Appendix 16. Evidence tables of economic evaluations

Psychosocial interventions aimed at core autism symptoms

Reciprocal-social communication

Reference to included studies

1. Byford S, Cary M, Barrett B, Aldred CR, Charman T, Howlin P, Hudry K, Leadbitter K, Le Couteur A, McConachie H, Pickles A, Slonim V, Temple KJ, Green J, and the PACT Consortium. The cost-effectiveness of a parent-mediated communication-focused therapy for pre-school children with autism: the Pre-school Autism Communication Trial (PACT). Unpublished manuscript
2. Marsh K, Bertranou E, Suominen H, Venkatachalam M. An economic evaluation of speech and language therapy. Matrix Evidence, 2010

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Byford *et al.*, unpublished UK Cost effectiveness analysis	Interventions: Pre-school autism communicatio n intervention in combination with treatment as usual (PACT+TAU) TAU alone	Children with autism, aged 2-5 years RCT [GREEN2010] Source of clinical effectiveness data: RCT (N=152) Source of resource use data: RCT (n=143) – data collected from parents and NHS clinical notes Source of unit costs: national unit costs, mainstream retailers for non-prescription drugs, national surveys for nursery & day care, personal communication with government departments for educational costs; parents' salary for estimation of productivity losses; cost of home care worker used to estimate informal care	Costs: Statutory & non-statutory hospital, community & school-based health & social services; education; childcare; parental out-of-pocket expenses (aids & home adaptations, training courses attended etc.); parental productivity losses; parental informal care Mean (sd) total service cost per child: PACT & TAU: £6,539 (£3,378) TAU: £2,050 (£1,633) (p=0.000) Mean (sd) total societal cost per child: PACT & TAU: £57,919 (£30,157) TAU: £56,534 (£29,375) (p=0.788) Primary measure of outcome: % of children with a clinically meaningful improvement, expressed by an ADOS-G score improvement of ≥ 4 points % of children with clinically meaningful improvement: PACT + TAU: 53% TAU alone: 41% (p=0.074)	Results of bootstrapping: PACT & TAU greater probability of being cost-effective compared with TAU above WTP £265 (health & social services perspective) or £100 (societal perspective) per 1% increase in % of children with clinically meaningful improvement	Perspectives: health & social services; societal Currency: UK£ Cost year: 2006-7 Time horizon: 13 months Discounting: not needed Applicability: partially applicable Quality: minor limitations

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Marsh *et al.*, 2010 UK Cost analysis	<u>Interventions:</u> Parent-mediated communication-focused treatment (PACT) (stated as enhanced speech and language treatment in the report) in addition to standard care Standard care (stated as local speech and language treatment in the report)	Children with core autism, aged 2-4 years Decision analytic modelling Source of resource use: RCT (GREEN2010) and other published literature Source of unit costs: national sources Source of clinical effectiveness data: RCT (GREEN2010), other published literature and further assumptions regarding the link between parent synchronisation, changes in verbal IQ and type of accommodation	<u>Costs:</u> Intervention, health accommodation (supported, residential, hospital) Total cost for 8,800 children with autism aged 2-4 years in the UK: PACT: £4,233.2million Standard care: £4,243.0 million Difference: -£9.8million	N/A	Perspective: NHS & PSS (plus productivity losses of parents) Currency: UK£ Cost year: 2009 Time horizon: lifetime (until the age of 63 years) Discounting: 3.5% Applicability: partially applicable Quality: very serious limitations (controversial methods used to link parent synchronisation and increase in verbal IQ; parent synchronisation was used although it was a secondary outcome in RCT; the primary outcome, which was not favourable, was ignored)

Psychosocial interventions aimed at coexisting problems or disorders and adaptive behaviour

Psychosocial interventions for adaptive behaviour

References to included studies

1. Chasson GS, Harris G, Harris GE. Cost comparison of early intensive behavioral intervention and special education for children with autism. Journal of Child and Family Studies 2007; 16(3): 401-413
2. Jacobson JW, Mulick JA, Green J. Cost-benefit estimates for early intensive behavioral intervention for young children with autism - General model and single state case. Behavioral Interventions 1998; 13(4): 201-226. EXCLUDED
3. Motiwala SS, Gupta S, Lilly MB, Ungar WJ, Coyte PC. The Cost-Effectiveness of Expanding Intensive Behavioural Intervention to All Autistic Children in Ontario. Healthcare Policy 2006; 1(2):135-151.
4. Peters-Scheffer N, Didden R, Korzilius H, Matson J. Cost comparison of early intensive behavioral intervention and treatment as usual for children with autism spectrum disorder in the Netherlands. Research in Developmental Disabilities 2012; 33(6): 1763-1772.

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Chasson *et al.*, 2007 US Cost analysis	<u>Interventions:</u> Early Intensive Behavioural Intervention for 3 years (EIBI) Standard educational service for children with autism, comprising special education for 18 years	Children with autism, aged 4 years at the start of analysis Economic modelling Source of resource use and unit costs: state estimates (Texas) based on assumptions and personal communication Source of clinical effectiveness data (proportion of children receiving EIBI who improve and do not require special education): estimates based on published literature	<u>Costs:</u> EIBI, special education (state-budgeted, local, federal, and private); regular education costs omitted since common in both arms (baseline, standard costs) Mean cost per child: EIBI: $151,500 Standard educational service: $360,000 Cost difference per child: -$208,500	N/A	Perspective: public (state, local, federal) & private – confined to intervention costs Currency: US$ Cost year: probably 2004 Time horizon: 18 years Discounting: not applied Applicability: partially applicable Quality: potentially serious limitations

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Jacobson *et al.*, 1998 US Cost analysis	<u>Interventions:</u> Early Intensive Behavioural Intervention (EIBI) for children with autism No intervention	Children with autism or pervasive developmental disorder (PDD), aged 3 years at the start of analysis Economic modelling Source of resource use and unit costs: state estimates (Pennsylvania) based on published literature Source of clinical effectiveness data (effectiveness of EIBI): estimates based on assumptions – different values tested to estimate financial benefits	<u>Costs:</u> EIBI, regular, special and intensive special education, , family support services, supplemental security income/aid to dependent children (SSI/ADC), adult developmental disability services, adult home- and community based services, intensive adult community services, adult institutional services, supported work services, supported wages <u>Total net cost of EIBI per person (from 3 to 55 years):</u> For effectiveness of EIBI 20% (normal functioning) -$ 656,385 For effectiveness of EIBI 30% (normal functioning) -$798,251 For effectiveness of EIBI 40% (normal functioning) -$940,118 For effectiveness of EIBI 50% (normal functioning) -$1,081,984	NA	Perspective: societal (public & wages) Currency: US$ Cost year: 1996 Time horizon: 52 years Discounting: possibly 3%, except SSI/ADC which was discounted at 1,5% Applicability: partially applicable Quality: very serious limitations (no intervention implicitly assumed to lead to zero levels of normal functioning)

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Motiwala *et al.*, 2006 Canada Cost effectiveness analysis	<u>Interventions:</u> Expansion of 3 years of Early Intensive Behavioural Intervention to all eligible children (EIBI) Standard service, including 3 years of EIBI (37% of eligible children) and no intervention (63% of eligible children) No intervention	Children with autism, aged 2-5 years Economic modelling Source of resource use and unit costs: provincial government data (Ontario, Canada) Source of clinical effectiveness data (proportion of children with normal functioning, semi-dependent and very dependent): published literature and further assumptions	<u>Costs:</u> EIBI cost (training costs of therapists; contractual payments to service providers; salaries, benefits & overheads incurred by provincial civil servants), educational and respite services, adult day programmes, accommodation, supported employment Mean total cost per person: EIBI: $960,595 Standard service: $995,074 No intervention: $1,014,315 Primary measure of outcome: number of dependency-free years per person Number of dependency-free years per person: EIBI: 14.0 Standard service: 11.2 No intervention: 9.6	EIBI dominant over standard service and no intervention Standard service dominant over no intervention Results sensitive to EIBI efficacy and discount rate	Perspective: public (provincial government in Canada) Currency: Canadian$ Cost year: 2003 Time horizon: up to 65 years of age Discounting:3% Applicability: partially applicable Quality: potentially serious limitations

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Peters-Scheffer *et al.*, 2012 Netherlands Cost analysis	<u>Interventions:</u> Early Intensive Behavioural Intervention (EIBI) plus treatment as usual (TAU) TAU alone	Children with autism of preschool age Economic modelling Source of resource use and unit costs: national data and assumptions Source of clinical effectiveness data (proportion of children with normal functioning, semi-dependent and very dependent): review of published meta-analyses – selection of data based on their applicability to the Dutch setting / naïve addition of data across treatment arms and further assumptions	<u>Costs:</u> EIBI (personnel, capital assets, transportation, materials and supplies), educational services, speech therapy & physiotherapy, daytime activities and care, social benefits for parents, payments for future adult living expenses, day programs or supported work, sheltered environment services Mean total cost per child: EIBI: €2,578,746 TAU: €3,681,813 Difference: -€1,103,067	EIBI less costly than TAU Using more optimistic data for TAU: cost difference: -€250,761	Perspective: public services Currency: Euros (€) Cost year: likely 2011 Time horizon: up to 65 years of age Discounting: not undertaken Applicability: partially applicable Quality: potentially serious limitations