

Appendix R: Health economic evidence – evidence tables

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Abbreviations

A&E	accident and emergency
BAI-Y	Beck Anxiety Inventory-Youth
BDI-Y	Beck Depression Inventory-Youth
CBLD	challenging behaviour and learning disabilities
CBT	cognitive behavioural therapy
CI	confidence interval
GP	general practitioner
HCI	health-check intervention
HD	health diary
N	number of participants
NHS	National Health Service
PSA	probabilistic sensitivity analysis
PT	parent training
QALY	quality-adjusted life year
RCT	randomised controlled trial
SD	standard deviation
TAU	treatment as usual
WL	wait list

R.1 Psychological and psychosocial interventions to prevent, treat and manage mental health problems in people with learning disabilities

R.1.1 Psychological interventions aimed at reducing and managing mental health problems in people with learning disabilities - reference to included studies

1. NICE guideline. Challenging behaviour and learning disabilities: Prevention and interventions for people with learning disabilities whose behaviour challenges (2015)
2. Hassiotis A, Serfaty M, Azam K, et al. (2013) Manualised Individual Cognitive Behavioural Therapy for mood disorders in people with mild to moderate intellectual disability: A feasibility randomised controlled trial. *Journal of Affective Disorders* 151, 186-195.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
NICE CBLD guideline, 2015 UK Cost-utility analysis	<u>Interventions:</u> Parent training (PT) Wait list (WL)	Children and young people with learning disabilities and behaviour that challenges Decision-analytic modelling <u>Source of clinical effectiveness data:</u> CBLD guideline meta-analysis <u>Source of resource use data:</u> RCT-reported data & assumptions <u>Source of unit costs:</u> national unit costs	<u>Costs:</u> intervention (PT) <u>Total cost per 100 families:</u> PT: £36,219 WL: £0 Cost difference: £36,219 <u>Primary measure of outcome:</u> QALY <u>Mean number of children and young people's QALYs per 100 families:</u> PT: 79.28 WL: 77.94 Difference in QALYs: 1.33	ICER PT vs. WL: £27,148/QALY Probability of PT being cost-effective at £20,000 and £30,000/QALY: 0.43 and 0.52, respectively One-way sensitivity analysis: Reducing relapse for parent training: ICER £23,767/QALY Severe challenging behaviour at baseline:	<u>Perspective:</u> NHS and PSS <u>Currency:</u> GB£ <u>Cost year:</u> 2013 <u>Time horizon:</u> 61 weeks <u>Discounting:</u> not needed <u>Applicability:</u> partially applicable <u>Quality:</u> 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
				ICER £14,805/QALY	

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Hassiotis <i>et al.</i> , 2013 UK Cost effectiveness analysis	<u>Interventions:</u> Manualised individual cognitive behavioural therapy (CBT) consisting of 16 weekly 1hour sessions in addition to treatment as usual Treatment as usual (TAU)	Adults with mild to moderate learning disability experiencing a mood disorder or symptoms of depression and /or anxiety RCT (Hassiotis 2013) <u>Source of clinical effectiveness data:</u> RCT (N=32) <u>Source of resource use data:</u> RCT (N=32) <u>Source of unit costs:</u> national unit costs	<u>Costs:</u> intervention (CBT), inpatient and outpatient care, emergency visits, community care, day care, paid care. <u>Total cost (SD) per person:</u> Before treatment: CBT: £4,551 (£7,568); TAU: £2,420 (£6,289) Cost difference: £2,131 After treatment: CBT: £7,327 (£8,007); TAU: £1,677 (£2,415) Cost difference: £5,650 <u>Primary measure of outcome:</u> mean change in the Beck Depression Inventory-Youth (BDI-Y) and the Beck Anxiety Inventory-Youth (BAI-Y) score from baseline to endpoint <u>Mean change (95%CI)</u> BDI-Y score: 0.10 (-8.56 to 8.76) favouring CBT BAI-Y score: 2.42 (-5.27 to 10.12) favouring TAU	Unclear due to small number of participants & high uncertainty in the results	<u>Perspective:</u> NHS and social care <u>Currency:</u> GB£ <u>Cost year:</u> 2009/10 <u>Time horizon:</u> 16 weeks <u>Discounting:</u> not needed <u>Applicability:</u> partially applicable <u>Quality:</u> very serious limitations

R.2 Other interventions to prevent, treat and manage mental health problems in people with learning disabilities

R.2.1 Annual health checks aimed at preventing mental health problems in people with learning disabilities - references to included studies

1. Cooper S-A, Morrison J, Allan LM, McConnachie A, Greenlaw N, Melville CA, Baltzer MC, McArthur LA, Lammie C, Martin G, Grieve EAD, Fenwick E (2014) Practice nurse health checks for adults with intellectual disabilities: a cluster-design, randomised controlled trial. *The Lancet Psychiatry*, 1(7), 511–521.
2. Gordon LG, Holden L, Ware RS, Taylor MT, Lennox NG (2012) Comprehensive health assessments for adults with intellectual disability living in the community - weighing up the costs and benefits. *Australian Family Physician* 41(12), 969-972.

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Lennox N, Bain C, Rey-Conde T, Taylor M, Boyle FM, Purdie DM, Ware RS (2010) Cluster randomized-control trial of interventions to improve health for adults with intellectual disability who live in private dwellings. *Journal of Applied Research in Intellectual Disabilities*, 23(4), 303–11.

3. Romeo R, Knapp M, Morrison J, Melville C, Allan L, Finlayson J, Cooper SA (2009) Cost estimation of a health-check intervention for adults with intellectual disabilities in the UK. *Journal of Intellectual Disability Research*, 53(5), 426-39.

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Cooper SA, Morrison J, Melville C, Finlayson J, Allan L, Martin G, Robinson N (2006) Improving the health of people with intellectual disabilities: outcomes of a health screening programme after 1 year. *Journal of Intellectual Disability Research*, 50(Pt 9), 667-77.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost- effectiveness	Comments
Cooper <i>et al.</i> , 2014 UK Cost-utility analysis	<u>Interventions:</u> Health check intervention (HCI) designed especially for people with learning disabilities delivered by a practice nurse; health questionnaires for carers completed in advance of the health check. Treatment as usual (TAU)	Adults with learning disability registered with primary care services Cluster-design, single-blind RCT (Cooper 2014) <u>Source of effectiveness & resource use data:</u> RCT (N=152) <u>Source of unit costs:</u> national sources	<u>Costs:</u> intervention (staff time), primary care, drug acquisition, emergency visits or calls; no screening or home visit checks were costed because these were assumed to be individual occurrences, with the standard being a health check by a nurse in the GP surgery; no secondary care costs were included (apart from A&E) <u>Total cost (SD) per person (change from baseline):</u> HCI: -£71; TAU: -£21 Bootstrapped cost difference: -£51 (95%CI -£362 to £434) <u>Measures of outcome of economic analysis:</u> QALYs estimated using EQ- 5D and SF-6D, participant or carer- rated; EQ-5D rating used in PSA Mean number of QALY change (area under the curve compared with baseline) per person: <u>Based on EQ-5D</u> HCI 0.0306, TAU -0.0021; Bootstrapped treatment effect: 0.11 (95% CI 0.02 to 0.19); p=0.015 <u>Based on SF-6D</u> HCI 0.06, TAU 0.02;	HCI was dominant (better outcome at lower cost) PSA: the probability that HCI is cost- effective is between 0.6 and 0.8 irrespective of the cost-effectiveness threshold. Threshold analysis: the intervention cost needs to rise from £51 (estimate in base-case analysis) to £95 per person before HCI no longer dominates TAU.	<u>Perspective:</u> NHS <u>Currency:</u> GB£ <u>Cost year:</u> 2011 <u>Time horizon:</u> 9 months <u>Discounting:</u> not needed <u>Applicability:</u> directly applicable <u>Quality:</u> 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
			Bootstrapped treatment effect: 0.02 (95% CI -0.03 to 0.07); p=0.354		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Gordon <i>et al.</i> , 2012 Australia Cost-consequence analysis	<u>Interventions:</u> One-off health check intervention, comprising a booklet in which the carer provides a detailed medical history, the GP reviews the history, performs the health assessment and develops an action plan in consultation with the service user and carer (HCI)	Adults with learning disability living in the community Cluster-design RCT (Lennox 2010) <u>Source of effectiveness & resource use data:</u> RCT (N=242) <u>Source of unit costs:</u> national sources	<u>Costs:</u> consultations, procedures, medication and vaccines that were claimed on the Medicare Benefits Schedule (MBS) and the Pharmaceutical Benefits Scheme (PBS); medications and vaccines not claimed as well as secondary care costs were not measured <u>Total mean cost per person:</u> HCI: \$4523 (95% CI: \$3521 to \$5525) HD: \$4466 (95% CI: \$3283 to \$5649) [difference not statistically significant] <u>Measures of outcome:</u> number of vision and hearing tests performed, immunisation rates for hepatitis A and pneumococcus, number of weight measurements <u>Odds Ratios (95% CIs) between HCI and HD:</u> number of vision tests: 3.4 (1.4 to 8.3) number of hearing tests: 4.5 (1.9 to 10.7) immunisation rates for hepatitis A: 5.4 (1.8 to 16.3) immunisation rates for pneumococcus: 7.4 (1.5 to 37.1) number of weight measurements: 3.1 (1.5 to 6.4)	HCI was dominant (better outcomes at similar cost)	<u>Perspective:</u> public healthcare system (Medicare Australia) <u>Currency:</u> Aus\$ <u>Cost year:</u> 2011 <u>Time horizon:</u> 12 months <u>Discounting:</u> not needed <u>Applicability:</u> partially applicable <u>Quality:</u> 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
	Health diary designed for ongoing use (HD)				

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Romeo <i>et al.</i> , 2009 UK Cost consequence analysis	<u>Interventions:</u> Health-check intervention (HCI) comprising a review of participants' GP records by experienced nurse; assessment of participants' general physical & mental health, development & problem behaviours, selected physical	Adults with learning disability registered with primary care services Cohort study with matched controls <u>Source of effectiveness & resource use data:</u> cohort study with matched controls (Cooper	<u>Costs:</u> intervention (equipment & staff time), primary, inpatient, outpatient & specialist intellectual disability services, other healthcare services, daytime activities (unsupported & supported paid employment, voluntary work, adult education classes, day centres and additional support), respite care, aids and adaptations, paid and unpaid care. <u>Total cost of intervention per person:</u> £82 <u>Total mean service cost (SD) per person:</u> HCI: £9,412 (£6,899); TAU: £10,091 (£7,775) Bootstrapped cost difference: -£679 (95%CI -£3,429 to £2,292) <u>Total mean carer support cost (SD) per person:</u>	HCI was dominant (better outcomes at lower cost)	<u>Perspective:</u> societal (services and care support) <u>Currency:</u> GB£ <u>Cost year:</u> 2003 <u>Time horizon:</u> 12 months <u>Discounting:</u> not needed Participants matched with controls for age, gender and level of learning disability

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost- effectiveness	Comments
	<p>examination and blood tests; discussion of the results with a GP; preparing a report of findings and recommendations to the participants' GP; referral algorithms to intellectual disabilities services</p> <p>Treatment as usual (TAU)</p>	<p>et al., 2006; N=100)</p> <p>Source of unit costs: national sources & further estimates</p>	<p>HCI: £40,673 (£27,978); TAU: £62,766 (£44,320) Bootstrapped cost difference: -£22,093 (95%CI -£35,394 to -£7,571)</p> <p><u>Total cost (SD) per person:</u> HCI: £50,085 (£30,824); TAU: £72,857 (£48,679) Bootstrapped cost difference: -£22,772 (95%CI -£37,569 to -£6,400)</p> <p><u>Measures of outcome:</u> levels of health need detection, met new health needs, met health promotion and monitoring needs</p> <p>Mean number of new health needs per person: HCI 4.80, TAU 2.26, p<0.001</p> <p>Mean number of met new health needs per person: HCI 3.56, TAU 2.26, p<0.001</p> <p>Level of met health promotion needs & health monitoring needs greater for HCI (p< 0.001 and p=0.039, respectively)</p>		<p>Costs collected prospectively for intervention group and retrospectively for control group</p> <p><u>Applicability:</u> partially applicable</p> <p><u>Quality:</u> potentially serious limitations</p>