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High-intensity psychological interventions for generalised anxiety disorder

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Heuzenroeder <i>et al.</i> , 2004 Australia Cost-utility analysis	CBT provided by: <ul style="list-style-type: none"> • private psychologist • public psychologist • private psychiatrist • public psychiatrist Standard care, defined as 27% evidence-based medicine (EBM), 28% non-EBM, and 45% no care	People with GAD Decision analytic modelling Source of clinical effectiveness data: systematic review and meta-analysis Source of resource use: estimates and assumptions Source of unit costs: national sources	<u>Costs:</u> Consultations with psychologists, psychiatrists, GPs Incremental cost for all adults with GAD in Australia: <ul style="list-style-type: none"> • private psychologist: Aus\$140 million • public psychologist: Aus\$50 million • private psychiatrist: Aus\$170 million • public psychiatrist: Aus\$160 million <u>Primary outcome:</u> Number of DALYs averted Incremental DALYs averted for all adults with GAD in Australia: 7,200	ICER of CBT versus standard care: <ul style="list-style-type: none"> • private psychologist: \$28,000/DALY averted • public psychologist: \$12,000/DALY averted • private psychiatrist: 32,000/DALY averted • public psychiatrist: \$31,000/DALY averted Sensitivity analysis – range of ICERs (\$/DALY averted): <ul style="list-style-type: none"> • private psychologist: 17,000-56,000 • public psychologist: 7,000-25,000 • private psychiatrist: 20,000-63,000 • public psychiatrist: 19,000-63,000 	Perspective: healthcare sector (including patient expenses) Currency: Australian\$ Cost year: 2000 Time horizon: 12 months Discounting: not needed Applicability: non-applicable

References to included studies

Heuzenroeder, L., Donnelly, M., Haby, M. M., *et al.* (2004) Cost-effectiveness of psychological and pharmacological interventions for generalized anxiety disorder and panic disorder. *Australian and New Zealand Journal of Psychiatry*, 38, 602-612.

Pharmacological interventions for generalised anxiety disorder

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: cost-effectiveness	Comments
Guest <i>et al.</i> , 2005 UK Cost-effectiveness analysis	Venlafaxine XL 75mg/day Diazepam 5mg 3 times/day	Adults with GAD Decision-analytic modelling Source of clinical effectiveness data: RCT [HACKET2003] Source of resource use estimates: expert opinion Source of unit costs: national sources	<u>Costs:</u> Medication, visits to GPs, psychiatrists, psychologists, community mental health team, counsellor Mean cost per person: Venlafaxine XL: £352 Diazepam: £310 <u>Outcome:</u> Percentage of successful treatment, defined as percentage of people in remission at 6 months; remission defined as a score on CGI = 1 Successful treatment: Venlafaxine XL: 27.6% Diazepam: 16.8% (p=0.07)	ICER of venlafaxine XL versus diazepam: £381 per successfully treated person Results sensitive to rates of response, remission, relapse, discontinuation, plus resource use Probabilistic analysis: venlafaxine XL dominated diazepam in at least 25% of iterations	Perspective: NHS Currency: UK£ Cost year: 2000/01 Time horizon: 6 months Discounting: not needed Applicability: partially applicable Quality: potentially serious limitations Funded by Wyeth Pharmaceuticals
Heuzenroeder <i>et al.</i> , 2004	Venlafaxine 74 or 150mg/day	People with GAD	<u>Costs:</u> Medication, doctor consultations	ICER of venlafaxine versus standard care:	Perspective: healthcare sector (including

Australia Cost-utility analysis	Standard care, defined as 27% evidence-based medicine (EBM), 28% non-EBM, and 45% no care	Decision analytic modelling Source of clinical effectiveness data: meta-analysis of 2 RCTs [ALLGULANDER2001; DAVIDSON1999] Source of resource use: assumptions Source of unit costs: national sources	Incremental cost for all adults with GAD in Australia: Aus\$ 77 million <u>Primary outcome:</u> Number of DALYs saved Incremental DALYs for all adults with GAD in Australia: 3300	\$30,000/DALY Sensitivity analysis: ICER between \$20,000/DALY and \$51,000/DALY	patient expenses) Currency: Australian\$ Cost year: 2000 Time horizon: 12 months Discounting: not needed Applicability: non-applicable
Iskedjian <i>et al.</i> , 2008 Canada Cost-effectiveness analysis	Escitalopram 10-20mg/day Paroxetine 20-50mg/day Both drugs were augmented with 0.5mg clonazepam, if needed; psychotherapy was provided if drug treatments failed	Newly diagnosed people with GAD, with HAM-A score \geq 18, treated in a primary care setting Decision analytic modelling Source of clinical effectiveness data: double-blind RCT for response rates [BIELSKI2005], literature review and expert opinion Source of resource use: expert opinion Source of unit costs: Canadian national sources	<u>Costs:</u> Medication, physician visits Productivity losses Total costs per person: Ministry of Health perspective Escitalopram: \$724; paroxetine: \$663 Societal perspective Escitalopram: \$3527; paroxetine: \$3676 <u>Primary outcome:</u> Number of symptom-free days, defined by a score of 1 or 2 in CGI-1 Number of symptom-free days per person: Escitalopram: 86.4 Paroxetine: 77.0	Ministry of Health perspective: ICER of escitalopram versus paroxetine: \$6.56 per symptom-free day (or \$2362 per symptom free year) Societal perspective: Escitalopram dominated paroxetine Results robust to changes in rates of response, tolerance, adherence	Perspectives: Ministry of Health and societal Currency: Canadian\$ Cost year: 2005 Time horizon: 24 weeks Discounting: not needed Applicability: partially applicable Quality: potentially serious limitations Funded by H. Lundbeck
Jørgensen <i>et al.</i> , 2006	Escitalopram 10-20mg/day	Newly diagnosed people with GAD, with HAM-A score \geq 18, treated in a	<u>Costs:</u> Medication, GP and/or psychiatrist visits	NHS and societal perspective: Escitalopram dominated	Perspective: societal Currency: UK£ Cost year: 2005

<p>UK</p> <p>Cost-effectiveness analysis</p>	<p>Paroxetine 20-50mg/day</p> <p>Switching between the two drugs was allowed in case of intolerance or non-response; venlafaxine was provided as 3rd line treatment if the sequence of the two drugs failed</p>	<p>primary care setting</p> <p>Decision analytic modelling</p> <p>Source of clinical effectiveness data: double-blind RCT for response and discontinuation rates [BIELSKI2005], other RCTs for relapse data and other input parameters, and further assumptions</p> <p>Source of resource use: estimates based on recommendations from the previous NICE guideline on anxiety (NICE, 2004a); plus expert opinion</p> <p>Source of unit costs: UK national sources</p>	<p>Productivity losses</p> <p>Total costs per person: NHS perspective Escitalopram: £447; paroxetine: £486 Societal perspective Escitalopram: £8434; paroxetine: £9843</p> <p><u>Primary outcome:</u> Initial response and maintained response (that is, initial response + no relapse) at the end of the time horizon; initial response defined as a reduction of score at 1 or 2 in CGI-1; relapse defined as an increase in the HAM-A total score to ≥ 15, an increase of CGI-S to 4 or more, or discontinuation due to lack of efficacy</p> <p>Initial response: Escitalopram: 49.6% Paroxetine: 35.2% Maintained response: Escitalopram: 7.7% more responders than paroxetine</p>	<p>paroxetine</p> <p>Results robust to changes in rates of response, tolerance, acquisition cost of paroxetine</p>	<p>Time horizon: 9 months Discounting: not needed Applicability: directly applicable Quality: potentially serious limitations Funded by H. Lundbeck</p>
<p>Vera-Llonch <i>et al.</i>, 2010</p> <p>Spain</p> <p>Cost-utility analysis</p>	<p>Pregabalin 300-600mg/day</p> <p>Venlafaxine XL 75-225mg/day</p>	<p>Adults with moderate to severe GAD</p> <p>Decision-analytic modelling</p> <p>Source of clinical effectiveness data: RCT</p>	<p><u>Costs:</u> Medication, primary care visits, specialist visits (psychiatrist, psychologist), inpatient care, emergency room, laboratory tests (blood counts, ECG, thyroid function)</p>	<p>ICER of pregabalin versus venlafaxine XL: €23,909 per QALY</p> <p>Results sensitive to utility values, time horizon, discontinuation</p>	<p>Perspective: third-party payer Currency: Euros (€) Cost year: 2007 Time horizon: 12 months Discounting: not needed</p>

		[KASPER2009] Source of resource use estimates: published and unpublished data Source of unit costs: national sources	Mean cost per person: Pregabalin: €3,871 Venlafaxine XL: €3,234 <u>Outcome:</u> Number of QALYs gained Number of QALYs per person: Pregabalin: 0.740 Venlafaxine XL: 0.713	Probabilistic analysis: pregabalin had a (roughly) 95% probability of being cost effective compared with venlafaxine XL at a cost-effectiveness threshold of approximately €25,000 per QALY	Applicability: partially applicable Quality: potentially serious limitations Funded by Pfizer, Inc.
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References to included studies

Guest, J. F., Russ, J. & Lenox, S. A. (2005) Cost-effectiveness of venlafaxine XL compared with diazepam in the treatment of generalised anxiety disorder in the United Kingdom. *European Journal of Health Economics*, 6, 136-145.

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Jorgensen, T. R., Stein, D. J., Despiegel, N., *et al.* (2006) Cost-effectiveness analysis of escitalopram compared with paroxetine in treatment of generalized anxiety disorder in the United Kingdom. *Annals of Pharmacotherapy*, 40, 1752-1758.

Vera-Llonch, M., Dukes, E., Rejas, J., *et al.* (2010) Cost-effectiveness of pregabalin versus venlafaxine in the treatment of generalized anxiety disorder: findings from a Spanish perspective. *European Journal of Health Economics*, 11, 35-44.

Computerised cognitive behavioural therapy (Panic Online) for panic disorder

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: cost-effectiveness	Comments
Klein <i>et al.</i> , 2006 [KLEIN2006] Australia Cost-consequence analysis	CCBT (Panic Online) Therapist-assisted, self-administered CBT (self-CBT) Information control	People with panic disorder (with or without agoraphobia) RCT (N=55) Source of clinical effectiveness data: RCT (n=55, intention to treat analysis) Source of resource use: RCT (n=46, completers only) Source of unit costs: probably local costs	<u>Costs:</u> Therapist time, server and website hosting costs, cost of CBT manual, post and telephone calls Total costs per person: PO: \$350 Self-CBT: \$379 IC: \$55 <u>Measures of outcome:</u> PDSS; panic frequency; Agoraphobic Cognitions Questionnaire; Anxiety Sensitivity Profile; DASS; Body Vigilance Scale Panic Online significantly better than information control in all panic parameter measures, cognitive variables, anxiety and stress variables Panic Online significantly better than self-CBT only in clinician agoraphobic ratings	Non-applicable	Perspective: health service (intervention costs only) Currency: Australian\$ Cost year: not reported Time horizon: 6 weeks Discounting: not needed Applicability: partially applicable Quality: potentially serious limitations
Michalopoulos <i>et al.</i> , 2005	CCBT (Panic Online) provided by	People with panic disorder	<u>Costs:</u> Therapist time, GP visits, CCBT package, computer and software	ICER of Panic Online versus standard care: Panic Online by psychologist:	Perspective: health sector (including patient expenses)

<p>Australia</p> <p>Cost-utility analysis</p>	<p>either a psychologist or a GP</p> <p>Standard care, defined as 27% evidence-based medicine (EBM), 28% non-EBM, and 45% no care</p>	<p>Decision-analytic modelling</p> <p>Source of clinical effectiveness data: literature review</p> <p>Source of resource use: estimates and assumptions</p> <p>Source of unit costs: national sources</p>	<p>Total incremental cost for all adults with panic disorder in Australia:</p> <p>Panic Online by psychologist: Aus\$3.8 million</p> <p>Panic Online by GP: Aus\$2.8 million</p> <p><u>Measure of outcome:</u> Number of DALYs averted</p> <p>Total number of DALYs averted for all adults with panic disorder in Australia: Panic Online: 870</p>	<p>\$4,300/DALY averted</p> <p>Panic Online by GP: \$3,200/DALY averted</p> <p>Sensitivity analysis – range of ICERs (\$/DALY averted):</p> <ul style="list-style-type: none"> • Panic Online by psychologist: 3,500-5,400 • Panic Online by GP: 2,700-3,900 	<p>Currency: Australian\$</p> <p>Cost year: 2004</p> <p>Time horizon: 12 weeks</p> <p>Discounting: not needed</p> <p>Applicability: not applicable</p>
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References to included studies

Klein, B., Richards, J. C. & Austin, D. W. (2006) Efficacy of internet therapy for panic disorder. *Journal of Behavioural Therapy*, 37, 213-238.

Mihalopoulos, C., Kiropoulos, L., Shih, S.-T.F., *et al.* (2005) Exploratory economic analyses of two primary care mental health projects: implications for sustainability. *Medical Journal of Australia*, 183, S73-S76.