Supplementary Table 1: Descriptive Characteristics of Included NMAs (N=20)

Study	No. of RCTS/ Duration of included RCTS (weeks)	Subjects	Disorder	Medication Class	Diagnostic Criteria	Outcomes Acceptability (i.e. all cause dropouts) Tolerability (i.e. side effects dropouts)	Funding
Annemans et al. 2014	NR > 12 months	26,872 (approx.)	MDD	NaSSA, SNRIs, SSRIs	NR	**Cost** NIHDI, Societal **Response** NR **Acceptability,** NR **Tolerability,** NR	NR
Baldwin et al. 2011	27 8-12 weeks	7659 (approx.)	GAD	Placebo, SNRIs, SSRIs	DSM-IV	**Cost,** NR **Response** HAM-A **Tolerability** Side effects **Acceptability,** NR	Lundbeck
Cipriani et al. 2009	117	25961	MDD	NARI, NaSSA, NDRI,	DSM-IV, ICD-	**Cost,** NR	None

	Weeks - NR			SNRIs, SSRIs	10	**Response** CGI, HAM-D, MADRS **Tolerability** Side effects **Acceptability** All cause dropouts	
Coleman et al. 2012	27 8 weeks	7061	MDD	Placebo, SNRIs	DSM defined	**Cost,** NR **Response** HAM-D,17 **Tolerability** Side effects **Acceptability,** NR	NR
Gartlehner et al. 2011	234 6-12 weeks	> 1000	MDD	NaSSA, NDRI, SARIs, SSRIs, SNRIs	NR	**Cost,** NR **Response** HAM-D, MADRS **Tolerability,** NR **Acceptability,** NR	AHRQ
Hansen et al. 2008	18	6506	SAD	Placebo, SNRI, SSRIs	DSM defined	**Cost,** NR	Cecil G.

	> 12 weeks					**Response** CGI-I, LSAS **Tolerability** Side effects **Acceptability** Loss to follow-up	Sheps Center
Jonas et al. 2013	34 10-12 weeks	4817	PTSD	Placebo, NaSSA, NDRI, SNRI, SSRIs, TCA	DSM defined	**Cost,** NR **Response** NR **Tolerability** Side effects **Acceptability,** NR	NR
Kriston et al. 2014	41 4-12/5-24 weeks	4850	MDD	Placebo, MAOI, NARI, RIMA, SARI, SNRIs, SSRIs, TCAs	Standardised criteria	**Cost,** NR **Response** NR **Acceptability,** NR **Tolerability,** NR	Grant 01KG0923
Linde et al. 2015	66	14177	MDD	Placebo, NARI, NaSSA, RIMAs,	DSM-IV, ICD 10 or older	**Cost,** NR	Grant 01KG1012

	4-52 weeks			SARI, SSRE, SSRIs, TCAs		**Response** CGI, HAM-D, MADRS **Tolerability** Side effects **Acceptability** All cause dropouts	
Liu et al. 2013	11 Weeks – NR	801	MDD & Parkinson's Disease	Placebo, Dopamine agonists, SNRIs, SSRIs, TCAs	NR	**Cost,** NR **Response** BDI, CGI, HAM-D, MADRS **Tolerability,** NR **Acceptability** All cause dropouts	None
Mavranezuli et al. 2013	42 8 weeks – 6 months	13508	GAD	Placebo, SNRIs, SSRIs	DSM defined	**Cost** **Response** HAM-A **Tolerability,** NR **Acceptability**	NICE (Partial)

						All cause dropouts	
Mayo-Wilson et al. 2014	42 2-28 weeks	8665 (approx.)	SAD	Placebo, MAOI, NaSSA, RIMA, SNRI, SSRIs	Based on diagnostic criteria	**Cost,** NR **Recovery** ADIS, BAI, BDI, FNE, SIAS, SPAI-SP, SPS **Acceptability,** NR **Tolerability,** NR	NICE
Meister et al. 2016	34 4-24 weeks	4769	MDD	Placebo, 5-HT2 receptor antagonist, Antipsychotics, Benzodiazepine, MAOIs, RIMA, SARI, SNRIs, SSRIs, TCAs	NR	**Cost,** NR **Response,** NR **Tolerability** Side effects, AE checklist, Patient reports, AE scale, Interviews, Clinical manual, Retrospective chart view, Clinical observation **Acceptability,** NR	Grant NWF-14/06
Naudet et al. 2013	31	7459	MDD	Placebo, SNRI, SSRI	DSM defined, ICD-10	**Cost,** NR	INSERM

	4-13 weeks					**Response** HAM-D, MADRS **Acceptability,** NR **Tolerability,** NR	
Nussbaumer et al. 2014	101 6 weeks -12 months	2333	MDD	Placebo, NDRIs, SARIs, SNRIs, SSRIs	NR	**Cost,** NR **Response** HAM-D **Tolerability** Side effects **Acceptability,** NR	AHRQ
Papadimitropou-lou et al. 2017	31 2-8 weeks	NR	MDD (TRD)	Anticonvulsants, Antimanic agents, Atypical antipsychotics, NaSSA, SARI, SSRIs, SNRIs, TCAs	DSM-IV, HAM-D, 17, 24, MADRS	**Cost,** NR **Response** MADRS **Tolerability** Side effects **Acceptability,** NR	Janssen
Ramsberg et al. 2012	87 > 6 weeks	19878	MDD	NARI, NaSSA, SNRIs, SSRIs, TCAs, TeCA	NR	**Costs** **Response,** NR	None

						Acceptability, NR **Tolerability,** NR	
Reichenpfader et al. 2014	63 6 weeks	> 26000	MDD & Sexual Dysfunction	Placebo, NaSSA, NDRIs, SARIs, SNRIs, SSRIs	DSM defined	**Cost,** NR **Measures** CES-D, CGI-I, CGI-S, CSFQ, HAM-D, MADRS, PGI **Tolerability** Side effects **Acceptability,** NR	None
Skapinakis et al. 2016	64 4-24 weeks	6652 (N=37)	OCD	TCA, SNRI, SSRIs	DSM defined, FRDC, ICD	**Cost,** NR **Response,** NR **Tolerability,** NR **Acceptability** All cause dropouts	NIH
Zhou et al. 2015	48 2-12 weeks	6654	MDD (TRD)	Placebo, Anticonvulsant, Antipsychotics, Antimanic agents, Beta blockers, CNS stimulants, NDRI,	DSM defined, RDC	**Cost,** NR **Response** HAM−D ≥ 50, MADRS ≥ 50	Chinese NBR

				Thyroid hormone		**Tolerability** Side effects **Acceptability** All cause dropouts	

ADIS: Anxiety Disorders Interview Schedule – Severity; AE: Adverse Events; AHRQ: Agency for Healthcare Research and Quality; Approx.: Approximately; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; CES-D: Center for Epidemiologic Studies Depression Scale; CGI-I: Clinical Global Impression Improvement; CGI-S: Clinical Global Impression–Severity; CNS: Central Nervous System; CSFQ: Changes in Sexual Functioning Questionnaire; DSM: *Diagnostic and Statistical Manual of Mental Disorders*; FNE: Fear of Negative Evaluation Scale; FRDC: Fairfax Renaissance Development Corporation; GAD: Generalised anxiety disorder; HAM-A: Hamilton anxiety scale; HAM-D: Hamilton Depression Rating Scale for Depression; ICD-10: International Statistical Classification of Diseases and Related Health Problems; Inc.: incorporated; INSERM: Institut National de la Santé et de la Recherche Médicale; LSAS: The Liebowitz Social Anxiety Scale (LSAS); MADRS: Montgomery-Åsberg Depression Rating Scale; Major depressive disorder; MAOI: Monoamine oxidase inhibitor; MDD: Major Depressive Disorder; NARI: Noradrenaline reuptake inhibitor; NaSSA: Noradrenergic and specific serotonergic Antidepressants; NBR: National Basic Research; NDRI: Norepinephrine and dopamine reuptake inhibitor; NICE: National Institute for Health and Clinical Excellence; NIH: National Institute for Health; NIHDI: National Institute for Health and Disability Insurance; N: Number of studies; No.: Number; NR: Not reported; NWF: Networking & TCP/IP Fundamentals; OCD: Obsessive Compulsive Disorder; PGI: Patient Global Impression of Improvement; PTSD: Posttraumatic stress disorder; RDC: Research Diagnostic Criteria; RIMA: Reversible inhibitors of monoamine oxidase A; SAD: Social Anxiety Disorder; SARI: Serotonin Antagonist and Reuptake Inhibitor; SIAS: Social Interaction Anxiety Scale; SNRI: Serotonin and norepinephrine reuptake inhibitor; SPAI-SP: Social Phobia Anxiety Inventory – Social Phobia Subscale; SPS: Social Phobia Scale; SSRE: Selective Serotonin Reuptake Enhancers; SSRI: Selective serotonin reuptake inhibitor; TCA: Tricyclic antidepressants; TeCA: Tetracyclic antidepressants; TRD: Treatment resistant.

Supplementary Table 2: Explanation of Assessment Criteria based on Chambers et al. (2015) Survey

CRITERIA	No. of NMAs (%)
Study method assessment criteria	
Was a Bayesian or a frequentist framework used to assess the probabilistic interpretation of uncertainty and ranking of interventions?	14 (66%)[*] 2 (10%)[**]
Was the risk of bias of included clinical trials assessed to explain variability in either the results or the validity of the included studies?	15 (71%)
Did the analysis include adjustments for model covariates to improve similarity and consistency assumptions to explain heterogeneity?	16 (76%)
Was a fixed or random effects model used to assess the true relative effects across studies?	2 (10%)[***] 16 (76%)[****]
Was an assessment of model fit reported to reduce confounding bias and were stable parameter estimates provided?	16 (76%)
Was a sensitivity analysis performed to improve similarity and reduce inconsistency across studies?	14 (67%)
For studies with at least one closed loop, was the consistency of direct evidence and indirect evidence evaluated?	16 (76%)
Study transparency and reproducibility assessment criteria	

Were the search terms reported for the replication of the study search?	18 (86%)
Was a network diagram of included treatments presented for transparency of all comparisons investigated?	15 (71%)
Was data from the included clinical studies necessary to reproduce the network meta-analysis presented?	21 (100%)
Was a table of key clinical study characteristics presented describing each of the included studies in the NMA?	20 (95%)
Was the model code presented or source cited (i.e. Bayesian framework only) for the replication of the analysis.	3 (14%)
Presentation of study findings	
Were pairwise comparisons of all included treatments presented for the assessment of discrepancy between direct and indirect comparisons?	11 (52%)
Was the probability of each treatment being best reported for the interpretation of uncertainty and ranking of interventions?	7 (33%)
Was a ranking of treatments in terms of effectiveness reported for the interpretation of uncertainty and ranking of interventions?	7 (33%)

*Bayesian framework; **Frequentist framework; ***Fixed effects model; ****Random effects model;
NMAs: Network meta-analyses.

Supplementary Table 3: Assessment of network meta-analysis study characteristics based on the extent to which the included studies complied with recommended standards for reporting NMA methodology (based on ISPOR guidelines for network meta analyses and demonstrated by Chambers et al. 2015, Zarin et al. (2017) and Petropoulou et al.'s (2017) reviews)

Assessment criteria (N = 20)							
1. General study characteristics							
	No. of treatments compared Mean (SD)	Total no. of RCTs per NMA Mean (SD)	Total no. of patients Mean (SD)	*HTA region (UK, USA, Europe, Australia, Africa) Mean (SD)	Journal impact factor (2015/2016) Mean (SD)		
	10.85 (5.23)	58.84 (50.83) (N = 19)	10295.89 (8443.1) (N = 19)	10 (50%)	3.11 (1.32) (N = 19)		
2. Study method							
Bayesian or Frequentist framework	Risk of bias assessment	Adjustment for covariates	Random effects model	Assessment of model fit	Sensitivity analysis	Consistency reported**	Transitivity ***
15 (75%)	15 (75%)	15 (75%)	15 (75%)	15 (75%)	13 (65%)	15 (75%)	13 (65%)
3. Study transparency and reproducibility							
	Search terms reported	Network diagram	Extracted data from contributing clinical studies	Table of key clinical study characteristics	Model code****		
	16 (80%)	14 (70%)	20 (100%)	19 (95%)	3 (15%)		
4. Presentation of study findings							
	Full matrix of head-to head comparisons	Reported probability of being best	Ranking of included treatments				
	10 (50%)	9 (45%)	9 (45%)				

*HTA: health technology assessment regions; N: Number of studies; No.: Number; RCTs: Randomised control trials; SD: Standard deviation. *HTA refers to the systematic evaluation of properties, effects, and/or impacts of health technology, for example the evaluation of the social, economic, organizational and ethical issues of a health intervention or health technology to inform policy decision making,[45];**(Closed loops (i.e. any subset of interventions where each of that have been directly compared with one another,[11]); *** Transitivity: which implies that the distribution between the effect modifiers is similar across treatment comparisons; ****The model code refers to the software code for the Bayesian models used to calculate rankings.

Supplementary Table 4: Reported best ranked treatments (based on ProbBest)

Reported best ranked treatments (based on probability best) (N=9)				
Disorder	**Efficacy**	**Acceptability: All cause dropouts**	**Tolerability: Dropouts due to side effects**	**Cost effectiveness**
MDD [16]	--	--	--	Escitalopram (SSRI) 61-100% more cost effective than the SSRI fluoxetine and the SNRI venlafaxine. €30,000 per QALY.
MDD [27]	Mirtazapine (NaSSA) (24·4%)	Escitalopram (SSRI) (27·6%)	Escitalopram (SSRI) (27·6%)	--
MDD [31]	--	--	TCAs pramipexole and pergolide, and SNRIs (unable to determine probability).	--
MDD [32]	--	--	--	Escitalopram (SSRI) Societal perspective: €14 755 per QALY (0.6978). Health care perspective: €5 088 per QALY (0.6978).
MDD [35]	Quetiapine (Antipsychotic)	Thyroid hormone	Buspirone (5HT1A partial agonist) (84.5%)	--

	(81.3%)	(85.9%)		
MDD [36]	Quetiapine 800 mg (aug) (17.7%)	--	--	--
GAD [19]	Fluoxetine (SSRI) (62.9%)	--	Sertraline (SSRI) (49.3%)	--
GAD [38]	Duloxetine (SNRI) (38%)	--	Sertraline (SSRI) (75%)	Sertraline (SSRI) 75 %; £20,000 per extra QALY gained.
OCD [40]	SSRIs (unable to determine probability)	SSRIs (unable to determine probability)		

Aug: Augmentation; GAD: Generalised anxiety disorder; MDD: Major depressive disorder; NaSSA: Noradrenergic and specific serotonergic Antidepressants; OCD: Obsessive compulsive disorder; QALY: Quality-adjusted life year; SNRI: Serotonin and norepinephrine reuptake inhibitor; SSRI: Selective serotonin reuptake inhibitor; TCAs: Tricyclic antidepressants.

Supplementary Table 5: Reported treatments based on statistical significance

Reported treatments based on statistical significance (N=20)				
Disorder	**Efficacy**	**Acceptability: All cause dropouts**	**Tolerability: Dropouts due to side effects**	**Cost effectiveness**
MDD [16]	--	--	--	The SSRI escitalopram was identified as the optimal strategy: it dominated all other treatments except venlafaxine from the NIHDI and societal perspective.
MDD [18]	No difference was observed however TCAs, SSRIs, the SNRI venlafaxine, and a low-dose of the SARI trazodone was significantly superior.	--	RIMAs were associated with significantly fewer dropouts.	--
MDD [24]	No difference, although the evidence favoured the SSRI escitalopram.	--	No difference in dropouts due to side effects.	--
MDD [27]	Mirtazapine (NaSSA), escitalopram (SSRI), venlafaxine (SNRI), and sertraline (SSRI) were significantly more efficacious than duloxetine (SNRI), fluoxetine (SSRI), fluvoxamine (SSRI), paroxetine	The SSRIs escitalopram and sertraline showed the best profile of acceptability, leading to significantly fewer discontinuations than did duloxetine (SNRI), fluvoxamine (SSRI), paroxetine	The SSRIs escitalopram and sertraline showed the best profile of tolerability, leading to significantly fewer discontinuations than did duloxetine (SNRI), fluvoxamine (SSRI), paroxetine (SSRI),	--

	(SSRI), and reboxetine (NARI). Reboxetine was significantly less efficacious than all the other antidepressants tested.	(SSRI), reboxetine (NARI), and venlafaxine (SNRI).	reboxetine (NARI), and venlafaxine (SNRI).	
MDD [28]	A significant difference was found for the SSRIs fluoxetine, paroxetine and sertraline, the RIMA moclobemide, the TCA imipramine, the antipsychotic amisulpride, the 5HT1A partial agonist ritanserin, and acetyl-l-carnitine.	Sertraline (SSRI) and amisulpride (Antipsychotic) showed low dropout rates.	--	--
MDD [29]	Antidepressant agents were significantly more efficacious than the placebos. The SNRI venlafaxine was more efficacious than the SSRI fluoxetine.	--	--	--
MDD [30]	IR or extended-release formulations (the SNRI venlafaxine, SSRIs: fluoxetine, paroxetine and fluvoxamine, the SARI trazodone and the aminoketone bupropion) did not differ in efficacy.	--	Adverse event rates were comparable for the IR and the extended release formulation of paroxetine and fluoxetine. No difference was found for the SNRI venlafaxine formulations. No evidence was reported for the aminoketone bupropion, the SSRI fluvoxamine, and the SARI trazodone.	--

MDD [31]	With efficacy of TCAs as the standard of comparison, the degree of difference was small in comparison to SSRIs; Pramipexole; Pergolide; SNRIs; and Placebo.	--	With Placebo as the standard of comparison, TCAs, pramipexole, pergolide and SNRIs showed better profile of acceptability, leading to significant fewer discontinuations than that of SSRIs.	--
MDD [32]	--	--	--	Despite its relatively high acquisition cost, the SSRI escitalopram is associated with a lower total cost compared with all other treatment strategies. Furthermore, escitalopram is associated with a larger health gain (QALYs) at one year, and therefore dominates the other treatment strategies as more QALYs are achieved at a lower total cost.
MDD [33]	The 5HT1A partial agonist bupropion had a statistically significantly lower risk of sexual dysfunction than some other SGAD, and both the SSRI escitalopram and paroxetine showed a statistically significantly higher risk of sexual dysfunction than some other SGAD.	--	Inconsistent and insufficient evidence to report this.	--

MDD [34]	No difference (p=0.43)	--	No difference (p=0.06), findings favour the SNRI desvenlafaxine.	--
MDD [35]	The antipsychotics quetiapine and aripiprazole, the thyroid hormone, and the antimanic agent lithium were significantly more effective than placebo.	In terms of acceptability, no significant difference was found between active agents and placebo.	In terms of tolerability, compared to placebo, the antipsychotics quetiapine, olanzapine, aripiprazole, and the antimanic agent lithium were significantly less well tolerated.	--
MDD [36]	At 4, 6 and 8 weeks, the antipsychotic quetiapine (aug; 800 mg/day) and risperidone (aug) were found to be the first and second best treatments, respectively.	--	The most tolerable treatment was the anticonvulsant lamotrigine (aug) showing a comparable profile to placebo/sham.	--
MDD [37]	--	--	Medications associated with a high discontinuation rate: TCAs, SSRIs, MAOIs, antipsychotics, and the SARI trazodone. The odds were significantly higher for acetyl-l-carnitine, TCAs and SNRIs.	--
SAD [17]	MAOIs (phenelzine), SSRIs (citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine and sertraline) and the SNRI venlafaxine had greater effects.	--	--	--
SAD [39]	No difference, the results favour the SSRIs escitalopram, fluvoxamine,	--	No difference except by profile.	--

	paroxetine, sertraline, and the SNRI venlafaxine.			
GAD [19]	The SSRI fluoxetine was ranked first for response (probability of 62.9%).	--	The SSRI sertraline was ranked first for tolerability (49.3%).	--
GAD [38]	In terms of conditional response, all drugs showed a significant effect over placebo. The SNRI duloxetine had the highest probability of resulting in conditional response (mean 0.649), followed by sertraline (SSRI), venlafaxine XL (SNRI), pregabalin (anticonvulsant), escitalopram (SSRI) and paroxetine (SSRI) (mean 0.516). Placebo had the lowest probability of conditional response among the options assessed (mean 0.425).	--	The SSRI sertraline was the best drug in limiting discontinuation due to side effects and the second best drug in achieving response in patients not discontinuing treatment due to side effects.	The SSRI sertraline also resulted in the lowest costs and highest number of QALYs among all treatment options assessed. Its probability of being the most cost-effective drug reached 75% at a willingness-to-pay threshold of £20,000 per extra QALY gained.
PTSD [20]	No difference, the findings favour the SSRI paroxetine and the anticonvulsant topiramate.	--	--	--
OCD [40]	SSRIs showed reductions in mean YBOCS, and the TCA clomipramine had a larger effect compared with placebo than did	--	--	--

	SSRIs, but the difference was not significant.			

Aug: Augmentation; GAD: Generalised anxiety disorder; IR: Immediate release; MAOIs: Monoamine oxidase inhibitors; MDD: Major depressive disorder; mg: Milligrams; NARI: Noradrenaline reuptake inhibitor; NaSSA: Noradrenergic and specific serotonergic antidepressants; NIHDI: National institute for health and disability insurance; OCD: Obsessive compulsive disorder; PTSD: Posttraumatic stress disorder; QALY: Quality-adjusted life year; RIMAs: Reversible inhibitors of monoamine oxidase A; SAD: Social anxiety disorder; SGAD: Social generalised anxiety disorder; SARIs: Serotonin antagonist and reuptake inhibitor; SNRI: Serotonin and norepinephrine reuptake inhibitor; SSRIs: Selective serotonin reuptake inhibitor; TCAs: Tricyclic antidepressants; XL: Long acting; YBOCS: Yale–Brown Obsessive Compulsive Scale.