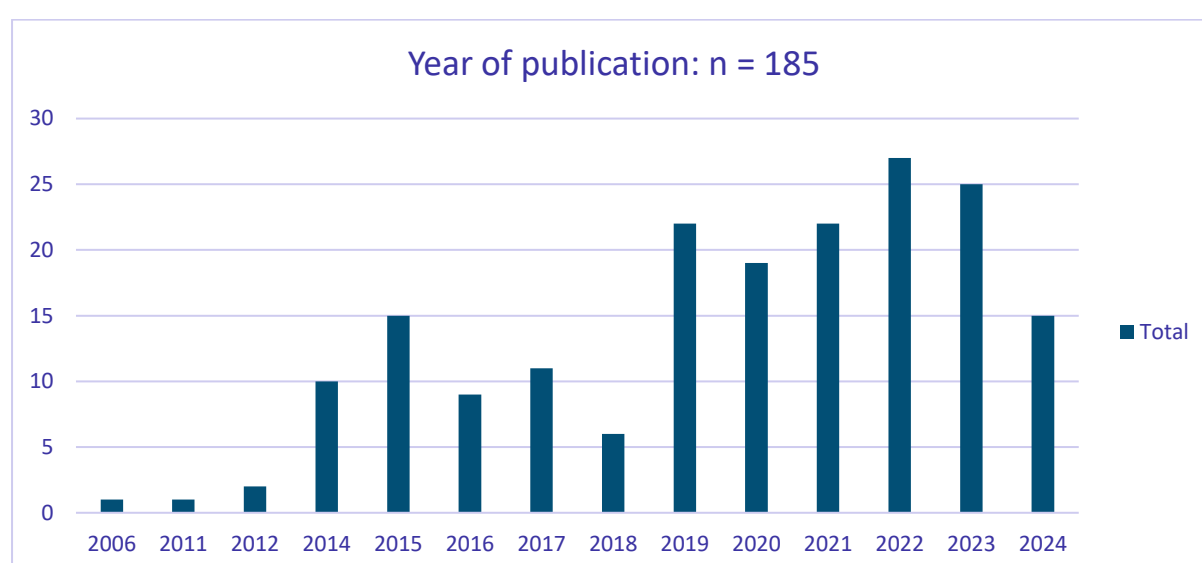
Figure 3. Number of publications by year of publication

Note. Two publications outside the included year range provide Aboriginal and Torres Strait Islander data. 70.3% of papers were published since 2019.
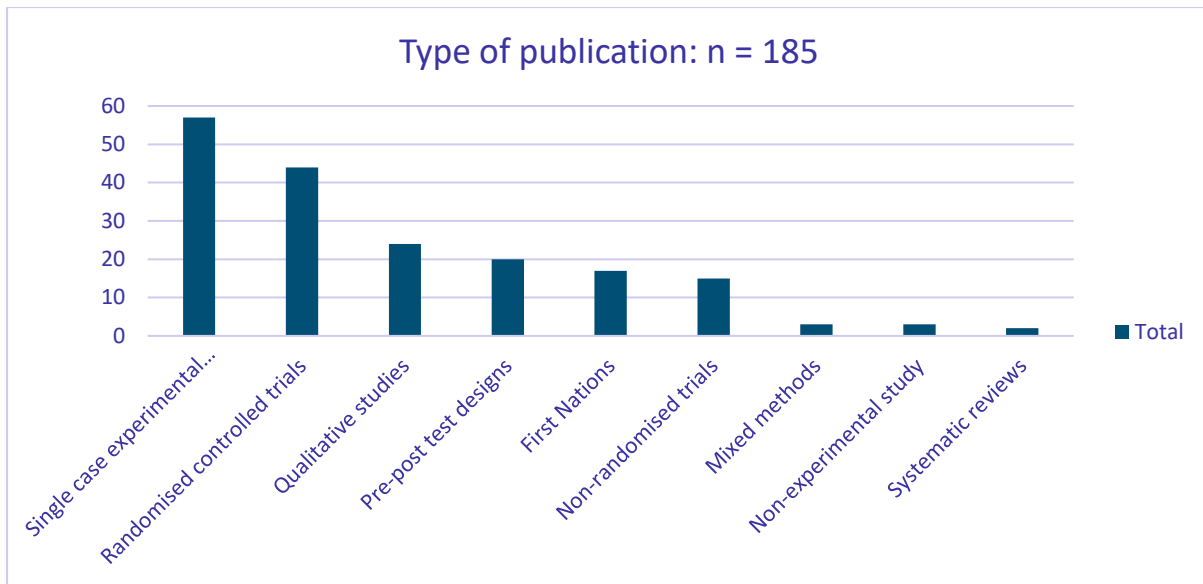
Figure 4. Study design of relevant papers.

Note. Papers reporting First Nations data involved a range of design and publication types, including government reports, program evaluations, consultations, qualitative or mixed methods research papers.
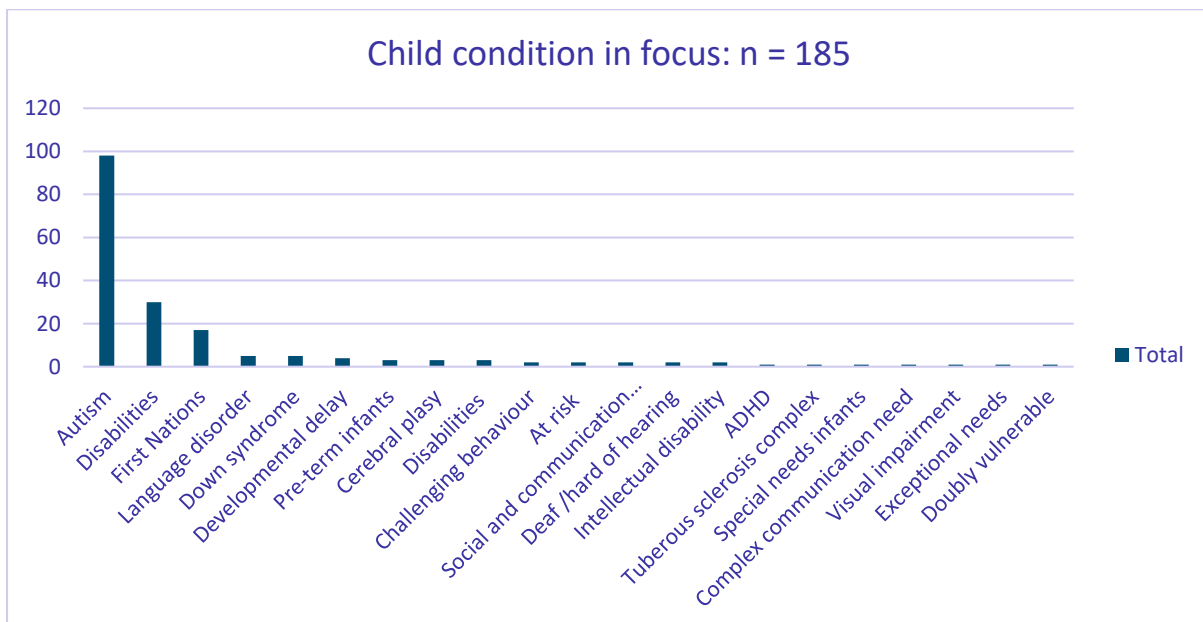
Figure 5. Child condition in focus in relevant publications

Note. Studies involving First Nations samples were categorized as such, given most included children without health conditions or included all young children in the community or setting. 52.9% of papers relate to children with autism or showing early signs of autism.
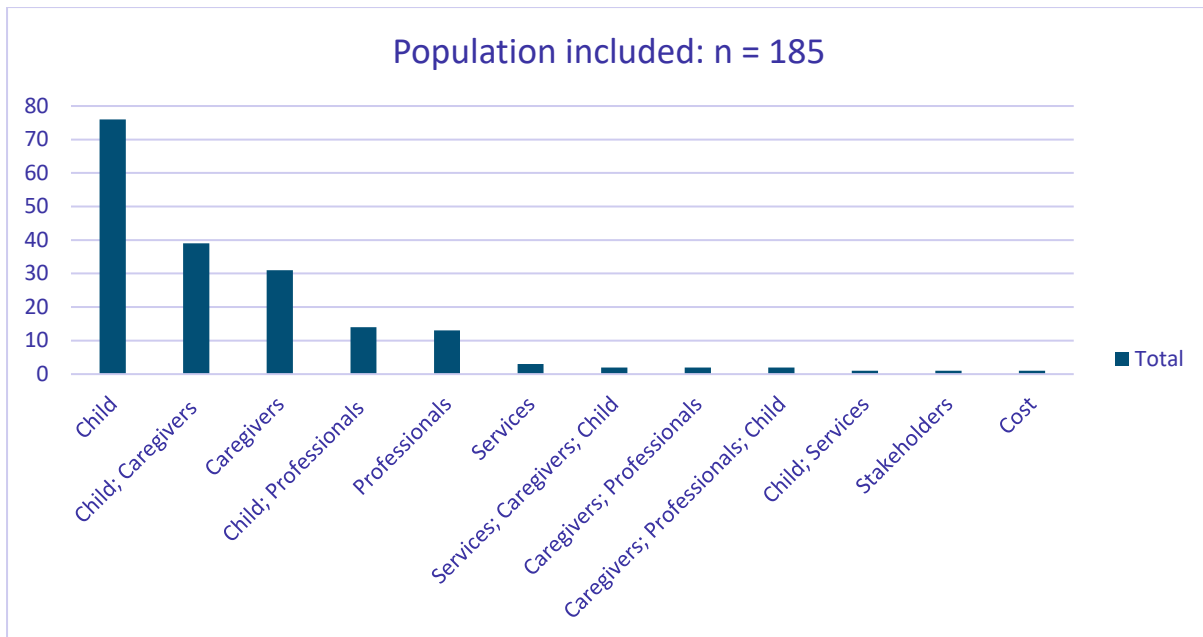
Figure 6. Populations in focus in the outcomes collected.

Note. Cost relates to a cost-effectiveness analysis within an RCT investigating effectiveness of communication-focused therapy for children with autism.

In the following sections, results are reported according to study design or focus, in the following order: systematic reviews, RCTs, qualitative studies, and evidence using a range of methods relevant to Aboriginal and Torres Strait Islander children, families and communities.

Outcomes from reviews and trials

Systematic reviews

There were five included systematic reviews, three of which are reported in the evidence relating to Aboriginal and Torres Strait Islander children and families (see Table 20) and two are reported here (see Table 4). Both included reviews focus on children with or showing early signs of autism. Alatar et al, 2023 examined effects of telehealth delivery of naturalistic developmental early interventions to improve children's social communication skills. Telehealth approaches focus on parent coaching – a capacity-building ECI practice. Alatar et al, did not include a meta-analysis.

Hampton et al, 2022 also reviewed the evidence for pre-emptive behavioural or developmental interventions delivered to children showing early signs of autism on child and/or parent/family outcomes. The core identified intervention approach in this review was teaching parents to respond to communication attempts and build joint engagement – a capacity building ECI practice.

Table 5. Characteristics and outcomes of systematic reviews

Author Year, Jurisdiction	Study purpose	Intervention/s in focus	Studies (k); children (n) included	Summary of findings
Alatar 2023 Search publication date range: 2000 – 2021 Included studies jurisdiction: US (n=3); Iceland (n=2); Canada (n=1); US/Canada (n=1); Singapore (n=1); NR (n=1)	To examine the literature on the effectiveness of telemedicine on children's social communication following parent-mediated naturalistic developmental early interventions. Child condition in focus: Autism.	Naturalistic developmental early intervention via telemedicine (comparisons = no treatment (including wait-list control) or treatment-as-usual)	Studies: RCTs and SCEDs (k =9) Children: 6 years or younger (n=86)	**Child outcomes (k = 9):** Overall conclusion was that there was little evidence for the effectiveness of telemedicine on social communication. - Four SCED studies reported no effect on child's social communication. - One SCED and one RCT reported no effect on child joint attention. - One study reported no effect on child imitation skills. One study reported improvements in imitation for both telemedicine and control groups. - Improvements in social attending during intervention and follow-up were reported in two SCED studies. - Improvements in functional communication were reported in two SCED studies and one RCT. **Parent outcomes (k=7 of 9):** Overall, studies reported high acceptability and satisfaction following remote parent training and coaching.
Hampton 2022 Search publication date range: 2008-2021 Included studies jurisdiction: Australia (n=1)	To understand the impact of pre-emptive interventions on family and developmental outcomes for infants and toddlers with a high likelihood for autism and to	Behavioural intervention, including Developmental (k=7) & NDBI (k=6) (comparison: business as usual or control)	Studies: RCTs & Quasi-experimental group comparisons (k = 13, reported in 17 publications) Children: 36 months or younger (n=715)	Findings suggest that parent-mediated interventions are associated with improved parent use of strategies, although these results do not translate into direct child developmental outcomes. Evidence that parents with the greatest implementation facilitate later improved communication outcomes for their children. **Child outcomes:** Across all developmental outcomes, meta-analyses found no evidence of effects in favour of the intervention. Subgroup analyses by outcome indicated also found no evidence of effects on

Author Year, Jurisdiction	Study purpose	Intervention/s in focus	Studies (k); children (n) included	Summary of findings
Canada (n=1) UK (n=1) US (n=10)	identify the pathways toward improving prodromal interventions. Child condition in focus: Autism.			- expressive language; - receptive language; - social communication; or - autism symptoms. A similar pattern was observed across other outcomes (socialization, joint attention, motor, developmental) although the number of studies reporting effects were too few for meta-analysis. Follow-up data collected 6–12months did not change the outcome. **Parent outcomes:** There was evidence of increased parent responsiveness and fidelity of delivering naturalistic strategies following intervention. These results appear to diminish or maintain (varied across studies) over time. Too few studies reported follow-up data to produce a stable average estimate of effects. Broader family outcomes (i.e. stress and efficacy) were infrequently reported but demonstrate a pattern of improvement immediately following intervention.

Note: k = number of studies; n = total number of children; RCT = randomised controlled trial; SCED = single case experimental design; US = Unites States; UK = United Kingdom.

Risk of bias of the two systematic reviews was low, as displayed in **Table 5**.

Table 6. Risk of bias of included systematic reviews

	JBI RoB Item Numbers										
Author Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Hampton 2022	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Alatar 2023	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🔵	🟧	🟩	🟩

Note: RoB = risk of bias; JBI = Joanna Briggs Institute, items from the quality assessment metric for systematic reviews:

1. Is the review question clearly and explicitly stated?

2. Were the inclusion criteria appropriate for the review question?

3. Was the search strategy appropriate?

4. Were the sources and resources used to search for studies adequate?

5. Were the criteria for appraising studies appropriate?

6. Was critical appraisal conducted by two or more reviewers independently?

7. Were there methods to minimize errors in data extraction?

8. Were the methods used to combine studies appropriate?

9. Was the likelihood of publication bias assessed?

10. Were recommendations for policy and/or practice supported by the reported data?

11. Were the specific directives for new research appropriate?

Colour coding: Red = No; Yellow = Unclear; Green =Yes; Pale blue = Not Applicable.

Characteristics of the randomised controlled trials

There were 44 RCTs identified in the search and 36 are included in the data extraction. Eight reviews were also included in the included systematic reviews and so were not extracted for separate RCT reporting. Table 6 provides an overview of the characteristics of the 36 included RCTs. Most studies originated in the US (n = 28), and no New Zealand based RCTs were found. Twenty-six of the RCTs involved children with autism. While studies may have reported culturally diverse samples, only one US-based RCT identified that the sample was predominantly children from cultural minorities. No other RCT reported outcomes pertinent to a particular culturally or linguistically diverse group or other identity that may increase systemic disadvantage due to intersectionality.

Thirty-two studies focused on outcomes for children. Six studies included a measure categorised at the ICF level of body function (e.g., executive functions, sleep, reach to objects), 31 included activity-level measures, three included participation-level measures and one included a quality-of-life measure. Consistent with the predominant inclusion of studies related to children with autism, communication and social skills were most commonly captured across the studies. Seven studies included measures that are used for diagnostic purposes in autism, reporting

outcomes related to changes in symptom severity and or diagnostic classification level.

The 14 studies that included parent/caregiver outcomes focused on reducing parent/caregiver stress and/or increasing wellbeing, building capacity and confidence in their parenting or to deliver an intervention, including building responsive interactions with their child. Two studies included measures of family-level quality of life. Four RCTs examined outcomes for professionals (measuring knowledge or strategy use, self-efficacy, wellbeing) and/or organisations (measuring resource use, absenteeism, costs).

Table 7. Study characteristics of included randomised controlled trials (n = 36)

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	**For parents**	**For practitioners or organisations**	
Vivanti 2019, Australia	Autism	Group-Early Start Denver Model - Specialised Setting (G-ESDM Specialised); Group-Early Start Denver Model - Inclusive Setting (G-ESDM Inclusive)	Vocalisations, Social Interaction, Imitation, Child Development, Adaptive Behaviour, Social Communication, Autism Symptom Severity, Restricted and Repetitive Behaviour	Parenting Stress		No
Whitehouse 2021, Australia	Autism	iBASIS-Video Interaction for Promoting Positive Parenting (iBASIS-VIPP); Services as Usual (SAU)	Autism Symptom Severity, Autism Diagnosis, Parent-Child Interactions, Child Development, Language, Adaptive Behaviour	Competence		No
Young 2023, Australia	Various disabilities	Pursuit of Wellbeing Program (PWP); Control		Mental Wellbeing, Satisfaction	Practitioners: Self-Efficacy, Job-Related Wellbeing, Perceived Support; Organisations: Staff Absenteeism	No
Sgandurra 2017, Europe (Italy, Denmark)	Preterm infants	CareToy; Standard Care	Motor Abilities, Motor Behaviours, Visual Acuity			No
Sgandurra 2019, Europe (Italy, Denmark)	Preterm infants	CareToy; Standard Care		Parenting Stress		No

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	For parents	For practitioners or organisations	
Hielkema 2020, Europe (Netherlands)	Infants at very high risk of Cerebral Palsy	COPing with and CAring for Infants with Special Needs (COPCA); Standard Infant Physiotherapy (SIP)	Functional Capabilities & Performance, Adaptive Behaviour, Quality of Life	Empowerment, Parenting Stress, Coping, Family Quality of Life		No
Byford 2015, United Kingdom	Autism	Preschool Autism Communication Trial Therapy (PACT); Treatment as Usual (TAU)	Autism Symptom Severity	Productivity Loss,	Organisations: Resource Use, Total Service Costs	No
Pickles 2016, United Kingdom	Autism	Preschool Autism Communication Trial Therapy (PACT); Treatment as Usual (TAU)	Autism Symptom Severity, Language, Restricted & Repetitive Behaviours, Parent-Child Communication, Adaptive Behaviour			No
Bagner 2023, United States	Developmental delay	Internet-delivered Parent-Child Interaction Therapy (iPCIT); Services as Usual (SAU)	Behavioural Problems, Observed Compliance	Parenting Behaviour, Discipline Approach, Parenting Stress		Yes, CALD, low SES
Barrett 2020, United States	Autism	Pivotal Response Intervention for Social Motivation (PRISM); Treatment as Usual (TAU)	Social Responsiveness, Total Words Spoken, Different Words Spoken, Length of Word Utterance	Caregiver Verbal Initiations		No
Buzhardt 2018, United States	At risk for language delay	Promoting Communication Tools for Accelerating Language in Kids + Making Online Decisions (PC TALK+MOD); Promoting Communication Tools for Accelerating Language in Kids (PC TALK)	Expressive Communication			No
Engelstad 2020, United States	Autism	Early Achievements for Education Settings (EA-ES); Business as Usual (BAU)	Social Communication Behaviours, Child Development			No
Estes 2014, United States	Autism	Early Start Denver Model (ESDM); Community		Parenting Stress, Competence		No

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	**For parents**	**For practitioners or organisations**	
Feuerstein 2020, United States	Autism, or delay in cognitive or language skills	Early Achievements for Child Care Providers (EA-CP); Instruction as Usual (IAU)	Child Language Development, Social Communication			No
Fidler 2021, United States	Down Syndrome	Study-Specific Early Intervention + Sticky Mittens; Study-Specific Early Intervention	Motor Behaviours			No
Gulsrud 2024, United States	At risk of autism	Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER); Parent Psychoeducation (PP)	Child Initiated Joint Engagement, Child Initiated Joint Attention Child Development, Play			No
Guthrie 2023, United States	Autism	Social Communication, Emotional Regulation, and Transactional Supports – Individual (SCERTS – Individual); Social Communication, Emotional Regulation, and Transactional Supports – Group (SCERTS – Group)	Social Communication, Child Development, Adaptive Behaviour, Autism Symptom Severity			No
Harrop 2017, United States	Autism	Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER); Psychoeducational Intervention (PEI)	Restricted and Repetitive Behaviours	Caregiver Response		No
Johnson 2023, United States	Autism	Sleep Parent Training (SPT); Parent Education Program (PEP)	Sleep, Clinical Improvement, Irritability	Parenting Stress, Parenting Self-Efficacy,		No
Kasari 2015, United States	Autism	Joint Attention, Symbolic Play, Engagement and Regulation (JASPER); Psychoeducational Intervention (PEI)	Joint Engagement, Joint Attention, Play, Language, Engagement in Classroom	Parenting Stress		No

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	**For parents**	**For practitioners or organisations**	
Klein 2021, United States	Autism	Naturalistic Developmental Behavioural Intervention + Video Feedback (NDBI+VF); Naturalistic Developmental Behavioural Intervention (NDBI)	Autism Symptom Severity, Child Development, Adaptive Behaviour			No
Landa 2024, United States	Developmental delay	Early Achievements for Child Care Providers - Professional Development (EA-CP PD); Business as Usual (BAU)	Social Communication, Enjoyment and Engagement During Book Sharing, Receptive Vocabulary, Expressive Vocabulary.		Practitioners: Provider Knowledge and Self-Efficacy	No
Morgan 2018, United States	Autism	Social Communication, Emotional Regulation, and Transactional Support (SCERTS); Autism Training Modules (ATM)	Engagement, Expressive Language, Receptive Language, Adaptive Behaviour, Social Communication Skills, Social Skills, Executive Functioning			No
Ostrosky 2024, United States	Various disabilities	Children in Action Motor Program for Preschoolers (CHAMPPS); Control	Gross Motor Skills, Motor Behaviours, Physical Activity, Social Behaviour			No
Panganiban 2022, United States	Autism	Joint Attention, Symbolic Play, Engagement and Regulation (JASPER); Curriculum as Usual (CAU)	Social Communication, Child Development			No
Roberts 2023	Autism	Responsive Strategies; Directive Strategies		Maintains strategy use; Satisfaction; Confidence		No
Rogers 2019a, United States	Autism	Parent-Early Start Denver Model Intensive (P-ESDM ++);	Child Development, Autism Symptom			No

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	For parents	For practitioners or organisations	
		Parent-Early Start Denver Model (P-ESDM)	Severity, Adaptive Behaviour.			
Rogers 2019b, United States	Autism	Early Start Denver Model (ESDM); Community Services (CS)	Adaptive Behaviour, Autism Symptom Severity, Child Development.			No
Rogers 2021, United States	Autism	Early Start Denver Model (ESDM); Early Intensive Behavioural Intervention (EIBI)	Autism Symptom Severity, Expressive Communication, Nonverbal Abilities, Receptive Language			No
Rollins 2021, United States	Autism	Pathways Early Autism Intervention (Pathways); Communication Group; SAU	Social Eye-Gaze, Adaptive Behaviour, Social Communication			No
Rollins 2023, United States	Autism	Pathways Early Autism Intervention (Pathways); Services as Usual (SAU)	Social Communication			No
Schertz 2018, United States	Autism	Joint Attention Mediated Learning (JAML); Community Services (CS)	Joint Attention in Parent-Child Interaction			No
Solomon 2014, United States	Autism	Play and Language for Autistic Youngsters (PLAY) Project; Community Services (CS)	Autism Symptom Severity, Parent-Child Interaction, Child Development, Communication, Socio-emotional Behaviour	Parenting Stress, Depression		No
Wainer 2021, United States	Autism	Reciprocal Imitation Training (RIT) - Online; Treatment as Usual (TAU)	Social Communication, Social Behaviour	Parenting Self-Efficacy, Family Quality of Life		No
Wetherby 2014, United States	Autism	Social Communication, Emotional Regulation, and Transactional	Social Communication, Autism Symptom Severity, Adaptive			No

Author Year, Jurisdiction	Disability	Intervention; Comparison	Outcomes			Relevance for specific groups
			For children	**For parents**	**For practitioners or organisations**	
		Supports - Individual (SCERTS - Individual); Social Communication, Emotional Regulation, and Transactional Supports - Group (SCERTS - Group)	Behaviour, Child Development			
Wilcox 2019, United States	Developmental speech and/or language impairment	The Teaching Early Literacy and Language (TELL) Curriculum; Business as Usual (BAU)	Oral Language Comprehension, Vocabulary, Phonological Awareness, Early Literacy			No

Characteristics of the interventions included in the trials

Table 7 describes the characteristics of the interventions examined within the 36 RCTs. The table is organised alphabetically by the name / acronym of the intervention under investigation. Where interventions were included as the comparison to another intervention, this is noted. While not all papers specifically described their approaches to tailoring the intervention, most interventions in focus (against which comparisons were made) met Hoffman et al's. definition: "…the intervention was planned to be personalised, titrated or adapted… [based on] participant's preference, skills, or situation" (Hoffman et al., 2014; p. 6).

Mapping of the intervention approach to ECI practices was based on the evidence reported in Part Two section 4 of the report, which links practice examples to ECI principles. We mapped according to what was reported by authors in describing the interventions/programs researched, as summarised below:

- ECI practices (based on eight identified principles):
    - Family centred practices, including
        - providing for parent/caregiver choice (e.g., parent- or child-driven goal setting or decision making),
        - purposeful partnering with parents/caregivers (e.g., role negotiation),
        - parent/caregiver peer support and network development,
        - individualised/tailored approaches based on family/child circumstances
    - Capacity-building and strength-based, including
        - Coaching
        - Strength-based approaches focused and building on what children can do
    - Culturally responsive and safe approaches
    - Inclusion and participation focused practices
        - Inclusion, e.g., pyramid models, multi-tiered systems of support, classroom or whole of setting, level approaches
        - Meaningful participation
    - Engaging children in natural environments, including delivering interventions in children's homes, ECEC settings, schools or other community settings
    - Collaborative teamwork
        - among professionals, e.g., transdisciplinary approaches
        - between professionals and families, e.g., team around the child, keyworker
    - Evidence-informed, e.g., when decision making explicitly brings together research, practitioner and family knowledge and values
    - ECI outcomes-based

- Whole of family level outcomes
- When child-level are focused on participation outcomes rather than skills

The mapping was based on the review of the content of the included papers and is intended to provide a high-level overview of the focus of research in relation to the ECI principles and practices identified in Section 4. Many of the defined practices have overlapping elements (e.g., identified family centred practices are evident in most of the other elements). Mapping was also based on the description in the included paper and may not provide evidence of how well or in what way any one practice was implemented.

In summary, family centred practices (related to individualisation, peer connections); capacity building of children (developing skills); capacity-building of parents/caregivers (primarily focused on their capacity to build capacity in their children); interventions delivered within natural environments (home and ECEC settings); and approaches to create inclusive environments in early school settings were most identified features. While many interventions were implemented in natural settings, few explicitly focused on enhancing inclusivity of the setting, nor on optimising the participation of children within those settings.

Table 8. Intervention characteristics

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
CareToy	**CareToy** is an intensive, customised, home-based, family-centred program, provided through remote management of a CareToy system. It consists of specific goal-directed activities, called scenarios, remotely planned by the clinical/rehabilitative staff according to specific infant needs and capabilities.	Sgandurra 2017, 2019	Rehabilitation staff	Remote individual	Home	30-45 mins daily, for 4 weeks	Family- centred (individualised); Capacity building (child); Natural env.
CHAMPPS	**Children in Action: Motor Program for Preschoolers** (CHAMPPS), includes 42 Universal Design for Learning–embedded lessons with suggestions for supporting school readiness skills.	Ostrosky 2024	Teachers	Face-to-face, Group	School, home	2-3 times weekly and 1 time weekly at home, for 21 weeks	Inclusion; Capacity-building (child); Natural env.
Communi-cation Interven-tion	Family-centred **multi-mode parent coaching** intervention that aims to enhance the family's capacity to promote their child's development. (comparison intervention to Pathways)	Rollins 2021	Intervention-trained clinical researchers.	Face-to-face, individual	Home	1.5 hours weekly, for 12 weeks	Family-centred (individualised); Capacity building (parent); Natural env.
COPCA	A **COPing with and CAring for infants with special needs** (COPCA) is a family-centred early intervention programme. COPCA aims to encourage the family's own capacities to stimulate the infant's motor development in naturally occurring parenting situations.	Hielkema 2020	Paediatric physiotherapists	Face-to-face, Individual	Home	Approximately 3 times monthly, for one year	Family-centred (individualised); Capacity-building (parent); Natural env.
Directive Strategies	A parent-mediated **language facilitation strategy** in which parents learn to (a) follow a specific sequence of prompting steps, (b) identify the accuracy of the child's response to the directive, and (c) reinforce child target responses and communicative attempts.	Roberts 2023	Caregiver trained by bachelor's or master's-level Interventionist	Face-to-face, individual	Home	1 hour weekly, for 8 weeks	Capacity-building (parent); Natural env.

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	(comparison intervention to Responsive strategies)						
EA-CP	**Early Achievements for Child Care Providers** (EA-CP) is a classroom-level intervention in which teachers implemented evidence-based instructional strategies, during an interactive book sharing activity.	Feuerstein 2020	Trained Teachers	Face-to-face, group	Classroom	3 times weekly, for approx. 5 months.	Capacity-building (child) Inclusion; Natural env.
EA-CP	**EA-CP** book-sharing instructional approach included targeting receptive and expressive vocabulary, story-related gesture imitation, and story-related communication initiation and responsiveness within peer-to-peer engagement opportunities to promote children's linguistic formulation for authentic communicative purposes.	Landa 2024	Teachers who had received the EA-CP PD including workshop and coaching	Face-to-face, group	Classroom	Participating children attended an average of 28.63 readings (SD = 6.99, range: 13–38)	Capacity-building (child) Inclusion; Natural env.
EA-CP PD	**EA-CP Professional development** (PD) focused on (i) training providers to implement NDBI strategies embedded within whole-group instruction; (ii) providing relevant implementation guidance, (iii) training providers to use illustrations and text in children's books as cues for how to plan engaging activities and deliver a high dosage of specific child language and communication antecedent cues.	As above	Expert coaches: a master's level early intervention specialist and two speech-language pathologists.	Face-to-face individual & virtual workshops	Online, Classroom	2 x 3-hour virtual workshop, 12 x 30 min coaching sessions in classrooms over average 16.16 weeks	Capacity-building (professional) Inclusion; Natural env.
EA-ES	**Early Achievements for Education Settings** (EA-ES) is a teacher-implemented naturalistic developmental behavioural intervention for preschoolers with autism targeting core social communication impairments.	Engelstad 2020	Trained Teachers	Face-to-face, group	Inclusive and/or self-contained classroom	Half-day classes for 3 or more times a week, for approximately 6 months	Capacity-building (child) Natural env.

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
EIBI	**Early Intensive Behavioural Intervention** (EIBI) is a 1:1 discrete trial teaching intervention. (comparison intervention to ESDM)	Rogers 2021	Trained Therapists and Caregivers	Face-to-face, individual	Home, sometimes daycare or preschool	1.5 hours (OR 2.5hrs) 10 times per week for 48 weeks, 1.5 hours per month of caregiver coaching	Capacity-building (parent); Natural env.
ESDM	**Early Start Denver Model** (ESDM) is a play-based, behavioural, naturalistic intervention that follows manualised procedures, and a parent coaching component.	Rogers 2021	Trained Therapists and Caregivers	Face-to-face, individual	Home (occasionally daycare or preschool)	1.5 hrs (OR 2.5hours) 10 times per week for 48 weeks, 1.5 hrs per month of caregiver coaching;	Capacity-building (child; parent); Participation (play); Natural env.
ESDM	**Early Start Denver Model** (ESDM) is a play-based, behavioural, naturalistic intervention that follows manualised procedures, and a parent coaching component.	Rogers 2019b	Trained Therapists and Caregivers	Face-to-face, individual	Home (occasionally daycare or preschool)	Phase 1: 1 hour weekly for 12 weeks of ESDM parent coaching; Phase 2: 20 hours weekly of 1:1 ESDM, and 2 hours every two weeks of ESDM parent coaching for 24 months	Capacity-building (child; parent); Participation (play); Natural env.
ESDM-Group Inclusive	**Group-Early Start Denver Model** (ESDM-G) is a group and play-based, behavioural, naturalistic intervention that follows manualised procedures. One adult delivers instruction to a group of 3-4 children.	Vivanti 2019	One trained therapist, early childhood educators received	Face-to-face, group	Inclusive Classroom	5hrs per day for 3 days weekly for one school year	Capacity-building (child; parent); Participation (play); Natural env.

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	education on intervention						
ESDM – Group Specialised	**Group-Early Start Denver Model** (ESDM-G) is a group and play-based, behavioural, naturalistic intervention that follows manualised procedures. One adult delivers instruction to a group of 3-4 children. (comparison to ESDM-G Inclusive)	As above	As above	As above	Specialised Classroom	As above	Capacity-building (child; parent); Participation (play); Natural env.
ESDM-Parent	**Parent Early Start Denver Model** (ESDM-P) is a parent-delivered intervention based on the ESDM, an evidence-based approach. A play-based, behavioural, naturalistic intervention that follows manualised procedures, and a parent coaching component.	Estes 2014	ESDM trained therapists	Face-to-face; individual	Centre-based	1 hour weekly, for 12 weeks	Capacity-building (child; parent); Participation (play);
ESDM-Parent	A **parent-delivered** intervention based on the **ESDM** (ESDM-P)**.** A play-based, behavioural, naturalistic intervention that follows manualised procedures, and a parent coaching component.	Rogers 2019a	Trained therapists	Face-to-face, individual	Clinic	1.5 hours weekly, for 12 weeks	Capacity-building (child; parent); Participation (play);
ESDM-Parent ++	A **parent-delivered** intervention based on the **ESDM.** A play-based, behavioural, naturalistic intervention that follows manualised procedures, and a parent coaching component. This enhanced version contained three additions: motivational interviewing, multimodal learning tools, and a weekly 1.5-h home visit. (comparison to ESDM-P)	As above	As above	As above	Clinic and home	1.5 hours weekly, for 12 weeks and 1.5 home visit weekly	Capacity-building (child; parent); Participation (play); Natural env.
iBASIS-VIPP	A version of the **Video Interaction for Promoting Positive Parenting program**, modified for the ASD prodrome. The	Whitehouse 2021	Speech and language therapist or	Face-to-face, individual	Home	10 sessions, fortnightly for 5 months and	Family-centred (individualised);

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	intervention focussed on social-communicative features parent-infant dyads and used videotaped interactions to show positive examples of infant behaviours and responsive caregivers. The therapist and caregiver also focussed on caregiver responses to the infant, caregiver self-reflection, and framing of interaction observations.		clinical psychologist			caregiver daily practice.	Capacity-building (parent); Natural env.
iPCIT	**Internet-delivered Parent-Child Interaction Therapy** (iPCIT) uses videoconferencing technology for therapists to provide live coaching of caregiver-child interactions. Caregivers use PRIDE skills (i.e., **Praising** child behaviour, **Reflecting** child statements, **Imitating** child play, **Describing** child actions, and showing **Enjoyment**) in response to appropriate child behaviour and avoiding questions, commands, and criticisms (or other undesirable behaviours).	Bagner 2023	Intervention-trained students	Remote individual	Home/ Online (telehealth)	1 - 1.5 hours weekly, for 20 weeks	Capacity-building (parent); Natural env.
JAML	**Joint Attention Mediated Learning** is a parent-implemented early intervention designed to promote social communication at the preverbal level. It leads autistic toddlers through the acquisition of three developmentally sequenced social communicative competencies: focusing on faces, turn-taking, and joint attention. Therapists work with parents to employ five mediated learning principles in interactions with their children: focusing, organizing and	Schertz 2018	Intervention Coordinator	Face-to-face, individual	Home	1 hour home visit and 30 minutes of daily parent-implemented practice, weekly for 32 weeks	Capacity-building (child; parent); Natural env.

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	planning, giving meaning, encouraging, and expanding.						
JASPER	**Joint Attention, Symbolic Play, Engagement and Regulation** (JASPER). The Baby JASPER classroom embedded sessions based on the principles of the Joint Attention Symbolic Play Engagement and Regulation (JASPER) intervention.	Gulsrud 2024	Therapist	Face-to-face, Group	Preschool classroom	3-hour sessions twice weekly, for 8 weeks (with 1 hour parent training included)	Capacity-building (child; parent); Natural env.
JASPER	**JAPER** is an empirically supported and manualised treatment for autistic toddlers and preschoolers with a primary focus on sustaining periods of joint engagement and increasing joint attention, gestures and play skills	Panganiba n 2022	Teachers (trained in intervention by researchers)	Face-to-face, Group	Preschool classroom	2-hour teacher training, then twice weekly coaching (Teacher coaching averaged 28 hours).	Capacity-building (child); Natural env.
JASPER	**JASPER** is an empirically supported and manualised treatment for autistic toddlers and preschoolers with a primary focus on sustaining periods of joint engagement and increasing joint attention, gestures and play skills.	Kasari 2015; Harrop 2017	Therapist	Face-to-face, individual	Clinic	30 minutes, twice a week, for 10 weeks	Capacity-building (child);
NDBI + VF	**Naturalistic Developmental Behavioural Intervention** (NDBI) + **Video Feedback** (VF) Group-based clinician-mediated intervention and individual video-feedback parent coaching sessions around the use of NDBI strategies, and additional (i) children and family speech therapy, occupational therapy, and social work sessions depending on Individualised Family	Klein 2021	Clinicians and Caregivers	Face-to-face and online, Group and individual	Centre, home	0.5 hrs of VF coaching, 6 hrs weekly of group-based clinician-led intervention,1-2 hrs weekly optional psycho-education and/or parent	Family-centred (individualised); Capacity-building (child; parent);

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	Service Plan, and (ii) parent psychoeducation and support groups.					support sessions	
PACT	**Preschool Autism Communication Trial** (PACT) Therapy is a developmental oriented, parent-directed and video-aided intervention moderated and matched to parental style, targeting social interactive and communication impairments.	Byford 2015; Pickles 2016	Parents Trained by Speech and Language therapists.	Face-to-face, Individual	Clinic and home	2.5 hours fortnightly for 6 months in clinic, and 0.5 hours of daily practice at home	Family-centred (individualised); Capacity-building (parent; child)
Pathways	**Pathways Early Autism Intervention** (Pathways) Family-centred multi-model parent coaching aiming at enhancing the family's capacity to promote their child's development.	Rollins 2023*; Rollins 2021**	Intervention-trained clinical researchers.	Face-to-face, individual	Home	1.5 hours weekly for 15 weeks *or 12 weeks **	Family-centred (individualised); Capacity-building (parent; child); Natural env.
PC TALK; PC TALK + MOD	**Promoting Communication Tools for Accelerating Language in Kids** (PC TALK) is a parent-mediated language promotion intervention that uses manualised evidence-based intervention strategies and supporting tools derived from milieu and responsive teaching techniques. For PC TALK MOD, home visitors used the **Making Online Decision** (MOD), an online adaptive intervention support system, to guide their use of the Early Communication Indicator (ECI) assessment.	Buzhardt 2018	Intervention-Trained Home Visitors (HV)	Online support for HV (in PC TALK +MOD), face-to-face, individual	Home (PC TALK); Home + Online (PC TALK + MOD)	Weekly	Family-centred (individualised); Capacity-building (parent; child); Natural env.; Evidence-informed
PEI	**Parent Early Intervention** (PEI) is a manualised intervention that provides individual education and support to parents of young children with autism. The content focused on autism and behavioural intervention information, including strategies for teaching new skills, improving social interaction and	Kasari 2015; Harrop 2017	Therapist	Face-to-face, individual	Clinic	60 minutes, once a week for 10 weeks	Capacity-building (parent)

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	communication, and managing other's responses to autism and parental stress. (comparison intervention to JASPER)						
PEP	A telehealth-delivered **parent education program** (PEP) covering a variety of autism-related topics, including one sleep-focused session. (comparison intervention to SPT)	Johnson 2023	Caregiver (Behaviour analyst or psychologist to coach)	Online, Individual	Home via Telehealth	5 X 1-hour sessions over 10 weeks	Capacity-building (parent); Natural env.
PLAY	**Play and Language for Autistic Youngsters** (PLAY) is a parent-mediated, developmental, home consultation program for young autistic children. Focused on social reciprocity and based on Greenspan and Wieder's Developmental, individual differences, and relationship-based (DIR) theoretical framework, PLAY includes coaching, modelling, video feedback and a tailored 'PLAY plan'.	Solomon 2014	Trained consultant	Face-to-face, individual	Home	3 hours monthly for 12 months + 2 hours per day parent-child play sessions	Family-centred (individualised); Capacity-building (parent; child); Natural env.; Participation (play)
PP	The AEPS curriculum was used to select therapeutic goals in the domains of social-communication, motor, cognitive, and adaptive skills. The parent education sessions focused on behaviour management, accessing services, and daily living skills (comparison intervention to JASPER)	Gulsrud 2024	Therapists	Group	Preschool classroom	3-hour sessions twice weekly, for 8 weeks (with 1 hour parent training included)	Capacity-building (parent); Natural env.
PRISM	**Pivotal Response Intervention for Social Motivation** (PRISM) is grounded in an antecedent-behaviour-consequence three-term contingency framework and incorporates Pivotal Response Treatment components. Clinicians model relevant	Barrett 2020	Trained therapist and PRISM trained parent	Face-to-Face, Individual	Home	10 hours weekly (8 with therapist, 2 with parent), for 6 months	Capacity-building (parent); Natural env.

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	techniques in 1:1 sessions and parents practice implementation.						
PWP	**Pursuit of Wellbeing** is a professional development training program for key workers, including 3 educational modules: i) the importance of, and barriers to, supporting parental mental wellbeing; ii) capacity building activities to increase confidence to support parental wellbeing; and iii) a toolkit of psychological resources for key workers to discuss well-being with parents during home visits	Young 2023	Psychologists	Face to face, Group	NR	One-day training session and resources	Capacity-building (professionals); ECI outcomes (whole of family – wellbeing)
Responsive Strategies	A **parent-mediated language facilitation** strategies for which the parents learn to: (a) identify the presence of a child communicative act, (b) interpret its function, and (c) generate a response that is appropriate to the context and the child's developmental level.	Roberts 2023	Caregiver trained by bachelor's or master's-level Interventionist	Face-to-face, individual	At home	1 hour, weekly for 8 weeks	Capacity-building (parent); Natural env.
RIT	Online **Reciprocal Imitation Training** (RIT) is an interactive parent-mediated website intervention teaching RIT via four modules. Each learning module includes an instructional video, quiz, interactive exercises, and at-home planning and reflection. The site allows users to track their individualized goals, and the time spent working on their goals.	Wainer 2021	Caregiver (online training via website and videoconference coaching)	Online, individual	Home via online platform	Coaching 1 per week + 4 modules over a period of 5 weeks (1 per week, 1 week to practice). Module/practice time duration not reported.	Capacity-building (parent); Natural env.
SCERTS	**Social, Communication, Emotional Regulation, and Transactional Supports** (SCERTS) Classroom Intervention (CSI) was developed for implementation by classroom personnel in the elementary setting. SCERTS is	Morgan 2018	Teachers	Group	Classroom	Coaching (initial 3-day training, then ongoing) was provided to guide teachers to implement	Capacity-building (professional); Natural env. Inclusion (classroom);

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	characterized as a Naturalistic Developmental Behavioral Intervention (NDBI). Teachers completed an initial training and received ongoing, direct coaching throughout the school year to support implementation of CSI within the classroom.					CSI for 25 hr per week across classroom activities	
SCERTS-Group	The **SCERTS** curriculum was applied through a low-intensity, evidence-based early social intervention (ESI) model. Groups of four to five families attended the sessions led by interventionists. Sessions included educational (1 per month, focussing on the SCERTS curriculum) or implementation-focussed playgroups (3 per month) that provided an opportunity for peer and interventionist support.	Guthrie 2023	Caregivers (trained by interventionists)	Face-to-Face, Group	Clinic	1 session per week for 9 months	Family-centred (peer connection) Capacity--building (parent);
SCERTS-Individual	The Individualised high-intensity **SCERTS** curriculum was applied through an evidence-based early social intervention model. Parents were trained to support their child's active engagement in natural environments via a 4-step collaborative coaching model. Parents were encouraged to embed evidence-based strategies for their child's individualised targets in everyday activities. (Comparison to SCERTS group, above)	As above	As above	Face-to-face, individual	Home, clinic, community	3 sessions/ week for 6 months; 2 sessions/week for 3 months. 20 hours/ week of at-home parent implementation	Family-centred (individualised); Capacity-building (parent); Natural env.
SCERTS-Group	The **SCERTS** curriculum was applied through a low-intensity, evidence-based early social intervention (ESI) model over 9 months. Groups of four to five families attended the sessions led by interventionists. Sessions included	Wetherby 2014	Caregivers (trained by interventionists)	Face-to-Face, Group	Clinic	1 hour session per week for 9 months plus 25+ hours per week of parent implementation.	Family-centred (peer connection) Capacity-building (parent);

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	educational (1 per month, focussing on the SCERTS curriculum) or implementation-focussed playgroups (3 per month) that provided an opportunity for peer and interventionist support.						
SCERTS-Individual	The Individualised high-intensity **SCERTS** curriculum was applied through an evidence-based early social intervention model. Parents were trained to support their child's active engagement in natural environments via a 4-step collaborative coaching model. Intervention sessions included reviewing and updates, practicing supports and strategies in 3 to 5 different activities, problem solving, and planning. Parents were encouraged to embed evidence-based strategies for their child's individualised targets in everyday activities. (Comparison to SCERTS group, above)	As above	As above	Face-to-face, individual	Home, clinic, community	3 sessions weekly for 6 months; 2 sessions weekly for 3 months. Total average of 3.33 hours/week, plus 25+ hours per week of parent implementation	Family-centred (individualised); Capacity-building (parent); Natural env.
SPT	**Sleep Parent Training** (SPT) is a manualised, telehealth delivered, behaviourally based sleep intervention for parents of young autistic children with sleep disturbances.	Johnson 2023	Caregiver (Behaviour analyst or psychologist to coach)	Telehealth, Individual	Home via Telehealth	5 X 1-hour sessions over 10 weeks	Capacity-building (parent)
Study Specific EI + Sticky Mittens	Parent-mediated **early intervention** (EI) enrichment technique aiming to facilitate reaching behaviour in pre-reaching infants using Velcro mittens.	Fidler 2021	Parents	Face-to-face, Individual	At home	5-10 minutes daily, for approximately 2 to 3 weeks	Capacity- building (parent; child)
TELL Curriculum	The **Teaching Early Literacy and Language** (TELL) curriculum is a tier one whole class curriculum that embeds incidental and explicit oral language and	Wilcox 2020	Teachers	Face-to-face, Group	Preschool/kindergarten	34 weeks of instruction during the school year	Capacity-building (child); Inclusion (school);

Name of approach	Description of approach	Author Year	Professional responsible	Delivery Mode	Where	When and frequency	ECI practices Mapping
	early literacy teaching practices within planned learning opportunities						

Notes: Data are displayed according to key characteristics of the TIDieR framework. NR = not reported; other acronyms are defined within the row of data.

Reported outcomes of the randomised controlled trials

To understand the extent to which ECI practices deliver positive outcomes, findings of the RCTs are reported in the following order: (i) child related outcomes at the level of body function (Table 8), child related outcomes measured using diagnostic instruments (Table 9); activity-level outcomes

Table 10), participation or quality of life outcomes (Table 11); (ii) parent/caregiver outcomes (Table 12); and practitioners or organisational outcomes (Table 13).

Outcomes for children

Domains of interest were defined broadly according to the ICF domains of body structure/function, activity and participation, and/or the environmental chapters. No outcomes were collected related to body structures. ICF Body Function outcomes related to Chapter 1, Mental functions; Chapter 2, Sensory functions and pain; or Chapter 7, Neuromusculoskeletal and movement-related functions. ICF Activity level outcomes were related to Chapter 1, Learning and applying knowledge; Chapter 2, General tasks and demands; Chapter 3, Communication; Chapter 4, Mobility; Chapter 5, Self-care; and Chapter 7, Interpersonal interactions and relationships.

Activity level outcomes related to Communication and General tasks and demands (e.g., behavioural outcomes) were the most reported. The remaining activity level outcomes were typically captured within developmental or adaptive behaviour assessments. Few if any studies provided consistent evidence of difference between groups in favour of the intervention under investigation. Many studies demonstrated within-group changes (i.e., improvements over time within one or both groups, but the benefit of the intervention under investigation over and above the control or comparison condition was not consistently demonstrated across child-related outcomes.

Three RCTs captured outcomes broadly defined as participation focused, and related to enjoyment, play and active engagement in the classroom. One study included a measure of infant/toddler quality of life. Again, no consistent evidence of the benefit of the intervention under investigation was demonstrated.

Table 9. Body function outcomes for children

Author Year	Intervention in focus (n)	Comparison (n)	Measure (variable)	Timepoints	Summary
CareToy					
Sgandurra **2017**	CareToy (n=24)	SAU (n=20)	Alberta Infant Motor Profile (AIMS)	Baseline; Post-intervention; Follow up (4 weeks)	Evidence of increased motor behaviour post-intervention for CareToy. No evidence of a difference between groups for motor behaviours at follow-up.
			Teller Acuity Cards (TAC)	As above	Evidence of increased visual acuity post-intervention for CareToy. No evidence of a difference between groups for visual at follow-up.
Children in Action Motor Program for Preschoolers (CHAMPPS)					
Ostrosky **2024**	CHAMPPS (n=29)	Control (n=22)	Actigraph	Baseline; Post-intervention	No between group data presented.
			CHAMPPS Observer Impression Scale (CHOIS)	As above	No between group data presented.
Social Communication, Emotional Regulation, and Transactional Support (SCERTS)					
Morgan **2018**	SCERTS (n=118)	ATM (n=79)	Behaviour Rating Inventory of Executive Functioning (BRIEF)	Baseline; Post-intervention (8 months)	Evidence of decreased executive functioning impairment for the SCERTS group.
Sleep Parent Training (SPT) cf Parent Education Program (PEP)					

Author Year	Intervention in focus (n)	Comparison (n)	Measure (variable)	Timepoints	Summary
Johnston 2024	SPT (n=36)	PEP (n=38)	Global Clinical Impression – Improvement Scale / Severity Scale (CGI-S, CGI-I)	Baseline; Mid-intervention (week 5); Post-intervention (week 10)	Evidence of increased clinical improvements for the SPT group at weeks 5 and post-intervention.
			Modified Simonds & Parraga Sleep Questionnaire MSPSQ – CSI (composite index)	As above	Evidence of increased sleep improvements for the SPT group at weeks 5 and post-intervention.
Early Intervention (EI) + Sticky Mittens					
Fidler 2021	Study Specific EI + Sticky Mittens (n=19)	Study Specific EI (n=18)	Videoed Coded Behaviour (VBC)	Baseline; Post-intervention	Evidence of improvements in motor behaviours (reduced latencies to contact objects, higher frequency of reach attempts and swats at objects) at post-intervention for Sticky Mittens group.

Note: N is baseline sample size; cf = compared with; ATM = Autism Training Modules; BAU = business as usual; PEP = Parent education program; SAU = services as usual; all other acronyms defined in the table row.

Table 10. Outcomes according to diagnostic measures

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Early Start Denver Model (ESDM)					
Rogers 2019b	ESDM (n=55)	CS (n=63)	Autism Diagnostic Observation Schedule (ADOS)	Baseline; Mid-intervention (3 months); Mid-intervention (15 months); post-intervention (27 months)	No evidence of a difference between groups for autism symptoms severity throughout the intervention period.
Rogers 2019a	ESDM-P ++ (n=21)	P-ESDM-P (n=24)	Autism Diagnostic Observation Schedule (ADOS-T)	Baseline; Post-intervention (12 weeks)	All groups showed improvements, but no evidence of a difference between groups for autism symptoms severity throughout the intervention period.
Rogers 2021	ESDM (n=42)	EIBI (n=45)	Autism Diagnostic Observation Schedule (ADOS-2) and Pervasive Developmental Disorder Behaviour Inventory (PDDB-I) [Composite]	Baseline; Mid-intervention (6 months); Post-intervention (12 months); Follow up (24 months)	All groups showed improvements. No evidence of a group by time effect, or group by time by site effect for autism symptom severity. Greater improvement resulting from higher intensity for one site only; other 2 sites, no time by intensity interaction effect on autism severity.
iBASIS - Video Interaction for Promoting Positive Parenting program					
Whitehouse 2021	iBASIS-VIPP (n=44)	SAU (n=45)	Autism Diagnostic Observation	Baseline; Post-intervention (6 months);	Evidence of decreased autism symptom severity from post-intervention to the 12-month and 24-month follow up assessments for the iBASIS-VIPP group.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
			Schedule (ADOS-2)	Follow up (12 months); Follow up (24 months)	
			Diagnostic and Statistical Manual of Mental Disorders (DSM-5	Follow up (24 months)	No evidence of a difference between groups for 3-level diagnostic classification of autism at follow-up. Evidence of reduced odds of autism classification at follow-up for the iBASIS-VIPP group, when covariates were considered in the analysis.

Preschool Autism Communication Trial Therapy (PACT)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Pickles 2016	PACT (n=77)	TAU (n=75)	Autism Diagnostic Observation Schedule (ADOS)	baseline; Post-intervention; Follow up (6 years)	Evidence of decreased autism severity scores over time for PACT group.

Play and Language for Autistic Youngsters (PLAY)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Solomon 2014	PLAY (n=64)	SAU (n=64)	Autism Diagnostic Observation Schedule (ADOS-G)	Baseline; Post-intervention (12 months)	Evidence of decreased autism diagnostic classification for PLAY group.

Social Communication, Emotional Regulation, and Transactional Support (SCERTS)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Guthrie 2023	SCERTS-Individual (n=42)	SCERTS-Group (n=40)	Autism Diagnostic Observation Schedule (ADOS/ADOS-2)	Baseline, Post-intervention (9 months), Follow up (18 months)	No evidence of a difference between groups for autism symptom severity (Social Affect and Restricted and Repetitive Behaviour) throughout the intervention.
Wetherby 2014	SCERTS-Individual (n=42)	SCERTS-Group (n=40)	Autism Diagnostic Observation Schedule (ADOS)	Baseline; Post-intervention (9 months)	Both groups showed improvement in Social Affect and worsening of Restricted, Repetitive Behaviour. No evidence of a difference between groups for autism symptom severity over time.

Note: N is baseline sample size; cf = compared with; BAU = business as usual; CS = Community services; SAU = services as usual; ATM = Autism Training Modules; all other acronyms defined in the table row.

Table 11. Activity-level outcomes for children

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
CareToy					
Sgandurra 2019	CareToy (n=24)	SAU (n=20)	Infant Motor Profile (IMP)	Baseline; Post-intervention; Follow up (4 weeks)	Evidence of increased motor abilities post-intervention for the CareToy group. No evidence of a difference between groups for motor abilities at follow-up.
Children in Action Motor Program for Preschoolers (CHAMPPS)					
Ostrosky 2024	CHAMPPS (n=29)	Control (n=22)	Social Skills Improvement System Rating Scales (SSIS-RS)	Baseline; Post-intervention	Both groups of children made significant improvements in social skills, specific to each group (CHAMPSS: empathy, engagement, self-control, and bullying behaviour, and overall; Control: assertion and overall). No between group data was presented.
			Test of Gross Motor Development 2 (TGMD-2)	As above	Evidence of increased gross motor skills post-intervention for the CHAMPPS group.
COPing with and CAring for Infants with Special Needs (COPCA)					
Hielkema 2020	COPCA (n=23)	SIP (n=20)	Vineland Adaptive Behaviour Scale (VABS),	Baseline Post-intervention (6 months); Follow up (12 months)	Evidence of increased adaptive behaviour, functional capabilities and performance in both groups over time, with no differences between groups.
			Pediatric Evaluation of	As above	

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Disability Index (PEDI)		

Early Achievements for Child Care Providers (EA-CP) – book sharing approach

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
Feuerstein 2020	EA-CP (n=24)	SAU (n=22)	Mullen Scales of Early Learning (MSEL)	Baseline; post-intervention	Evidence of significant effect of time for child development, but no significant interaction between time and group.
			Social Communication Assessment in Book Sharing (SABS)	Baseline; Post-intervention	Evidence of increased social communication over time for the EA-CP group.
Landa 2024	EA-CP (n=55)	BAU (n=60)	Social Communication Assessment in Book Sharing (SABS)	Baseline; Post-intervention	No evidence of a difference between groups in social communication throughout the intervention period. The result was the same, regardless of whether the children with and without delay were analysed as one or two separate groups.
			Expressive Vocabulary Assessment (EVA)	As above	Evidence of increased expressive vocabulary over time for the EA-CP group, when children with and without delay were analysed together either as same group or as two separate groups.
			Receptive One-word Picture Vocabulary Test (ROWPVT-4)	As above	No evidence of a difference between groups for receptive vocabulary throughout the intervention period. The result was the same, regardless of whether the children with and without delay were analysed as one or two separate groups.

Early Achievements for Education Settings (EA-ES)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
Engelstad 2020	EA-ES (n=15)	BAU (n=16)	Mullen Scales of Early Learning (MSEL)	Baseline; Post-intervention	Evidence of an increased nonverbal score for the EA-ES group when analysing the groups over time.
			Videoed Behaviour Coding (VBC)	Baseline; Mid-intervention; Post-intervention	Evidence of improvements in joint attention, gestures or spontaneous verbalisations from baseline to post-intervention within the EA-ES group. Evidence of improvements in joint attention for the EA-ES group when analysing the groups over time. No evidence of a difference in groups over time for directed gestures or spontaneous verbalisations.
Early Start Denver Model (ESDM)					
Rogers 2019b	ESDM (n=55)	CS (n=63)	Mullen Scales of Early Learning (MSEL),	Baseline; Mid-intervention (3 months); Mid-intervention (15 months); Post-intervention (27 months)	Evidence of improvements in language for the ESDM group. There was also heterogeneity among sites in the effect of the ESDM intervention. No evidence of a difference between groups for the child development outcome throughout the intervention period.
			Vineland Adaptive Behaviour Scale (VABS-II)	Baseline; Mid-intervention (3 months); Mid-intervention (15 months); Post-intervention (27 months)	No evidence of a difference between groups for adaptive behaviour throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
Rogers 2021	ESDM (n=42)	EIBI (n=45)	Videoed Behaviour Coding (VBC)	Baseline; Mid-intervention (6 months); Post-intervention (12 months); Follow up (24 months)	VBC and VABS-II were combined measures. Both groups of children made significant gains in expressive communication, nonverbal abilities, and receptive language regardless of assignment group.
			Vineland Adaptive Behaviour Scale (VABS-II),		
			MacArthur Bates Communicative Development Inventories (MB-CDI),	As above	No evidence of group by time, group by time by site, or time by intensity effects for variables measured by MB-CDI, PDBD-I, or MSEL.
			Pervasive Developmental Disorder Behavior Inventory (PDBD-I),	As above	
			Mullen Scales of Early Learning (MSEL),	As above	
Vivanti 2019	ESDM-G Specialised (n=22)	ESDM-G Inclusive (n=22)	Language Environment Analysis (LENA)	Baseline; Post-intervention	Evidence of improvements in vocalisations over time for both groups. No evidence of a difference in vocalisations between groups or between groups over time.
			Mullen Scales of Early Learning (MSEL),	As above	No evidence of a difference in nonverbal developmental quotient over time for either group, between groups or for a group by time interaction. Evidence of improvements in verbal developmental quotient in both groups over time.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
					No evidence of a difference in verbal developmental quotient between groups or for a group by time interaction.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	Evidence of improvements in adaptive behaviour over time for both groups.
					No evidence of a difference in adaptive behaviour between groups or for a group by time interaction.
			Modified Classroom Observation Schedule to Measure Intentional Communication (M-COSMIC)	As above	Evidence of improvements in social interactions over time for both groups.
					No evidence of a difference in social interactions between groups or for a group by time interaction.
			Repetitive Behaviour Scale Revised (RBS-R)	As above	No evidence of a difference in restricted and repetitive behaviour symptoms over time for both groups, between groups or for a group by time interaction.
			Social Communication Questionnaire (SCQ)	As above	Evidence of improvements in social communication over time for both groups.
					No evidence of a difference in social communication between groups or for a group by time interaction.
			Study-Specific Tool	As above	Evidence of improvements in imitation over time for both groups. No evidence of a difference in imitation between groups or for a group by time interaction.
Rogers 2019a	ESDM-P ++ (n=21)	ESDM-P (n=24)	Mullen Scales of Early Learning (MSEL)	Baseline; Post-intervention (12 weeks)	Both groups showed improvements.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			PATH Curriculum Checklist (PATH CC)	As above	No evidence of a difference between groups for both measures of child development (PATH CC and MSEL) throughout the intervention period.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	No evidence of a difference in adaptive behaviour between groups throughout the intervention period.
iBASIS - Video Interaction for Promoting Positive Parenting program					
Whitehouse 2021	iBASIS-VIPP (n=44)	SAU (n=45)	MacArthur Communicative Development Inventories (MCDI)	Baseline; Post-intervention (6 months); Follow up (12 months); Follow up (24 months)	Evidence of improvements in expressive vocabulary, receptive vocabulary, and gestures for the iBASIS-VIPP group.
			Manchester Assessment of Caregiver-Infant Interaction (MACI)	As above	Evidence of increased caregiver sensitive responsiveness at the 24-month follow up for the iBASIS-VIPP group. No evidence of a difference between groups for caregiver non-directiveness, infant attentiveness and infant positive affect over time.
			Mullen Scales of Early Learning (MSEL),	As above	No evidence of a difference between groups for receptive language, expressive language, and visual reception over time.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	No evidence of a difference between groups for adaptive behaviour over time.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
Internet-delivered Parent-Child Interaction Therapy (iPCIT)					
Bagner 2023	IPCIT (n=75)	SAU (n=75)	Child Behaviour Checklist (CBCL)	Baseline; Mid-intervention; Post-intervention; Follow up (6 month); Follow up (12 month)	All groups of children showed decreased child externalising problems over time. Evidence of a greater number of children who demonstrated clinically important change at post-intervention and 6-month follow up for the iPCIT group. No evidence of effects was found at the 12-month follow up.
			Dyadic Parent-Child Interaction Coding System (DPICS-4)	As above	Evidence of a greater rate of child compliance for the iPCIT group over time.
Joint Attention Mediated Learning (JAML)					
Schertz 2018	JAML (n=73)	CS (n=71)	Precursors of Joint Attention Measure (PJAM)	Baseline; Post-intervention; Follow up	Evidence of increased behaviours such as focusing on faces, turn taking, and responding to joint attention for the JAML group over time. No evidence of a difference between groups for initiation of joint attention over time.
Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER)					
Gulsrud 2024	JASPER (n=40)	PP (n=40)	Caregiver-Child Play Interaction (CCX)	Baseline; Post-intervention (8 weeks); Follow up (2 months)	Both groups showed improvements in child initiated joint engagement throughout the intervention. Evidence of a group by time interaction with the JASPER group showing improvements in child initiated joint engagement from baseline to post-intervention. Differences in child initiated joint engagement diminished by follow up. Both groups showed improvements in child initiated joint attention throughout the intervention.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
					No evidence of a difference for 'requesting skills' at post-intervention in either group, but evidence of a difference at follow up for both groups.
					Both groups showed improvements in highest play level observed and in play diversity over time.
					No evidence of a difference between groups for play level and diversity over time. Evidence of increased progress in play level at follow-up for the JASPER group.
			Early Social Communication Scale (ESCS)	As above	Evidence of group by time improvements in child initiated joint attention for the Standard Baby classroom group.
					Both groups improved in requesting skills from baseline to exit and from baseline to follow up.
					No evidence of a difference between groups for requesting skills over time.
			Mullen Scales of Early Learning (MSEL)	Baseline; Post-intervention (8 weeks)	Both groups showed improvements in child development throughout the intervention.
					No evidence of a difference between groups for child development.
Harrop 2017	JASPER (n=43)	PEI (n=43)	Caregiver-Child Play Interaction (CCX)	Baseline; post-intervention (10 weeks); follow up (6 months)	No evidence of a difference between groups for restricted and repetitive behaviours over time.
					At 6 months follow up, both groups showed significantly increased rates of RRBs immediately from post-intervention.
Kasari 2015	JASPER (n=43)	PEI (n=43)	Reynell Developmental Language Scales (RDLS)	Baseline; Post-intervention (10 weeks); Follow up (6 months)	Both groups showed improvements in language.
					No evidence of a difference between groups for language over time.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Videoed Behaviour Coding (VBC)	As above	Evidence of increased joint engagement with caregivers and with teachers in the classroom at post-intervention and follow up for the JASPER group.
					No evidence of a difference between groups for joint attention over time.
					Evidence of increased overall play and functional-play diversity at post-intervention for the JASPER group.
					No evidence of a difference between groups for overall play and functional-play diversity at follow-up.
					No evidence of a difference between groups for symbolic play over time.
Panganiban 2022	JASPER (n=33 students)	SAU (n=21 students)	Early Social Communication Scale (ESCS)	Baseline; Post-intervention	Both groups made gains in joint attention and requests over time. No evidence of a difference between groups for joint attention and requests over time.
			Mullen Scales of Early Learning (MSEL)	As above	Both groups made gains in expressive language and receptive language over time, although no differences between groups over time was found.
Naturalistic Developmental Behavioral Intervention (NDBI)					
Klein 2021	NDBI + VF (n=8)	NDBI (n=7)	Brief Observation of Social Communication Change (BOSCC)	Baseline; Post-intervention (6 months)	Both groups showed improvements in autism symptom severity over time. No evidence of a difference between groups for autism symptom severity throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Mullen Scales of Early Learning (MSEL)	As above	Both groups showed improvements in child development over time. No evidence of a difference between groups for child development throughout the intervention period.
			Vineland Adaptive Behaviour Scale (VABS)	As above	Both groups showed improvements in adaptive behaviour over time. No evidence of a difference between groups for adaptive behaviour throughout the intervention period.
Preschool Autism Communication Trial Therapy (PACT)					
Pickles 2016	PACT (n=77)	TAU (n=75)	Clinical Evaluation of Language Fundamentals (CELF-4)	Baseline; Post-intervention; Follow up (6 years)	No evidence of a difference between groups for the two language outcomes throughout the intervention period.
			Receptive One-word Picture Vocabulary Test (ROWPVT-4)	As above	
			Repetitive Behaviour Questionnaire (RBQ)	Follow up (6 years)	Evidence of reduced restricted and repetitive behaviour over time for the PACT group.
			Dyadic Communication Measure for Autism (DCMA)	Baseline; Post-intervention; Follow up (6 years)	Evidence of improvements in initiations and parent synchrony over time for the PACT group.
			Strengths and Difficulties	Follow up (6 years)	Evidence of reduced autism symptom severity over time for the PACT group.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Questionnaire (SDQ)		
			Vineland Adaptive Behaviour Scale (VABS)	Baseline; Post-intervention; Follow up (6 years)	Evidence of improvements in teacher-rated adaptive behaviour over time for the PACT group. No evidence of a difference between groups for parent-rated adaptive behaviour throughout the intervention period.
Pathways					
Rollins 2023	Pathways (n=35)	SAU (n=32)	Communication and Symbolic Behaviour Scales (CSBS)	Baseline; post-intervention	No evidence of a difference between groups for social communication throughout the intervention period, after adjusting for baseline symbolic behaviour.
Rollins 2021	Pathways (n=39)	SAU (n=27)	Vineland Adaptive Behaviour Scale (VABS-II)	Baseline; post-intervention (12 weeks)	Evidence of improvements in the social domain of adaptive behaviour measures over time for the Pathways group.
			Videoed Behavioural Coding (VBC) – social eye gaze	As above	Evidence of improvements in social eye gaze over time for the Pathways group, after adjusting for baseline MSEL.
			Videoed Behaviour Coding (VBC) – social communication	As above	No evidence of a difference between groups for social communication throughout the intervention period.
Rollins 2021	Pathways (n=39)	Communication (n=26)	Vineland Adaptive Behaviour Scale (VABS-II)	As above	Evidence of improvements in the social domain of adaptive behaviour measures over time for the Pathways group.
			Videoed Behaviour Coding	As above	Evidence of improvements in social eye gaze over time for the Pathways group, after adjusting for baseline MSEL.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			(VBC) – social eye gaze		
			Videoed Behaviour Coding (VBC) – social communication	As above	No evidence of a difference between groups for social communication throughout the intervention period.
Buzhardt 2018	PC TALK+MOD (n=66)	PC TALK (n=80)	Early Childhood Index (ECI)	Baseline; mid-intervention (monthly); post-intervention (12 months)	Both groups showed improvements in expressive communication over time. No evidence of a difference between groups for expressive communication throughout the intervention period. Evidence of greater growth in expressive communication over time for the MOD group.
Play and Language for Autistic Youngsters (PLAY)					
Solomon 2014	PLAY (n=64)	SAU (n=64)	Child Behavior Rating Scale (CBRS)	Baseline; post-intervention (12 months)	Evidence of improved child attention and initiation over time for the PLAY group.
			Functional Emotional Assessment Scale (FEAS)	As above	Evidence of improved socioemotional behaviour over time for the PLAY group.
			Maternal Behavior Rating Scale (MBRS)	As above	Evidence of improved parent-child interaction over time for the PLAY group.
			MacArthur Communicative Development Inventories (MCDI)	As above	Both groups showed improvements in communication outcomes over time, except for vocabulary. No evidence of a difference between groups for communication outcomes throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Mullen Scales of Early Learning (MSEL)	As above	No evidence of a difference between groups for child development throughout the intervention period
			Social Communication Questionnaire (SCQ)	As above	Both groups improved in parent-reported autism symptom severity over time. No evidence of a difference between groups for parent-reported autism symptoms severity throughout the intervention period.
Pivotal Response Intervention for Social Motivation (PRISM)					
Barrett 2020	PRISM (n=12)	TAU (n=9)	Videoed Behaviour Coding (VBC)	Baseline; post intervention (6 months)	Evidence of improvements in social responsiveness and length of word utterance at post-intervention for the PRISM group. No evidence of a difference between groups for total words and diversity of words spoken over time.
Reciprocal Imitation Training (RIT)					
Wainer 2021	RIT (n=10)	TAU (n=10)	Social Communication Checklist (SCC)	Baseline; post-intervention	Evidence of increased social communication at post-intervention for the RIT group.
Social Communication, Emotional Regulation, and Transactional Support (SCERTS)					
Morgan 2018	SCERTS (n=118)	ATM (n=79)	Expressive One-word Picture Vocabulary Test (EOWPVT)	Baseline; Post-intervention (8 months)	No evidence of a difference between groups for expressive language at the end of the intervention period.
			Peabody Picture Vocabulary Test (PPVT)	As above	No evidence of a difference between groups for receptive language at the end of the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Social Responsiveness Scale (SRS)	As above	Evidence of increased teacher-reported social communication skills at the end of the intervention period for the SCERTS group.
			Social Skills Rating System (SSRS)	As above	Evidence of increased social skills at the end of the intervention period for the SCERTS group.
					Evidence of decreased problem behaviour at the end of the intervention period for the SCERTS group.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	Evidence of increased communication skills at the end of the intervention period for the SCERTS group.
					No evidence of a difference between groups for daily living and socialisation skills at the end of the intervention period.
Guthrie 2023	SCERTS-Individual (n=42)	SCERTS-Group (n=40)	Communication and Symbolic Behaviour Scales (CSBS)	Baseline, Post-intervention 1 (9 months), Post-intervention 2 (18 months)	Evidence of improvement in social communication skills over time for the SCERTS-Individual group.
					No evidence of a difference between groups for speech and symbolic composite measures.
			Mullen Scales of Early Learning (MSEL)	As above	Evidence of improvements in receptive language for children who received the SCERTS-Individual intervention over time.
					No evidence of a difference between groups for visual reception or expressive language.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	Evidence of improvements in receptive, expressive language and daily living skills for the SCERTS- Individual group over time.
					No evidence of a difference between groups for socialisation or fine and gross motor skills throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
Wetherby 2014	SCERTS-Individual (n=42)	SCERTS-Group (n=40)	Communication and Symbolic Behaviour Scales (CSBS)	Baseline; Post-intervention (9 months)	Evidence of improvements in social composites over time for the SCERTS-Individual group.
			Mullen Scales of Early Learning (MSEL)	As above	No evidence of a difference between groups for visual reception throughout the intervention period. Evidence of improvement in receptive language over time for the SCERTS-Individual group.
			Vineland Adaptive Behaviour Scale (VABS-II)	As above	Evidence of improvement in communication, daily living and socialisation over time for the SCERTS-Individual group. No evidence of a difference between groups for motor skills.
Sleep Parent Training (SPT) cf Parent Education Program (PEP)					
Johnston 2024	SPT (n=36)	PEP (n=38)	Aberrant Behavior Checklist (ABC-I)	Baseline; Mid-intervention (week 5); Post-intervention (week 10)	No evidence of a difference between groups for irritability throughout the intervention period.
Teaching Early Literacy and Language (TELL) Curriculum					
Wilcox 2020	TELL (n=142)	BAU (n=147)	Curriculum-Based Measures (CBM)	Baseline; mid-intervention (weekly); post-intervention (6 weeks)	Evidence of improvements in expressive and receptive vocabulary, oral language and early literacy skills over time for the TELL group.
			Clinical Evaluation of Language Fundamentals (CELF-P2)	Baseline; post-intervention	No evidence of a difference between groups for oral language comprehension throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary of findings
			Phonological Awareness & Literacy Screening PreK (PALS-K)	As above	No evidence of a difference between groups for phonological awareness throughout the intervention period.
			Test of Preschool Early Literacy (TOPEL)	As above	No evidence of a difference between groups for definitional vocabulary and phonological processing throughout the intervention period.

Note: N= sample size at baseline for the group reported; cf = compared with; BAU = business as usual; CS = Community Services; SAU = services as usual; ATM = Autism Training Modules; PP = Parent program; PEI = Parent early intervention; PEP = Parent education program; all other acronyms defined in the table row.

Table 12. Participation and quality of life outcomes for children

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
PARTICIPATION OUTCOMES					
Early Achievements for Child Care Providers (EA-CP) – book sharing approach					
Landa 2024	EA-CP (n=55)	BAU (n=60)	Engagement and enjoyment of book reading and use of words	Baseline; Post-intervention	No evidence of a difference between groups for enjoyment and engagement during book sharing throughout the intervention period, when children with and without delay were analysed together either as same group or as two separate groups.
Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER)					
Gulsrud 2024	JASPER (n=40)	PP (n=40)	Structured Play Assessment (SPA)	Baseline; Post-intervention (8 weeks); Follow up (2 months)	Both groups improved in the highest level of play observed and in total play diversity, with no differences between groups.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Social Communication, Emotional Regulation, and Transactional Support (SCERTS)					
Morgan 2018	SCERTS (n=118)	ATM (n=79)	Classroom Measure of Active Engagement (CMAE)	Baseline; Post-intervention (8 months)	No evidence of a difference at the end of intervention on the measure of engagement by Instructional Participation composite. Evidence of increased Social Interaction composite at the end of treatment for the SCERTS group.
QUALITY OF LIFE OUTCOMES					
COPing with and Caring for Infants with Special Needs (COPCA)					
Hielkema 020	COPCA (n=23)	Standard Infant Physiotherapy (SIP) (n=20)	Infant Toddler Quality of Life Questionnaire (ITQL)	Baseline; Post-intervention (6 months); follow up (12 months)	Both groups showed similar infant quality of life at baseline and after 12 months. Evidence of improvements in some quality-of-life domains over time for the COPCA group.

Note: BAU = business as usual; ATM = Autism Training Modules; all other acronyms defined in the table row.

Outcomes for caregivers and families

Measures focused on caregivers rather than the family as a whole were most commonly applied within the 14 RCTs that included caregiver or family outcomes (see Table 12). Caregiver measures were commonly focused on the ICF Activity-level chapters, Chapter 1, Learning and acquiring knowledge, Chapter 2, General tasks and demands, Chapter 7, Interpersonal interactions and relationships. Parent/caregiver stress (General tasks and demands) was the most commonly measured outcome (n=7 studies). Other measures for caregivers addressed competence (n=3), satisfaction (n=2), or tapped use of strategies or interactions with children, or other aspects of psychological wellbeing. Three studies assessed family level outcomes addressing family empowerment, family impact and family quality of life.

Outcomes across studies were variable, with evidence of differences found between groups in ten of 23 outcomes measured for at least one time point. There was no consistent evidence of between-group benefits of the interventions in focus on parenting stress, except for CareToy (compared to services as usual), ESDM (in one study when compared to community services). In one study, the comparison intervention (Psychoeducational, compared to JASPER) was favoured.

Table 13. Outcomes for caregivers and families

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
CareToy					
Sgandurra 2019	CareToy (n=24)	SAU (n=20)	Parenting Stress Index (PSI)	Baseline; Post-intervention (4 weeks)	Evidence of decreased parenting stress for mothers in the CareToy group. No evidence of a difference between groups for fathers' parenting distress.
COPing with and Caring for Infants with Special Needs (COPCA)					
Hielkema 2020	COPCA (n =23)	SIP (n =20)	Family Empowerment Scale (FES)	Baseline; Post-intervention (6 months) Follow up (12 months)	No evidence of a difference between groups for empowerment throughout the intervention period.
			Nijmeegse Ouderlijke Stress Index Korte versie (NOSI-K)	As above	No evidence of a difference between groups for parenting stress throughout the intervention period.
			Utrechtse Coping List (UCL)	Baseline; Follow up (12 months)	No evidence of a difference between groups for coping throughout the intervention period.
			Centraal Bureau voor de Statistiek List - Quality of Life (CBS-list QoL)	Baseline; Post-intervention (6 months); Follow up (12 months)	Caregivers' quality of life at baseline and after 12 months, was similar in the two intervention groups. Evidence of improvements in caregivers' quality of life over time for the COPCA group.
Early Start Denver Model (ESDM)					
Vivanti 2019	ESDM-G Specialised (n=22)	ESDM-G Inclusive (n=22)	Parenting Stress Index (PSI)	Baseline; Post-intervention	Evidence of decreased parenting stress over time for both groups. No evidence of a difference in parenting stress between groups or group by time interaction.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Estes 2014	ESDM-P (n=44)	CS (n=38)	Questionnaire on Resources and Stress (QRS)	Baseline; Post-intervention (12 weeks)	Evidence of decreased parenting stress post-intervention for the P-ESDM group, after accounting for baseline score and ADOS Modified Social Affect scores.
			Parent Sense of Competence Scale (PSOC)	As above	No evidence of a difference between groups in parent competence, after adjusting for baseline scores.
iBASIS - Video Interaction for Promoting Positive Parenting program					
Whitehouse 2021	iBASIS-VIPP (n=44)	SAU (n=45)	Parent Sense of Competence Scale (PSOC)	Baseline; Post-intervention; Follow up (12 months); follow up (24 months)	No evidence of a difference between groups for efficacy, interest, and satisfaction over time.
Internet-delivered Parent-Child Interaction Therapy (iPCIT)					
Bagner 2023	iPCIT (n=75)	SAU (n=75)	Dyadic Parent-Child Interaction Coding System (DPICS-4)	Baseline; Post-intervention; Follow up (6 months); Follow up (12 month)	Evidence of increased positive parenting behaviour between groups and over time for iPCIT group.
			Parenting Practices Inventory (PPI)	As above	Evidence of decreased harsh and inconsistent discipline approach between groups and over time for iPCIT group.
			Family Impact Questionnaire (FIQ)	Baseline; Mid-intervention; Post-intervention; Follow up (6 month); Follow up (12 month)	Both groups showed a decrease in parenting stress. No evidence of a difference between groups for parenting stress over time.
Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER)					
Harrop 2017	JASPER (n=43)	PEI (n=43)	Caregiver-Child Play Interaction (CCX)	Baseline; Post-intervention (10 weeks); Follow up (6 months)	Evidence of increased and more successful caregiver response for JASPER group over time.
Kasari 2015	JASPER (n=43)	PEI (n=43)	Parenting Stress Index (PSI)	Baseline; Post-intervention (10 weeks); Follow up (6 months)	Evidence of decreased parenting stress for PEI group in child-domain stress post-intervention. No evidence of a difference between groups in parent-domain stress post-intervention.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
					No evidence of a difference between groups in child- and parent-domain stress at follow-up.

Play and Language for Autistic Youngsters (PLAY)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Solomon 2014	PLAY (n=64)	SAU (n=64)	Parenting Stress Index (PSI)	Baseline; Post-intervention (12 months)	Evidence of a difference over time in parenting stress. No evidence of a difference between groups over time in parenting stress.
			Center for Epidemiologic Studies Depression Scale (CES-D)	As above	Evidence of improvements in parents' depression (score and likelihood of diagnosis) over time for PLAY group.

Pivotal Response Intervention for Social Motivation (PRISM)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Barrett 2020	PRISM (n=12)	TAU (n=9)	Videoed Behaviour Coding (VBC)	Baseline; Post-intervention (6 months)	No evidence of a difference between groups in frequency of parent social bids/initiations.

Pursuit of Wellbeing (PWP)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Young 2023	PWP (n=42)	Control (n=NR)	Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)	Baseline; Follow up (3 months); Follow up (8 months); Follow up (12 months).	No evidence of a difference in parental mental wellbeing over time.
			Study-Specific Tool	As above	No evidence of a difference in satisfaction over time.

Responsive/Directive Strategies

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Roberts 2023	Responsive Strategies (n=55)	Directive Strategies (n=56)	Study-Specific Tool	Baseline; Mid-intervention; Post-intervention.	No evidence of a difference between groups in maintenance of strategy.
			Study-Specific Tool	Baseline; Post-intervention; Follow up	No evidence of a difference between groups in caregiver's confidence and satisfaction at postintervention or follow up.

Reciprocal Imitation Training (RIT)

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
Wainer 2021	RIT (n=10)	TAU (n=10)	Early Intervention Parenting Self-Efficacy Scale (EIPSES)	Baseline; Post-intervention	Evidence of a difference between groups at post-intervention for parenting self-efficacy in favour of Online RIT.
			Beach Center Family Quality of Life Scale (FQOL)	As above	No evidence of a difference between groups for family QoL.
Sleep Parent Training (SPT)					
Johnston 2024	SPT (n=36)	PEP (n=38)	Parenting Stress Index (PSI)	Baseline; Mid-intervention (5 weeks); Post-intervention (10 weeks)	No evidence of a difference between groups for parenting stress.
			Parent Sense of Competence Scale (PSOC)	As above	Evidence of improvements in parenting self-efficacy over time the SPT group.

Note: N= sample size at baseline for the group reported; cf = compared with; BAU = business as usual; SAU = services as usual; CS = Community services; ATM = Autism Training Modules; other acronyms defined in the table row.

Outcomes for practitioners and organisations

Four RCTs were included that reported outcomes for practitioners and/or organisations (see **Table 13**). Professional outcomes related to knowledge, self-efficacy or confidence to deliver an intervention, job-related wellbeing and perceived support from supervisors. Organisational outcomes related to service use, staff absenteeism and costs.

The evidence available from RCTs on professional and organisational outcomes is very limited. One study demonstrating improved knowledge following professional development related to a specific intervention (shared book reading), and one study demonstrating increased perceptions of supervisor support for practitioners implementing a parent/caregiver wellbeing intervention.

Table 14. Outcomes for practitioners and organisations

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
PRACTIONER-LEVEL OUTCOMES					
EA-CP professional development (EA-CP PD)					
Landa 2024	EA-CP PD (n=55)	BAU (n=60)	Knowledge and Self-efficacy (study specific tool)	Baseline; Post-intervention	No evidence of a difference between groups for providers' knowledge and self-efficacy from pre- to post-training between groups. Evidence of increased providers' knowledge and self-efficacy group by time, for the EA-CP group.
Pursuit of Wellbeing (PWP)					
Young 2023	PWP (n=42)	Control (n=NR)	Key Worker Confidence Scale (KWC)	Baseline; Follow up (3 months); Follow up (8 months); Follow up (12 months).	No evidence of a difference between groups for self-efficacy throughout the intervention period.
			WARR Scale of Job-related Affective Well-being (WARR)	As above	No evidence of a difference between groups for job-related affective wellbeing throughout the intervention period.
			Eisenberg's Perceived Supervisor Support (PSS)	As above	Evidence of improvements in perceived supervisor support for the first two items (a. 'Goals and values', and b. 'Help is available') were observed throughout the intervention period for all staff and for analyses restricted to key workers.
ORGANISATION-LEVEL OUTCOMES					
Preschool Autism Communication Trial Therapy (PACT)					
Byford 2015	PACT (n=74)	TAU (n=69)	Carer Service Use Schedule (CA-SUS); Child and Adolescent	Baseline; Mid-intervention (7 months);	No evidence of a difference between groups for carer service use throughout the intervention period.

Author Year	Intervention in focus	Comparison	Measure	Timepoints	Summary
			Service Use Schedule (CARER-SUS)	Post-intervention (13 months)	
			Service Costs	As above	Evidence of increased service costs over time for the PACT + TAU group compared with TAU.
Pursuit of Wellbeing (PWP)					
Young 2023	PWP (n=42)	Control (n=NR)	Study-specific tool	Baseline; Post-intervention	No evidence of a difference between groups for staff absenteeism throughout the intervention period
			Study-specific tool	As above	No difference between groups for health services used throughout the intervention period.

Note: N= sample size at baseline for the group reported; cf = compared with; BAU = business as usual; SAU = services as usual; ATM = Autism Training Modules; all other acronyms defined in the table row.

Risk of bias assessment for the included RCTs is summarised in Table 14. Studies are ordered from newest to oldest.

Table 15. Risk of bias in included RCTs

Author Year	_____ CLEAR-NPT RoB Item Numbers														
	1	2	3	4	5	6	6.1.1	6.1.2	7	7.1.1	7.1.2	8	8.1	9	10
Landa 2024	green	green	yellow	green	green	pink	green	green	pink	green	green	yellow	green	green	green
Ostrosky 2024	green	green	green	green	green	pink	yellow	green	pink	green	yellow	pink	green	green	green
Gulsrud 2024	green	green	green	yellow	green	pink	green	red	pink	red	green	green	lightblue	green	green
Bagner 2023	green	yellow	green	green	green	pink	yellow	red	pink	yellow	yellow	green	lightblue	green	yellow
Johnson 2023	green	green	green	green	green	pink	yellow	green	pink	yellow	green	green	lightblue	green	green
Rollins 2023	green	green	red	yellow	red	pink	yellow	green	green	yellow	green	green	lightblue	green	red
Roberts 2023	green	green	yellow	yellow	green	pink	yellow	green	green	green	green	yellow	green	green	green
Young 2023	green	green	green	green	yellow	pink	green	yellow	pink	green	yellow	pink	red	green	green
Guthrie 2023	green	red	green	yellow	green	pink	yellow	green	green	yellow	green	green	lightblue	green	green
Panganiban 2022	green	yellow	green	green	yellow	pink	green	green	green	green	green	green	lightblue	yellow	yellow
Whitehouse 2021	green	red	green	green	green	pink	yellow	green	pink	yellow	green	green	lightblue	green	green
Rollins 2021	green	green	green	green	green	pink	green	green	pink	green	green	yellow	green	green	yellow
Rogers 2021	green	yellow	red	green	green	pink	yellow	green	pink	yellow	green	pink	green	green	green
Klein 2021	green	green	green	green	green	pink	green	green	green	green	green	green	lightblue	green	green
Fidler 2021	green	yellow	green	green	green	pink	green	green	green	green	green	green	lightblue	green	red
Wainer 2021	green	yellow	yellow	yellow	green	pink	green	red	pink	green	green	yellow	green	green	yellow
Barrett 2020	green	yellow	yellow	green	green	pink	yellow	green	pink	yellow	green	green	lightblue	green	green
Hielkema 2020	green	green	green	green	red	pink	yellow	red	red	yellow	red	green	lightblue	green	green
Feuerstein 2020	green	red	red	green	green	red	green	green	red	green	green	green	lightblue	green	yellow
Engelstad 2020	green	green	green	green	green	yellow	red	green	yellow	red	green	green	lightblue	yellow	red
Wilcox 2019	yellow	yellow	green	green	yellow	pink	green	green	pink	green	yellow	pink	yellow	green	yellow
Vivanti 2019	green	yellow	green	green	green	pink	green	green	pink	green	green	green	lightblue	green	green
Rogers 2019	green	red	red	yellow	green	pink	green	red	pink	green	red	green	lightblue	green	green
Rogers 2019	green	green	green	green	green	pink	green	green	red	pink	green	green	lightblue	green	green
Sgandurra 2019	green	yellow	green	yellow	red	pink	green	green	pink	green	green	pink	red	green	green
Buzhardt 2018	yellow	red	green	green	green	pink	green	green	pink	green	green	red	yellow	green	yellow

Study	1	2	3	4	5	6	6.1.1	6.1.2	7	7.1.1	7.1.2	8	8.1	9	10
Schertz 2018	Orange	Orange	Orange	Green	Green	Pink	Green	Red	Pink	Orange	Red	Green	Pale blue	Green	Green
Morgan 2018	Green	Red	Green	Orange	Green	Pink	Orange	Red	Pink	Orange	Red	Green	Pale blue	Green	Green
Sgandurra 2017	Green	Orange	Green	Orange	Green	Pink	Green	Green	Pink	Green	Green	Green	Pale blue	Green	Green
Harrop 2017	Green	Green	Green	Green	Red	Pink	Green	Pink	Green	Green	Green	Green	Pale blue	Green	Orange
Pickles 2016	Green	Orange	Orange	Orange	Red	Pink	Green	Pink	Green	Green	Green	Green	Pale blue	Green	Green
Kasari 2015	Green	Green	Green	Green	Red	Pink	Green	Pink	Green	Green	Green	Green	Pale blue	Green	Orange
Byford 2015	Green	Green	Green	Green	Green	Pink	Green	Pink	Green	Green	Green	Green	Pale blue	Green	Green
Solomon 2014	Green	Green	Green	Green	Green	Pink	Orange	Green	Pink	Orange	Green	Green	Pale blue	Green	Green
Wetherby 2014	Green	Orange	Green	Orange	Green	Pink	Green	Pink	Green	Green	Green	Green	Pale blue	Green	Green
Estes 2014	Orange	Orange	Orange	Orange	Green	Pink	Red	Orange	Pink	Red	Orange	Pink	Red	Green	Green

Notes: RoB = risk of bias; CLEAR-NPT = Checklist to Evaluate a Report of a Nonpharmacological Trial and item numbers relate to the quality assessment metric items as below:

1. Was the generation of allocation sequences adequate?

2. Was the treatment allocation concealed?

3. Were details of the intervention administered to each group made available?

4. Were care providers' experience or skill in each arm appropriate?

5. Was participant adherence assessed quantitatively?

6. Were participants adequately blinded?

> 6.1.1 If participants not blinded, were all other treatments and care (i.e., cointerventions) the same in each randomized group?

> 6.1.2 If participants were not blinded, were withdrawals and lost to follow-up the same in each randomized group?

7. Were care providers or persons caring for the participants adequately blinded?

> 7.1.1. If providers not blinded, were all other treatments and care (i.e., cointerventions) the same in each randomized group?

> 7.1.2. If providers were not blinded, were withdrawals and lost to follow-up the same in each randomized group?

8. Were outcome assessors adequately blinded to assess the primary outcomes?

> 8.1. If outcome assessors were not blinded, were specific methods used to avoid ascertainment bias (systematic differences in outcome assessment)?

9. Was the follow-up schedule the same in each group?

10. Were the main outcomes analyzed according to the intention-to-treat principle?

Colour code: Red = 'No' or 'No, although item is feasible'; Pink = 'No, not feasible'; Orange = 'Unclear'; Green = 'Yes'; and Pale blue = 'Not Applicable'.

Overall, the quality of the included RCTs is moderate to high. It is common in non-pharmacological interventions that blinding of assessors (item 6) and interventionists (item 7) is not possible, and approximately 50% of the RCTs took appropriate steps to account for these risks (items 6.1.1, 6.1.2, 7.1.1, 7.1.2). Common risks that could be managed better include the lack of concealment of randomisation (item 2), provision of adequate description of all interventions delivered (item 3), participant adherence to the interventions delivered (item 5) and intention to treat analysis (item 10).

Meta analysis

Based on the criteria for including meta-analyses, none were conducted. Key rationale for not undertaking a meta-analysis included that, with the exception of ESDM, fewer than four studies of the same intervention were available that also collected data on the same outcomes (SCERTS n=3; Pathways n = 2; JASPER n = 2, remainder <2). For ESDM, an existing systematic review with meta-analysis was available (Wang et al., 2021), that did not meet overall inclusion criteria as more than 50% (6/11) of included studies were out of jurisdiction, providing data from China. Wang et al. included meta-analysis for child-related outcomes of for autism symptoms, cognition, social communication, and language development. Pooled effects from meta-analyses showed small positive effects on autism symptoms, cognition and language, with no evidence of a pooled effect on social communication. On each outcome, there was a strong moderating effect of county (Asian vs Western) with evidence of larger effects in studies from Asian than Western countries, with outcomes in Western countries showing very small effect sizes.

Instruments used to measure outcomes in trials

The following tables provide a list of instruments used to measure outcomes in the included RCTs. Measurement approaches that were identified as study-specific, or video-coded behaviours are not listed. For children, instruments are mapped according to their primary focus according to whether they were diagnostic, assessing body functions, activity, participation level outcomes or a measure of quality of life. This mapping was done at a broad conceptual level, using the International Classification of Functioning Disability and Health (ICF) (WHO 2001) framework, and it is possible that some measures tap across more than one domain of the ICF.

Instruments for parents/caregivers are mapped according to whether they measure outcomes for the individual parent/caregiver or are family level measures. We had intended to map measures of the context/environment to the Environmental Chapters of the ICF to organise outcomes related to services, systems or policies, however, no RCTs included a measure of the environment.

Table 16. Instruments used to measure outcomes for children

Name of tool	Diagnostic	Body Functions	Activity	Participation or QoL
Aberrant Behavior Checklist (ABC)			✓	
Actigraph		✓		
Alberta Infant Motor Scale (AIMS)		✓		
Autism Diagnostic Observation Schedule (ADOS, ADOS-G, ADOS-2, ADOS-T)	✓			
Behavior Rating Inventory of Executive Function (BRIEF)		✓		
Brief Observation of Social Communication Change (BOSCC)			✓	
Caregiver-Child Play Interaction (CCX)			✓	
CHAMPPS Observer Impression Scale (CHOIS)		✓		
Child Behavior Rating Scale (CBRS)			✓	
Child Behaviour Checklist (CBCL)			✓	
Classroom Measure of Active Engagement (CMAE)				✓
Clinical Evaluation of Language Fundamentals (CELF, CELF-2, CELF-4)			✓	
Communication and Symbolic Behavior Scales (CSBS)			✓	
Diagnostic and Statistical Manual of Mental Disorders (DSM-5)	✓			
Dyadic Communication Measure for Autism (DCMA)			✓	
Dyadic Parent-Child Interaction Coding System (DPICS-4)			✓	
Early Childhood Index (ECI)			✓	
Early Social Communication Scale (ESCS)			✓	
Expressive One-Word Vocabulary Picture Test (EOWPVT)			✓	
Expressive Vocabulary Assessment (EVA)			✓	
Functional Emotional Assessment Scale (FEAS)			✓	
Global Clinical Impression (GCI-S, GCI-I)		✓		
Infant and Toddler Quality of Life Questionnaire (ITQL)				✓
Infant Motor Profile (IMP)			✓	
Language ENvironment Analysis (LENA)			✓	
Manchester Assessment of Caregiver-Infant Interaction (MACI)			✓	
MacArthur Communicative Development Inventories (MCDI)			✓	
Maternal Behavior Rating Scale (MBRS, MBRS-R)			✓	
Modified Classroom Observation Schedule to Measure Intentional Communication (M-COSMIC)			✓	

Name of tool	Diagnostic	Body Functions	Activity	Participation or QoL
Modified Simonds & Parraga Sleep Questionnaire-Composite Sleep Index (MSPSQ – CSI)		✓		
Mullen Scales of Early Learning (MSEL)			✓	
PATH Curriculum Checklist (PATH CC)			✓	
Peabody Picture Vocabulary Test (PPVT)			✓	
Pediatric Evaluation of Disability Index (PEDI)			✓	
Pervasive Developmental Disorder Behavior Inventory (PDDB-I)			✓	
Phonological Awareness and Literacy Screening PreK (PALS-K)			✓	
Precursors of Joint Attention Measure (PJAM)			✓	
Receptive One-Word Picture Vocabulary Test-4 (ROWPVT-4)			✓	
Repetitive Behaviour Questionnaire (RBQ)			✓	
Repetitive Behaviour Scale, Revised (RBS-R)			✓	
Reynell Developmental Language Scales (RDLS)			✓	
Social Communication Assessment in Book Sharing (SABS)			✓	
Social Communication Checklist (SCC)			✓	
Social Communication Questionnaire (SCQ)			✓	
Strength and Difficulties Questionnaire (SDQ)			✓	
Social Skills Improvement System Rating Scales (SSIS-RS)			✓	
Social Skills Rating System (SSRS)			✓	
Social Responsiveness Scale (SRS)			✓	
Structured Play Assessment-Revised (SPA)				✓
Teller Acuity Cards (TAC)		✓		
Test of Gross Motor Development (TGMD-2, TGMD-3)			✓	
Test of Preschool Early Literacy (TOPEL)			✓	
Vineland Adaptive Behaviour Scales (VABS, VABS-II, VABS-III, VABS-T)			✓	

Note: QoL = quality of life

Table 17. Instruments used to measure outcomes for parents/caregivers or families

Name of tool	Parent/caregiver focused	Family focused
Beach Center Family Quality of Life Scale (FQOL)		✓
Center for Epidemiologic Studies Depression Scale (CES-D)	✓	
Centraal Bureau voor de Statistiek List - Quality of Life (CBS-list QoL)	✓	
Dyadic Parent-Child Interaction Coding System (DPICS-4)		✓
Early Intervention Parenting Self-Efficacy Scale (EIPSES)	✓	
Family Empowerment Scale (FES)		✓
Family Impact Questionnaire (FIQ)		✓
Manchester Assessment of Caregiver–Infant Child Interaction (MACI)		✓
Nijmeegse Ouderlijke Stress Index Korte versie (NOSI-K)	✓	
Parent Sense of Competence Scale (PSOC)	✓	
Parenting Stress Index (PSI)	✓	
Questionnaire on Resources and Stress (QRS)	✓	
Utrechtse Coping List (UCL)	✓	
Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)	✓	

Table 18. Instruments used to measure outcomes for practitioners and/or organisations

Name of tool	Practitioner	Organisation
Child and Adolescent Service Use Schedule (CARER-SUS)		✓
Carer Service Use Schedule (CA-SUS)		✓
Eisenberg's Perceived Supervisor Support (PSS)	✓	
Key Worker Confidence Scale (KWC)	✓	
WARR Scale of Job-related Affective Well-being	✓	

Note: Other approaches used included videoed behaviour coding, service cost, hours of sick leave and study-specific tools.

Evidence from qualitative research

The purpose of including evidence from qualitative studies is to build our knowledge about the experiences and perspectives of those with lived experience of parenting or working with children with disability or developmental concerns. From understanding these experiences, we can learn about aspects other than effectiveness of an intervention (e.g., the feasibility, acceptability). Qualitative studies are also able to capture information about interventions that were not anticipated by researchers.

Table 18 summarises the qualitative evidence extracted from 24 studies using either mixed (identified with an asterisk next to the authors name) or qualitative methods.

The order in which studies are reported is by outcomes pertinent to caregivers (n=15 studies, predominantly but not only including mothers), those pertinent to both caregivers and professionals (n=3 studies) and studies pertinent to practitioners only (n=6 studies). Within these categories papers are ordered by jurisdiction and then author alphabetically. Included qualitative studies were conducted in Australia, Europe, the UK and USA. The aim of the included studies was typically to explore the experiences of using a strategy, intervention (including perceived effectiveness), or professional development to support implementation. Because the studies tended to consider overall experience, intervention processes were often explored as well as perceived outcomes. There were no studies which focused on the voices of children.

The strategies and interventions in focus that provided outcomes for caregivers were (i) family centred practices, predominantly providing choice through goal setting, and building relationships (practitioner-caregiver, and caregiver-peer); (ii) caregiver capacity building using coaching, providing information, and taking strength-based approaches to child and family needs; (iii) providing culturally sensitive practices; and (iv) supporting inclusion and participation of the child (in child-focused settings) and the parent (in the workforce and community). Caregiver-reported outcomes were generally described as positive and related to building parent sense of belonging (with peers), increased knowledge and confidence, feeling empowered and hopeful about their situation.

The strategies and interventions in focus that provided outcomes for practitioners were (i) training in specific EC approaches (ii) coaching; (iii) providing information and resources; (iv) professional development in relational-based practices; and (v) tools to support creating inclusive environments. Practitioner reported outcomes were positive with increased perceptions of confidence and competence in family-centred practices, increased knowledge about methods for creating inclusive settings and for building children's capacities in natural settings.

Table 19. Qualitative Evidence (n=24)

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Studies providing outcomes for parents/caregivers							
Armstrong, 2021, Australia	Developmental delay / disability	To identify the components of supported and therapeutic playgroups impacting on perceived effectiveness.	Mothers (n=22); Fathers (n=1)	Supported or therapeutic playgroups.	Focus groups & interviews/Interpretive phenomenological analysis	Findings indicated playgroup components that most strongly impacted on perceived effectiveness were feeling accepted; providing opportunities for child development, socialisation and enjoyment; and enhancing parental knowledge and skills. Parents reported that having access to multi-disciplinary supports and individualised care at playgroups enhanced their experience. Findings reinforced the importance of family centred practice and facilitating peer support for families of children with developmental delay and/or disability.	CALD (20%) Aboriginal (13%)
Due, 2018*, Australia	Autism	To describe quality of life (QoL) of parents whose children were enrolled in an Autism Specific Early Learning and Care Centre (ASELCCs) & to investigate parents'	Mothers (n=14); Fathers (n=11); Grandparent /other (n=2)	ASELCCs providing early intervention embedded within a childcare centre environment	Interviews & Surveys / Thematic analysis	Early intervention within a long day-care setting offers parents a number of positive outcomes relating to QoL including the opportunity to participate in paid employment, a level of respite and increased opportunity to engage with social events in their community– because the early intervention focus makes the long day-care setting suitable for children who would otherwise not be able to access an appropriate model of care. Confidence in parenting and	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
		perceptions of ASELCCs.				knowledge in relation to supporting their child is enhanced. These interventions offer benefits not only to the children within the program, but also their families.	
Miller, 2022*, Australia & Canada	Neurodisability	To explore parent perspectives of ENVISAGE workshop content & materials.	Mothers (n=13); Fathers (n=2)	ENVISAGE (ENabling VISions And Growing Expectations)-Program for parents/caregivers raising children with early-onset neurodisabilities	Interviews & survey questions / Interpretive description	Workshops were reported to be understandable, relevant, and meaningful to families. ENVISAGE was reported to empower parents through enhancing knowledge and skills to communicate, collaborate and connect with others. Workshops addressed key issues and concerns of parents of children with neurodisability in a way that was perceived as empowering.	No
Miller, 2023*, Australia & Canada	Neurodisability	Explore the feasibility, impact and parent experiences of ENVISAGE-Families.	Parents of children with Neuro-disability (n= 50)	ENVISAGE (ENabling VISions And Growing Expectations)	Interviews/ Interpretive description	Parents identified a significant shift in how they thought, felt, and talked about disability with their families and service providers following their involvement with ENVISAGE-Families, and described a new path forward that offered hope and direction for the future.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Rogerson, 2019, Australia	Autism	To understand experiences of parents using Therapy Outcomes by You (TOBY) to deliver home-based (EIBI) intervention to their child with autism.	Mothers (n=13); Fathers (n=4)	TOBY App	Interviews/ Thematic analysis	Parents reported TOBY facilitated parent–child engagement, provided ideas for therapeutic activities, created feelings of empowerment, and positively impacted their child's development. Barriers to use included preparation time, execution of the intervention, and individual strengths and weaknesses of their child.	No
Akhbari Ziegler, 2020, Europe (Switzerland)	Delayed motor development and/or neurological dysfunction (not able to stand & walk independently)	To explore caregivers' experiences with COPCA.	Mothers (n=15)	"COPing with and Caring for infants with special needs" (COPCA) aims to encourage the family's capacity to stimulate the infant's motor development in naturally occurring situations.	Questionnair es/ content analysis	Participants appreciated the COPCA program. They especially valued its home-based setting, support from the coach, and the experience of being able to participate as active partners in the intervention. Participants valued the family-centred, ecological, and relationship-based elements of early intervention.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Elvrum, 2024, Europe (Norway)	Cerebral Palsy (CP) or at high risk of CP	To explore parental experiences with the Small Step program	Mothers (n = 8); Fathers (n=5) of young children	The Small Step program involves: a family-centred and interprofessional approach; goal-directed training based on motor learning principles; environmental enrichment; and a solution-focused coaching strategies	Interviews/ Thematic analysis	A family-centred approach empowered parents and promoted engagement, competence, and coping. Parents described that Small Step enhanced their ability to provide learning opportunities for their child integrated into everyday family life. Collaborative partnership and coaching from the interprofessional team, reassured and empowered the parents. Acknowledging grief as natural reactions and openly addressing expectations is important.	No
Nilses, 2019, Europe (Sweden)	Autism	To understand parents' experiences of having their child diagnosed with autism and participating in a community intervention program.	Mothers (n=7); Fathers (n=4)	Community multidisciplinary assessment & intervention program	Interviews/ Phenomenological hermeneutical method	Parents appreciated the support they received to lessen the burden of navigating service systems, especially as they experienced a lack of knowledge of both autism and available resources as a barrier. Being thoroughly listened to, contacting the intervention team easily, and being in contact with the same professionals throughout were all listed as facilitators to the intervention. The study showed that interventions for children with autism should be individually tailored according to the child's needs as	Immigrants to Sweden

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
						well as the parent's resources and life situation.	
Verhaegh, 2022, Europe (Netherlands)	Unilateral cerebral palsy	To evaluate parents' experiences with the home-based training program using a video coaching approach.	Mothers (n=12); Fathers (n=1)	A home-based upper limb training program using a video coaching approach	Interviews/ Inductive thematic content analysis	For successful implementation of an early home-based upper limb training program using video coaching, support in delivering home training from a therapist or others within parents' social network, is needed to relieve parental load. Seeing functional improvements of their child on the videos increased parents' motivation to continue with the training.	No
Gibbs, 2019, United Kingdom	Complex Neuro-developmental disabilities	To explore experiences of parents of infants accessing EI MDT.	Mothers of infants (n=6)	Based on family goals, multi-disciplinary early intervention (EI MDT) focused on developing motor, participation, feeding and communication skills	Interviews/ Thematic analysis	Key therapists during an infant's admission to a neonatal unit can strengthen the parent–provider relationship by offering a support continuum during a vulnerable time. The parent-provider relationship requires: the development of communication styles and information sharing that supports parent's preferences; supports families in the development of their expectations of the relationship; ensures clarity in the nature, scope, and contribution of EI therapy.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Amsbary, 2023, United States	Autism	To obtain family perspectives as they relate to implementation experiences in EI	Mothers (n=12), Fathers (n=3), Grandmother (n=1)	A community-based comprehensive EI model designed for toddlers with autism	Interviews/ Thematic analysis	Many aspects of the intervention such as specific strategies, strong relationships with their interventionists, and intervention delivery in home and clinic settings were perceived as useful and beneficial. Challenges related to embedding the intervention into daily activities, feelings of discomfort when practicing intervention strategies, and struggles with scheduling sessions were reported.	No
Burke, 2017, United States	Intellectual & developmental disabilities	To explore the perceived degree of impact of mindfulness strategies.	Mothers (n=24); Fathers (n=2)	MBSR (Mindfulness-Based Stress Reduction) Intervention (for caregivers)	Interviews/ Constant comparative analysis	Participants reported experiencing less stress during the special education process. Parents perceived that they were able to stay calm and communicate their child's needs to the school. Some participants reported that by using mindfulness strategies, their children had positive school outcomes.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Rollins, 2023*, United States	Autism	To evaluate evidence of Pathways as a culturally & linguistically sensitive intervention for young Hispanic autistic children and their families.	Caregivers (n=11)	Pathways - a manualised, parent-mediated naturalistic developmental behavioral intervention (NDBI).	Interviews/Procedural coding approach	Findings suggested that Pathways was a culturally and linguistically sensitive intervention for Hispanic participants in the domains of context, methods, language, and persons. Interview findings echoed these strengths. Pathways demonstrated strengths regarding cultural and linguistic sensitivity for Hispanic families with young autistic children.	Focused on Hispanic families
Rufsvold, 2023, United States	Deaf or hard-of-hearing (DHH)	To explore experiences of parents of DHH children enrolled in a center-based, family-centred EI program.	Caregivers of DHH infants or toddlers (n=17 families)	Centre-based early intervention program for children who are deaf or hard of hearing	Focus groups/ Thematic analysis	Findings included 3 themes: (a) a variety of influences on technology and communication decisions, (b) the value of centre-based services, and (c) a sense of empowerment and drive for advocacy. Caregivers particularly valued connections to other families of DHH children and the expertise of centre-based EI providers as they navigated the first few years following identification	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Pfeiffer, 2024, United States	Social or communication delay	To assess the social validity of the Infant Achievements (IA) intervention.	Mothers (n=6); Fathers (n=1)	IA based on principles of the Naturalistic Developmental Behavioral Intervention (NDBI) for parent-mediated intervention for young children with social & communication delays, adapted for infants.	Focus groups/Conventional content analysis	Parents appreciated the supportive, collaborative coaching relationship that guided their creation of meaningful play interactions that enhanced their children's social and communication skills. Parents discussed how their experience with IA coaches instilled a greater sense of confidence in their parenting abilities than their prior intervention experiences.	No
Studies providing outcomes for caregivers and practitioners							
Bejnö, 2022, Europe (Sweden)	Autism	To gain insight from stakeholders about how they experienced the APERS-P-SE-based model.	Preschool principals (n=2); preschool staff (n=4); Mothers (n=3); Fathers (n=1); supervisors (n=9)	Autism Program Environment Rating Scale (APERS-P-SE) based model	Interviews & Focus groups /Thematic analysis	Stakeholder groups differed in what they emphasised, but all highlighted staff's competence, children's inclusion and participation, collaboration (working on the same goals at home and at preschool), and the learning environment as key program areas that had been positively influenced by the APERS-based intervention. Challenges to implementation included having some (re)habilitation supervisors with little to no inclusion training and schools having limited funds to hire paraprofessionals.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Sailsbury, 2018, United States	Moderate–severe delays or disabilities	To gather perspectives about and experiences with the EPIC approach.	Female early intervention providers (n=11); Mothers of infants/ toddlers (n=19)	The Embedded Practices & Intervention with Caregivers (EPIC) approach has two components: caregiver coaching and a five question (5Q) process for supporting embedded practices	Interviews, focus groups & questionnaires/ descriptive phenomenological & collective case study approach	The coaching process was viewed as positive and effective by both caregivers and providers. Both caregivers and providers shared the view that the 5Q framework was helpful in building the knowledge and skills of caregivers. Providers reported teaching challenges in the form of addressing child needs, presence of siblings in the home, limited opportunities outside the home for under-resourced families, and language barriers. Caregivers felt the key to building their knowledge and skills was making decisions together, feeling supported, and working together as a triad within the context of existing activities and routines in the home.	No
Siller, 2022*, United States	Autism	To explore experiences of implementing/ participating in FPI-P.	Preschool education staff (n=10); families (n=7)	An adapted evidence-based parent coaching intervention - Focused Playtime Intervention-Preschool, FPI-P	Interviews & focus groups / conventional content analysis.	While findings highlighted opportunities for improving FPI-P staff training and implementation, results demonstrated (a) the feasibility of involving ECEC staff in the delivery of ASD-specific parent coaching to promote social communication, (b) that both parents and preschool staff viewed the experience as beneficial for themselves and the child, and (c) that parents perceived the program	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
						to be aligned with family-centred intervention principles.	
Studies providing outcomes for practitioners							
Aylward, 2021, Australia	Autism	To investigate the effect of a professional development program, based on the ESDM teaching principles	Staff at 3 early childhood education (ECEC) centres	Early Start Dever Model (ESDM) professional development program	Open-ended questionnaires/Interpretive phenomenological analysis	The benefits of engagement with mainstream ECEC settings extended beyond child outcomes to educators who were supported to develop the knowledge, understanding, capacity and strategies to engage and teach children with autism and manage their behaviours.	No
Beamish, 2022, Australia	Autism	To examine perspectives on an Early Years Model of Practice (EY-MoP)	Teachers (n=33)	EY-MoP is designed to provide information and guidance on foundational practices supportive of students on the spectrum	Interviews/ Thematic analysis	Teachers endorsed the positive impact that this kind of comprehensive, foundational resource can have on teaching practice both in everyday planning and as a reflective tool. Time pressures associated with workloads was a commonly cited barrier to intervention implementation. However, responses indicated that the model enhanced teachers' knowledge and confidence in supporting students on the spectrum. Factors facilitating their uptake of the model included professional support and available practice material.	No

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Callanan, 2023, Australia	Developmental delay / disability	To investigate effectiveness of PCRI-EI in helping therapists transition to a relationally based paradigm.	Occupational therapists (n=4); physio therapists (n=2); psychologists (n=3); speech pathologists (n=5)	A relationally based, family-centred model, the Parent Child Relationally Informed – Early Intervention (PCRI-EI)	Questionnaire / Thematic analysis	Feedback indicated the systematic approach embedded in the treatment manual, combined with reflective supervision, built therapists' competence and confidence in working relationally. They reported being able to use these skills to develop therapeutically sound, family-centred partnerships with parents as well as to promote socio-emotional connection for the parent and child.	No
Clapham, 2017*, Australia	Disabilities & additional needs	To evaluate the Kids Together program.	Caregivers; Directors of ECEC centres; Key workers; Educators (n = 124)	Kids Together - a program designed to support children with disabilities/additional needs, aged 0-8 years, attending mainstream early learning environments	Interviews, focus groups, observations / Framework analysis	The Kids Together model met the identified need for a multi-faceted key worker transdisciplinary inclusion model based within the early childhood education setting. Kids Together was shown to be a highly effective and innovative model for supporting the inclusion of children with disabilities/additional needs in a range of environments central for early childhood learning and development.	Role of key worker important for families from lower SES or First Nations back-grounds

First Author year	Disability in focus	Aim	Sample	Intervention in focus	Method	Summary of key findings	First Nations or CALD
Cosgrove, 2019, United States	Disability or developmental delay	To examine perceptions of EI providers about the impact of FAN training.	Early intervention providers (n=5)	FAN (Facilitating Attuned Interactions) approach to family engagement and reflective practice.	Focus group/ Thematic analysis	Providers felt more empathic with parents, more collaborative, and more effective and satisfied in their roles. FAN is a promising approach and practical tool to strengthen relationships between parents and professionals in EI.	No
Haine-Schlagel, 2020*, United States	Autism (toddlers showing signs of autism)	To examine service providers perspectives on PACT tools (that are part of Project ImPACT).	Agency trainers (n=14); therapists (n=24)	PIT - a community-adapted, naturalistic, developmental behavioural intervention based on Project ImPACT	Interviews/ grounded theory approach to thematic analysis	Providers perceived the integration of parent engagement strategies as having a positive impact on implementation. Providers considered the strategies to be acceptable, appropriate, and effective, though barriers of time and complexity were noted. Incorporating parent engagement strategies into parent-mediated interventions for autism is well-received by providers and may improve quality of service delivery.	No

Note. * Indicates qualitative data extracted from a mixed methods research study. Acronyms are defined within each relevant study in the column or intervention in focus column.

Risk of bias in qualitative studies is displayed in Table 19. Studies are ordered from newest to oldest. It was common that included studies did not address the risk of bias associated with not identifying researcher positionality (item 6) or influence (item 7) in the work, and some lack of addressing the philosophical stance.

Table 20. Risk of bias of qualitative studies

Author Year	JBI RoB Item Numbers									
	1	2	3	4	5	6	7	8	9	10
Elvrum 2024	green	green	green	green	green	red	orange	green	green	green
Pfeiffer 2024	green	green	green	green	green	red	green	green	green	green
Amsbary 2023	red	green	green	orange	orange	orange	orange	orange	green	orange
Callanan 2023	red	green	green	orange	green	red	red	orange	green	green
Miller 2023	green	green	green	green	green	orange	green	green	green	green
Rollins 2023	orange	green	green	green	green	orange	red	green	green	green
Rufsvold 2023	green	green	green	green	green	red	orange	green	green	green
Beamish 2022	red	green	green	green	green	red	red	green	green	green
Bejno 2022	orange	green	green	green	green	green	green	green	green	green
Miller 2022	green	green	green	green	green	red	orange	green	green	green
Siller 2022	green	orange	green	green	green	green	orange	green	green	green
Verhaegh 2022	orange	green	green	green	green	red	green	green	green	green
Armstrong 2021	green	green	green	green	green	green	green	green	green	green
Aylward 2021	green	green	green	green	green	red	orange	orange	green	orange
Akhbari Ziegler 2020	red	green	green	orange	orange	red	red	green	orange	green
Haine-Schlagel 2020	orange	green	green	green	orange	red	orange	green	green	green
Cosgrove 2019	orange	green	green	green	green	red	red	green	orange	green
Gibbs 2019	green	green	green	green	green	red	red	green	green	green
Nilses 2019	green	green	green	green	green	green	green	green	green	green
Rogerson 2019	orange	green	green	orange	green	orange	red	orange	green	green
Due 2018	orange	green	green	green	green	red	red	green	green	green
Jones 2018	orange	orange	green	orange	green	green	green	green	green	green
Salisbury 2018	orange	green	green	green	green	red	red	orange	green	green
Burke 2017	orange	green	green	green	green	orange	green	green	green	green
Clapham 2017	orange	green	green	green	green	red	red	green	green	green

Notes: RoB = risk of bias; JBI = Joanna Briggs Institute, items from the quality assessment metric for qualitative studies:

1. Is there congruity between the stated philosophical perspective and the research methodology?

2. Is there congruity between the research methodology and the research question or objectives?

3. Is there congruity between the research methodology and the methods used to collect data?

4. Is there congruity between the research methodology and the representation and analysis of data?
5. Is there congruity between the research methodology and the interpretation of results?

6. Is there a statement locating the researcher culturally or theoretically?

7. Is the influence of the researcher on the research, and vice- versa, addressed?

8. Are participants, and their voices, adequately represented?

9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?

10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

Colour code: Red = No; Orange = Unclear; Green = Yes.

Aboriginal and Torres Strait Islander evidence

Seventeen publications reported relevant evidence from Aboriginal and Torres Strait Islander populations. In this dataset the inclusion criteria were expanded to publications from 2005 to take advantage of 20 years of evidence rather than 10. Also included were samples of children with or without identified developmental concerns, delays or disability in recognition of the broadly-based community-level approaches to addressing childhood and family needs and the systemic disadvantages experienced by many Aboriginal and Torres Strait Islander children and families.

Table 21 provides a summary of the evidence reported in publications retrieved through the search and through SNAICC identified sources. Papers are presented in order of publication (newest to oldest), ranging from 2023 to 2006. Publication types were broadly classified as government reports, consultations or program evaluations, typically involving mixed methods of data collection (n=7); peer reviewed publications of research findings including systematic reviews (n=3); qualitative studies (n=3); mixed methods studies (n =4); and one longitudinal study.

This body of evidence endorses practices that are culturally responsive and safe and provides some exemplars of practices that support these ways of working. In Table 20, the column 'recommendations for ECI settings and approaches', is organised according to whether the recommendations pertain to the early childhood system as a whole, or principles, practices or strategies relevant to supporting children with developmental concerns, delay or disabilities and their families and communities.

In summary, most publications report a need for system-level changes to authentically engage with Aboriginal and Torres Strait Islander ways of being, knowing, and doing, including embedding community leadership into all levels of decision-making to support tailoring of systems to local circumstances; effectively investing in and resourcing community-controlled organisations and workforces; and embedding routine data collection and feedback for improvements. Principles highlighted are consistent with those identified across most ECI frameworks: build trust, ensure cultural safety, support families holistically, foster empowerment, but also explicitly identify the need to recognise and foster cultural identity and to address barriers to family and child engagement with early childhood supports.

Identified practices included active engagement with Aboriginal and Torres Strait Islander organisations and staff to build workforce capacity; improving cultural safety of programs; building staff capacity to be trauma informed and culturally aware; engaging actively with families; providing support early; shared decision making; shared resources; connecting children and families to culture, Country and language; and using strength-based assessments and practices.

Table 21. Aboriginal and Torres Strait Islander evidence

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
Australian Gov. Dept. of Education and Dept. of Health and Aged Care, 2023	Connected Beginnings Mid-Term Evaluation: Final Report. Gov. Report	Broad focus on children (not disability specific)	To identify lessons and inform ongoing improvement to implementation of the Connected Beginnings Program Connected Beginnings aims to increase children and families' engagement with health and early childhood education and care through integrated, culturally appropriate local services.	Early educational and well-being outcomes for Aboriginal and Torres Strait Islander children are being supported Qualitative examples of increased school readiness in Connected Beginnings communities, supported children's and mother's health and wellbeing, children's increased exposure to culture, parents feeling empowered to support child health, development and early learning, and families being holistically supported Emerging data suggests that Connected Beginnings is positively contributing to the four Priority Reforms under the National Agreement on Closing the Gap: Formal partnerships and shared decision making, Building the community-controlled sector, Transforming government organisations, Shared access to data and information at the regional level	System-level: - Provide clarity on the role of Collective Impact - Understand the service environment - Bring community voice into programs - Data sharing Principles - Build trust - Focus on cultural safety - Support families holistically - Address barriers Practices/strategies - Share spaces and resources - Hold forums for collaboration - Engage local First Nations organisations and staff - Share decision making
SNAICC, 2023	Stronger ACCOS, Stronger Families Final Report.	Broad focus on children (not disability specific)	To identify existing knowledge and consult with Aboriginal Community-	Strengths: ACCOs are inextricably connected to the communities they serve; ACCOs use a holistic model of care to delivery integrated and culturally safe services	System level recommendations: 1. Embed community-led decision making at every stage of funding development and allocation

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
	Gov. Report		Controlled Organisations (ACCO) on their strengths, needs, barriers and opportunities for accessing DSS funding and delivering Family and Children Activity programs	Barriers: Lack of community control in program design and funding allocation processes; Funding processes; funding doesn't match the model of care; poor partnerships; reporting burdens; resources for core operational functions and infrastructure; data, evaluation, and research; stability in funding agreements Opportunities: Improving navigation and support services; building government capacity to support ACCOs; undertake funding reform	2. Prioritise ACCOs as providers of children and family services for Aboriginal and Torres Strait Islander children and families 3. Invest in growth, development, and sustainability of ACCOs through core-functions funding 4. Reduce administrative burdens across the system 5. Increase investment in and support for ACCOs-led research and evaluation 6. Build government capacity to work better with ACCOs
Elek, 2022	An opportunity for our little ones: findings from an evaluation of an Aboriginal early childhood learning centre in central Australia. Peer reviewed paper	Broad focus on children (not disability specific)	To evaluate the Arrwekele Akaltye-Irretyeke Apmere Centre for Aboriginal children	Despite facing challenges during its establishment, by the end of the evaluation children were attending the Centre and receiving high-quality service (CLASS observation tools) The service was overwhelmingly valued families and community representatives The children entered the centre with low average levels of development (ASQ-TRAK) and language skills (Preschool Language Scales, 5th Edition, PLS-5) 12 children with follow-up data on the PLS-5 showed language improvements	System level: - The evaluation showed that the Centre could be improved by increasing the number of staff, reducing the high staff turnover - Proactively put resources in place to ensure routine data collection to support evaluation Practices: - Improve cultural safety of the program - Engage better with parents and carers

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
Simpson, 2022	Health promotion in an Australian Aboriginal community: The growing strong brains [RT] toolkit. Mixed methods study.	Broad focus on children (not disability specific)	To describe the implementation and evaluation of the Growing Strong Brains (GSB[RT]) toolkit in a remote Aboriginal community in Western Australia over a 2-year period	Establishing local Aboriginal project staff was pivotal to the success of the project. When delivering services for and with Aboriginal people, it is essential that cultural competence, safety and decision-making is carried through from planning to implementation and evaluation, and involves genuine, respectful and authentic relationships. Sufficient time allocation directed towards building relationships with other services and local community members needs to be considered and built into future projects	System level: - Allow integration through all levels of the community - Flexibility in approach to consultation and implementation, and importance of strong partnerships with local Elders and Aboriginal stakeholders - A community development approach focusing on capacity building and authentic relationships with local Elders and local champions ensured recognition was given to local issues and the impact of socio-economic and health disadvantage in communities
SNAICC, 2021	National Aboriginal and Torres Strait Islander Early Childhood Strategy Consultation Report. Gov. report	Broad focus on children (not disability specific)	To test the stated Vision, Goals and purpose of the Framework, ensuring that the preliminary efforts were aligned to the world view and lived experiences of Aboriginal and Torres Strait Islander children and families across Australia	Five goals: 1. Aboriginal and Torres Strait Islander children are both healthy and remain strong 2. Aboriginal and Torres Strait Islander children are supported to thrive in their early years 3. Aboriginal and Torres Strait Islander children are supported to establish and maintain strong connections to culture, Country and language 4. Aboriginal and Torres Strait Islander children grow up in safe nurturing homes, supported by strong families and communities	System level: - Culturally safe early intervention and preventions services - Better cultural safety of disability support services (through, for example, a mechanism for ongoing Aboriginal and Torres Strait Islander input into NDIS policy design) - Adopt a systematic and coordinated approach toward improving outcomes for Aboriginal and Torres Strait Islander children - Aboriginal and Torres Strait Islander children, families and communities are active partners in building a better service system Practices

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
				5. Aboriginal and Torres Strait Islander children, families and communities are active partners in building a better service system	- Aboriginal and Torres Strait Islander children are supported to establish and maintain strong connections to culture, Country and language
Kral, 2021	A strong start for every Indigenous child. Working paper / review	Broad focus on children (not disability specific)	Focus on early years policies and provision in Aotearoa New Zealand, Australia and Canada, synthesise evidence on children's early development, with a particular focus on the conditions and approaches that support positive outcomes for Indigenous children	Early years provision for Indigenous children is expanding but access challenges particularly in remote areas remain, as well as appropriately skilled educators A limited evidence base, for and by Indigenous communities Future research and evaluative studies should be led and informed by the communities being served to increase relevance and usefulness of the evidence being produced Promising examples have adopted holistic approaches Strong community control over the design and nature of the programs has led many families to become involved Many programs have prioritised the maintenance and promotion of local language and cultural practices and respectful inclusion of local cultural ways of working Involvement of local workforce was important	Framework for strengthening Indigenous children's early learning and well-being: Practices: - Partnership is fundamental - Holistic approach - Early support for children and families - Culturally responsive policies and practices - Confident, capable early years educators - Bridging children's home languages - Broad, strengths-based assessments - Child-ready schools

Author year Report type	Title	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
SNAICC 2021	National Framework for Protecting Australia's Children 2021-2031. Successor Plan Consultation Report. Consultation report	Broad focus on children (not disability specific)	To conduct a series of national consultations to guide the co-design of the successor framework to the National Framework for Protecting Australia's Children	Punitive responses by child protection systems that resulted in punishment, not help, leading to reluctance of families to engage with services Inadequate responses to poverty and other drivers of child protection involvement A lack of accountability and transparency in government A lack of political will to make change and address issues, including failure of governments to act on solutions and recommendations previously posed Data deficiencies 'We're tired of talking. Do what you know needs to be done' Power imbalances, reflecting lack of self-determination for Aboriginal and Torres Strait Islander peoples, communities and organisations Systemic racism Failure to apply and uphold the Aboriginal and Torres Strait Islander Child Placement Principle	Key drivers of change: Systems level: - Greater accountability and transparency of child protection systems - Increased self-determination for Aboriginal and Torres Strait Islander people - Increased funding for and autonomy of Aboriginal and Torres Strait Islander community-controlled organisations - Reorienting the system to family support - Championing Aboriginal and Torres Strait Islander kinship care Practices: - Upholding the rights of the child and young person - Connection to family, community and culture - Workforce development, both improved support and empowerment of Aboriginal and Torres Strait Islander workers and improved cultural competency of non-Indigenous workers
Harrison, 2020	Flourishing on the margins: A study of babies and belonging in	Broad focus on children (not disability specific)	To gain an appreciation of the specialist nature of the Multifunctional	Babies' experiences centre on Aboriginal concepts of 'the strong child', multiple attachments with multiple caregivers, including	Practices: - The Multifunctional Aboriginal Children's service program exemplified specific, specialist practices grounded

Author year	Title	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
	Report type				
	an Australian Aboriginal community childcare centre. Qual. study		Aboriginal Children's service in QLD and how it supports babies' belonging, by integrating understandings of cultural safety, attachment relationships, and Aboriginal child-rearing practices	siblings, and responsibility: children caring for each other Pedagogy and practice: educators' use of silence and non-verbal communication and educators' use of voice and verbal communication	in 'the strengths of Aboriginal cultural traditions (of) family life and raising children that 'can be a protective force for children, families and communities'
Elek, 2020	Can early childhood education programs support positive outcomes for Indigenous children? A systematic review of the international literature. Systematic review	Broad focus on children (not disability specific)	To identify programs in early childhood education settings targeting Indigenous children's learning, development and wellbeing and identify key features and how acceptable they were to the community	12 experimental or quasi-experimental studies assessing the impact of 11 programs were included (5 Canada, 3 Australia, 2 USA, 1 Vietnam). All showed promising, if limited, effects on outcomes for Indigenous children Wide variation in study designs and programs Promising outcomes related to parenting capacity, community acceptance or parental engagement in the service, language development, wellbeing Most programs included cultural programming and family and community engagement	Practices: Related to need for research - There is scope for further rigorous experimental research on the impact of programs which are responsive to local contexts, and which adheres to principles for the conduct of research with Indigenous communities - An effective program for Indigenous children in one community may be unlikely to see success replicated in another community - Those designing programs may be best to look at programs in similar context or with communities with similar characteristics, and to work alongside local communities to adapt programs in ways that suit the needs and wishes of those communities - Need to pay greater attention to principles and frameworks for the conduct of research with Indigenous communities

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
Page, 2019	An Abecedarian approach with Aboriginal families and their young children in Australia: Playgroup participation and developmental outcomes. Descriptive study	Broad focus on children (not disability specific)	To explore whether the Abecedarian Approach Australia (3A) intervention, with strong cultural adaptations, can boost young Aboriginal children's early language and learning skills, prior to preschool.	Children's language and early learning were associated with intervention dosage. Higher exposure to Conversational Reading and Learning Games predicted stronger language and overall development for young children	Practices: - Findings suggest that Abecedarian Approach Australia (3A) intervention can be effectively delivered in playgroups in remote settings and is a meaningful and robust strategy to support early childhood learning, with potential to improve educational outcomes for young Aboriginal children in remote communities
Jones, 2018	A program to respond to otitis media in remote Australian Aboriginal communities: A qualitative investigation of parent perspectives. Qual. study	Risk of hearing impairment	To investigate the views about the Learning to Talk, Talking to Learn (LiTTLe) Program among parents and other caregivers.	Caregivers were positive about the interactive speech and language strategies in the program. Some strategies which some parents found alien or difficult were talking slowly, following along with the child's topic, using parallel talk, or baby talk. Children's hearing was considered by caregivers to be important for understanding people, enjoying music, and detecting environmental sounds including signs of danger. Caregivers felt strongly that the program had helped prepare children for school through familiarising their child with early literacy activities and resources, as well as school routines.	Practices: - Involvement of parents in a social group setting with aims for holistic improvements in language, health and school readiness was seen as important elements Findings highlighted - the value of 'home' language - provided some insight as to barriers to early fitting of hearing aids (utility, stigma, influence of government control influencing willingness to be identified) - high value of the program for school readiness - value of parent-peer engagement - need for greater cross sector collaboration (health-education).

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
Emerson, 2015	Good Beginnings: Getting it right in the early years. Review of the evidence on the importance of a healthy start to life and on interventions to promote good beginnings Review	Broad focus on children (not disability specific)	To summarise what is known about the effectiveness of Australian and international programs delivered in the context of child and maternal health, early learning and positive parenting, and highlight the existing evidence about their implementation in Aboriginal and Torres Strait Islander communities To evaluate the effectiveness and rank the interventions based on evidence	Interventions are grouped by: 1. Maternal and child health interventions 2. Early learning interventions 3. Positive parenting interventions 4. Integrated service delivery Interventions that are designed specifically for Aboriginal and Torres Strait Islander families have limited evidence, yet Interventions that have been adapted for Aboriginal and Torres Strait Islander families have some evidence of effectiveness Interventions that have evidence they are effective have not been evaluated with Aboriginal and Torres Strait Islander families Most evidence-based programs have not been tested through RCTs in Australia (let alone in Aboriginal and Torres Strait Islander communities)	Practices: Effective service delivery strategies when working with Aboriginal and Torres Strait Islander families include: - Doing projects with, not for, Aboriginal and Torres Strait Islander families. - Respect for language and culture is critical - Working together through partnerships, networks and shared leadership - Holistic and integrated approaches, recognising and building strengths - Address experiences of trauma and avenues for healing - Need for skilled practitioners with high levels of cultural competence - Develop social capital and recognise social determinants Systems level: Drive more consistent collection of outcomes data and investment in impact evaluation
Arcos Holzinger & Biddle, 2015	The relationship between ECEC and the outcomes of Indigenous children: Evidence from the Longitudinal	Broad focus on children (not disability specific)	To understand the effects of preschool participation developmental and cognitive outcomes of Aboriginal and Torres Strait Islander children	Preschool attendance associated with better short-term cognitive outcomes, and better long-term cognitive and developmental outcomes No significant effects of number of hours attended	Practices: - Childcare attendance was associated with longer term cognitive and developmental improvements, but there is also some evidence that spending too long at childcare can be detrimental to children's developmental and cognitive outcomes.

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
	Study of Indigenous Children. Longitudinal study.				
SNAICC, 2012	Learning from Good Practice: Implementing the Early Years Learning Framework for Aboriginal and Torres Strait Islander Children. Gov. report	Broad focus on children (not disability specific)	To explore whether and how Aboriginal and Torres Strait Islander Early Childhood Education and Care services are implementing the Early Years Learning Framework	ECEC services implementing the Early Years Learning Framework provide authentic and valuable examples of good practice. The holistic, culturally empowering and comprehensive approach towards children's development demonstrated by the services incorporates key Framework outcomes, principles and practices. They view children's wellbeing in a broad, holistic sense. To ensure improved wellbeing and developmental outcomes for Aboriginal and Torres Strait Islander children, services require ongoing and stable support (funding, workforce development, infrastructure).	Systems-level - To ensure improved wellbeing and developmental outcomes for Aboriginal and Torres Strait Islander children, ECEC services require ongoing and stable support (funding, workforce development, infrastructure). 21 specific recommendations are provided
SNAICC, 2012	Improved outcomes for Aboriginal and Torres Strait Islander Children and Families in Early Childhood	Broad focus on children (not disability specific)	To explore principles of good practice in delivering early childhood education and care services to	Four principles are critical to provide the basis for strong, effective and quality ECEC which are accessible for and engage with Aboriginal and Torres Strait Islander communities. Services:	Systems-level: - Practical understanding of the four principles and the related underlying values and service characteristics of Aboriginal and Torres Strait Islander community-controlled services could inform policy around workforce

Author year	Title	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
	Report type				
	Education and Care Services: Learning from Good Practice.

Gov. report | | Aboriginal and Torres Strait Islander children and families | 1. Employ innovative governance strategies
2. Foster an empowering culture
3. Support identity and culture
4. Are holistic and responsive

These principles align with the objectives and the indicated outcomes of both the Early Years strategy and the Early Years Learning Framework.

They also stretch beyond to address the complex community development needs that are reflected in Aboriginal and Torres Strait Islander ECEC services | development of effective strategies, practice and procedures to support services to strength their ability to engage with and achieve outcomes for Aboriginal and Torres Strait Islander children and families.

Principles:
- Employ innovative governance
- Foster an empowering culture
- Support identity and culture
- Be holistic and responsive |
| Robinson, 2006 | Ngaripirliga'ajirri. An early intervention program on the Tiwi Islands. Final Evaluation Report.

Evaluation report. | Broad focus on children (not disability specific) | To evaluate the Exploring Together program (10-week child development and parent education focused approach) that was redeveloped for Tiwi culture and family structures | 74 children and over 80 parents /caregivers commenced the program
- Participation levels above 95%
- 80% showed decline in problem behaviours at school
- 60-80% parents showed improved communication with child
- 50% improvement in child behaviour at home | Practices:
- Ngaripirliga'ajirri – supporting both child development and parent learning, can produce measurable improvements in child behaviour that are sustained at and beyond 6 months
- Modify intervention strategies to make be responsive to Tiwi social and cultural context |
| Trudgett, 2011 | Engaging with early childhood education and care services: | Broad focus on children (not disability specific) | To understand the barriers and facilitators of engagement for | Thematic analyses revealed several themes, the most important being the notion of trust (culture and | Principles:
- Trust is a pivotal issue that could function as either a barrier or facilitator in childcare choices. |

Author year	Title Report type	Disability in focus	Aim of evidence	Key findings or resource description	Recommendations for EC settings and approaches
	The perspectives of Indigenous Australian mothers and their young children.		Aboriginal and Torres Strait Islander families in NSW	community; the early childhood setting; practical issues). A clear theme in the child interviews was the importance of feeling connected with an adult worker at the centre they attended.	- All Aboriginal and Torres Strait Islander families are not the same
	Qual. study			Aboriginal and Torres Strait Islander families are not a homogeneous group	

Note. Gov = government; Qual = qualitative.

Grades of Recommendation, Assessment, Development and Evaluation (GRADE)

We did not create a GRADE profile for any specific ECI practice or set of practices relevant to our question. In making this decision we considered the following characteristics of our dataset:

- The included intervention approaches were typically complex and multifaceted, addressing more than one of the ECI practices

- Only three studies included measures of participation of children (an ECI aim), and the included interventions in those studies were diverse in focus, delivered if different settings, and applied activity-specific measures of participation, making summarising the evidence potentially misleading

- Of the multiple included RCTs that evaluated interventions that aimed to build parent/caregiver capacity, only eight measured changes that could be linked to caregiver capacity to provide children with the opportunities to practice functional skills (an ECI aim). Measures chosen included those tapping parenting sense of competence, parenting efficacy, family empowerment and ability to implement taught strategies specific to a child-outcome (e.g., language). While it may be technically possible to conduct a GRADE profile using evidence related to these outcomes, it is difficult to have confidence in the elements of practice that support the outcome given the diversity of interventions implemented and outcomes measured.

7.10 Discussion

This systematic review sought to identify and synthesise research evidence about the application of practices (as observed in interventions/programs) pertinent to ECI. The review did not seek to understand targeted interventions applied for discrete outcomes in children with specific diagnoses or conditions, but rather sought evidence that would inform which ECI practices are effective for children, families and services. In the context of this review, ECI practices we sought evidence about were associated with the eight principles identified across ECI best practice frameworks. These included practices associated with being:

- Family centred
- Capacity-building focused and strengths-based
- Culturally responsive and culturally safe
- Inclusive and participatory
- Engaged with children in natural environments
- Collaborative, within and across teams
- Evidence-informed
- Outcomes based

The nature of research undertaken

Our broad-based search strategy identified 5876 studies, of which 185 were identified as having relevance to our research question. Of the 185 relevant studies,

data were extracted from two systematic reviews, 36 RCTs, 24 qualitative studies, and 17 publications providing evidence for Aboriginal and Torres Strait Islander children and families. While the remaining 106 studies likely include relevant information, they were not examined further given the constraints of time and the increasing risk of bias associated with the designs of the remaining studies. Of note, there has been an increased rate of publication of studies over the past 10 years, with 70% of papers being published in the past 5 years. Of the 185 relevant publications, approximately 55% involved studies using experimental designs (RCTs or SCEDs).

Despite not seeking condition-specific interventions, most included studies investigated the effect of approaches or strategies within diagnostic groups, with over 50% of included studies pertaining to children with, or showing early signs of, autism. The populations in focus in the outcomes were predominantly children, or children and caregivers.

What do the included studies tell us about ECI approaches

Family centred

Most of the included research could be identified as having underlying principles associated with family-centredness. What is more complex to understand from the evidence reviewed is how family-centred principles are enacted as practices. Many practices that are deemed family-centred can also be described within the other ECI principles. In this review, we focused on identifying descriptions of interventions that reported being driven by family- or caregiver-focused/identified goals, that purposefully partnered with caregivers in delivery, supported peer connections and tailored approaches based on family circumstances. The most common, clearly articulated practice evident in the data was the individualisation of approaches to child and family circumstance, and this approach was most commonly seen in capacity-building practices that adjust the demands of the activity/approach based on child and family responses. While it might be that family and child goals were at the core of most home-based programs examined within RCTs, how these were elicited was not described, nor evaluated. Supporting and evaluating the effects of parent- or family-peer connections was not very evident in the body of RCT evidence; group-based SCERTS programs being one exception. The value of peer-to-peer support has been explored, and supported, within qualitative/mixed methods approaches to date. Given the espoused importance of peer-to-peer support, this is a gap that requires thoughtful additional investigation to build the evidence about what form of peer-to-peer support provides benefit at what timepoints in a family's experiences.

Capacity-building and strengths-based

Most of the evidence available has been focused on building the capacities of children (defined as developmental progression or increasing skills and abilities). While there is evidence that the included approaches can build capacities in children, the evidence is not strong, with most studies demonstrating no difference between groups (both conditions are equally effective) on at least one of their identified targets. Because of the dominance of research involving children with autism, the predominant focus of interventions was to build children's social and communication skills – skills that are pertinent to all children. A number of studies investigated outcomes related to reduction in autism symptom severity. The focus of this outcome

may not reflect a strength-based approach to intervention and assessment. A neuro affirming approach to supporting children with developmental differences is underpinned by an understanding of neurodiversity, the social model of disability, and a strengths-based approach to intervention and assessment.

Parent/caregiver capacity building was also a focus in the interventions delivered within the included research, with many approaches involving coaching of parents/caregivers in relation to implementing strategies, being responsive to their child's cues and actions. These approaches are typically described as parent-mediated child-focused interventions, and not all might have a strength-based approach that embeds strategies within daily routines. Only 14 studies included parent/caregiver or family level outcomes and of these, seven evaluated strategy use, or competence (with variable outcomes), suggesting a greater need to understand the impact of approaches on parent/caregiver and family capacity building. It was more common (although not frequent) that studies included measures of psychological wellbeing of parents and caregivers, an outcome of benefit in of itself, but that may not also be associated with increased capacity to support their child, family and selves overall.

Culturally responsive and culturally safe

Many of the included intervention approaches can be considered naturalistic behavioural developmental approaches (NDBI), described as aiming to be child directed (rather than adult), set in natural contexts and tailored to individual child/family circumstances. In the literature, NDBIs are described as culturally responsive because of these features (Song et al., 2024), and one qualitative paper (Rollins et al., 2023) provided evidence that Pathways (an NDBI) could be delivered in ways that were sensitive to Hispanic families in the US. While the potential for cultural responsivity appears present across the range of NDBIs, there was no evidence within the SR or RCTs presented that the approaches directly address issues of cultural responsiveness or experiences of cultural safety.

Eighteen papers, of which 17 concerned Aboriginal and Torres Strait Islander people stressed the importance of approaches to those with diverse cultural backgrounds. Practices – to apply the principle – that can be enacted include authentic engagement with the cultural community (not just the family), using trauma-informed knowledge and skills in engagement, building staff cultural competency (which has training and employment practice implications); engaging actively with families in context; providing support early; shared decision making; shared resources; connecting children and families to their culture, Country and language; and using strength-based assessments and practices. Some of these practices are consistent with other ECI practices (being family centred and strength-based), but explicit exploration of culturally sensitive and safe practices is not evident in the Western research included in this review.

Inclusive and participatory

The CHAMPPS (Children in Action: Motor Program for Preschoolers), with a focus on universal design principles (for motor skills development), Early Achievements programs (focused on book sharing) and SCERTS (Social, Communication, Emotional Regulation and Transactional Support) when embedded in inclusive classrooms, provided evidence of interventions developed to be inclusive. While many interventions were delivered in the environments where children spend their

time (i.e., not in clinical settings), it is important to understand that this does not in itself make the approach inclusive. One included study investigated a multi-tiered systems of support in an ECEC setting: the TELL program, that is a tier one whole of class curriculum to develop language and literacy. Genuine inclusion extends beyond environmental settings and requires that children and families are accepted and belong, have access to the same opportunities and experiences as other children and are able to participate in a meaningful way.

There was little explicit focus on optimising participation of children or families in the included SR and RCTs – the interventions primarily targeted skills development, presumably with the expectation that children will be able to participate more once the requisite skills are developed. This assumption has not been demonstrated in other research related to participation outcomes (Adair et al., 2015). The exception to this was PLAY – a parent-child relationship-based approach embedded in child-directed play. Otherwise, participation-focused approaches were not evident in this body of research. To assess the design and implementation of inclusive interventions and services, there is also a need for specific outcome tools that focus on the key elements of inclusion.

Engage with children in natural environments

The natural environments of children under 9 years (our inclusion criteria) include their homes, ECEC settings, school and community. The evidence from Aboriginal and Torres Strait Islander communities placed strong emphasis on the need for whole of community engagement in early childhood services, regardless of child and family need for specialist support. Community provides the place and space for sharing resources, knowledge and support. The remaining evidence tended to focus on approaches delivered within children's homes or in school or early childhood settings, with one RCT examining therapeutic playgroups. Five studies investigated centre-based approaches, either in combination with home visiting, or as a comparison setting in an RCT.

While this body of evidence suggests there is an increasing focus on delivering services in natural settings, the outcomes in focus in the SR and most of the RCTs do not provide evidence of the rationale behind delivering interventions within natural settings – that is to build capacity within the settings to be inclusive and participatory, and for the children to build a sense of belonging and develop skills and abilities in context. One study providing qualitative evidence from Sweden used the Autism Program Environment Rating Scale (Odom et al. 2018) in the mixed-methods element of the study, to measure the quality of the early learning program for children with autism. This assessment comprises a range of domains, including those related to the learning environment and climate, curriculum and instruction, family involvement and teamwork. It was not used in any RCT. Intervention approaches and outcome measures designed to take into consideration the appropriateness of the setting and context of the environment are important to achieving meaningful inclusion and participation, within the settings where children spend their time.

Collaborative, within and across teams

There are two aspects to consider in relation to collaborative teamwork practices. The first relates to collaborating with families as members of the team, and the second to building high-functioning teams that collaborate to deliver effective

programs. The Aboriginal and Torres Strait Islander evidence builds a strong case for community-focused and embedded approaches to supporting all children and families. To implement community-based approaches will require interdisciplinary teamwork that bridges knowledge from across sectors – health, education, culture. Partnering with families can be seen in many of the family-centred individualisation and capacity-building coaching approaches included in the evidence. Parent/caregiver experiences of programs and ECI supports was also explored qualitatively, highlighting the value parents/caregivers place on relational practices that support effective communication and information sharing, shared decision making, and provide emotional support. Also explored qualitatively were practitioner experiences of professional development to build their capacity to provide effective relational-based practices.

None of the included RCTs examined outcomes of collaborative teamwork, or specific team-based approaches (e.g., interdisciplinary, key worker, team-around-the-child models), and this remains a gap in the evidence. There were, however, several studies that provided professional development to practitioners, and explored quantitatively or qualitatively the impacts on practitioner skills and confidence. The Pursuit of Wellbeing approach (Young et al., 2023) aimed to build the capacity of key workers to support caregiver wellbeing, providing training and resources. Impacts on both key workers and caregivers were examined in an RCT, but the only differences between groups was in keyworker perceptions of supervisor support. While collaboration and team-based approaches to supporting children and families are understood to be an element of best practice, the success of implementation and outcomes of specific models of collaboration did not appear to be a key focus of the included studies and could be an area which requires further examination.

Evidence-informed

For the purpose of this review, we defined evidence-informed approaches as those that explicitly brought together research, practitioner and family knowledge and values in the processes of decision making. While many studies indicated that the interventions involved collaborative goal setting, evidence-informed decision making was not examined in the included studies. Evidence-informed approaches may help to ensure that children and families receive high quality interventions, not only supported by research evidence, but also likely to lead to positive outcomes for the child and family in their unique context.

Outcomes based

In this review we defined outcomes of ECI in relation to defined ECI aims. ECI aims to ensure that children experience optimal participation in important life situations (that occur in the natural settings in which children spend time – home, community, ECEC, school), and they are growing up in families in which the environment supports the whole family to thrive. We operationalised these aims as when studies examined the impact of interventions on children's participation outcomes and/or whole of family outcomes. We classified only three outcome measures as participation focused: one examining engagement and enjoyment of book reading; one a measure of structured play (mostly based on play skills); and the third a measure of classroom engagement. None of these three studies demonstrated benefits in favour of the intervention in focus, and each study arguably put a greater focus on skills development, than participation, based on number of measures included that addressed activity level outcomes.

Family level measures were few. Four studies included one family-level measure, examining family empowerment or family quality of life (two studies each), family impact, or availability of resources in one study each. The impact of approaches on family outcomes has been captured in several of the included qualitative findings, suggesting further research to test the effectiveness of (in addition to experiences of) programs aiming to support family level outcomes is warranted. It is possible that a shift in ways of thinking about disability (e.g., the social model of disability) to design interventions that also aim to optimise supports around a child (rather than a sole focus on child capacity building) will flow on to the development of outcome measures that are aligned with new ways of thinking about disability.

What outcomes have been identified and measured

Across the included research, a broad range of outcomes have been identified. For children, the predominant focus has been on measures of activity performance (see Table 15), with skills, ability and developmental progress captured within five of nine ICF chapters: Chapter 1, Learning and applying knowledge; Chapter 2, General tasks and demands; Chapter 3, Communication; Chapter 4, Mobility; Chapter 5, Self-care; and Chapter 7, Interpersonal interactions and relationships. A few studies aimed to address outcomes at the level of body functions, only three sought participation outcomes – measuring aspects of participation in book reading, play, and engagement in the classroom, and one measured infant/toddler quality of life. For children with, or showing early signs of autism, diagnostic instruments were also included as outcome measures in several studies.

For caregivers, outcomes were also commonly captured at the ICF Activity level, with a focus on Chapter 1, Learning and acquiring knowledge, Chapter 2, General tasks and demands, Chapter 7, Interpersonal interactions and relationships. Most commonly measured outcomes were related to parent/caregiver stress or psychological wellbeing. Although a high proportion of included interventions/approaches aimed to build parent/caregiver capacity to be responsive to their child/ren and implement approaches, not all studies measured these outcomes.

For practitioners, measures focused on outcomes related to knowledge, skills, attitudes and confidence. Although not measured in the included studies, evidence from the Aboriginal and Torres Strait Islander documents raises the importance of employing Aboriginal and Torres Strait Islander staff and providing training in culturally sensitive and safe practices. Very few studies examined or measured the organisational context for delivering ECI. Those that did consider organisational outcomes focused on service use, staff absenteeism and costs. None of these outcomes address aspects of service structure that influence how practitioners can deliver family centred approaches. Again, recommendations about from the Aboriginal and Torres Strait Islander literature focuses on the role of community-controlled organisations providing leadership in the design and delivery of services. These recommendations have relevance beyond Aboriginal and Torres Strait Islander communities.

Which children are included

The included children were all aged <9 years as per criteria. In addition, we sought evidence from the key jurisdictions included in the overall project: Australia, Europe, New Zealand, the UK and the US. No studies from New Zealand met our inclusion

criteria for data extraction. In the RCT evidence, there was a preponderance of homogenous Western samples of children, with only one US-based study clearly including and considering the outcomes in relation to children from diverse cultural backgrounds (Bagner et al. 2023). Of the 24 included studies that provided qualitative evidence, only four specifically considered families from diverse cultural backgrounds.

Overwhelmingly, the included evidence applies to the dominant cultures of the country of the study.

In regard to evidence about Australian children, only three Australian RCTs were included and five studies reporting qualitative findings, in addition to the 17 reports pertinent to Aboriginal and Torres Strait Islander families. It is important to note that this is not a reflection on the overall body of evidence generated about and for Australian children with developmental concerns, delay or disability. There are many studies, not in focus in this review, that have investigated the effects of specific interventions and approaches for children across a variety of conditions that should be used to guide diagnostic-specific approaches. In particular, it is important to note that there are guidelines for children with autism (Autism CRC, 2022), cerebral palsy (Jackman et al., 2022) and those who are born prematurely (Centre for Research Excellence in Newborn Medicine, 2024) that are highly pertinent to the early childhood field. One challenge for the field is to distinguish – where needed – the differences between clinical guidelines and practice guidelines.

To what extent does the evidence apply to specific groups of children

We specifically sought research about cultural minorities and about Australian Aboriginal and Torres Strait Islander communities. Only one of the included RCTs provides evidence in support of approaches for culturally diverse populations, none for Indigenous groups relevant to the jurisdictions in focus in this review. As reported by Emerson et al. (2015) interventions that are designed for Aboriginal and Torres Strait Islander families have limited evidence to date, those that have been adapted for Aboriginal and Torres Strait Islander families show some promise, and those approaches that have evidence of effectiveness for other populations have not been evaluated with Aboriginal and Torres Strait Islander families – and indeed often not with other families living in Australia.

To what extent do ECI approaches deliver positive outcomes

Overall, one must conclude that the evidence derived from intervention-focused research designs is equivocal. Although many of the included RCTs show some positive findings in favour of the interventions/programs they explored, none were without risk of bias, no one intervention / program stands out as superior and few studies explicitly addressed the suite of practices identified as key to ECI.   This represents a problem of research design and intent. ECI is a complex set of practices, not perhaps well-suited to traditional methods of evaluation. In addition, the focus of outcomes in the included trials was not on the key aims of ECI, thus it is possible that important effects are present that were not measured.

There is emergent evidence in the body of qualitative findings that bears further consideration. This set of studies provides indicators of benefit for the whole family from a range of approaches including supported playgroups, interventions embedded with child-care settings, parent empowerment programs, and community delivered multi-disciplinary supports to name a few. Evidence from Aboriginal and

Torres Strait Islander reports also provide preliminary evidence in support of tailoring child and family focused approaches to the local communities in which the children and families live. Further robust research, undertaken under the leadership of ACCO and elders of local communities is required to build the evidence base for Aboriginal and Torres Strait Islander children and families.

What are the barriers and facilitators to implementing

None of the included SR or RCTs aimed to explore the facilitators and barriers to implementing the ECI strategies under investigation, although authors occasionally provided some relevant commentary. For example, Klein et al (2021) reported on the time required to prepare for video-feedback sessions in their study of parent coaching to deliver naturalistic developmental behavioural interventions was a barrier to practitioners. It was more common that the included qualitative research provided evidence related to barriers and facilitators to implementing practices, with six studies explicitly seeking this information, and a further three presenting findings in relation to barriers and facilitators (see Table 18). Qualitative research studies commonly aim to identify barriers and facilitators to implementation of services. One of benefits of this methodological approach is that barriers and facilitators not anticipated by researchers may be identified.

Facilitators reported by caregivers included have strong professional-caregiver relationships (being listened to, consistent practitioners who got to know them), being provided with coaching and support to learn and implement new strategies and approaches, access to multi-disciplinary expertise and individualised supports, being connected to other families and working on goals that were shared across EC settings. These facilitators reinforce the importance of the practices related to the principle of being family centred.

Barriers identified by caregivers related to time pressures, resulting in difficulties implementing planned strategies or scheduling, and difficulties being able to implement planned strategies within day-to-day life. Practitioners also identified time as a barrier, with workloads and insufficient staffing contributing to difficulties in implementing planned ECI approaches. Having materials and resources that support implementing particular ways of working, and professional supports when changing practices, were identified by practitioners as supports.

The Aboriginal and Torres Strait Islander evidence also provided information related to barriers and facilitators to implementing ECI practices. Two of the reports focus on system level barriers related to lack of community control over program design and implementation, and issues related to funding processes – including funding stability and reporting burdens (SNAICC 2023, 2012). Importantly in Aboriginal and Torres Strait Islander communities, the absence of a skilled workforce, high turnover of staff when workforce does exist (Kral et al. 2021; Elek et al. 2022), and a limited relevant evidence base (Kral et al. 2022) also contribute significant barriers to children and families accessing and using quality ECI supports.

Limitations of the review

There are several limitations to this review. Some relate to the complexity of the overall research question that focused on the practices linked to principles for delivery of early childhood interventions, the focus on specific jurisdictions, the exclusion of highly specific interventions for diagnostic groups and the limitations on year of publication. These approaches mean that (i) selection of relevant articles was

complicated by the broad range of potential approaches and whether authors of research explicated their research in relation to ECI principles and practices; (ii) important research from jurisdictions outside our criteria were excluded; (iii) that potentially relevant evidence from diagnostic specific approaches is not included; and research older than 2014 that may be seminal was not included. The first limitation was managed by the use of independent reviewers and consensus-based approaches through each phase of the study selection, extraction and reporting of the findings. This enabled robust discussions as needed and supported a consistent approach.

The second limitation might increase the likelihood of evidence being relevant to Australia and to ECI frameworks, however, there are important limitations in relation to understanding the impact of context on implementation and outcomes. One important exclusion related to research based in Canada – a similar jurisdiction that was not included due to the focus on jurisdictions with exiting ECI frameworks.

In addition, there is a strong body of research about family-centred practice that explores what it is, relationships amongst practitioners and caregivers, challenges with implementation (e.g., McCarthy & Guerin, 2022; Mas et al. 2022; Garcia-Ventura et al. 2021; Rueda et al. 2023), that did not meet our definition of interventional research and so was excluded. This research provides highly relevant evidence.

The third limitation means that bridging knowledge across diagnostic groups may have been hampered, although it is important to note that there are existing high-quality, contemporary guidelines for practice for children with autism, cerebral palsy and who were born prematurely for practitioners to draw on. As a consequence of our review approaches, it was likely that appropriate data for meta-analysis and for determining GRADE levels were missing. Therefore, neither of these planned approaches were implemented to avoid presenting erroneous messaging.

An additional limitation is that the volume of relevant research not extracted and examined within this review based on study design means that we are likely missing some important emerging evidence and evidence that could inform practice development. This is particularly important for aspects of practice where RCT methods are less helpful or more complex to implement.

7.11 Implications for Australian ECI practice framework

The data collated and summarised in this systematic review provides evidence from programs delivered to young children about some of the key elements of working with them, their families and communities and highlights where there is evidence to support ECI practices as well as where further research is needed to build the requisite knowledge. Some of the required evidence is relevant to the broader early childhood sector, as well as being required to inform ECI practices and strategies to meet the aims, principles and desired outcomes of an ECI Framework.

Implications for ECI services

- Inclusion of ECI services within a broader system of services for children and families is strongly recommended by the Aboriginal and Torres Strait Islander evidence. This recommendation is highly relevant to all communities

- Qualitative evidence from many communities, and in particular, Aboriginal and Torres Strait Islander evidence, provide strong endorsement of the role of community leadership and co-design of services with parents/caregivers and communities who are intended to use and benefit from services

- Future evaluation of the implementation of ECI programs within an ECI framework requires an overarching infrastructure that supports quality data collection at local, state and national levels

Implications for ECI practice framework

- Articulating and defining the aims of ECI is needed to drive innovation in research and implementation and to build the evidence for ECI practices

- ECI principles appear to be well accepted (and perhaps assumed to be in place) but are not always clearly operationalised in the current body of evidence

- All ECI practices that are linked to the principles need to be clearly identified, defined and operationalised to support robust research and the capacity to build a body of evidence that is translatable to practice about how to deliver effective supports for families and children

- Research methods designed to evaluate effects and impacts of ECI practices must consider the matrix of inter-related practices both in the design of approaches for testing, and in the measurement of outcomes

- Implementation science methods for examining the suitability, requirement for tailoring, and approaches to support uptake of effective methods, should be a focus in ECI research

- The following practices appear to have limited evidence in relation to ECI and require greater investment

  o Collaborative evidence-informed decision making. This is a crucial practice to understand as it is the application of both the principle of being family-centred and of being evidence-based

  o Capacity-building of parents/caregivers is a common focus of interventions; research needs to now focus on measuring whether practices actually change caregiver capacity to provide children with the opportunities to practice functional skills

  o Culturally responsive and safe practices – are espoused but now need to be fully operationalised and studied so as to optimise our approaches to achieving the desired outcomes

- Inclusion and participation appear to be commonly assumed outcomes of capacity-building (of caregivers and children), but the assumption must be tested as it may be unfounded
- Development, selection and use of measures of meaningful participation are needed for research as well as to guide practice
- While there appears to have been a shift to delivering ECI in the settings where children live and learn, we require much more evidence about the quality of those settings to support inclusion and participation of children
- Development, selection and use of measures of the environments/contexts of early childhood is required to evaluate the impacts of approaches that aim to make them inclusive and participatory
- Implementation of effective teamwork approaches in the ECI setting requires more robust evaluation than is currently available

- There are approaches and programs that hold promise and that should be supported in their implementation under an evaluation framework so that evidence of effects and impacts continues to inform practice

- Research that aims to evaluate the outcomes of ECI practices must be clearly linked to the defined aims of ECI

- For practitioners delivering ECI, evidence about the skills, knowledge and actions they need to be able to apply in practice is needed, as is the most effective methods of delivering professional development and entry-level skill requirements

- For organisations, more robust evidence about the organisational barriers and facilitators to practitioners working in ways that deliver ECI practices is needed

8 Recommendations

8.1 Approaches/interventions with strongest evidence

The ECI approaches included in this review that have been studied the most are those that

- tailor their approaches to individual family or child goals or circumstances, and
- aim to build capacity in parents to build capacity in children.

While these approaches arguably provide the strongest evidence, the evidence of effects remains equivocal. In part this may be because in RCTs the comparison interventions are equally effective (or equally ineffective).

There is emerging evidence that

- delivering ECI within the natural contexts of the child delivers benefit, but there is a significant gap in our knowledge about how the context is changed or enhanced to achieve those benefits.

We found little current evidence about ECI practices that aim to be inclusive or participatory, mostly as these aspects were not measured in the included studies. The strongest evidence in relation to these practices comes from ECEC and school settings where efforts to create inclusive learning environments are beginning to demonstrate benefit. Outside the jurisdiction and year of publication range of our included evidence are two RCTs of high relevance (Hwang et al, 2013; Law et al. 2011) to inclusive and participatory practices. Hwang et al (2013) RCT, conducted in Taiwan, compared routines based early intervention (guided by the Routines Based interview; McWilliam et al, 2009) to standard home visiting (focused on developmental domains). Hwang et al found faster attainment of function and greater parent-goal attainment in the routines-based early intervention group. Law et al. (2011) RCT, conducted in Canada, compared interventions focused on changing the activity or environment with interventions focused on changing the child with results showing no differences in outcomes between groups, demonstrating equal effectiveness.

There is earlier RCT evidence, and growing evidence for older children, that addressing the contextual and environmental barriers to participation, and scaffolding the child/young person's involvement in context supports participation and provides the conditions for developing capacities and skills in context (Hseih et al. 2023). Despite this evidence, there was a lack of participation-focused intervention in the included studies. Optimising the meaningful participation (attendance and involvement) in the settings of early childhood was rarely examined in the included studies.

We sought evidence about the impact of professional development on practitioners' knowledge, skills and behaviours in relation to delivering ECI practices, however, few RCTs were included. It is likely that other research designs may provide emerging evidence (for example those in the pool of relevant but not extracted studies in this review). In addition, we are aware of a scoping review explicitly examining the outcome of professional development aimed at enhancing the ability of practitioners to be family centred in practice (Britt et al. under review). The findings of that review are pertinent to this project. For any ECI framework to be useful and effective it is

crucial that we have knowledge of the practitioner knowledge, skills and actions that are both required and being delivered in practice.

8.2 Instruments to measure key outcomes

For children

This review identified a broad range of child-focused outcome measures capturing changes in activity performance. Which of these measures provides the most valid reliable evidence for inclusion in research depends on the specific study aims and the available evidence for reliability and responsiveness. Identifying these properties will require a review of available evidence about the measures and is beyond the scope of this review.

Amongst the instruments chosen to measure outcomes were several that were developmental scales and several that were designed to be diagnostic instruments. Both types of measures were used by some authors as outcome measures over relatively short periods of time. There are several limitations to this approach to outcome measurement, including that important changes over time in functional skills development and participation are unlikely to be captured.

Most importantly, if ECI practices are designed to be strength-based, then that must also apply to the selection of measures of outcomes. Evidence of the impact on caregivers and children of deficit focused assessment is clear (O'Connor et al. 2019), and the availability of tools that actively reinforce what children can-do in the processes of evaluating their skills, abilities and strengths are available. These measures were not particularly evident in the included RCTs, with a few exceptions.

In this review there were almost no instruments to measure a core aim of ECI – meaningful participation in important life situations and settings. Mobbs et al. (2021) provide a recent systematic review of participation measures for infants and toddlers, demonstrating that there are a small number of valid and reliable measures available.

An additional important gap in this evidence was the dearth of measures of the environment/context. There is a crucial need to address this gap, given the importance of inclusive and participatory practices, and the identified need to deliver ECI in natural contexts. Participation-focused interventions predominantly target aspects of the environment to support children's opportunities to attend and be involved in the activities and life situations important to early childhood.

For caregivers

Strength-based measures appropriate to capturing changes in caregiver and family outcomes are available and were used in several studies. These include:

- Early Intervention Parenting Self-Efficacy Scale
- Parent Sense of Competence Scale
- Family Empowerment Scale
- Family Outcomes Survey

For professionals

Although no included RCT or SR used the Measures of Processes of Care (King et al., 1996), it was an important early measure of the family-centredness of

professional behaviours. This instrument is currently being re-examined and revised by the authorship team at CanChild, using a co-design approach with parents, practitioners and researchers.[41] The revised measure may be of value to the field.

8.3 Focus of future research to address gaps

ECI research to support a best practice framework must meet the principles of all contemporary research. This includes using

- The most appropriate research design for the questions posed

- Co-design/co-production of research throughout the cycle

- Integrated knowledge translation approaches that support embedding implementation of effective approaches

- Selecting relevant outcomes for the field and applying strength-based, valid and reliable measures

- Methods of dissemination to ensure findings are findable, understandable and useable

Research that informs the effects and impacts of ECI practices needs to consider

- The role of diagnostically categorical vs non-categorical research. ECI practices/strategies and interventions should in many if not most instances apply to all children, regardless of diagnosis

- Time frames for understanding outcomes, and the impact of time required for change, on research design choices as well as on knowledge generation. How long is it necessary to follow children and families in research to understand important outcomes?

Research is urgently needed

- To co-design and test the outcomes for Aboriginal and Torres Strait Islander children with developmental concerns, delay or disability and their families, of ECI practices in their communities

- To co-design and test the outcomes of ECI approaches for other culturally and linguistically diverse families, who were typically absent in the body of evidence in this review

- To implement and test participatory and inclusive approaches in early childhood settings (home, school and community) to clarify the focus and targets for change – the context/environment rather than the child

- To understand the suite of available strength-based measures that are valid, reliable and tap the aims and outcomes of ECI, and to develop and validate additional measures if needed.

In addition, development of a living repository of research, with appropriate resourcing to enable updating as new evidence emerges is essential. Reviewing the evidence is an ongoing process, as is disseminating new ways of thinking and practicing.

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[41] https://www.canchild.ca/en/research-in-practice/current-studies/mpoc-2-0-measure-of-processes-of-care

Part Three: Synthesis and Implications

9 Synthesis and discussion

9.1 Implications for ECI services and service systems

A key question is what conditions are needed to ensure that a best practice framework is implemented consistently by ECI practitioners and services. A practice framework on its own will not be sufficient to ensure that ECI services use it as a guide to practice. There are several conditions that are needed to ensure that framework is adopted. These include conditions within ECI services, such as how supportive management is, and what hands-on training is provided. It also includes conditions that relate to the overall ECI service system, such as what information is provided to parents about the framework, what quality controls are in place, and how services are funded.

The funding question is particularly important since what is funded shapes what services are provided. The NDIS is the classic example of how getting this wrong can completely undermine best practice. The introduction of the NDIS was hugely disruptive of the ECI service system and led to significant changes in practice, with service providers moving away from home-based family-focussed services to clinic-based child-focussed services (Arefadib & Moore, 2019). To ensure that the new practice framework is used by ECI providers, the NDIS funding and planning mechanisms will need to be modified substantially (Gavidia-Payne, 2020).

Improvements in other services are also needed. This includes increasing the ability of ECEC services to be fully inclusive. It also includes improvements in the wider service system (e.g. the degree of coordination between the various services that families might need) as well as the extent to which the core care conditions that children and families need are met.

ECI services need to be embedded in a comprehensive and inclusive early childhood development service system that provides all families with the conditions they need to raise their children as they (and we) would wish, and that provides with ready access to the services they and their children need. Stand-alone ECI services will always struggle to meet all the multiple needs of diverse families. Specialist services for children with developmental disabilities are important but should not be set up as separate service systems. This conveys a message to mainstream services that they cannot meet the needs of children and that children with developmental disabilities need specialist support in segregated settings. This is misleading and not consistent with the evidence. Moreover, once you set up separate disability sector (e.g. special schools), it is very hard to disband it.

9.2 Implications for an ECI Practice Framework

This section groups all the implications identified throughout the Full Report under the following headings: consistency with national strategies and frameworks; meeting children's needs; meeting family's needs; inclusion and participation; early childhood intervention services; and features of a best practice framework. The implications are drawn from one or more sections of the whole report.

Consistency with national strategies and frameworks

It is recommended that the ECI Practice Framework:

- ensures that it is consistent with the aims of the key national early childhood strategies and frameworks

- is consistent with national quality, safeguarding and accountability frameworks

- ensures that it is consistent with the National Aboriginal and Torres Strait Islander Early Childhood Strategy; Safe and Supported; and the Safe and Supported Aboriginal and Torres Strait Islander First Action Plan 2023-2026.

Meeting children's needs

It is recommended that the ECI Practice Framework:

- is based on an understanding of the importance of the first 1000 days and how experiences during this period shape subsequent development for better or for worse

- is founded on a comprehensive understanding of how young children with and without disability develop and the conditions they need to thrive

- ensures that all a child's core needs are met, not just those needs relating to their disability

- seeks to ensure that the needs of children with developmental concerns, delays and disabilities for being, belonging and becoming are met

- builds on children's interests and self-directed activities

- provides multiple opportunities for children to practise functional skills in everyday environments

- identifies building the child's sense of agency and 'voice' as an important goal, and provides guidance on how agency develops at every stage of the child's life

- is based on a clear understanding of what child's agency and voice looks like at different ages and provides guidance on how to help families and others promote the child's growing ability to participate

- is based on an understanding of the impact that environmental factors have on development

- is based on a clear understanding of the conditions that children need to thrive and how these can be met
- highlights the importance of ensuring that children are provided with the positive conditions they need to thrive and be protected from adverse experiences

- promotes responsive caregiving and secure attachments as a major focus in ECI practice.

Meeting family needs

It is recommended that the ECI Practice Framework:

- has a positive focus, seeking to ensure that the children with developmental disabilities and their families are thriving

- adopts a positive approach regarding the child and family's future, offering families realistic hope

- focuses on promoting the capacity of parents and other caregivers to provide children with environments and opportunities to practise functionals skills and participate meaningfully

- focuses on building parental capacity to make decisions on behalf of their child and family

- is based on a clear understanding of the conditions that families need to make informed choices regarding goals, funding and services

- highlights the need to help families develop positive social networks

- highlights the importance of preferencing family values and cultural beliefs

- promotes the use of trauma-informed and culturally safe practices

- emphasises the importance of being aware of and the many ways in which families may be marginalised and have difficulties in accessing all the supports and services they need.

Inclusion and participation

It is recommended that the ECI Practice Framework:

- has a major focus on inclusion – ensuring that children and families have opportunities to participate in community and ECEC activities, as well as building the capacity of mainstream services to meet the needs of all children.

- promotes inclusion as a major goal for all children with developmental concerns, delays and disabilities

- focuses on ensuring children's meaningful participation in home, community and ECEC/school settings

- honours and respects culture, identity and culturally specific ways of being, becoming and belonging.

For practitioners

It is recommended that the ECI Practice Framework:

- highlights the need for ECI practitioners to have a good understanding of the core care conditions that children, parents/caregivers and families need to flourish

- highlights the need for ECI services to be part of a network of services seeking to ensure that all children and families have the conditions they need to flourish

- specifies the need for ECI practitioners to be able to provide developmentally appropriate guidance to parents of very young children with developmental concerns, delays or disabilities

- highlights the need for ECI practitioners to have tools for identifying family circumstances that may be compromising parental, child, and/or family wellbeing

- encourages an awareness of the possible presence of multiple conditions and ensures that they are addressed in a holistic way

- recognises the parents' needs for a diagnostic explanation for their child's developmental challenges but encourages a focus on building the particular functional skills the child needs, regardless of the diagnosis

- ensures that all parents and family core needs are met, not just those relating to the child's developmental concern, delay or disability

- includes goals for the child, the parents and the family as a whole in service plans

- emphasises the importance of basing service delivery on an understanding of what parents' value and want from services

- bases services on the issues that families say they most want help with

- provides guidance to practitioners regarding ethical challenges involved in decisions regarding developmental screening and early intervention.

Early childhood intervention services

It is recommended that the ECI Practice Framework:

- be based on a clear understanding of the overall aims of ECI and how they relate to aims for all children

- specifies the outcomes that are being sought for children and families

- provides ways of measuring child and family outcomes

- places authentic engagement and partnership building at the centre of ECI practice

- endorses family-centred practice as a core principle of ECI service delivery

- recognises culturally responsive practice as a central ECI practice

- encourages practitioners to seek and use feedback from parents to ensure that they are delivering services in a way that is respectful of family values and that builds family capabilities

- encourages approaches that seek to change environmental experiences and opportunities rather than trying to eliminate behaviours which may have an adaptive function for the child

- includes a description of a decision-making process that incorporates evidence-based programs, evidence-based processes, and client and professional values and beliefs

- highlights the importance of ECI practitioners keeping up to date with evidence-based strategies and processes
- stresses the importance of implementing evidence-based strategies and processes with fidelity
- provides ECI practitioners with guidance and tools to monitor both program and process fidelity
- ensures that the strategies that ECI providers use to address family needs are evidence-based
- supports the adaptation of evidence-based strategies to meet the needs and circumstances of individual children and families
- encourages ECI services to monitor the extent to which services are being delivered in ways that are consistent with best practices.

Features of a best practice framework

Elements of a framework

It is recommended that the ECI Practice framework includes the following elements:

- statement of aims and intended outcomes
- statement of theory of change – how ECI achieves its intended outcomes
- statement of key principles underpinning service delivery
- description of key practices showing what the principles look like in practice
- description of evidence-based strategies

Definitions and conceptualisations

It is recommended that the ECI Practice framework:

- provides clear definitions about, and differentiation between, principles and practices
- be grounded in a conceptualisation and operationalisation of an outcome-based system for all children, families, and communities in line with identified practices and guidelines
- specifies child outcomes (e.g., learning and participation in everyday environments); family outcomes (e.g., sustainability of everyday routines, advocacy skills; family and social supports) and community outcomes (e.g., engagement and participation in home and community)
- explicitly accommodates diverse cultural understandings of family, community, wellbeing, and disability and ensures all elements of the framework enable practice to be culturally responsive and appropriate
- ensures that the practice framework, and corresponding principles and practices, are informed and influenced by Aboriginal and Torres Strait Islander ways of knowing, being and doing
- is based on the principles most commonly identified in other frameworks: inclusion, natural environments, family-centred and strength-based practices

- considers other principles identified in some other frameworks: child-centred, culturally affirming, teamwork and partnership, evidence-based and outcomes- focused
- examines the suitability of terms such as 'intervention' that has been the cause of some debate nationally and internationally.

Resources and tools

It is recommended that the ECI Practice framework:

- contains resources for professionals and families to support understanding and adoption of child, family, and community outcomes in ECI service provision
- identifies and develops tools and resources that directly support family members and professionals in the decision-making process needed to plan and select best practices, and the implementation of evidence-informed practices
- develops tools to support professionals and families in the measurement of outcomes at different levels of service provision
- ensures practitioner and family input into the development of tools and resources
- describes research-based strategies and models of intervention that are consistent with the best practice principles and strategies
- creates evidence-based professional development initiatives for the identification of family outcomes and their inclusion in individual planning and goal development
- considers job-embedded learning supports
- considers the role of leadership in creating the conditions needed to support practitioners in providing high quality services
- develops a cycle of monitoring of outcomes at a system, individual child/family level that have a direct impact on all aspects of service provision
- updates current online professional development modules to align with the Framework.

Implementation considerations

It is recommended that the ECI Practice framework:

- develops a range of resources for families that are accessible and available in community languages and are culturally appropriate
- develops resources for training providers to support them in aligning programs to the framework
- utilises active implementation frameworks to ensure that the framework results in desired outcomes for children, families, and ECI professionals
- is supported by an actively updated evidence base to support practitioner, family and service decision making

- is supported by ongoing research to evaluate effects and impacts of ECI practices and that considers the matrix of inter-related practices both in the design of approaches for testing, and in the measurement of outcomes.

9.3 Concluding remarks

This report provides a detailed overview of the evidence considered using narrative, scoping and systematic review methods. These three reviews comprise the full Desktop Review delivered as the first step in the review of best practice in early childhood intervention. It is important to note that the evidence in the Full Report and Executive Summary is intended to be further informed by the consultations being undertaken across Australia, along with advice from national and international ECI experts. The consultations with practitioners, families, young people, Aboriginal and Torres Strait Islander communities and relevant organisations will provide crucial insights to inform the development of the Framework, and to inform issues of implementation of the resultant Framework.

References

Please note that the reference list is provided in two parts. The first are references to content through the body of the document. The second is a table of references related to the 185 studies selected from the systematic review search as providing relevant evidence for that review.

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Hernandez Ruiz, E., & Braden, B. B. (2021). Improving a parent coaching model of music interventions for young autistic children. *Journal of Music Therapy, 58*(3), 278-309. https://doi.org/10.1093/jmt/thab008	Hernandez Ruiz and Braden (2021)
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Lane, J. D., Ledford, J. R., Shepley, C., Mataras, T. K., Ayres, K. M., & Davis, A. B. (2016). A brief coaching intervention for teaching naturalistic strategies to parents. *Journal of Early Intervention, 38*(3), 135-150. https://doi.org/10.1177/1053815116663178	Lane et al. (2016)
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Rooks-Ellis, D. L., Howorth, S. K., Boulette, S., Kunze, M., & Sulinski, E. (2020). Effects of a parent training using telehealth: Equity and access to early intervention for rural families. *Journal of Childhood, Education & Society, 1*(2), 141-166. https://doi.org/10.37291/2717638X.20201242	Rooks-Ellis et al. (2020)
Ruppel, K. W., Hanley, G. P., Landa, R. K., & Rajaraman, A. (2021). An evaluation of "balance": A home-based, parent-implemented program addressing emerging problem behavior. *Behavior Analysis in Practice, 14*(2), 324-341. https://doi.org/10.1007/s40617-020-00490-3	Ruppel et al. (2021)
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Waddington, H., Curtis, S., van Noorden, L., Sigafoos, J., van der Meer, L., & Whitehouse, A. (2024). Evaluation of low-intensity therapist-delivered intervention in addition to parent coaching for young children with autism spectrum disorder. *International Journal of Disability, Development & Education*, *71*(3), 352-372. https://doi.org/10.1080/1034912X.2022.2120601	Waddington et al. (2024)
Watkins, L., O'Reilly, M., Kuhn, M., & Ledbetter-Cho, K. (2019). An interest-based intervention package to increase peer social interaction in young children with autism spectrum disorder. *Journal of Applied Behavior Analysis, 52*(1), 132-149. https://doi.org/https://dx.doi.org/10.1002/jaba.514	Watkins et al. (2019)
Windsor, K. S., Woods, J., Kaiser, A. P., Snyder, P., & Salisbury, C. (2019). Caregiver-implemented intervention for communication and motor outcomes for infants and toddlers. *Topics in Early Childhood Special Education*, *39*(2), 73-87. https://doi.org/10.1177/0271121418815250	Windsor et al. (2019)
Winstead, O., Lane, J. D., Spriggs, A. D., & Allday, R. A. (2019). Providing small group instruction to children with disabilities and same-age peers. *Journal of Early Intervention*, *41*(3), 202-219. https://doi.org/10.1177/1053815119832985	Winstead et al. (2019)
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Mixed Methods, qualitative data extracted	
Adams, D., Keen, D., Heussler, H., Wicks, R., & Roberts, J. (2019). Family outcomes for families of 4-5-year-old children on the autism spectrum who have received early childhood intervention in Australia. *Infants and Young Children, 32*(3), 186-200. https://doi.org/10.1097/IYC.0000000000000143	Adams et al. (2019)
Garnett, R., Davidson, B., & Eadie, P. (2022). Parent perceptions of a group telepractice communication intervention for autism. *Autism & Developmental Language Impairments, 7*(2), 1-23. https://doi.org/10.1177/23969415211070127	Garnett et al. (2022)

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Non-experimental studies	
Aaron, C., Chiarello, L. A., Palisano, R. J., Gracely, E., O'Neil, M., & Kolobe, T. (2014). Relationships among family participation, team support, and intensity of early intervention services. *Physical & Occupational Therapy in Pediatrics, 34*(4), 343-355. https://doi.org/10.3109/01942638.2014.899286	Aaron et al. (2014)
Ruble, L. A., Love, A. M. A., Wong, V., Grisham-Brown, J. L., & McGrew, J. H. (2020). Implementation fidelity and common elements of high quality teaching sequences for students with autism spectrum disorder in COMPASS. *Research in Autism Spectrum Disorders, 71*(1), 101493. https://doi.org/10.1016/j.rasd.2019.101493	Ruble et al. (2020)
Vibert, B. A., Dufek, S., Klein, C. B., Choi, Y. B., Winter, J., Lord, C., & Kim, S. H. (2020). Quantifying caregiver change across early autism interventions using the Measure of NDBI Strategy Implementation: Caregiver Change (MONSI-CC). *Journal of Autism and Developmental Disorders, 50*(4), 1364-1379. https://doi.org/10.1007/s10803-019-04342-0	Vibert et al. (2020)

Appendix A

An excel spreadsheet of the 224 identified publications is attached as a separate file.

Structured search on databases

Keywords and thesaurus terms related to the following groups were combined through the Boolean operator AND:

Population (e.g., line 1-4)

Disorder (e.g., line 6-9)

Intervention (e.g., line 11)

Qualifiers of intervention according to ECIA principles (e.g., line 12-13)

Outcome (e.g., line 15)

Setting of intervention (e.g., line 16-17)

Keywords related to the primary documents describing the ECI approach for each jurisdiction's framework (e.g., line 19) were also combined with the above search by the Boolean operator OR.

The same systematic search was also conducted independently on PubMed excluding the results already identified in MEDLINE. The search terms and history for MEDLINE is reported below.

Medicine Search Strategy

Table 22. Medline search strategy

#	Search terms	Records returned
1	(newborn* or new-born* or baby or babies or neonat* or neo-nat* or infan* or toddler* or pre-school* or preschool* or one-year-old* or one-years-old* or two-year-old* or two-years-old* or three-year-old* or three-years-old* or four-year-old* or four-years-old* or five-year-old* or five-years-old* or 1-year-old* or 1-years-old* or 2-year-old* or 2-years-old* or 3-year-old* or 3-years-old* or 4-year-old* or 4-years-old* or 5-year-old* or 5-years-old* or aged-one or aged-1 or aged-two or aged-2 or aged-three or aged-3 or aged-four or aged-4 or aged-five or aged-5 or less-than-5-years or less-than-five-years or younger-than-5-years or younger-than-five-years or five-year-old* or five-years-old* or six-year-old* or six-years-old* or seven-year-old* or seven-years-old* or eight-year-old* or eight-years-old* or nine-year-old* or nine-years-old* or 5-year-old* or 5-years-old* or 6-year-old* or 6-years-old* or 7-year-old* or 7-years-old* or 8-year-old* or 8-years-old* or aged-five or aged-5 or aged-six or aged-6 or aged-seven or aged-7 or aged-eight or aged-8 or five-years-of-age or 5-years-of-age or six-years-of-age or 6-years-of-age or seven-years-of-age or 7-years-of-age or eight-years-of-age or 8-years-of-age).tw,kf,hw.	2,298,899
2	exp *parents/ or *Caregivers/ or exp *Legal Guardians/ or exp *family/ or (parent* or father* or mother* or paternal* or maternal* or caregiver* or care-giver* or caretaker* or care-taker* or guardian* or family or families).tw,kf.	2,147,268

3	exp medical staff/ or exp nurses/ or exp nursing staff/ or personnel, hospital/ or Physical Therapists/ or Occupational Therapists/ or Schools, Nursery/ or (physiotherap* or psychologist* or clinician* or doctor? or nurs* or physician* or therapist* or paediatrician* or pediatrician* or educator* or teacher* or special-school*).tw,kf.	1,647,682
4	((hospital? or health* or medical or clinical) adj3 service*).tw,kf.	291,419
5	1 or 2 or 3 or 4	5,506,956
6	*Neurodevelopmental Disorders/ or *developmental disabilities/ or *intellectual disability/ or exp *learning disabilities/ or *"attention deficit and disruptive behavior disorders"/ or *attention deficit disorder with hyperactivity/ or *autism spectrum disorder/ or *asperger syndrome/ or *autistic disorder/ or *cerebral palsy/ or *Down Syndrome/ or *congenital abnormalities/ or *genetic diseases, inborn/	218,082
7	Disabled Children/	7,132
8	Vulnerable Populations/	13,082
9	(developmental-delay or developmental-disabilit* or neurodevelopment* or neuropsychologic* or intellectual-disabilit* or learning-disabilit* or developmental-concern* or vulnerable or at-risk or disabled or autism or cerebral-palsy or Down-syndrome or adhd or attention-deficit-hyperactivity-disorder* or genetic-disorder* or genetic-disease* or congenital-abnormalit* or congenital-impairment* or congenital-disorder* or congenital-disease*).tw,kf.	711,212
10	6 or 7 or 8 or 9	
11	(intervention* or evaluat* or program* or effective* or efficac* or chang* or success* or fail* or high* or low or lower or lowest or increase* or reduc* or harm* or implement* or model* or framework* or frame-work* or tool* or indicator* or approach* or outcome* or goal? or aim? or purpose? or principle?).tw,kf,hw. 23976316	815,630
12	(family-centred or family-centered or strength-based or culturally-appropriate or culturally-responsive or cultural-awareness or inclusive or participatory or teamwork or team-work or multi-disciplinary or multidisciplinary or collaborat* or capacity-building or skills-building or Parent-coaching or Parent-mediated or transdisciplinary or trans-disciplinary or interdisciplinary or inter-disciplinary or key-worker* or team-around-the-child or coaching or informed-decision-making or clinical-expertise or cultural-competence or clinical-competence).tw,kf,hw.	595,635
13	patient care team/	70,157
14	12 or 13	637,397
15	(Outcome* or diagnosis or identification or timeliness or development or prevention or activity or participation or relationship* or inclusion or wellbeing or well-being or connectedness or confidence or professional-development or training or values or quality or standard? or equity or accountability or skill? or competenc* or knowledge or disposition* or social-interaction* or cognitive-	

#	Query	Results
	development or eating or feeding or motor-skill* or language or communication or self-care or sensory-process* or function* or performance).tw,kf,hw.	
16	(early-child* or early-intervention* or early-learning).tw,kf. 68191	19,428,935
17	early intervention, educational/ or maternal-child health services/ or exp education, special/	20,056
18	16 or 17	86,237
19	(ECIA-Best-Practice-Framework or ECIA-guideline* or Early-Childhood-Intervention-System or Eurlyaid or European-Agency-for-Special-Needs-and-Inclusive-Education or DEC-Recommended-Practices-in-Early-Intervention or DEC-recommended-practices-in-early-education or Special-Education-Needs-and-Disability-Code-of-Practice or He-Pikorua-practice-framework).tw,kf.	2
20	5 and 10 and 11 and 14 and 15 and 18	1,338
21	limit 20 to yr="2014 -Current"	820
22	limit 21 to (case reports or comment or editorial or letter or preprint)	29
23	21 not 22	791
24	19 or 23	793

Structured search on Google Scholar

Seven independent searches were performed on Google Scholar on 5th of June 2024, using keywords related to the guidelines and/or practice framework of each of the seven jurisdictions. Keywords used in Google Scholar are listed in **Table 22**. Results for each independent search were limited to 200 and to the year in which the specific guideline was published, as listed in **Table 22**.

Table 23. Google scholar searches

Region	Keywords	Limited to year
Australia	"Early Childhood Intervention Australia National Guidelines Best Practice in Early Childhood Intervention"|"ECIA National Guidelines: Best Practice in Early Childhood Intervention"	2016
Europe	"Early Childhood Intervention System"|"Eurlyaid"|"European Agency for Special Education Needs"|"EU Quality framework for ECEC"	1993
UK	"Special Education Needs and Disability Code of Practice"	2015
US	"DEC recommended practices in early intervention"|"DEC recommended practices in early childhood special education"	2014
New Zealand	"He Pikorua"|"He Pikorua practice framework"	2020
Aboriginal and Torres Straits Islander	"National Aboriginal and Torres Strait Islander Early Childhood Strategy"|"Connected beginnings"	2019

Contact us

healthy-trajectories.com.au/eci-review/

official-ecireview@unimelb.edu.au