Autism is a neurodevelopmental disorder beginning at birth or shortly after. The characteristic symptoms have been described as a triad of impairments involving delay and deviance in social and communicative development, along with restricted interests and repetitive behaviours. Certain sensory, motor and cognitive characteristics are also associated with autism.

The term Autism Spectrum Disorders (ASD) covers diagnostic labels which include Autistic Disorder, High Functioning Autism, Asperger Syndrome, and Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS). Children with these labels all share the social and communicative symptoms which are the core of autism, but they vary in severity of symptoms and in level of functioning.

No specific cause has yet been identified although there is growing evidence that autism may be inherited to a significant degree. To help children with autism it is essential to focus on the earliest years of development, since this is a critically important time for early learning which powerfully affects the child’s future life course.

A review of the current evidence of outcomes of early intervention (EI) for children with autism was undertaken by the authors and colleagues in 2011, for the Australian Government’s Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA). This review is an update of the previous review done by Roberts and Prior for the Commonwealth Department of Health and Ageing, (DoHA) in 2006, and covers new research from 2006 to 2011. (Prior, M., Roberts J.M.A., Rodger, S., Williams, K., & Sutherland, R. (2011), A review of the research to identify the most effective models of practice in early intervention of children with autism spectrum disorders. Department of Families Community Services and Indigenous Affairs, Australia).

The full report can be found on the Department of Families, Housing, Community Services and Indigenous Affairs website.
There has been a rapid increase in the types of programs and interventions available for young children with autism, along with a substantial increase in the amount of research into the outcomes of interventions over the past six to seven years.

Evidence-based treatment guidelines are particularly important in the field of autism where there has been considerable controversy surrounding the value of various treatments, including those which are well promoted but lack scientific evidence for their perceived effectiveness, and some which may be harmful.

Previous reviews have found that only a small number of autism treatment programs have direct research evidence supporting their effectiveness, and there is continuing need for further research. Most interventions have not been evaluated adequately and many have not been evaluated at all.

In the absence of direct evidence, parents and professionals need to be aware of the guidelines for good practice in autism intervention, and the extent to which the rationale for any proposed intervention is based on research evidence about autism. Many families are choosing to try a variety of alternative therapies but there is little or no scientific evidence that these can make a significant difference to autism.

The review focuses on developmental/behavioural learning-based interventions for children under seven years old. Medically based interventions and those involving Complementary and Alternative Medicines (CAMS) are not addressed in this report.
Interventions based on learning for children with autism

**Behavioural Interventions**
Focus on application of learning theory and skill development. Use of Applied Behaviour Analysis (ABA). Example: Pivotal Response Training (PRT)

**Developmental Interventions**
Focus on development of social emotional capacities. Example: Relationship Development Intervention (RDI)

**Therapy Based Interventions**
Focus on communication and social development or sensory motor development. Usually designed for use with other interventions. Example: Picture Exchange Communication System (PECS).

**Combined Interventions**
Incorporate behavioural and developmental strategies. Often include sensory issues. Focus on working with and managing the characteristics of autism. Examples: TEACCH (Treatment and Education of Autistic and Communication Handicapped Children, Early Start Denver Model (ESDM)

**Family Based Interventions**
Focus on working with families to develop skills in working with their children. Example: The Hanen Program

**Other Interventions**
Example: Music Therapy
Evidence for Autism Specific Early Intervention

Evidence from high quality intervention trials is somewhat inconsistent. There are also few studies which are able to show whether real improvements have been made as a direct result of the interventions carried out. There is little well documented information about potential adverse treatment outcomes, and few studies that rigorously assess cost benefit of treatments.

High intensity interventions which address the child and family’s clearly documented needs, using behavioural, educational and/or developmental approaches have been shown to be the best of currently available early interventions. Research has consistently shown good outcomes for intensive ABA programs and there is growing evidence that intensive developmental and combined programs are also effective.

Some interventions have been proven to be ineffective and should be avoided.

Reviewers of programs remain cautious in their conclusions about longer term outcomes for children with autism, in social, adaptive or vocational areas, or greater independence in adulthood. There are too few well controlled studies to allow for confident claims about what types of intervention are best for improving long term learning and adaptive functioning.

We can define key elements which are necessary for effective intervention.

- An autism specific curriculum content focusing on attention, compliance, imitation, language, and social skills.
- Highly supportive teaching environments which deal with
the need for predictability and routine, and with challenging behaviours, obsessions, and ritual behaviours.

• Support for children in their transition from the preschool classroom.

• Support for family members via partnership with professionals involved in treatments.

Amount, timing and duration of treatment

The amount of intervention is usually described as number of hours of treatment per week. Fifteen to twenty-five hours per week is generally recommended for autism early intervention in the research literature (Roberts & Prior, 2006) with some programs recommending as much as 40 hours per week.

Quality of intervention is as important as quantity. Intervention should start as soon as characteristics of ASD are noted and continue for as long as required. Characteristics of autism are lifelong, however the need for support varies among individuals and according to their age and stage. Intensity, timing and duration of intervention should be based on individual needs.

Individual variation

It is important to account for the whole spectrum of autism disorders and to recognise that no one child with autism will have the same pattern of strengths and needs as another. In addition, families differ in their goals, strengths, and needs. Hence, no one program will suit all children with autism and their families. There are benefits from early, intensive, family-based treatment programs, so long as these are adapted to the child’s pattern of strengths and weaknesses and take account of family circumstances.
Good Practice Guidelines

There are a number of basic, good practice principles fundamental to working with all young children with special needs and their families.

Assessment for Intervention Planning

Assessment of individual child strengths and needs in all relevant areas (e.g. communication, cognitive development) should guide intervention content and provide information about the best techniques for an individual child. The process should not be confused with assessment for diagnosis of autism.

Individualised programming based on strengths and needs

Individual Plans (IP) go by many names, including Individual Education Plans (IEP), Individual Family Service Plan (IFSP), Personal Plans (PP), Individual Service Plans (ISP).

The basic goals of an Individual Plan are to document:

- the child’s strengths and needs
- goals for intervention, identified through a collaborative process with those involved with the child, including the family
- information about how these goals will be achieved and monitored

Every child receiving intervention should have an IP developed by all those involved, including family, early intervention providers, preschools or childcare services. IPs should be developed at least annually and reviewed at least every six months.

Review, evaluation and adjustment of program

Intervention programs need to be evaluated regularly to ensure that they continue to meet the needs of the child. This process involves a review of the IP goals, review of the child’s skills and needs to ensure that the
Key elements of effective interventions for children with autism

Relevant Program Content

Within this element there are five basic skill domains: ability to attend to elements of the environment; ability to imitate others; ability to comprehend and use language or alternative communication; ability to play appropriately with toys; and ability to engage socially with others.

Programs should address some or all of the key features of autism: communication, social interaction, repetitive behaviour and restricted interests. Associated features of autism such as sensory processing difficulties, anxiety, and intellectual disability/learning difficulties are additional important issues needing attention.

Highly Supportive Teaching Environments and Generalisation Strategies

Core skills are taught in a highly supportive teaching environment and then systematically generalised to more complex, natural environments and to a wider range of people. Utilisation of appropriate environmental supports, structured teaching, and visual supports to assist with learning and generalisation.

Predictability and Routine

Routines are established within and between sessions which are supported visually where appropriate and extended into family and other settings.

A Functional Approach to Challenging Behaviours
Focus on the prevention of problem behaviour by increasing interest and motivation, structuring the environment, and increasing positive behaviour support including teaching alternative appropriate skills, and communication strategies to replace problem behaviours. If problem behaviour persists, use functional behaviour analysis to determine its triggers, function, and consequences, and adapt environment to avoid triggers and to reinforce appropriate and adaptive behaviour. Teach alternative appropriate skills.

**Transition Support**

There should be systematic connection and integration between the early intervention program and the next stage for the child, whether it is transition to school or to another therapeutic or special educational setting.

Transition supports for children with autism can include: assisting the child to learn appropriate skills (e.g. school readiness); collaboration and communication with new settings (e.g. schools) about the child’s current skills and needs; and actively supporting transition to a new environment through visits, visual supports and stories where appropriate. Parents, teachers and therapists need to collaborate in preparing the child for transition.

**Family Involvement**

Families should be meaningfully involved in assessment, and in program development and implementation. Effective programs are sensitive to the stresses encountered by families of children with autism, and provide parent groups and other types of emotional support. Families should also be supported to utilise strategies taught as part of the interventions at home, and empowered to encourage communication, social interaction and effective behaviour management at home and in the community. Families are often in need of respite care, hence reliable provision for this service is essential to decrease family burden and stress.
Use of visual supports

Provision of augmentative communication methods for expressive and receptive communication, and use of visually cued instruction to provide the child with a predictable and readily understood environment.

Multi-disciplinary collaborative approach

Effective programs are multidisciplinary and collaborative. Assessments and programs are provided by a number of individual service providers, such as speech pathologists, psychologists and teachers, who need to communicate and collaborate with each other to develop goals, provide intervention and evaluate progress.

Additional elements

Interventions reflecting good practice are also characterised by

- inclusion of typically developing peers
- promotion of independent functioning throughout the intervention programs
- incorporation of obsessions and rituals into programs to engage the child and reinforce responses

Staffing

Teachers, therapists, and child-care personnel should be specifically trained in working with children with autism and have knowledge and skills required for their special needs. The majority of the staff in a service should have a minimum of two years’ experience and expertise in autism.

Practitioners need to provide evidence of continuing professional development in autism as well as experience gained through previous work settings that enables them to provide evidence-based interventions for children with ASD. It is also important to consider staffing ratios, especially in group interventions. Implementation of individual child goals in a small group context is not feasible with less than two adults for six children.
Research and Evaluation of Program

Evaluation of intervention outcomes should be built into early intervention programs using systematic assessment of the child’s social, cognitive and adaptive functioning before, during and at the end of the program.

Interventions for Infants

Increasingly autism is being identified very early in development. It has been shown that diagnosis can be valid and reliable in children younger than two years. In future it is likely that autism will be diagnosed for most children in the toddler age period (18 - 30 months).

Very early therapeutic intervention is likely to improve developmental and adaptive outcomes so it will be necessary to develop, implement and evaluate interventions for this age group in Australia. Trials of interventions in the USA and UK are focusing on training parents and professionals to work with very young children in the key areas of social responsiveness, attention skills, early communication skills, and interactive play. The number of interventions for infants is likely to increase.

Information that Families Need

Families should ask for more than personal stories and testimonials of treatment success when deciding which intervention programs would be safe and beneficial for their child. The following checklist of useful questions to ask will assist in choosing an intervention for your child (for the complete checklist see Positive Partnerships fact sheets).

For information about services and questions families should ask when considering an autism intervention, see also the autism specific pages on the Raising Children Network website.
Questions that parents should ask when considering an intervention for their child with autism:

- What are the specific aims of the program?
- Are there any medical or physical risks?
- What assessments of individual children are carried out prior to the intervention?
- What is the evidence base for this intervention?
- What evaluation methods have been used to assess the outcome of intervention?
- Do the proponents of the treatment program have a financial stake in its adoption?
- What is known about the long-term effects of this treatment?
- How much does it cost?
- How much time will be involved?
HCWA Early Interventions Table

The following table indicates the eligibility of interventions for funding under the Helping Children with Autism (HCWA) Package.

This table is based on the list provided in Table 6 in the 2011 Review*.

**ER** = Eligible based on established research evidence

**EE** = Eligible based on emerging or best practice evidence

**EO** = Eligible only where used in partnership with other eligible therapy/ies

**NE** = Not Eligible - Insufficient or no established, emerging or best practice evidence

### Comprehensive Programs, Including ABA, EIBI, Combined Approaches and Developmental Approaches

**ER** Applied behavioural analysis (ABA) or early intensive behavioural intervention (EIBI)*

**EE** Early Start Denver Model (ESDM)*

**EE** TEACCH - Treatment and education of autistic and related communication handicapped children*.

**EE** LEAP - Learning Experiences – An Alternative Program for Pre-schoolers and Parents.

**EE** PACT - Pre-school Autism Communication Trial.

**EE** Building Blocks - centred based and home-based.

**EE** SCERTS - Social-Communication, Emotional Regulation and Transactional Support*.

**EE** DIR/Floortime Approach*

**EE** Developmental Social-Pragmatic (DSP) model*

**EE** RDI - Relationships Development Intervention*.
The P.L.A.Y. Project® - Play and Language for Autistic youngsters.
Miller Method

Service Based Treatments Specific to Autism
SERVAM - Sensory considerations, Environmental management, Routines and planned change, Visual supports, Autism friendly communication, Motivation.
Play Links
Autism Specific Long Day Care - Supported placement in inclusive long-day care setting. Regular IEPs, IFSPs, regular therapy sessions and consultations.

Family Based Including Parent Training
Hanen ‘More than Words’*
Hanen ‘It takes two to talk’
Pre-schoolers with Autism - Manualised parent training program.
Triple P – Stepping Stones adaptation
Other parent training programs - Any training provided for parents/carers by approved service providers must adhere to the key elements of effective early intervention, must be autism specific, individualised and have a maximum of six parents in a group.

Therapy Based
Speech Generating Devices (SGD) and other Augmentative & Alternative Communication (AAC)*
PECS – Picture Exchange Communication System*.
Signing/Other AAC*
Alert Program for self-regulation
Social Stories*

Social Stories*
EO Pragmatic Language Groups
EO Aquatic OT Programs – Autism specific.
NE CognitiveBehaviour Therapy
NE Phonological Awareness/Literacy Groups
NE Sensory Integration Therapy/Sensory Diet/Multi-sensory Environment
NE Auditory Integration Therapy* 
NE Fast ForWord Program
NE PROMPT (PROMPTS for Restructuring Oral Muscular Phonetic Target).

Single Element Components Addressing One Aspect of ASD
EO PALS Social Skills Program - Playing and Learning to Socialise 
EO Toilet Time© - Toilet Training for Young Children with Developmental Delay.
EO Music therapy (when autism specific)*.
NE SoSAFE! (not relevant to early intervention age-group).
NE “Social Eyes”
EO Circles of Support - inclusion program encourage other children to help the child participate in activities.
NE “Super-nanny” - whole family support provided by a mental health nurse in the home.
NE Narrative therapy
NE Physiotherapy / motor skills NOTE: with exceptions made for children with Rett Syndrome.

Teacher/ Centre Support
**Teacher training** – NOTE: exceptions may be made when individualised or small group training is required to assist the transition of a child to pre-school or school.


Published on the Department of Families, Housing, Community Services and Indigenous Affairs website

*More information on these interventions can be found on the autism spectrum disorder (ASD) specific pages of the Raising Children’s Network website.*

Please note that the list of interventions identified in the table above is not exhaustive and is intended to be a guide only. FaHCSIA will regularly review the list of eligible and ineligible early interventions. For more information contact the ASD Support Helpdesk on 1800 778 581 or email ASD.Support@fahcsia.gov.au
The Positive Partnerships Planning Matrix

The following information is taken from the Positive Partnerships website. See page 22 for more information on Positive Partnerships.

Often a student/child with autism will have many people involved in their support team. Sharing up to date information about the individual, the impact that autism has on the student/child’s functioning, and the strategies that are known to be successful (or not successful) can be challenging. The Matrix is a tool which may be valuable in this situation.

• Communications;
• Social Interaction;
• Rigid & Repetitive Behaviour; and
• Learning Style.

• Characteristics;
• Impact; and
• Strategies.

What is the Matrix?
The Matrix is a simple yet highly useful tool that can enable parents and others working with individuals with autism, to create a snapshot of the individual. It clearly describes how autism impacts on their life and the key strategies that work for a specific student/child.
Who can complete the Matrix?
The Matrix is completed by a child’s support team. This will include parents/carers, school personnel and allied health professionals. Completing the Matrix can be done collectively or as individuals.

When would a Matrix be completed?
Ideally, a Matrix would be completed when a child receives the diagnosis of autism, or when they start in a new environment (e.g. school). The Matrix is designed to be an evolving document, reviewed regularly with information added to and changed as needed.

What are the components of the Matrix and what do the components mean?

Across the top...
- **Communication**: How the child communicates with others. Including how they express themselves and their ability to understand what is communicated to them.
- **Social skills**: The child’s understanding of social rules, their ability to make and maintain friendships, their understanding of emotions and reading and responding to other people.
- **Rigid and repetitive behaviours**: How the child responds to routines and change, presence or absence of unusual movements or vocalisations, their special interest/s.
- **Sensory processing**: whether the child is sensitive, neutral or minimally responsive to touch, taste, smell, sights, sounds, balance and sense of their body in space.
• **Learning styles**: their ability to plan ahead, their learning strengths and difficulties, how they prefer to learn e.g. visual versus auditory input.

**Down the side...**

• **Characteristics**: the features, difficulties, strengths and differences that the child displays in each of the areas above.

• **Impact**: what effect a particular characteristic has on the child at home, at school and in the community.

• **Strategies**: What you are doing or would like to be doing to support the child. In an educational setting, this will include adjustments to the curriculum, instruction and the learning environment. (Florida’s PBS project at the [UCF](http://www.ucf.edu) website.)

**What are some possible uses and value of the Matrix?**
The Matrix is a way to systematically gather and record information about the characteristics and impact of autism, relevant to the child.

A completed Matrix:

• Will be a “snapshot” of the child. As the child develops and changes, the Matrix is adapted and updated.

• Is a tool to enable family, school staff and other professionals to work collaboratively. The Matrix allows you to describe the child’s strengths and needs, the impact of these characteristics and strategies to support the child.

• Can be used to support planning and transition.

• Can be used to communicate the important information about the impact of autism to siblings, extended family members, baby sitters, sports coaches, future employers etc.
For more detailed information, including a video see the Positive Partnerships website.
Australian Government Services for children with ASD and their families and carers

Since the Helping Children with Autism (HCWA) Package was announced in October 2007, over $220 million in services have been provided and the Government has committed to continuing to fund this Package. The HCWA Package aims to address the need for services for children with Autism Spectrum Disorder (ASD), their families and carers and is being delivered by FaHCSIA, DoHA and the Department of Education, Employment and Workplace Relations (DEEWR).

The objectives of the HCWA funding are to:

- provide families with best practice early intervention support services including financial assistance, as well as providing education and support through better access to these services; and
- enhance the service system to increase the availability of best practice early intervention services, advisory services, education and support, and relevant information.

**Initiatives funded under HCWA Package include:**

**Early Intervention service**
The Early Intervention service provides assistance for families of children diagnosed with ASD up to the age of six, to access funding of up to $12,000 (maximum of $6,000 in a financial year) until their seventh birthdays. To be eligible for the Early Intervention services children must be registered by an Autism Advisor as eligible to access the services before their sixth birthdays. More information is available on the Department of Families, Housing, Community Services and Indigenous Affairs website.
**Autism Advisor service**

The full-time equivalent of 32 Autism Advisors are funded nationally to provide specific information and support for parents and carers about access to early intervention funding and appropriate early intervention services. Autism Advisors provide a link between clinical diagnosis and access to early intervention and support services. The Autism Advisor service is provided by the Autism Associations in each state and territory – see contact details below.

**ASD Playgroups (PlayConnect)**

PlayConnect provides play based learning opportunities for children up to six years of age with ASD or ASD like symptoms. The groups are conducted in a secure, supportive environment with parents and carers. A child does not require a formal ASD diagnosis to join a playgroup and siblings are welcome to attend. PlayConnect Playgroups are coordinated by Playgroups Australia, which can be contacted on 1800 171 882.

**ASD Website**

The Raising Children Network website is funded to provide ASD specific information, online resources and interactive functions to support parents, carers and professionals. The website informs families and carers about services available for their children. It also provides information that helps families and carers to cope with pressures they face in raising their children and helps to maximise the day to day functioning of the family. See the [Raising Children’s Network](#) website.

**ASD Workshops (Early Days workshops)**

Education and support workshops provide flexible, meaningful options through a national program of information that includes practical strategies to assist families and carers. The workshops, referred to as Early Days Workshops, will be provided to family members or carers of children aged up to six years with ASD or ASD like symptoms. Workshops are provided by the Autism Associations in each state and territory with online workshops available on the Raising Children website (see above).

**Autism Specific Early Learning and Care Centres (ASELCCs)**

ASELCCs provide early learning programs and specific support to children aged up to six years with ASD in a long day care setting. ASELCCs provide parents with support in the care of their children, give them the opportunity to participate more fully in the community and have a positive impact on the children’s long term life outcomes. The six ASELCCs funded under this program are located in: South Western Sydney, Brisbane, Adelaide, North West Tasmania, Melbourne, and Perth. Further information on locations is available at the [Department of Families, Housing, Community Services and Indigenous Affairs](#) website.

**Medicare Items (Department of Health and Ageing)**

Under the HCWA Package, children with ASD (including those over the age of six) may also be eligible for Medicare items. A Medicare item for the development of a treatment and management plan is available for children under the age of 13. Medicare items are also available for up to four allied health diagnostic services and 20 allied health services (in total) for every eligible child.

Specifically, Medicare items are available for:
• paediatricians and psychiatrists to diagnose and develop a treatment and management plan for a child aged under 13 years on referral from a general practitioner,
• audiologists, occupational therapists, optometrists, orthoptists, physiotherapists, psychologists and speech pathologists to provide up to four services in total per child per lifetime, to collaborate with the paediatrician or psychiatrist on the diagnosis, where required. These services must be provided before the child’s 13th birthday, and
• audiologists, occupational therapists, optometrists, orthoptists, physiotherapists, psychologists and speech pathologists to provide up to 20 early intervention treatment services in total per child per lifetime following a diagnosis of autism/PDD for the child, and consistent with the treatment and management plan prepared by the referring practitioner. These services must be provided before the child’s 15th birthday, provided an autism/PDD treatment and management plan was in place before the child’s 13th birthday.

More information is at the Department of Health’s website.

Note: Children and young people with ASD may also be eligible for the Enhanced Primary Care and Better Outcomes for Mental Health Medicare Health Care Plans

Positive Partnerships

DEEWR is delivering two initiatives under the HCWA Package which aim to foster positive partnerships between schools and families to improve the educational outcomes of children with ASD. The initiatives, which have been named Positive Partnerships, provide:

• professional development for teachers and other school staff who are working with students with ASD to increase their understanding, skills and expertise in working with those students; and
• workshops and information sessions for parents and carers of school aged children with ASD to assist them to develop productive partnerships with their child’s school teachers and school leaders.

For more information on Positive Partnerships please visit the Positive Partnerships website. For more information on current Australian Government support for students with disability please visit the Department of Education, Employment and Workplace Relations website.

More detailed information regarding the HCWA Package can be found at the Department of Families, Housing, Community Services and Indigenous Affairs website or you can call the ASD Support Helpdesk on 1800 778 581. Enquiries can also be emailed to ASD.Support@fahcsia.gov.au.
State and Territory Government services for children with ASD and/or other disability

**NSW**
Information, referral and intake office details are at the ADHC website or call ADHC Central Office on 02 9377 6000

**VIC**
Contact Intake and Response on 1800 783 783, TTY 1800 008 149 or email disability.services@dhs.vic.gov.au

**WA**
Disability Services Commission general enquiries to (08) 9426 9200 or 1800 998 214 (country), TTY (08) 9426 9315 or dsc@dsc.wa.gov.au

**QLD**
Contact Disability Services on 1800 177 120, TTY 1800 010 222 or email disabilityinfo@disability.qld.gov.au

**ACT**
Contact Disability ACT General Enquiries on 133 427, Disability Information Service (02) 6207 1086, TTY (02) 6205 0888 or email DisabilityACT@act.gov.au

**SA**
Contact Disability Information Services on 1300 786 117 or TTY/Voice 133 677

**NT**
Contact the Office of Disability on 1800 139 656

**TAS**
Contact Gateway Services on 1800 171 233

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**Autism Associations**

**NSW**
1800 069 978 or (02) 8977 8300
Autism Spectrum website

**VIC**
1300 308 699 or (03) 9657 1605
Amaze website

**WA**
1800 636 427 or (08) 9489 8900
Autism website

**QLD**
(07) 3273 0000
Autism QLD website

**ACT**
(02) 6176 0514
Autism Asperger website

**SA**
1300 288 476 or (08) 8379 6976
Autism SA website

**NT**
(08) 8948 4424 Autism NT website
Fax: (08) 89484014

**TAS**
1300 288 476 or (03) 6423 2288
Autism TAS website