Appendix 21. Evidence tables of economic evaluations

Case identification and assessment of mental health problems in pregnancy or the postnatal period

References to included studies

1. Campbell S, Norris S, Standfield L, Suebwongpat A. Screening for postnatal depression within the Well Child Tamariki Ora Framework. Report No.: 1(2). Christchurch: Health Services Assessment Collaboration; 2008.
2. Hewitt C, Gilbody S, Brealey S, Paulden M, Palmer S, Mann R, et al. Methods to identify postnatal depression in primary care: an integrated evidence synthesis and value of information analysis. Health technology assessment. 2009;13:1-145.
3. Paulden M, Palmer S, Hewitt C, Gilbody S. Screening for postnatal depression in primary care: Cost effectiveness analysis. BMJ. 2009;339:b5203.

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Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Campbell et al, 2008 New Zealand Cost-effectiveness and cost-utility analysis	Screening programme: 3-question Patient Health Questionnaire for depression in the postnatal period administered at 6 weeks postnatally by a GP or practice nurse; and again at 4 months postnatally by a Well Child provider; treatment of identified depression in the postnatal period: antidepressants and/or psychologcal therapy, or social support Standard care (SC) defined as postnatal assessment using EPDS at 6 weeks, 3 and 5 months	Population: postnatal women attending Well Child clinics Study design: decision-analytic economic modelling Source of effectiveness data: observational study, other published sources, and authors' assumptions Source of resource use estimates: expert opinion, national recommendations, international guidance, other published sources, authors' assumptions Source of unit costs: national sources	Costs: direct medical costs associated with screening and treatment [social support, psychological therapy and antidepressants (fluoxetine)]; inpatient care; GP; nurse; clinical psychologist; community counsellor; other prescriptions For the cohort of 56,635 women total 12-month cost: • Intervention $3,854,716 • SC $1,722,479 • Difference: $2,132,238 Primary outcomes: cases of depression in the postnatal period detected; cases of depression in the postnatal period resolved; maternal QALYs Cases of depression in the postnatal period detected over 12 months: • Intervention 13,781 • SC 6,361 • Difference: 7,420 Cases of depression in the postnatal period resolved over 12 months: • Intervention 9,900 • SC 4,570 • Difference: 5,330 QALYs over 12 months: • Intervention 46,875 • SC 46,259	Cost effectiveness: Cost per additional: • Case of depression in the postnatal period detected $287 • Case of depression in the postnatal period resolved $400 • QALY $3,461 Sensitivity analyses: Model most sensitive to the proportion of women that had depression that accessed and initiated appropriate treatment (that is, treatment uptake rate)	Perspective: healthcare payer Currency: NZ$ Cost year: 2006-7 Time horizon: 12 months Discounting: not needed Applicability: partially applicable Quality: potentially serious limitations

	and other opportunistic contacts; treatment as above		• Difference: 616		1 2

Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Hewitt et al, 2009; Paulden et al, 2009 UK Cost-utility analysis	Screening strategies assessed included EPDS (cut-off points 7-16) and BDI (cut-off point 10) administered 6 weeks postnatally; women with identified depression offered structured psychological therapy Standard care (SC) defined as opportunistic case finding	Population: hypothetical cohort of postnatal women managed in primary care; mild and severe depression in the postnatal period Study design: decision-analytic economic modelling Source of effectiveness data: bivariate meta-analysis of diagnostic studies; other published sources Source of resource use estimates: assumptions; other published sources Source of unit costs: national sources; other published literature	Costs: instrument administration, license fees, subsequent treatment (HV, clinical psychologist, GP, community psychiatric nurse), costs associated with incorrect diagnosis Expected mean costs per woman: • EPDS (cut-off points 16-8) £73.5-£215.1 • BDI (cut-off point 10) £121.5 • SC £49.3 Primary outcome: QALY Expected mean QALYs per woman: • EPDS (cut-off points 16-8): 0.846-0.847 • BDI (cut-off point 10): 0.847 • SC 0.846	Cost effectiveness: ICER for all identification methods >£40,000/QALY Most favourable ICER for EPDS (cut-off point 16) £41,103 (vs. SC) Probability SC is cost effective at cost per QALY of £20,000-£30,000 is 0.877-0.587 (vs. EPDS cut-off 16) Sensititivity analysis: False positives correctly diagnosed with 1 GP consultation vs. additional care: EPDS (cut-off point 10) ICER £29,186/QALY (vs. SC) Using EPDS (cut-off point 13) with confirmatory structured clinical interview: ICER £33,776/QALY (vs. SC) Whooley questions as identification method: ICER £46,538/QALY (vs. EPDS cut-off point 16) Women with severe depression in the postnatal period only: ICER £23,195/QALY (EPDS cut-off	Perspective: NHS and PSS Currency: UK£ Cost year: 2006-7 Time horizon: 12 months Discounting: not needed Applicability: directly applicable Quality: potentially serious limitations

				point 16 vs. SC)	

Psychological and psychosocial interventions for the prevention of developing mental health problems in pregnancy or the postnatal period

References to included studies

1. Aracena M, Krause M, Perez C, Mendez MJ, Salvatierra L, Soto M, et al. A cost-effectiveness evaluation of a home visit program for adolescent mothers. Journal of Health Psychology. 2009;14:878-887.
2. Barlow J, Davis H, McIntosh E, Jarrett P, Mockford C, Stewart-Brown S. Role of home visiting in improving parenting and health in families at risk of abuse and neglect: results of a multicentre randomised controlled trial and economic evaluation. Archives of Disease Childhood. 2007;92:229-233.
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5. Petrou S, Cooper P, Murray L, Davidson LL. Cost-effectiveness of a preventive counseling and support package for postnatal depression. International Journal of Technology Assessment in Health Care. 2006;22:443-453.

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Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Aracena et al, 2009 Chile Cost-effectiveness analysis	Home visiting (starting in third trimester of pregnancy and continued until child reached 1 year; in total women had 12 one-hour lasting home visits throughout the year) Standard care (SC) defined as 10 prenatal and well-baby care at the local health centres	Population: young women who conceived their first child between 14-19 years from poor neighbourhoods Study design: RCT (ARACENA2009) Source of effectiveness data: RCT (n=90) Source of resource use estimates: registries of health centres Source of unit costs: unclear	Costs: healthcare, administrative and logistical Median costs per mother-infant dyad at 15 months: • Intervention $90 • SC $50 • Difference: $40 Primary outcomes: improvement on Goldberg's depression scale Mean score on Goldberg's depression scale at 15 months: • Intervention 10.94 (SD 5.58) • SC 13.85 (SD 6.99) • Difference: -2.91 (p= 0.031)	Cost effectiveness: ICER: $13.5 per point reduction on the Goldberg's depression scale	Perspective: healthcare payer Currency: US$ Cost year: unclear Time horizon: 15 months Discounting: not needed Applicability: partially applicable Quality: potentially serious limitations

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost effectivenesss**	**Comments**
Barlow et al, 2007; McIntosh et al, 2009 UK Cost-effectiveness analysis	Home visiting starting 6 months antenatally to 12 months postnatally (18 months of weekly visits) Standard care (SC) defined as locally available services	Population: vulnerable pregnant women meeting demographic and socioeconomic criteria (for example mental health or housing problems) Study design: RCT (BARLOW2007) Source of effectiveness data: RCT (n=131) Source of resource use estimates: RCT (n=131); other published sources Source of unit costs: local and national sources	Costs: GP, home visitor, social worker, midwife, antenatal class, alcohol/drug support, paediatrician, obstetrician, audiologist, opthalmologist, community psychiatric nurse, child and family team, A&E, psychologist, family centre, Sure Start, Home Start, Housing department, Women's aid, Legal Aid, Citizens Advice Bureau, psychologist, psychiatrist, foster care, adoption services, legal advice centre, court, social services, creche, playgroup, private childcare, police Mean public sector and informal care costs at 18-months per mother-infant dyad: • Intervention £7,120 • SC £3,874 • Difference: £3,246 ($p<0.05$) Mean health service costs at 18-months per mother-infant dyad: • Intervention £5,685 • SC £3,324 • Difference: £2,360 ($p<0.05$) Primary outcomes: proportion of infants identified as being ill-treated between 6 and 12 months postnatally; improvement on maternal sensitivity and infant cooperativeness component of CARE index; time exposed to abuse	Cost effectiveness: *ICER from a public sector and informal care perspective* • £55,016 per extra infant identified as being ill-treated • £2,723 per extra unit of improvement on maternal sensitivity index • £2,033 per extra unit of improvement on infant cooperativeness index • £1,691 for a reduction in infant exposure to abuse and neglect by one month Probability that intervention is cost effective is 0.95 at WTP of £16,100 and £4,000 per unit of improvement on maternal sensitivity index and improvement on infant cooperativeness index, respectively At WTP of £1,400 for a reduction in infant exposure to abuse and neglect by one month, probability that the intervention is cost effective is 0.75; at WTP of £3,100 it is 0.95	Perspective: public sector and informal care; and healthcare payer Currency: UK£ Cost year: 2003-4 Time horizon: 18 months; 5 years when time exposed to abuse and neglect used Discounting: costs and health effects at 3.5% Applicability: partially applicable Quality: minor limitations

			and neglect Proportion of infants identified as being ill-treated: • Intervention 0.059 • SC 0.000 • Difference: 0.059 (p=ns) CARE index score (maternal sensitivity): • Intervention 9.27 • SC 8.20 • Difference: 1.07 CARE index score (infant cooperativeness): • Intervention 9.35 • SC 7.92 • Difference: 1.43	*ICER from a healthcare payer perspective* • £40,000 per extra infant identified as being ill-treated • £2,178 per extra unit of improvement on maternal sensitivity index • £1,621 per extra unit of improvement on infant cooperativeness index • £1,229 for a reduction in infant exposure to abuse and neglect by one month Probability that intervention is cost effective is 0.95 at WTP of £13,900 and £2,700 per unit improvement on maternal sensitivity scale and infant cooperativeness scale, respectively	1

Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Hiscock et al, 2007 Australia Cost-effectiveness analysis	Infant sleep training (three consultations, held fortnightly); mothers provided with sleep management plans Standard care (SC) including infant sleep leaflet only	Population: mothers of 4-month-old infants reporting infant sleep problem Study design: RCT (HISCOCK2002) Source of effectiveness data: RCT (n=328) Source of resource use estimates: RCT (n=309) Source of unit costs: unclear	Costs: Maternal and Child Health (MCH) clinic consultations for sleep advice, non-MCH nurse professional healthcare (parenting centres, family doctor), non-professional care (books, relatives), intervention costs, and nurse training programme Mean costs at 12 months per family: • Intervention £96.93 (SD £249.37) • SC £116.79 (SD £330.31) • Difference: -£19.44 (95%CI, -£83.70 to £44.81), (p=0.55) Primary outcomes: maternal report of infant sleep problem, depression symptoms (EPDS), SF-12 scores Percentage of mothers reporting infant sleep problem: • Intervention 39% • SC 55% • Difference: -16% (p=0.004) EPDS scores: • Intervention 5.9 • SC 7.2 • Difference: -1.7 (p=0.001) SF-12 scores (mental health domain): • Intervention 49.7 • SC 46.1 • Difference: 3.9 (p<0.001)	Cost effectiveness: Intervention dominant (more effective and less costly than SC)	Perspective: healthcare plus informal care Currency: UK£ Cost year: 2007 Time horizon: 12 months Discounting: not needed Applicability: partially applicable Quality: minor limitations

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Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Petrou et al, 2006 UK Cost-effectiveness analysis	Counselling and specific support for the mother–infant relationship; research therapists visited women in their homes at 35 and 37 weeks antenatally; on days 3, 7, and 17 after delivery, and then weekly up to 8 weeks Standard care (SC) care provided by local primary care teams	Population: women at high risk of depression in the postnatal period (screened at 26-28 weeks of gestation using predictive index developed by Cooper et al, index score ≥24) Study design: RCT (PETROU2006) Source of effectiveness data: RCT (n=151) Source of resource use estimates: RCT (n=151) Source of unit costs: local and national sources	Costs: community care, day care, hospital outpatient and inpatient care, paediatric, chid care, home help Mean costs at 18-months per mother-infant dyad: • Intervention £2,397 • SC £2,278 • Difference: £120 (p=0.72) Primary outcome: number of months in depression in the postnatal period Mean number of months in depression in the postnatal period per woman over 18-months: • Intervention 2.21 months • SC 2.70 months • Difference: -0.49 months (p=0.41)	Cost effectiveness: ICER: £244 per month of depression in the postnatal period avoided Sensitivity analyses: Community service utilisation increased by 10-30%, ICER ranged from £422-£780 Per diem cost for inpatient care ±20%, ICER ranged from £41-£446 Discount rate for costs and health effects ranged from 0-10%, ICER ranged from £351-£198 Discount rate for costs and health effects 3%, ICER £302 At WTP of £1,000-£2,000 per month of depression in the postnatal period avoided, probability of intervention being cost effective was 0.71-0.77	Perspective: healthcare plus informal care Currency: UK£ Cost year: 2000 Time horizon: 18 months Discounting: costs 6%; health effects 1.5% Applicability: partially applicable Quality: minor limitations

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Psychological and psychosocial interventions for the treatment of mental health problems in pregnancy or the postnatal period

References to included studies

1. Dukhovny D, Dennis CL, Hodnett E, Weston J, Stewart DE, Mao W, et al. Prospective economic evaluation of a peer support intervention for prevention of postpartum depression among high risk women. American Journal of Perinatology. 2013;30:631-642.
2. Hewitt C, Gilbody S, Brealey S, Paulden M, Palmer S, Mann R, et al. Methods to identify postnatal depression in primary care: an integrated evidence synthesis and value of information analysis. Health Technology Assessment. 2009;13:1-145.
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5. Stevenson MD, Scope A, Sutcliffe PA, Booth A, Slade P, Parry G, et al. Group cognitive behavioural therapy for postnatal depression: A systematic review of clinical effectiveness, cost-effectiveness and value of information analyses. Health Technology Assessment. 2010;14:1-152. (A)
6. Stevenson MD, Scope A, Sutcliffe PA. The cost-effectiveness of group cognitive behavioral therapy compared with routine primary care for women with postnatal depression in the UK. Value in Health. 2010;13:580-584. (B)

Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Dukhovny et al, 2013 Canada Cost-effectiveness analysis	Social support (a minimum of four telephone contacts initiated 48 to 72 hours after randomization and continuing through the first 12 weeks postpartum) Standard care (SC) locally available services	Population: women with EPDS score ≥9 postnatally Study design: RCT (DENNIS2009) Source of effectiveness data: RCT (n=612) Source of resource use estimates: RCT (n=610) Source of unit costs: local and national sources	Costs: public health costs, volunteer opportunity cost, hired housework, hired child care, family/friend and partner time off work, nursing visits, provider visits, mental health visits, inpatient admissions Mean healthcare costs per mother-infant dyad at 12 weeks: • Intervention $1,694 • SC $1,080 • Difference: $614 Mean societal costs per mother-infant dyad at 12 weeks: • Intervention $4,497 • SC $3,380 • Difference: $1,117 (p<0.05) Primary outcomes: cases with EPDS score ≤ 12 in the postnatal period Percentage of women with EPDS score of ≤ 12 at 12 weeks postnatally: • Intervention 0.868 • SC 0.752 • Difference: 0.1116 (p<0.05)	Cost effectiveness: *Healthcare perspective* ICER: $5,582 per case with EPDS ≤ 12 *Societal perspective* ICER: $10,009 per case with EPDS ≤ 12 Sensitivity analyses: *Societal perspetive* Healthcare visits are varied beween 50-400%, ICER ranged from $9,671 to $9,110 ICER most sensitive to cost of running programme, volunteer time, family/friend and partner work absence At WTP per case with EPDS ≤ 12 of $20,196, probability intervention was cost effective was 0.95	Perspective: societal and healthcare payer 2 Currency: CAN$ Cost year: 2011 Time horizon: 12 weeks Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost effectivenesss**	**Comments**
Hewitt et al, 2009; Paulden et al, 2009 UK Cost-utility analysis	Structured psychological therapy; listening home visits Standard care (SC)	Population: women with postnatal minor or major depression managed in primary care Study design: decision analytic economic modelling Source of effectiveness data: meta-analysis of RCTs Source of resource use estimates: studies that provided effectiveness data; assumptions Source of unit costs: national sources	Costs: intervention (clinical psychologist, health visitor, GP, community psychiatric nurse); standard postnatal care for women Expected incremental costs (relative to SC) per woman: • Structured psychological therapy £792.10 • Listening home visits £946.48 Primary outcomes: QALYs Expected mean QALYs per woman: • Structured psychological therapy 0.7489 • Listening home visits 0.7513 • SC 0.7036	Cost effectiveness: ICER: • Structured psychological therapy vs. SC £17,480/QALY gained • Listening home visits vs. structured psychological therapy £66,275/QALY gained At cost per QALY of £20,000-30,000 probability of each intervention being cost-effective: • Structured psychological therapy 0.504-0.549 • Listening home visits 0.276-0.414 • SC 0.220-0.037	Perspective: NHS Currency: UK£ Cost year: 2006-7 Time horizon: 12 months Discounting: NA Applicability: directly applicable Quality: minor limitations

Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Morrell et al, 2009 UK Cost-utility analysis	Listening visits based on either cognitive behavioural approach (CBA) or person-centred approach (PCA); listening visits based on structured psychological therapy (that is, not differentiating between CBA and PCA), defined as IG. Intervention delivered at GP practice by HVs. Standard care (SC) defined as care shared between the midwife and a GP, or otherwise consultant led care based on clinical need	Population: women with depression in the postnatal period (EPDS ≥ 12 at 6-weeks postnatally) Study design: cluster randomised RCT; 101 general practices (clusters) in 29 primary care trusts (MORRELL2009) Source of effectiveness data: RCT (n=418 at 6 months; n=123 at 12 months) Source of resource use estimates: RCT (n=284 at 6 months; n=123 at 12 months); expert opinion, authors' assumptions Source of unit costs: national sources, RCT	Costs: HV training, HV visits, GP contacts, prescriptions, social worker contacts, mother and baby unit, paediatric admissions, community mental health contacts, walk-in centre attendances, A&E attendances and NHS direct contacts Costs per women at 6 months: • IG £339 • CBA £329 • PCA £353 • SC £374 Costs per women at 12 months: • IG £763 • SC £772 Primary outcomes: QALYs QALYs gained per women at 6 months: • IG 0.026 • CBA 0.027 • PCA 0.025 • SC 0.023 QALYs gained per women at 12 months: • IG 0.117 • SC 0.107	Cost effectiveness: *At 6 months:* IG vs. SC: IG dominant CBA vs. PCA vs. SC: CBA dominant At WTP of £20,000-£30,000/QALY the probability that IG is cost effective was >0.70 At WTP of £20,000-£30,000 per QALY probability CBA is cost effective was approximately 0.70 *At 12 months:* IG vs. SC: IG dominant CBA vs. PCA: no difference At WTP of £20,000-£30,000/QALY the probability of IG being cost effective was just over 0.80	Perspective: NHS and PSS Currency: UK£ Cost year: 2003-4 Time horizon: 6 and 12 months Discounting: not needed Applicability: directly applicable Quality: minor limitations

Study ID Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost effectivenesss	Comments
Stevenson et al, 2010 (A); Stevenson et al, 2010 (B) UK Cost-utility analysis	CBT-informed psychoeducation (one session per week for 8 weeks, which was of 2-hour duration and was held in groups of 4-6 women) Standard care (SC) defined as routine primary care that included visits by midwives and health visitor, visits to GP, medication, community mental health contacts and social services	Population: women with depression in the postnatal period (EPDS≥12) Study design: RCT (HONEY2002) and further modelling of benefits between 6 and 12 months Source of effectiveness data: RCT (n=45); authors' assumptions Source of resource use estimates: RCT (n=45); authors' assumptions; other published studies Source of unit costs: unclear	Costs: intervention provision; standard care costs were common to both arms and therefore were exlcuded Incremental cost per woman at 12 months compared with standard care: • Intervention £1,500 Primary outcome: QALYs Mean QALY gain per woman at 12 months compared with standard care: • Intervention 0.032 (95% CI, 0.025 to 0.041)	Cost effectiveness: ICER: £46,462 (95% CI, £37,008 to £60,728) per QALY gained Sensitivity analysis: Intervention cost per woman decreased to £750, ICER £23,231/QALY; increased to £2,000, ICER £61,948/QALY Lower estimate of efficacy, ICER £56,626/QALY; upper estimate, ICER £39,481/QALY Linear decline in advantage of intervention extended to 18 months, ICER £34,382/QALY Assumed QALY gain of 0.02, ICER £28,846/QALY Scenario analysis: Intervention cost per woman decreased to £1,000, decrease of 4.3 on EPDS assumed, and linear decline in advantage extended to 18 months ICER £19,230/QALY	Perspective: NHS and PSS Currency: UK£ Cost year: 2007-08 Time horizon: 12 months Discounting: not needed Applicability: directly applicable Quality: potentially serious limitations