Lecture 6

Presentation of results

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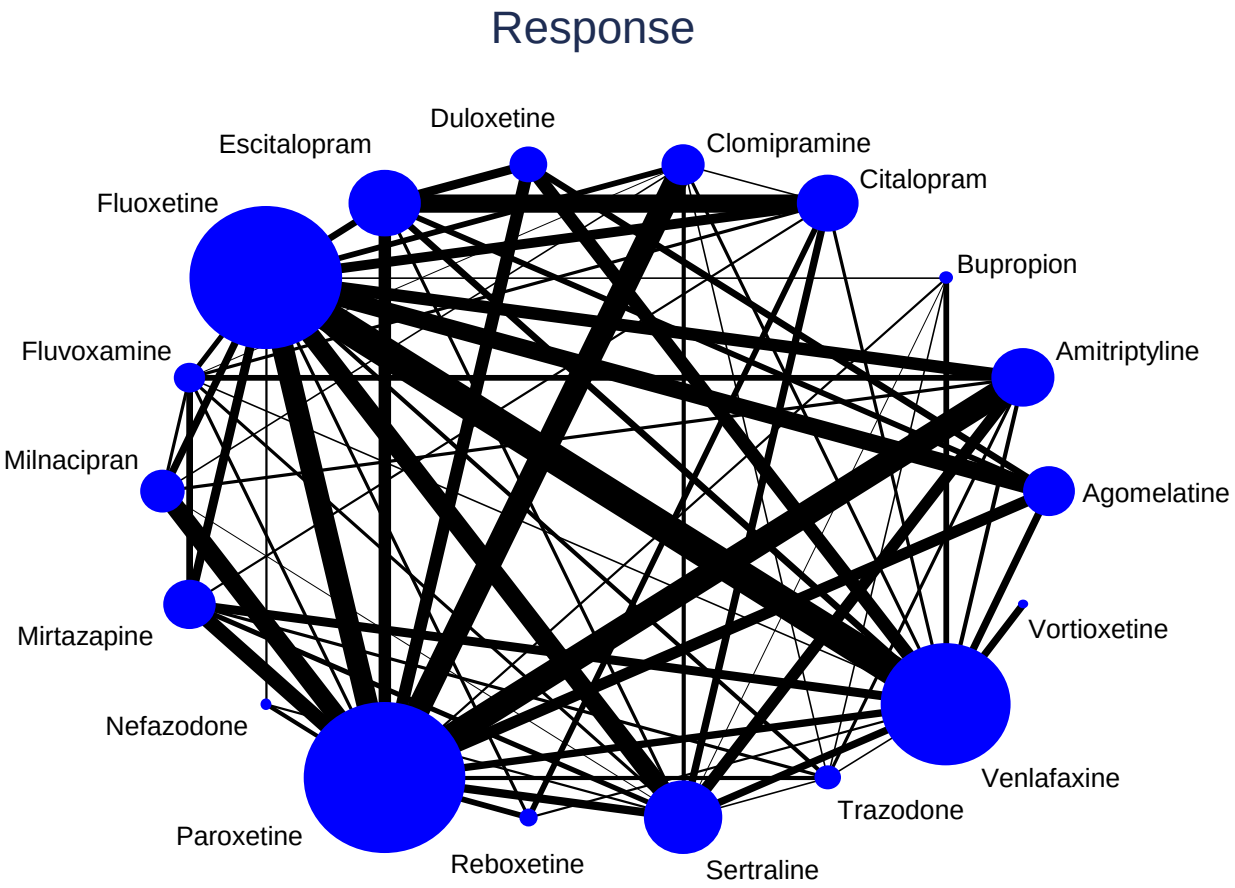
Network meta-analysis

A project-based course using R

Kea island, April 2018

Example

Comparative efficacy of antidepressant drugs



Cipriani et al Lancet 2018

NMA relative effects

Acceptability

Agom	0·72 (0·55 to 0·92)	0·80 (0·54 to 1·15)	0·89 (0·66 to 1·19)	0·57 (0·42 to 0·77)	0·62 (0·47 to 0·82)	0·97 (0·74 to 1·27)	0·85 (0·68 to 1·05)	0·69 (0·51 to 0·97)	0·79 (0·58 to 1·09)	0·81 (0·61 to 1·05)	0·70 (0·44 to 1·14)	0·81 (0·65 to 1·00)	0·53 (0·36 to 0·80)	0·86 (0·66 to 1·13)	0·69 (0·48 to 0·98)	0·74 (0·58 to 0·92)	1·24 (0·71 to 2·19)
0·96 (0·76 to 1·24)	**Amit**	1·10 (0·78 to 1·58)	1·23 (0·94 to 1·64)	0·79 (0·60 to 1·05)	0·87 (0·66 to 1·15)	1·35 (1·05 to 1·74)	1·18 (0·99 to 1·42)	0·97 (0·74 to 1·24)	1·10 (0·84 to 1·45)	1·12 (0·89 to 1·42)	0·98 (0·62 to 1·55)	1·12 (0·95 to 1·34)	0·74 (0·51 to 1·10)	1·20 (0·97 to 1·47)	0·96 (0·70 to 1·31)	1·02 (0·83 to 1·26)	1·72 (1·00 to 3·05)
0·87 (0·59 to 1·30)	0·91 (0·62 to 1·31)	**Bupr**	1·11 (0·76 to 1·67)	0·71 (0·49 to 1·07)	0·78 (0·53 to 1·18)	1·23 (0·84 to 1·80)	1·07 (0·76 to 1·50)	0·87 (0·59 to 1·30)	1·00 (0·66 to 1·49)	1·01 (0·70 to 1·47)	0·89 (0·51 to 1·54)	1·02 (0·73 to 1·43)	0·67 (0·42 to 1·08)	1·08 (0·75 to 1·56)	0·87 (0·57 to 1·30)	0·92 (0·66 to 1·30)	1·55 (0·85 to 2·94)
1·13 (0·88 to 1·47)	1·18 (0·93 to 1·49)	1·30 (0·88 to 1·93)	**Cita**	0·64 (0·47 to 0·87)	0·70 (0·51 to 0·95)	1·09 (0·85 to 1·42)	0·96 (0·76 to 1·21)	0·78 (0·57 to 1·06)	0·89 (0·64 to 1·23)	0·91 (0·68 to 1·21)	0·79 (0·49 to 1·32)	0·91 (0·71 to 1·17)	0·60 (0·41 to 0·87)	0·97 (0·74 to 1·25)	0·77 (0·53 to 1·13)	0·83 (0·64 to 1·07)	1·40 (0·78 to 2·48)
1·20 (0·91 to 1·59)	1·24 (0·98 to 1·58)	1·37 (0·93 to 2·04)	1·06 (0·82 to 1·38)	**Clom**	1·10 (0·80 to 1·51)	1·71 (1·27 to 2·29)	1·49 (1·16 to 1·90)	1·22 (0·88 to 1·67)	1·40 (1·00 to 1·92)	1·41 (1·05 to 1·91)	1·24 (0·76 to 2·00)	1·42 (1·12 to 1·79)	0·94 (0·62 to 1·41)	1·51 (1·15 to 1·96)	1·21 (0·83 to 1·73)	1·29 (0·99 to 1·67)	2·20 (1·22 to 3·90)
1·06 (0·82 to 1·37)	1·10 (0·84 to 1·42)	1·21 (0·81 to 1·81)	0·93 (0·71 to 1·22)	0·88 (0·66 to 1·18)	**Dulo**	1·56 (1·19 to 2·01)	1·37 (1·06 to 1·73)	1·12 (0·80 to 1·53)	1·28 (0·91 to 1·75)	1·30 (0·96 to 1·72)	1·13 (0·69 to 1·83)	1·30 (1·02 to 1·63)	0·86 (0·57 to 1·29)	1·38 (1·04 to 1·80)	1·10 (0·76 to 1·59)	1·18 (0·92 to 1·49)	1·99 (1·13 to 3·52)
0·90 (0·71 to 1·14)	0·93 (0·74 to 1·17)	1·03 (0·70 to 1·51)	0·79 (0·65 to 0·97)	0·75 (0·58 to 0·97)	0·85 (0·67 to 1·08)	**Esci**	0·87 (0·70 to 1·09)	0·71 (0·53 to 0·96)	0·81 (0·60 to 1·11)	0·83 (0·63 to 1·08)	0·72 (0·45 to 1·18)	0·83 (0·67 to 1·03)	0·55 (0·37 to 0·81)	0·88 (0·69 to 1·12)	0·70 (0·49 to 1·00)	0·75 (0·60 to 0·94)	1·27 (0·73 to 2·25)
1·20 (0·99 to 1·48)	1·25 (1·06 to 1·48)	1·38 (0·97 to 1·97)	1·06 (0·87 to 1·29)	1·00 (0·81 to 1·24)	1·14 (0·91 to 1·44)	1·34 (1·12 to 1·61)	**Fluo**	0·82 (0·64 to 1·04)	0·94 (0·72 to 1·20)	0·95 (0·77 to 1·16)	0·83 (0·54 to 1·30)	0·95 (0·83 to 1·09)	0·63 (0·44 to 0·90)	1·01 (0·84 to 1·21)	0·81 (0·60 to 1·09)	0·87 (0·74 to 1·01)	1·46 (0·85 to 2·53)
1·20 (0·91 to 1·61)	1·25 (0·99 to 1·59)	1·38 (0·93 to 2·07)	1·06 (0·82 to 1·39)	1·00 (0·76 to 1·32)	1·14 (0·85 to 1·54)	1·34 (1·03 to 1·75)	1·00 (0·80 to 1·25)	**Fluv**	1·14 (0·84 to 1·56)	1·16 (0·89 to 1·52)	1·01 (0·62 to 1·71)	1·16 (0·90 to 1·49)	0·77 (0·51 to 1·17)	1·23 (0·94 to 1·63)	0·99 (0·69 to 1·42)	1·06 (0·80 to 1·38)	1·78 (1·00 to 3·24)
1·07 (0·80 to 1·44)	1·11 (0·86 to 1·43)	1·23 (0·81 to 1·85)	0·94 (0·71 to 1·26)	0·89 (0·67 to 1·19)	1·01 (0·74 to 1·38)	1·19 (0·90 to 1·58)	0·89 (0·70 to 1·13)	0·89 (0·67 to 1·17)	**Miln**	1·02 (0·75 to 1·37)	0·88 (0·54 to 1·44)	1·02 (0·80 to 1·31)	0·67 (0·45 to 1·03)	1·08 (0·82 to 1·44)	0·86 (0·60 to 1·25)	0·93 (0·71 to 1·22)	1·56 (0·89 to 2·84)
0·93 (0·72 to 1·21)	0·97 (0·77 to 1·21)	1·07 (0·73 to 1·57)	0·82 (0·65 to 1·05)	0·78 (0·60 to 1·01)	0·88 (0·67 to 1·16)	1·04 (0·82 to 1·32)	0·78 (0·64 to 0·94)	0·78 (0·60 to 0·99)	0·87 (0·66 to 1·15)	**Mirt**	0·87 (0·55 to 1·41)	1·00 (0·82 to 1·23)	0·66 (0·45 to 0·99)	1·06 (0·84 to 1·35)	0·85 (0·62 to 1·18)	0·91 (0·73 to 1·13)	1·53 (0·89 to 2·72)
1·15 (0·76 to 1·76)	1·19 (0·80 to 1·78)	1·32 (0·80 to 2·20)	1·01 (0·67 to 1·54)	0·96 (0·63 to 1·45)	1·09 (0·71 to 1·68)	1·28 (0·86 to 1·94)	0·96 (0·66 to 1·40)	0·95 (0·63 to 1·46)	1·07 (0·70 to 1·67)	1·23 (0·82 to 1·86)	**Nefa**	1·15 (0·74 to 1·78)	0·75 (0·43 to 1·32)	1·23 (0·77 to 1·90)	0·98 (0·57 to 1·64)	1·04 (0·66 to 1·65)	1·76 (0·90 to 3·56)
1·01 (0·82 to 1·24)	1·05 (0·89 to 1·23)	1·16 (0·81 to 1·64)	0·89 (0·72 to 1·09)	0·84 (0·68 to 1·03)	0·96 (0·76 to 1·19)	1·12 (0·93 to 1·35)	0·84 (0·73 to 0·95)	0·84 (0·67 to 1·04)	0·94 (0·75 to 1·18)	1·08 (0·89 to 1·30)	0·88 (0·60 to 1·27)	**Paro**	0·66 (0·46 to 0·94)	1·06 (0·88 to 1·28)	0·85 (0·63 to 1·15)	0·91 (0·77 to 1·07)	1·53 (0·90 to 2·66)
1·44 (1·02 to 2·04)	1·50 (1·07 to 2·07)	1·65 (1·05 to 2·60)	1·27 (0·92 to 1·75)	1·20 (0·84 to 1·70)	1·36 (0·95 to 1·95)	1·60 (1·14 to 2·23)	1·20 (0·88 to 1·62)	1·20 (0·83 to 1·71)	1·35 (0·92 to 1·95)	1·54 (1·09 to 2·17)	1·25 (0·77 to 2·01)	1·43 (1·05 to 1·94)	**Rebo**	1·61 (1·09 to 2·34)	1·29 (0·81 to 2·01)	1·38 (0·94 to 1·99)	2·32 (1·24 to 4·41)
1·07 (0·85 to 1·37)	1·11 (0·92 to 1·35)	1·23 (0·85 to 1·79)	0·95 (0·76 to 1·18)	0·90 (0·71 to 1·13)	1·02 (0·79 to 1·32)	1·20 (0·97 to 1·48)	0·89 (0·76 to 1·00)	0·89 (0·70 to 1·13)	1·00 (0·77 to 1·30)	1·15 (0·93 to 1·43)	0·93 (0·63 to 1·37)	1·07 (0·90 to 1·26)	0·75 (0·54 to 1·00)	**Sert**	0·80 (0·58 to 1·11)	0·86 (0·70 to 1·05)	1·45 (0·84 to 2·54)
1·36 (0·99 to 1·87)	1·41 (1·06 to 1·86)	1·56 (1·04 to 2·31)	1·20 (0·88 to 1·63)	1·13 (0·83 to 1·54)	1·28 (0·92 to 1·79)	1·51 (1·12 to 2·04)	1·13 (0·87 to 1·46)	1·13 (0·82 to 1·55)	1·27 (0·91 to 1·76)	1·45 (1·09 to 1·94)	1·18 (0·75 to 1·84)	1·35 (1·04 to 1·75)	0·94 (0·64 to 1·39)	1·26 (0·95 to 1·67)	**Traz**	1·07 (0·77 to 1·47)	1·80 (0·98 to 3·38)
1·01 (0·82 to 1·26)	1·05 (0·87 to 1·27)	1·16 (0·82 to 1·65)	0·90 (0·72 to 1·10)	0·85 (0·67 to 1·06)	0·96 (0·77 to 1·21)	1·13 (0·93 to 1·37)	0·84 (0·73 to 0·97)	0·84 (0·66 to 1·07)	0·95 (0·73 to 1·23)	1·09 (0·89 to 1·33)	0·88 (0·59 to 1·30)	1·01 (0·86 to 1·17)	0·70 (0·51 to 0·97)	0·94 (0·78 to 1·13)	0·75 (0·57 to 0·98)	**Venl**	1·69 (1·01 to 2·86)
0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	0·51 (0·28 to 0·92)	0·68 (0·39 to 1·16)	0·54 (0·30 to 0·95)	0·72 (0·43 to 1·19)	**Vort**

Efficacy

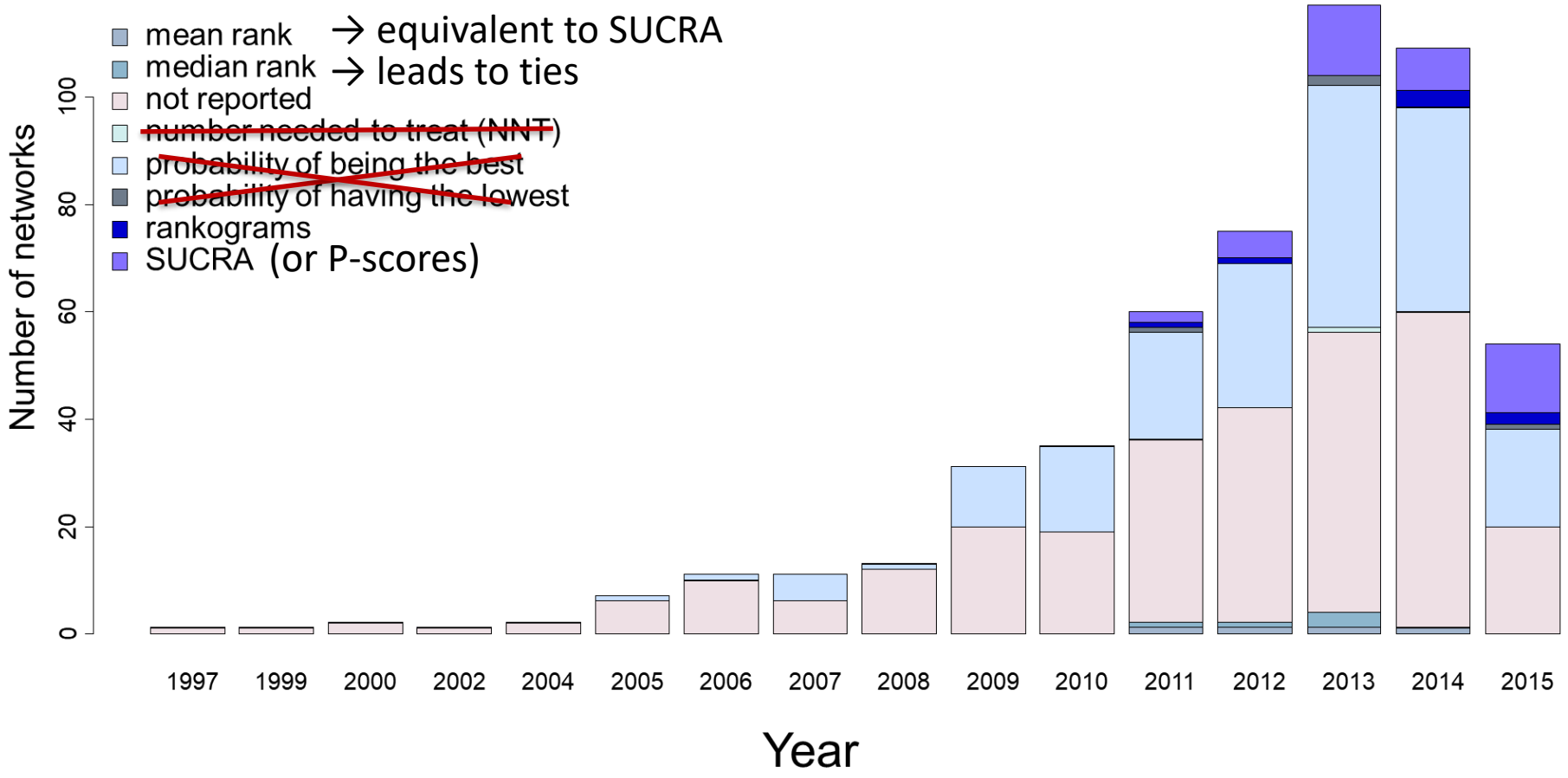
NMA relative effects

Acceptability

Agom	**0·72** (0·55 to 0·92)	0·80 (0·54 to 1·15)	0·89 (0·66 to 1·19)	**0·57** (0·42 to 0·77)	0·62 (0·47 to 0·82)	0·97 (0·74 to 1·27)	0·85 (0·68 to 1·05)	0·69 (0·51 to 0·97)	0·79 (0·58 to 1·09)	0·81 (0·61 to 1·05)	0·70 (0·44 to 1·14)	**0·81** (0·65 to 1·00)	**0·53** (0·36 to 0·80)	0·86 (0·66 to 1·13)	**0·69** (0·48 to 0·98)	0·74 (0·58 to 0·92)	1·24 (0·71 to 2·19)
0·96 (0·76 to 1·24)	Amit	1·10 (0·78 to 1·58)	1·23 (0·94 to 1·64)	0·79 (0·60 to 1·05)	0·87 (0·66 to 1·15)	**1·35** (1·05 to 1·74)	1·18 (0·99 to 1·42)	0·97 (0·74 to 1·24)	1·10 (0·84 to 1·45)	1·12 (0·89 to 1·42)	0·98 (0·62 to 1·55)	1·12 (0·95 to 1·34)	0·74 (0·51 to 1·10)	1·20 (0·97 to 1·47)	0·96 (0·70 to 1·31)	1·02 (0·83 to 1·26)	**1·72** (1·00 to 3·05)
0·87 (0·59 to 1·30)	0·91 (0·62 to 1·31)	Bupr	1·11 (0·76 to 1·67)	0·71 (0·49 to 1·07)	0·78 (0·53 to 1·18)	1·23 (0·84 to 1·80)	1·07 (0·76 to 1·50)	0·87 (0·59 to 1·30)	1·00 (0·66 to 1·49)	1·01 (0·70 to 1·47)	0·89 (0·51 to 1·54)	1·02 (0·73 to 1·43)	0·67 (0·42 to 1·08)	1·08 (0·75 to 1·56)	0·87 (0·57 to 1·30)	0·92 (0·66 to 1·30)	1·55 (0·85 to 2·94)
1·13 (0·88 to 1·47)	1·18 (0·93 to 1·49)	1·30 (0·88 to 1·93)	Cita	0·64 (0·47 to 0·87)	**0·70** (0·51 to 0·95)	1·09 (0·85 to 1·42)	0·96 (0·76 to 1·21)	0·78 (0·57 to 1·06)	0·89 (0·64 to 1·23)	0·91 (0·68 to 1·21)	0·79 (0·49 to 1·32)	0·91 (0·71 to 1·17)	0·60 (0·41 to 0·87)	0·97 (0·74 to 1·25)	0·77 (0·53 to 1·13)	0·83 (0·64 to 1·07)	1·40 (0·78 to 2·48)
1·20 (0·91 to 1·59)	1·24 (0·98 to 1·58)	1·37 (0·93 to 2·04)	1·06 (0·82 to 1·38)	Clom	1·10 (0·80 to 1·51)	**1·71** (1·27 to 2·29)	1·49 (1·16 to 1·90)	1·22 (0·88 to 1·67)	1·40 (1·00 to 1·92)	**1·41** (1·05 to 1·91)	1·24 (0·76 to 2·00)	1·42 (1·12 to 1·79)	0·94 (0·62 to 1·41)	1·51 (1·15 to 1·96)	1·21 (0·83 to 1·73)	1·29 (0·99 to 1·67)	**2·20** (1·22 to 3·90)
1·06 (0·82 to 1·37)	1·10 (0·84 to 1·42)	1·21 (0·81 to 1·81)	0·93 (0·71 to 1·22)	0·88 (0·66 to 1·18)	Dulo	**1·56** (1·19 to 2·01)	**1·37** (1·06 to 1·73)	1·12 (0·80 to 1·53)	1·28 (0·91 to 1·75)	1·30 (0·96 to 1·72)	1·13 (0·69 to 1·83)	**1·30** (1·02 to 1·63)	0·86 (0·57 to 1·29)	1·38 (1·04 to 1·80)	1·10 (0·76 to 1·59)	1·18 (0·92 to 1·49)	**1·99** (1·13 to 3·52)
0·90 (0·71 to 1·14)	0·93 (0·74 to 1·17)	1·03 (0·70 to 1·51)	**0·79** (0·65 to 0·97)	**0·75** (0·58 to 0·97)	0·85 (0·67 to 1·08)	Esci	0·87 (0·70 to 1·09)	**0·71** (0·53 to 0·96)	0·81 (0·60 to 1·11)	0·83 (0·63 to 1·08)	0·72 (0·45 to 1·18)	0·83 (0·67 to 1·03)	**0·55** (0·37 to 0·81)	0·88 (0·69 to 1·12)	**0·70** (0·49 to 1·00)	**0·75** (0·60 to 0·94)	1·27 (0·73 to 2·25)
1·20 (0·99 to 1·48)	1·25 (1·06 to 1·48)	1·38 (0·97 to 1·97)	1·06 (0·87 to 1·29)	1·00 (0·81 to 1·24)	1·14 (0·91 to 1·44)	**1·34** (1·12 to 1·61)	Fluo	0·82 (0·64 to 1·04)	0·94 (0·72 to 1·20)	0·95 (0·77 to 1·16)	0·83 (0·54 to 1·30)	0·95 (0·83 to 1·09)	0·63 (0·44 to 0·90)	1·01 (0·84 to 1·21)	0·81 (0·60 to 1·09)	0·87 (0·74 to 1·01)	1·46 (0·85 to 2·53)
1·20 (0·91 to 1·61)	1·25 (0·99 to 1·59)	1·38 (0·93 to 2·07)	1·06 (0·82 to 1·39)	1·00 (0·76 to 1·32)	1·14 (0·85 to 1·54)	**1·34** (1·03 to 1·75)	1·00 (0·80 to 1·25)	Fluv	1·14 (0·84 to 1·56)	1·16 (0·89 to 1·52)	1·01 (0·62 to 1·71)	1·16 (0·90 to 1·49)	0·77 (0·51 to 1·17)	1·23 (0·94 to 1·63)	0·99 (0·69 to 1·42)	1·06 (0·80 to 1·38)	1·78 (1·00 to 3·24)
1·07 (0·80 to 1·44)	1·11 (0·86 to 1·43)	1·23 (0·81 to 1·85)	0·94 (0·71 to 1·26)	0·89 (0·67 to 1·19)	1·01 (0·74 to 1·38)	1·19 (0·90 to 1·58)	0·89 (0·70 to 1·13)	0·89 (0·67 to 1·17)	Miln	1·02 (0·75 to 1·37)	0·88 (0·54 to 1·44)	1·02 (0·80 to 1·31)	0·67 (0·45 to 1·03)	1·08 (0·82 to 1·44)	0·86 (0·60 to 1·25)	0·93 (0·71 to 1·22)	1·56 (0·89 to 2·84)
0·93 (0·72 to 1·21)	0·97 (0·77 to 1·21)	1·07 (0·73 to 1·57)	0·82 (0·65 to 1·05)	0·78 (0·60 to 1·01)	0·88 (0·67 to 1·16)	1·04 (0·82 to 1·32)	0·78 (0·64 to 0·94)	**0·78** (0·60 to 0·99)	0·87 (0·66 to 1·15)	Mirt	0·87 (0·55 to 1·41)	1·00 (0·82 to 1·23)	**0·66** (0·45 to 0·99)	1·06 (0·84 to 1·35)	0·85 (0·62 to 1·18)	0·91 (0·73 to 1·13)	1·53 (0·89 to 2·72)
1·15 (0·76 to 1·76)	1·19 (0·80 to 1·78)	1·32 (0·80 to 2·20)	1·01 (0·67 to 1·54)	0·96 (0·63 to 1·45)	1·09 (0·71 to 1·68)	1·28 (0·86 to 1·94)	0·96 (0·66 to 1·40)	0·95 (0·63 to 1·46)	1·07 (0·70 to 1·67)	1·23 (0·82 to 1·86)	Nefa	1·15 (0·74 to 1·78)	0·75 (0·43 to 1·32)	1·23 (0·77 to 1·90)	0·98 (0·57 to 1·64)	1·04 (0·66 to 1·65)	1·76 (0·90 to 3·56)
1·01 (0·82 to 1·24)	1·05 (0·89 to 1·23)	1·16 (0·81 to 1·64)	0·89 (0·72 to 1·09)	0·84 (0·68 to 1·03)	0·96 (0·76 to 1·19)	1·12 (0·93 to 1·35)	**0·84** (0·73 to 0·95)	0·84 (0·67 to 1·04)	0·94 (0·75 to 1·18)	1·08 (0·89 to 1·30)	0·88 (0·60 to 1·27)	Paro	0·66 (0·46 to 0·94)	1·06 (0·88 to 1·28)	0·85 (0·63 to 1·15)	0·91 (0·77 to 1·07)	1·53 (0·90 to 2·66)
1·44 (1·02 to 2·04)	1·50 (1·07 to 2·07)	1·65 (1·05 to 2·60)	1·27 (0·92 to 1·75)	1·20 (0·84 to 1·70)	1·36 (0·95 to 1·95)	**1·60** (1·14 to 2·23)	1·20 (0·88 to 1·62)	1·20 (0·83 to 1·71)	1·35 (0·92 to 1·95)	1·54 (1·09 to 2·17)	1·25 (0·77 to 2·01)	1·43 (1·05 to 1·94)	Rebo	1·61 (1·09 to 2·34)	1·29 (0·81 to 2·01)	1·38 (0·94 to 1·99)	2·32 (1·24 to 4·41)
1·07 (0·85 to 1·37)	1·11 (0·92 to 1·35)	1·23 (0·85 to 1·79)	0·95 (0·76 to 1·18)	0·90 (0·71 to 1·13)	1·02 (0·79 to 1·32)	1·20 (0·97 to 1·48)	0·89 (0·76 to 1·00)	0·89 (0·70 to 1·13)	1·00 (0·77 to 1·30)	1·15 (0·93 to 1·43)	0·93 (0·63 to 1·37)	1·07 (0·90 to 1·26)	0·75 (0·54 to 1·00)	Sert	0·80 (0·58 to 1·11)	0·86 (0·70 to 1·05)	1·45 (0·84 to 2·54)
1·36 (0·99 to 1·87)	1·41 (1·06 to 1·86)	1·56 (1·04 to 2·31)	1·20 (0·88 to 1·63)	1·13 (0·83 to 1·54)	1·28 (0·92 to 1·79)	**1·51** (1·12 to 2·04)	1·13 (0·87 to 1·46)	1·13 (0·82 to 1·55)	1·27 (0·91 to 1·76)	1·45 (1·09 to 1·94)	1·18 (0·75 to 1·84)	1·35 (1·04 to 1·75)	0·94 (0·64 to 1·39)	1·26 (0·95 to 1·67)	Traz	1·07 (0·77 to 1·47)	1·80 (0·98 to 3·38)
1·01 (0·82 to 1·26)	1·05 (0·87 to 1·27)	1·16 (0·82 to 1·65)	0·90 (0·72 to 1·10)	0·85 (0·67 to 1·06)	0·96 (0·77 to 1·21)	1·13 (0·93 to 1·37)	0·84 (0·73 to 0·97)	0·84 (0·66 to 1·07)	0·95 (0·73 to 1·23)	1·09 (0·89 to 1·33)	0·88 (0·59 to 1·30)	1·01 (0·86 to 1·17)	0·70 (0·51 to 0·97)	0·94 (0·78 to 1·13)	**0·75** (0·57 to 0·98)	Venl	1·69 (1·01 to 2·86)
0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	**0·51** (0·28 to 0·92)	0·68 (0·39 to 1·16)	**0·54** (0·30 to 0·95)	0·72 (0·43 to 1·19)	Vort

Efficacy

NMA relative ranking in published networks



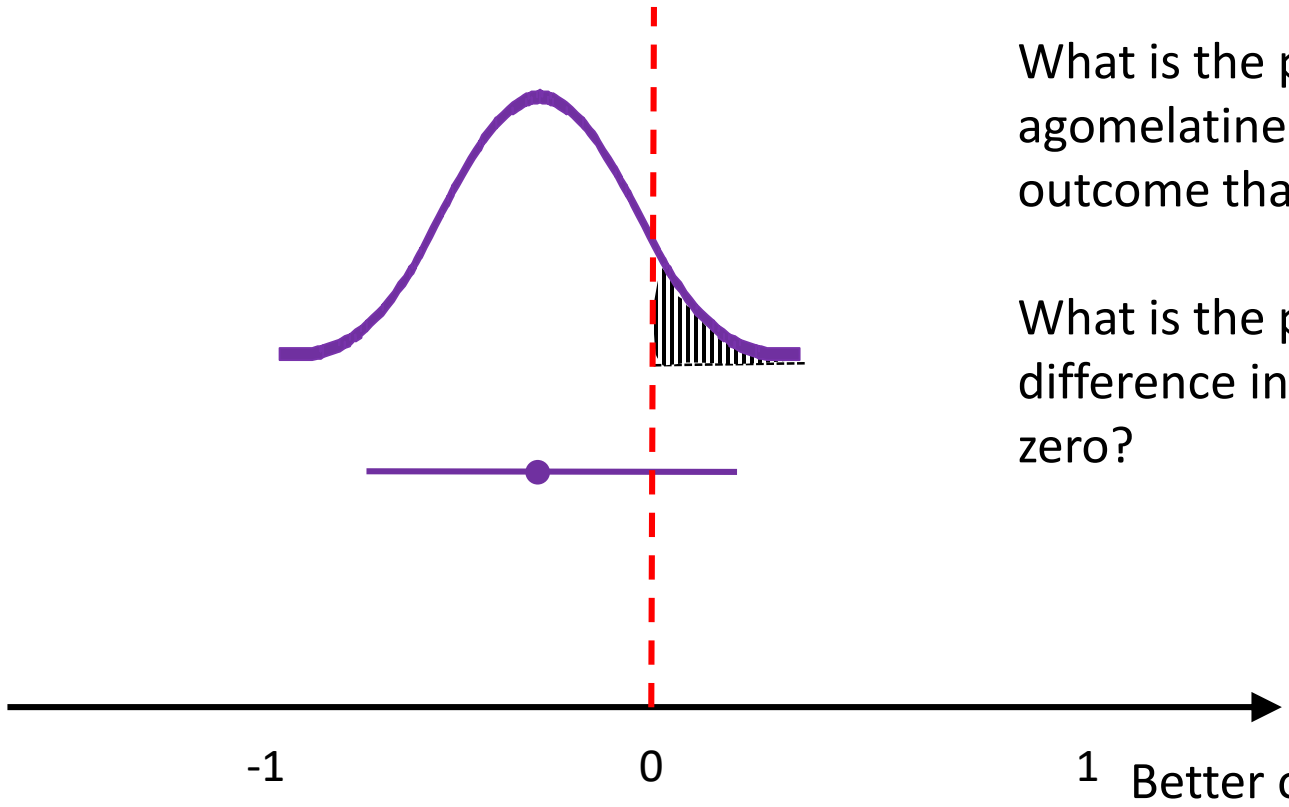
Petropoulou et al JCE 2017

Translating relative effects into probabilities

Agom	0·72 (0·55 to 0·92)	0·80 (0·54 to 1·15)	0·89 (0·66 to 1·19)	0·57 (0·42 to 0·77)	0·62 (0·47 to 0·82)	0·97 (0·74 to 1·27)	0·85 (0·68 to 1·05)	0·69 (0·51 to 0·97)	0·79 (0·58 to 1·09)	0·81 (0·61 to 1·05)	0·70 (0·44 to 1·14)	0·81 (0·65 to 1·00)	0·53 (0·36 to 0·80)	0·86 (0·66 to 1·13)	0·69 (0·48 to 0·98)	0·74 (0·58 to 0·92)	1·24 (0·71 to 2·19)
0·96 (0·76 to 1·24)	**Amit**	1·10 (0·78 to 1·58)	1·23 (0·94 to 1·64)	0·79 (0·60 to 1·05)	0·87 (0·66 to 1·15)	1·35 (1·05 to 1·74)	1·18 (0·99 to 1·42)	0·97 (0·74 to 1·24)	1·10 (0·84 to 1·45)	1·12 (0·89 to 1·42)	0·98 (0·62 to 1·55)	1·12 (0·95 to 1·34)	0·74 (0·51 to 1·10)	1·20 (0·97 to 1·47)	0·96 (0·70 to 1·31)	1·02 (0·83 to 1·26)	1·72 (1·00 to 3·05)
0·87 (0·59 to 1·30)	0·91 (0·62 to 1·31)	**Bupr**	1·11 (0·76 to 1·67)	0·71 (0·49 to 1·07)	0·78 (0·53 to 1·18)	1·23 (0·84 to 1·80)	1·07 (0·76 to 1·50)	0·87 (0·59 to 1·30)	1·00 (0·66 to 1·49)	1·01 (0·70 to 1·47)	0·89 (0·51 to 1·54)	1·02 (0·73 to 1·43)	0·67 (0·42 to 1·08)	1·08 (0·75 to 1·56)	0·87 (0·57 to 1·30)	0·92 (0·66 to 1·30)	1·55 (0·85 to 2·94)
1·13 (0·88 to 1·47)	1·18 (0·93 to 1·49)	1·30 (0·88 to 1·93)	**Cita**	0·64 (0·47 to 0·87)	0·70 (0·51 to 0·95)	1·09 (0·85 to 1·42)	0·96 (0·76 to 1·21)	0·78 (0·57 to 1·06)	0·89 (0·64 to 1·23)	0·91 (0·68 to 1·21)	0·79 (0·49 to 1·32)	0·91 (0·71 to 1·17)	0·60 (0·41 to 0·87)	0·97 (0·74 to 1·25)	0·77 (0·53 to 1·13)	0·83 (0·64 to 1·07)	1·40 (0·78 to 2·48)
1·20 (0·91 to 1·59)	1·24 (0·98 to 1·58)	1·37 (0·93 to 2·04)	1·06 (0·82 to 1·38)	**Clom**	1·10 (0·80 to 1·51)	1·71 (1·27 to 2·29)	1·49 (1·16 to 1·90)	1·22 (0·88 to 1·67)	1·40 (1·00 to 1·92)	1·41 (1·05 to 1·91)	1·24 (0·76 to 2·00)	1·42 (1·12 to 1·79)	0·94 (0·62 to 1·41)	1·51 (1·15 to 1·96)	1·21 (0·83 to 1·73)	1·29 (0·99 to 1·67)	2·20 (1·22 to 3·90)
1·06 (0·82 to 1·37)	1·10 (0·84 to 1·42)	1·21 (0·81 to 1·81)	0·93 (0·71 to 1·22)	0·88 (0·66 to 1·18)	**Dulo**	1·56 (1·19 to 2·01)	1·37 (1·06 to 1·73)	1·12 (0·80 to 1·53)	1·28 (0·91 to 1·75)	1·30 (0·96 to 1·72)	1·13 (0·69 to 1·83)	1·30 (1·02 to 1·63)	0·86 (0·57 to 1·29)	1·38 (1·04 to 1·80)	1·10 (0·76 to 1·59)	1·18 (0·92 to 1·49)	1·99 (1·13 to 3·52)
0·90 (0·71 to 1·14)	0·93 (0·74 to 1·17)	1·03 (0·70 to 1·51)	0·79 (0·65 to 0·97)	0·75 (0·58 to 0·97)	0·85 (0·67 to 1·08)	**Esci**	0·87 (0·70 to 1·09)	0·71 (0·53 to 0·96)	0·81 (0·60 to 1·11)	0·83 (0·63 to 1·08)	0·72 (0·45 to 1·18)	0·83 (0·67 to 1·03)	0·55 (0·37 to 0·81)	0·88 (0·69 to 1·12)	0·70 (0·49 to 1·00)	0·75 (0·60 to 0·94)	1·27 (0·73 to 2·25)
1·20 (0·99 to 1·48)	1·25 (1·06 to 1·48)	1·38 (0·97 to 1·97)	1·06 (0·87 to 1·29)	1·00 (0·81 to 1·24)	1·14 (0·91 to 1·44)	1·34 (1·12 to 1·61)	**Fluo**	0·82 (0·64 to 1·04)	0·94 (0·72 to 1·20)	0·95 (0·77 to 1·16)	0·83 (0·54 to 1·30)	0·95 (0·83 to 1·09)	0·63 (0·44 to 0·90)	1·01 (0·84 to 1·21)	0·81 (0·60 to 1·09)	0·87 (0·74 to 1·01)	1·46 (0·85 to 2·53)
1·20 (0·91 to 1·61)	1·25 (0·99 to 1·59)	1·38 (0·93 to 2·07)	1·06 (0·82 to 1·39)	1·00 (0·76 to 1·32)	1·14 (0·85 to 1·54)	1·34 (1·03 to 1·75)	1·00 (0·80 to 1·25)	**Fluv**	1·14 (0·84 to 1·56)	1·16 (0·89 to 1·52)	1·01 (0·62 to 1·71)	1·16 (0·90 to 1·49)	0·77 (0·51 to 1·17)	1·23 (0·94 to 1·63)	0·99 (0·69 to 1·42)	1·06 (0·80 to 1·38)	1·78 (1·00 to 3·24)
1·07 (0·80 to 1·44)	1·11 (0·86 to 1·43)	1·23 (0·81 to 1·85)	0·94 (0·71 to 1·26)	0·89 (0·67 to 1·19)	1·01 (0·74 to 1·38)	1·19 (0·90 to 1·58)	0·89 (0·70 to 1·13)	0·89 (0·67 to 1·17)	**Miln**	1·02 (0·75 to 1·37)	0·88 (0·54 to 1·44)	1·02 (0·80 to 1·31)	0·67 (0·45 to 1·03)	1·08 (0·82 to 1·44)	0·86 (0·60 to 1·25)	0·93 (0·71 to 1·22)	1·56 (0·89 to 2·84)
0·93 (0·72 to 1·21)	0·97 (0·77 to 1·21)	1·07 (0·73 to 1·57)	0·82 (0·65 to 1·05)	0·78 (0·60 to 1·01)	0·88 (0·67 to 1·16)	1·04 (0·82 to 1·32)	0·78 (0·64 to 0·94)	0·78 (0·60 to 0·99)	0·87 (0·66 to 1·15)	**Mirt**	0·87 (0·55 to 1·41)	1·00 (0·82 to 1·23)	0·66 (0·45 to 0·99)	1·06 (0·84 to 1·35)	0·85 (0·62 to 1·18)	0·91 (0·73 to 1·13)	1·53 (0·89 to 2·72)
1·15 (0·76 to 1·76)	1·19 (0·80 to 1·78)	1·32 (0·80 to 2·20)	1·01 (0·67 to 1·54)	0·96 (0·63 to 1·45)	1·09 (0·71 to 1·68)	1·28 (0·86 to 1·94)	0·96 (0·66 to 1·40)	0·95 (0·63 to 1·46)	1·07 (0·70 to 1·67)	1·23 (0·82 to 1·86)	**Nefa**	1·15 (0·74 to 1·78)	0·75 (0·43 to 1·32)	1·23 (0·77 to 1·90)	0·98 (0·57 to 1·64)	1·04 (0·66 to 1·65)	1·76 (0·90 to 3·56)
1·01 (0·82 to 1·24)	1·05 (0·89 to 1·23)	1·16 (0·81 to 1·64)	0·89 (0·72 to 1·09)	0·84 (0·68 to 1·03)	0·96 (0·76 to 1·19)	1·12 (0·93 to 1·35)	0·84 (0·73 to 0·95)	0·84 (0·67 to 1·04)	0·94 (0·75 to 1·18)	1·08 (0·89 to 1·30)	0·88 (0·60 to 1·27)	**Paro**	0·66 (0·46 to 0·94)	1·06 (0·88 to 1·28)	0·85 (0·63 to 1·15)	0·91 (0·77 to 1·07)	1·53 (0·90 to 2·66)
1·44 (1·02 to 2·04)	1·50 (1·07 to 2·07)	1·65 (1·05 to 2·60)	1·27 (0·92 to 1·75)	1·20 (0·84 to 1·70)	1·36 (0·95 to 1·95)	1·60 (1·14 to 2·23)	1·20 (0·88 to 1·62)	1·20 (0·83 to 1·71)	1·35 (0·92 to 1·95)	1·54 (1·09 to 2·17)	1·25 (0·77 to 2·01)	1·43 (1·05 to 1·94)	**Rebo**	1·61 (1·09 to 2·34)	1·29 (0·81 to 2·01)	1·38 (0·94 to 1·99)	2·32 (1·24 to 4·41)
1·07 (0·85 to 1·37)	1·11 (0·92 to 1·35)	1·23 (0·85 to 1·79)	0·95 (0·76 to 1·18)	0·90 (0·71 to 1·13)	1·02 (0·79 to 1·32)	1·20 (0·97 to 1·48)	0·89 (0·76 to 1·00)	0·89 (0·70 to 1·13)	1·00 (0·77 to 1·30)	1·15 (0·93 to 1·43)	0·93 (0·63 to 1·37)	1·07 (0·90 to 1·26)	0·75 (0·54 to 1·00)	**Sert**	0·80 (0·58 to 1·11)	0·86 (0·70 to 1·05)	1·45 (0·84 to 2·54)
1·36 (0·99 to 1·87)	1·41 (1·06 to 1·86)	1·56 (1·04 to 2·31)	1·20 (0·88 to 1·63)	1·13 (0·83 to 1·54)	1·28 (0·92 to 1·79)	1·51 (1·12 to 2·04)	1·13 (0·87 to 1·46)	1·13 (0·82 to 1·55)	1·27 (0·91 to 1·76)	1·45 (1·09 to 1·94)	1·18 (0·75 to 1·84)	1·35 (1·04 to 1·75)	0·94 (0·64 to 1·39)	1·26 (0·95 to 1·67)	**Traz**	1·07 (0·77 to 1·47)	1·80 (0·98 to 3·38)
1·01 (0·82 to 1·26)	1·05 (0·87 to 1·27)	1·16 (0·82 to 1·65)	0·90 (0·72 to 1·10)	0·85 (0·67 to 1·06)	0·96 (0·77 to 1·21)	1·13 (0·93 to 1·37)	0·84 (0·73 to 0·97)	0·84 (0·66 to 1·07)	0·95 (0·73 to 1·23)	1·09 (0·89 to 1·33)	0·88 (0·59 to 1·30)	1·01 (0·86 to 1·17)	0·70 (0·51 to 0·97)	0·94 (0·78 to 1·13)	0·75 (0·57 to 0·98)	**Venl**	1·69 (1·01 to 2·86)
0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	0·51 (0·28 to 0·92)	0·68 (0·39 to 1·16)	0·54 (0·30 to 0·95)	0·72 (0·43 to 1·19)	**Vort**

Comparison of treatments using probabilities

$$OR_{agom-vort} = 0.73\ (0.42,1.26)$$
$$\rightarrow \quad \ln\left(OR_{agom-vort}\right) = -0.31\ (-0.87,0.23)$$



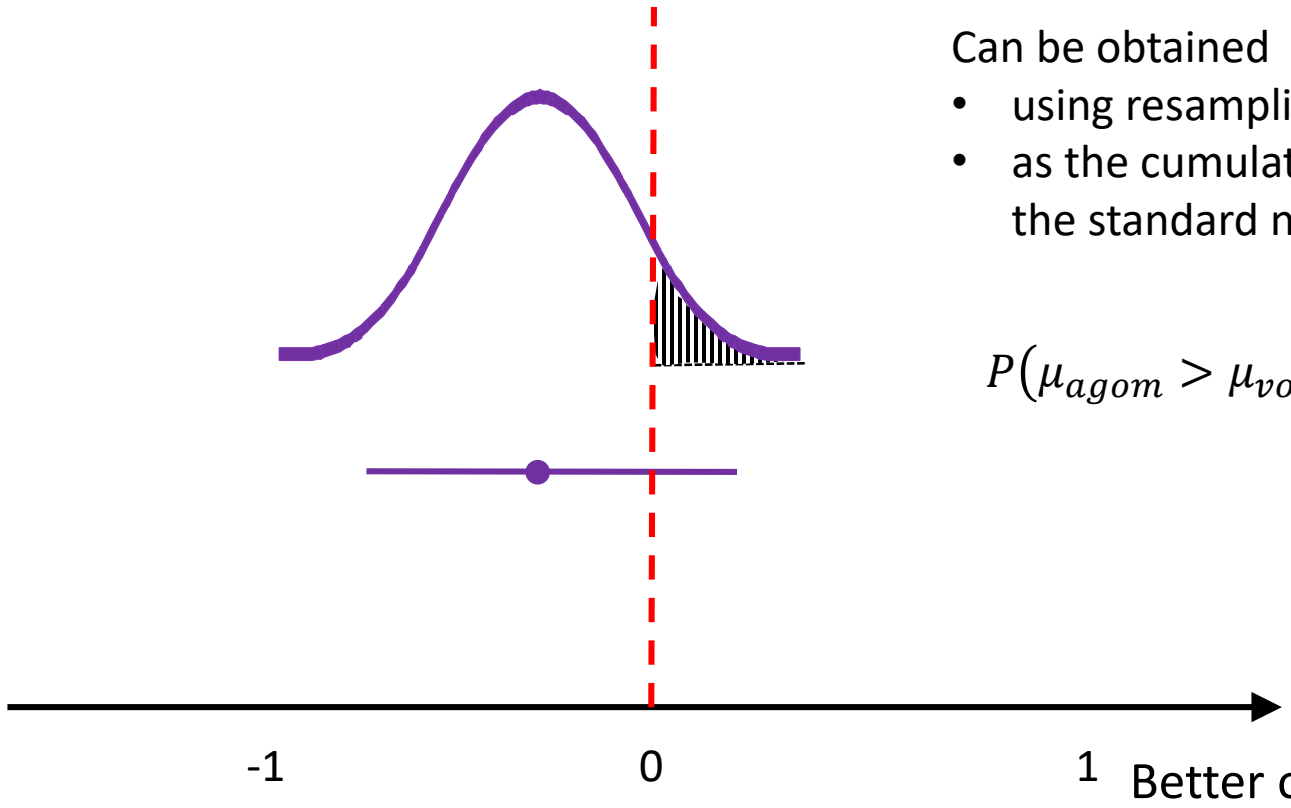
What is the probability that agomelatine produces a better outcome than vortioxetine?

OR

What is the probability that their difference in log-odds is larger than zero?

Comparison of treatments using probabilities

$$OR_{agom-vort} = 0.73\ (0.42,1.26)$$
$$\rightarrow \quad \ln\left(OR_{agom-vort}\right) = -0.31\ (-0.87,0.23)$$



Can be obtained

- using resampling methods
- as the cumulative distribution function of the standard normal distribution:

$$P\left(\mu_{agom} > \mu_{vort}\right) = \Phi\left(\frac{\hat{\mu}_{agom} - \hat{\mu}_{vort}}{sd_{agom-vort}}\right)$$

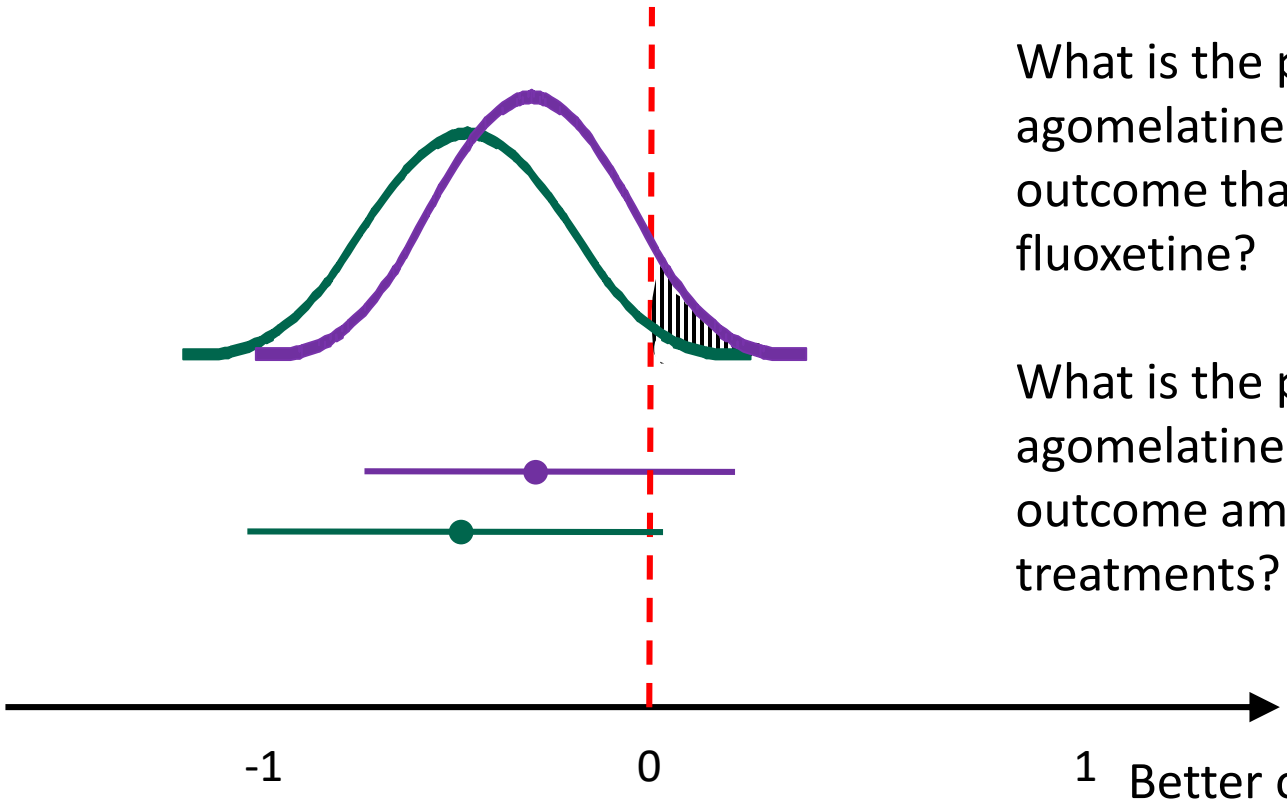
Rücker BMC Meth 2015

Translating relative effects into probabilities

Agom	0·72 (0·55 to 0·92)	0·80 (0·54 to 1·15)	0·89 (0·66 to 1·19)	0·57 (0·42 to 0·77)	0·62 (0·47 to 0·82)	0·97 (0·74 to 1·27)	0·85 (0·68 to 1·05)	0·69 (0·51 to 0·97)	0·79 (0·58 to 1·09)	0·81 (0·61 to 1·05)	0·70 (0·44 to 1·14)	0·81 (0·65 to 1·00)	0·53 (0·36 to 0·80)	0·86 (0·66 to 1·13)	0·69 (0·48 to 0·98)	0·74 (0·58 to 0·92)	1·24 (0·71 to 2·19)
0·96 (0·76 to 1·24)	**Amit**	1·10 (0·78 to 1·58)	1·23 (0·94 to 1·64)	0·79 (0·60 to 1·05)	0·87 (0·66 to 1·15)	1·35 (1·05 to 1·74)	1·18 (0·99 to 1·42)	0·97 (0·74 to 1·24)	1·10 (0·84 to 1·45)	1·12 (0·89 to 1·42)	0·98 (0·62 to 1·55)	1·12 (0·95 to 1·34)	0·74 (0·51 to 1·10)	1·20 (0·97 to 1·47)	0·96 (0·70 to 1·31)	1·02 (0·83 to 1·26)	1·72 (1·00 to 3·05)
0·87 (0·59 to 1·30)	0·91 (0·62 to 1·31)	**Bupr**	1·11 (0·76 to 1·67)	0·71 (0·49 to 1·07)	0·78 (0·53 to 1·18)	1·23 (0·84 to 1·80)	1·07 (0·76 to 1·50)	0·87 (0·59 to 1·30)	1·00 (0·66 to 1·49)	1·01 (0·70 to 1·47)	0·89 (0·51 to 1·54)	1·02 (0·73 to 1·43)	0·67 (0·42 to 1·08)	1·08 (0·75 to 1·56)	0·87 (0·57 to 1·30)	0·92 (0·66 to 1·30)	1·55 (0·85 to 2·94)
1·13 (0·88 to 1·47)	1·18 (0·93 to 1·49)	1·30 (0·88 to 1·93)	**Cita**	0·64 (0·47 to 0·87)	0·70 (0·51 to 0·95)	1·09 (0·85 to 1·42)	0·96 (0·76 to 1·21)	0·78 (0·57 to 1·06)	0·89 (0·64 to 1·23)	0·91 (0·68 to 1·21)	0·79 (0·49 to 1·32)	0·91 (0·71 to 1·17)	0·60 (0·41 to 0·87)	0·97 (0·74 to 1·25)	0·77 (0·53 to 1·13)	0·83 (0·64 to 1·07)	1·40 (0·78 to 2·48)
1·20 (0·91 to 1·59)	1·24 (0·98 to 1·58)	1·37 (0·93 to 2·04)	1·06 (0·82 to 1·38)	**Clom**	1·10 (0·80 to 1·51)	1·71 (1·27 to 2·29)	1·49 (1·16 to 1·90)	1·22 (0·88 to 1·67)	1·40 (1·00 to 1·92)	1·41 (1·05 to 1·91)	1·24 (0·76 to 2·00)	1·42 (1·12 to 1·79)	0·94 (0·62 to 1·41)	1·51 (1·15 to 1·96)	1·21 (0·83 to 1·73)	1·29 (0·99 to 1·67)	2·20 (1·22 to 3·90)
1·06 (0·82 to 1·37)	1·10 (0·84 to 1·42)	1·21 (0·81 to 1·81)	0·93 (0·71 to 1·22)	0·88 (0·66 to 1·18)	**Dulo**	1·56 (1·19 to 2·01)	1·37 (1·06 to 1·73)	1·12 (0·80 to 1·53)	1·28 (0·91 to 1·75)	1·30 (0·96 to 1·72)	1·13 (0·69 to 1·83)	1·30 (1·02 to 1·63)	0·86 (0·57 to 1·29)	1·38 (1·04 to 1·80)	1·10 (0·76 to 1·59)	1·18 (0·92 to 1·49)	1·99 (1·13 to 3·52)
0·90 (0·71 to 1·14)	0·93 (0·74 to 1·17)	1·03 (0·70 to 1·51)	0·79 (0·65 to 0·97)	0·75 (0·58 to 0·97)	0·85 (0·67 to 1·08)	**Esci**	0·87 (0·70 to 1·09)	0·71 (0·53 to 0·96)	0·81 (0·60 to 1·11)	0·83 (0·63 to 1·08)	0·72 (0·45 to 1·18)	0·83 (0·67 to 1·03)	0·55 (0·37 to 0·81)	0·88 (0·69 to 1·12)	0·70 (0·49 to 1·00)	0·75 (0·60 to 0·94)	1·27 (0·73 to 2·25)
1·20 (0·99 to 1·48)	1·25 (1·06 to 1·48)	1·38 (0·97 to 1·97)	1·06 (0·87 to 1·29)	1·00 (0·81 to 1·24)	1·14 (0·91 to 1·44)	1·34 (1·12 to 1·61)	**Fluo**	0·82 (0·64 to 1·04)	0·94 (0·72 to 1·20)	0·95 (0·77 to 1·16)	0·83 (0·54 to 1·30)	0·95 (0·83 to 1·09)	0·63 (0·44 to 0·90)	1·01 (0·84 to 1·21)	0·81 (0·60 to 1·09)	0·87 (0·74 to 1·01)	1·46 (0·85 to 2·53)
1·20 (0·91 to 1·61)	1·25 (0·99 to 1·59)	1·38 (0·93 to 2·07)	1·06 (0·82 to 1·39)	1·00 (0·76 to 1·32)	1·14 (0·85 to 1·54)	1·34 (1·03 to 1·75)	1·00 (0·80 to 1·25)	**Fluv**	1·14 (0·84 to 1·56)	1·16 (0·89 to 1·52)	1·01 (0·62 to 1·71)	1·16 (0·90 to 1·49)	0·77 (0·51 to 1·17)	1·23 (0·94 to 1·63)	0·99 (0·69 to 1·42)	1·06 (0·80 to 1·38)	1·78 (1·00 to 3·24)
1·07 (0·80 to 1·44)	1·11 (0·86 to 1·43)	1·23 (0·81 to 1·85)	0·94 (0·71 to 1·26)	0·89 (0·67 to 1·19)	1·01 (0·74 to 1·38)	1·19 (0·90 to 1·58)	0·89 (0·70 to 1·13)	0·89 (0·67 to 1·17)	**Miln**	1·02 (0·75 to 1·37)	0·88 (0·54 to 1·44)	1·02 (0·80 to 1·31)	0·67 (0·45 to 1·03)	1·08 (0·82 to 1·44)	0·86 (0·60 to 1·25)	0·93 (0·71 to 1·22)	1·56 (0·89 to 2·84)
0·93 (0·72 to 1·21)	0·97 (0·77 to 1·21)	1·07 (0·73 to 1·57)	0·82 (0·65 to 1·05)	0·78 (0·60 to 1·01)	0·88 (0·67 to 1·16)	1·04 (0·82 to 1·32)	0·78 (0·64 to 0·94)	0·78 (0·60 to 0·99)	0·87 (0·66 to 1·15)	**Mirt**	0·87 (0·55 to 1·41)	1·00 (0·82 to 1·23)	0·66 (0·45 to 0·99)	1·06 (0·84 to 1·35)	0·85 (0·62 to 1·18)	0·91 (0·73 to 1·13)	1·53 (0·89 to 2·72)
1·15 (0·76 to 1·76)	1·19 (0·80 to 1·78)	1·32 (0·80 to 2·20)	1·01 (0·67 to 1·54)	0·96 (0·63 to 1·45)	1·09 (0·71 to 1·68)	1·28 (0·86 to 1·94)	0·96 (0·66 to 1·40)	0·95 (0·63 to 1·46)	1·07 (0·70 to 1·67)	1·23 (0·82 to 1·86)	**Nefa**	1·15 (0·74 to 1·78)	0·75 (0·43 to 1·32)	1·23 (0·77 to 1·90)	0·98 (0·57 to 1·64)	1·04 (0·66 to 1·65)	1·76 (0·90 to 3·56)
1·01 (0·82 to 1·24)	1·05 (0·89 to 1·23)	1·16 (0·81 to 1·64)	0·89 (0·72 to 1·09)	0·84 (0·68 to 1·03)	0·96 (0·76 to 1·19)	1·12 (0·93 to 1·35)	0·84 (0·73 to 0·95)	0·84 (0·67 to 1·04)	0·94 (0·75 to 1·18)	1·08 (0·89 to 1·30)	0·88 (0·60 to 1·27)	**Paro**	0·66 (0·46 to 0·94)	1·06 (0·88 to 1·28)	0·85 (0·63 to 1·15)	0·91 (0·77 to 1·07)	1·53 (0·90 to 2·66)
1·44 (1·02 to 2·04)	1·50 (1·07 to 2·07)	1·65 (1·05 to 2·60)	1·27 (0·92 to 1·75)	1·20 (0·84 to 1·70)	1·36 (0·95 to 1·95)	1·60 (1·14 to 2·23)	1·20 (0·88 to 1·62)	1·20 (0·83 to 1·71)	1·35 (0·92 to 1·95)	1·54 (1·09 to 2·17)	1·25 (0·77 to 2·01)	1·43 (1·05 to 1·94)	**Rebo**	1·61 (1·09 to 2·34)	1·29 (0·81 to 2·01)	1·38 (0·94 to 1·99)	2·32 (1·24 to 4·41)
1·07 (0·85 to 1·37)	1·11 (0·92 to 1·35)	1·23 (0·85 to 1·79)	0·95 (0·76 to 1·18)	0·90 (0·71 to 1·13)	1·02 (0·79 to 1·32)	1·20 (0·97 to 1·48)	0·89 (0·76 to 1·00)	0·89 (0·70 to 1·13)	1·00 (0·77 to 1·30)	1·15 (0·93 to 1·43)	0·93 (0·63 to 1·37)	1·07 (0·90 to 1·26)	0·75 (0·54 to 1·00)	**Sert**	0·80 (0·58 to 1·11)	0·86 (0·70 to 1·05)	1·45 (0·84 to 2·54)
1·36 (0·99 to 1·87)	1·41 (1·06 to 1·86)	1·56 (1·04 to 2·31)	1·20 (0·88 to 1·63)	1·13 (0·83 to 1·54)	1·28 (0·92 to 1·79)	1·51 (1·12 to 2·04)	1·13 (0·87 to 1·46)	1·13 (0·82 to 1·55)	1·27 (0·91 to 1·76)	1·45 (1·09 to 1·94)	1·18 (0·75 to 1·84)	1·35 (1·04 to 1·75)	0·94 (0·64 to 1·39)	1·26 (0·95 to 1·67)	**Traz**	1·07 (0·77 to 1·47)	1·80 (0·98 to 3·38)
1·01 (0·82 to 1·26)	1·05 (0·87 to 1·27)	1·16 (0·82 to 1·65)	0·90 (0·72 to 1·10)	0·85 (0·67 to 1·06)	0·96 (0·77 to 1·21)	1·13 (0·93 to 1·37)	0·84 (0·73 to 0·97)	0·84 (0·66 to 1·07)	0·95 (0·73 to 1·23)	1·09 (0·89 to 1·33)	0·88 (0·59 to 1·30)	1·01 (0·86 to 1·17)	0·70 (0·51 to 0·97)	0·94 (0·78 to 1·13)	0·75 (0·57 to 0·98)	**Venl**	1·69 (1·01 to 2·86)
0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	0·51 (0·28 to 0·92)	0·68 (0·39 to 1·16)	0·54 (0·30 to 0·95)	0·72 (0·43 to 1·19)	**Vort**

Comparison of treatments using probabilities

$$OR_{fluo-vort} = 0.60\ (0.36,1.02)$$
$$\rightarrow \quad \ln(OR_{fluo-vort}) = -0.51(-1.02,0.02)$$

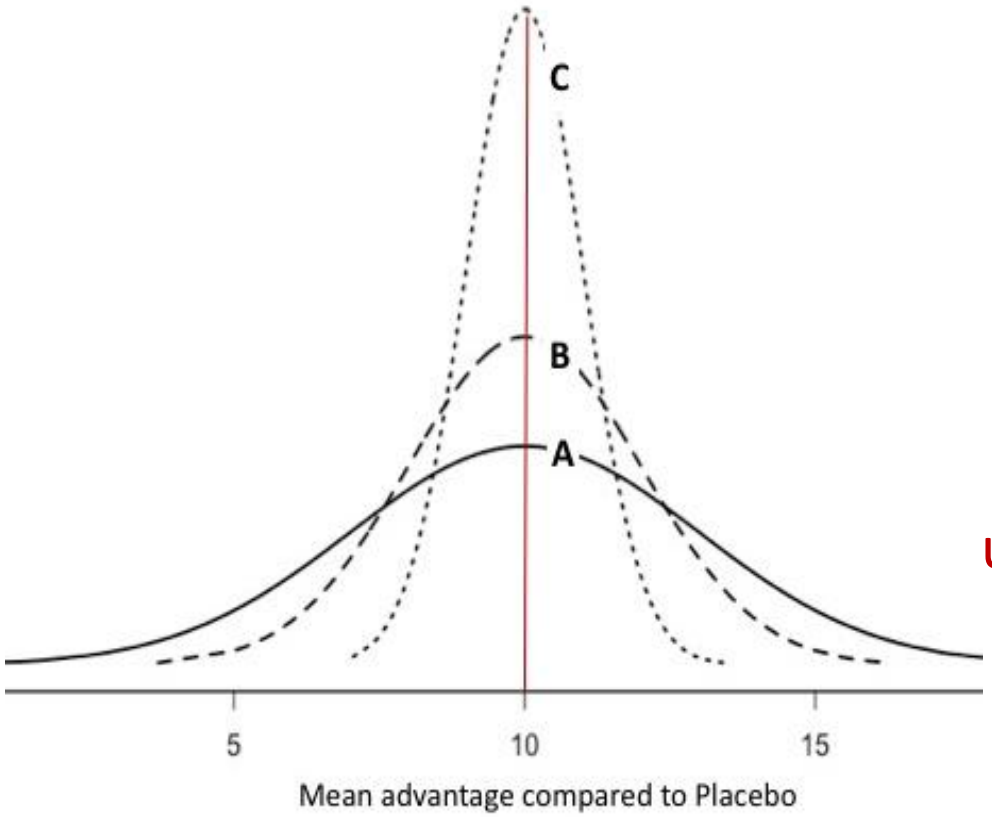


What is the probability that agomelatine produces a better outcome than vortioxetine AND fluoxetine?

OR

What is the probability that agomelatine produces the BEST outcome among the three treatments?

Why P(best) can be misleading?



Treatment	Prob of best outcome
A	40%
B	33%
C	27%

Treatments with large uncertainty can be favoured by P(best)!!

Translating relative effects into probabilities

Agom	0·72 (0·55 to 0·92)	0·80 (0·54 to 1·15)	0·89 (0·66 to 1·19)	0·57 (0·42 to 0·77)	0·62 (0·47 to 0·82)	0·97 (0·74 to 1·27)	0·85 (0·68 to 1·05)	0·69 (0·51 to 0·97)	0·79 (0·58 to 1·09)	0·81 (0·61 to 1·05)	0·70 (0·44 to 1·14)	0·81 (0·65 to 1·00)	0·53 (0·36 to 0·80)	0·86 (0·66 to 1·13)	0·69 (0·48 to 0·98)	0·74 (0·58 to 0·92)	1·24 (0·71 to 2·19)
0·96 (0·76 to 1·24)	**Amit**	1·10 (0·78 to 1·58)	1·23 (0·94 to 1·64)	0·79 (0·60 to 1·05)	0·87 (0·66 to 1·15)	1·35 (1·05 to 1·74)	1·18 (0·99 to 1·42)	0·97 (0·74 to 1·24)	1·10 (0·84 to 1·45)	1·12 (0·89 to 1·42)	0·98 (0·62 to 1·55)	1·12 (0·95 to 1·34)	0·74 (0·51 to 1·10)	1·20 (0·97 to 1·47)	0·96 (0·70 to 1·31)	1·02 (0·83 to 1·26)	1·72 (1·00 to 3·05)
0·87 (0·59 to 1·30)	0·91 (0·62 to 1·31)	**Bupr**	1·11 (0·76 to 1·67)	0·71 (0·49 to 1·07)	0·78 (0·53 to 1·18)	1·23 (0·84 to 1·80)	1·07 (0·76 to 1·50)	0·87 (0·59 to 1·30)	1·00 (0·66 to 1·49)	1·01 (0·70 to 1·47)	0·89 (0·51 to 1·54)	1·02 (0·73 to 1·43)	0·67 (0·42 to 1·08)	1·08 (0·75 to 1·56)	0·87 (0·57 to 1·30)	0·92 (0·66 to 1·30)	1·55 (0·85 to 2·94)
1·13 (0·88 to 1·47)	1·18 (0·93 to 1·49)	1·30 (0·88 to 1·93)	**Cita**	0·64 (0·47 to 0·87)	0·70 (0·51 to 0·95)	1·09 (0·85 to 1·42)	0·96 (0·76 to 1·21)	0·78 (0·57 to 1·06)	0·89 (0·64 to 1·23)	0·91 (0·68 to 1·21)	0·79 (0·49 to 1·32)	0·91 (0·71 to 1·17)	0·60 (0·41 to 0·87)	0·97 (0·74 to 1·25)	0·77 (0·53 to 1·13)	0·83 (0·64 to 1·07)	1·40 (0·78 to 2·48)
1·20 (0·91 to 1·59)	1·24 (0·98 to 1·58)	1·37 (0·93 to 2·04)	1·06 (0·82 to 1·38)	**Clom**	1·10 (0·80 to 1·51)	1·71 (1·27 to 2·29)	1·49 (1·16 to 1·90)	1·22 (0·88 to 1·67)	1·40 (1·00 to 1·92)	1·41 (1·05 to 1·91)	1·24 (0·76 to 2·00)	1·42 (1·12 to 1·79)	0·94 (0·62 to 1·41)	1·51 (1·15 to 1·96)	1·21 (0·83 to 1·73)	1·29 (0·99 to 1·67)	2·20 (1·22 to 3·90)
1·06 (0·82 to 1·37)	1·10 (0·84 to 1·42)	1·21 (0·81 to 1·81)	0·93 (0·71 to 1·22)	0·88 (0·66 to 1·18)	**Dulo**	1·56 (1·19 to 2·01)	1·37 (1·06 to 1·73)	1·12 (0·80 to 1·53)	1·28 (0·91 to 1·75)	1·30 (0·96 to 1·72)	1·13 (0·69 to 1·83)	1·30 (1·02 to 1·63)	0·86 (0·57 to 1·29)	1·38 (1·04 to 1·80)	1·10 (0·76 to 1·59)	1·18 (0·92 to 1·49)	1·99 (1·13 to 3·52)
0·90 (0·71 to 1·14)	0·93 (0·74 to 1·17)	1·03 (0·70 to 1·51)	0·79 (0·65 to 0·97)	0·75 (0·58 to 0·97)	0·85 (0·67 to 1·08)	**Esci**	0·87 (0·70 to 1·09)	0·71 (0·53 to 0·96)	0·81 (0·60 to 1·11)	0·83 (0·63 to 1·08)	0·72 (0·45 to 1·18)	0·83 (0·67 to 1·03)	0·55 (0·37 to 0·81)	0·88 (0·69 to 1·12)	0·70 (0·49 to 1·00)	0·75 (0·60 to 0·94)	1·27 (0·73 to 2·25)
1·20 (0·99 to 1·48)	1·25 (1·06 to 1·48)	1·38 (0·97 to 1·97)	1·06 (0·87 to 1·29)	1·00 (0·81 to 1·24)	1·14 (0·91 to 1·44)	1·34 (1·12 to 1·61)	**Fluo**	0·82 (0·64 to 1·04)	0·94 (0·72 to 1·20)	0·95 (0·77 to 1·16)	0·83 (0·54 to 1·30)	0·95 (0·83 to 1·09)	0·63 (0·44 to 0·90)	1·01 (0·84 to 1·21)	0·81 (0·60 to 1·09)	0·87 (0·74 to 1·01)	1·46 (0·85 to 2·53)
1·20 (0·91 to 1·61)	1·25 (0·99 to 1·59)	1·38 (0·93 to 2·07)	1·06 (0·82 to 1·39)	1·00 (0·76 to 1·32)	1·14 (0·85 to 1·54)	1·34 (1·03 to 1·75)	1·00 (0·80 to 1·25)	**Fluv**	1·14 (0·84 to 1·56)	1·16 (0·89 to 1·52)	1·01 (0·62 to 1·71)	1·16 (0·90 to 1·49)	0·77 (0·51 to 1·17)	1·23 (0·94 to 1·63)	0·99 (0·69 to 1·42)	1·06 (0·80 to 1·38)	1·78 (1·00 to 3·24)
1·07 (0·80 to 1·44)	1·11 (0·86 to 1·43)	1·23 (0·81 to 1·85)	0·94 (0·71 to 1·26)	0·89 (0·67 to 1·19)	1·01 (0·74 to 1·38)	1·19 (0·90 to 1·58)	0·89 (0·70 to 1·13)	0·89 (0·67 to 1·17)	**Miln**	1·02 (0·75 to 1·37)	0·88 (0·54 to 1·44)	1·02 (0·80 to 1·31)	0·67 (0·45 to 1·03)	1·08 (0·82 to 1·44)	0·86 (0·60 to 1·25)	0·93 (0·71 to 1·22)	1·56 (0·89 to 2·84)
0·93 (0·72 to 1·21)	0·97 (0·77 to 1·21)	1·07 (0·73 to 1·57)	0·82 (0·65 to 1·05)	0·78 (0·60 to 1·01)	0·88 (0·67 to 1·16)	1·04 (0·82 to 1·32)	0·78 (0·64 to 0·94)	0·78 (0·60 to 0·99)	0·87 (0·66 to 1·15)	**Mirt**	0·87 (0·55 to 1·41)	1·00 (0·82 to 1·23)	0·66 (0·45 to 0·99)	1·06 (0·84 to 1·35)	0·85 (0·62 to 1·18)	0·91 (0·73 to 1·13)	1·53 (0·89 to 2·72)
1·15 (0·76 to 1·76)	1·19 (0·80 to 1·78)	1·32 (0·80 to 2·20)	1·01 (0·67 to 1·54)	0·96 (0·63 to 1·45)	1·09 (0·71 to 1·68)	1·28 (0·86 to 1·94)	0·96 (0·66 to 1·40)	0·95 (0·63 to 1·46)	1·07 (0·70 to 1·67)	1·23 (0·82 to 1·86)	**Nefa**	1·15 (0·74 to 1·78)	0·75 (0·43 to 1·32)	1·23 (0·77 to 1·90)	0·98 (0·57 to 1·64)	1·04 (0·66 to 1·65)	1·76 (0·90 to 3·56)
1·01 (0·82 to 1·24)	1·05 (0·89 to 1·23)	1·16 (0·81 to 1·64)	0·89 (0·72 to 1·09)	0·84 (0·68 to 1·03)	0·96 (0·76 to 1·19)	1·12 (0·93 to 1·35)	0·84 (0·73 to 0·95)	0·84 (0·67 to 1·04)	0·94 (0·75 to 1·18)	1·08 (0·89 to 1·30)	0·88 (0·60 to 1·27)	**Paro**	0·66 (0·46 to 0·94)	1·06 (0·88 to 1·28)	0·85 (0·63 to 1·15)	0·91 (0·77 to 1·07)	1·53 (0·90 to 2·66)
1·44 (1·02 to 2·04)	1·50 (1·07 to 2·07)	1·65 (1·05 to 2·60)	1·27 (0·92 to 1·75)	1·20 (0·84 to 1·70)	1·36 (0·95 to 1·95)	1·60 (1·14 to 2·23)	1·20 (0·88 to 1·62)	1·20 (0·83 to 1·71)	1·35 (0·92 to 1·95)	1·54 (1·09 to 2·17)	1·25 (0·77 to 2·01)	1·43 (1·05 to 1·94)	**Rebo**	1·61 (1·09 to 2·34)	1·29 (0·81 to 2·01)	1·38 (0·94 to 1·99)	2·32 (1·24 to 4·41)
1·07 (0·85 to 1·37)	1·11 (0·92 to 1·35)	1·23 (0·85 to 1·79)	0·95 (0·76 to 1·18)	0·90 (0·71 to 1·13)	1·02 (0·79 to 1·32)	1·20 (0·97 to 1·48)	0·89 (0·76 to 1·00)	0·89 (0·70 to 1·13)	1·00 (0·77 to 1·30)	1·15 (0·93 to 1·43)	0·93 (0·63 to 1·37)	1·07 (0·90 to 1·26)	0·75 (0·54 to 1·00)	**Sert**	0·80 (0·58 to 1·11)	0·86 (0·70 to 1·05)	1·45 (0·84 to 2·54)
1·36 (0·99 to 1·87)	1·41 (1·06 to 1·86)	1·56 (1·04 to 2·31)	1·20 (0·88 to 1·63)	1·13 (0·83 to 1·54)	1·28 (0·92 to 1·79)	1·51 (1·12 to 2·04)	1·13 (0·87 to 1·46)	1·13 (0·82 to 1·55)	1·27 (0·91 to 1·76)	1·45 (1·09 to 1·94)	1·18 (0·75 to 1·84)	1·35 (1·04 to 1·75)	0·94 (0·64 to 1·39)	1·26 (0·95 to 1·67)	**Traz**	1·07 (0·77 to 1·47)	1·80 (0·98 to 3·38)
1·01 (0·82 to 1·26)	1·05 (0·87 to 1·27)	1·16 (0·82 to 1·65)	0·90 (0·72 to 1·10)	0·85 (0·67 to 1·06)	0·96 (0·77 to 1·21)	1·13 (0·93 to 1·37)	0·84 (0·73 to 0·97)	0·84 (0·66 to 1·07)	0·95 (0·73 to 1·23)	1·09 (0·89 to 1·33)	0·88 (0·59 to 1·30)	1·01 (0·86 to 1·17)	0·70 (0·51 to 0·97)	0·94 (0·78 to 1·13)	0·75 (0·57 to 0·98)	**Venl**	1·69 (1·01 to 2·86)
0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	0·51 (0·28 to 0·92)	0·68 (0·39 to 1·16)	0·54 (0·30 to 0·95)	0·72 (0·43 to 1·19)	**Vort**

Translating relative effects into probabilities

Probabilities that vortioxetine produces a better outcome than each other treatment

88.7	86.1	73.8	95.2	96.8	91.9	79.1	97.5	96.9	92.2	83.8	92.6	90.2	99.1	93.6	98.7	91.4

Probabilities that each other treatment produces a better outcome than vortioxetine

11.3	13.9	26.2	4.8	3.2	8.1	20.9	2.5	3.1	7.8	16.2	7.4	9.8	0.9	6.4	1.3	8.6

0·73 (0·42 to 1·26)	0·76 (0·44 to 1·29)	0·83 (0·45 to 1·54)	0·64 (0·37 to 1·11)	0·61 (0·35 to 1·05)	0·69 (0·40 to 1·20)	0·81 (0·47 to 1·39)	0·60 (0·36 to 1·02)	0·60 (0·34 to 1·05)	0·68 (0·39 to 1·20)	0·78 (0·45 to 1·34)	0·63 (0·33 to 1·19)	0·72 (0·43 to 1·22)	0·51 (0·28 to 0·92)	0·68 (0·39 to 1·16)	0·54 (0·30 to 0·95)	0·72 (0·43 to 1·19)	Vort

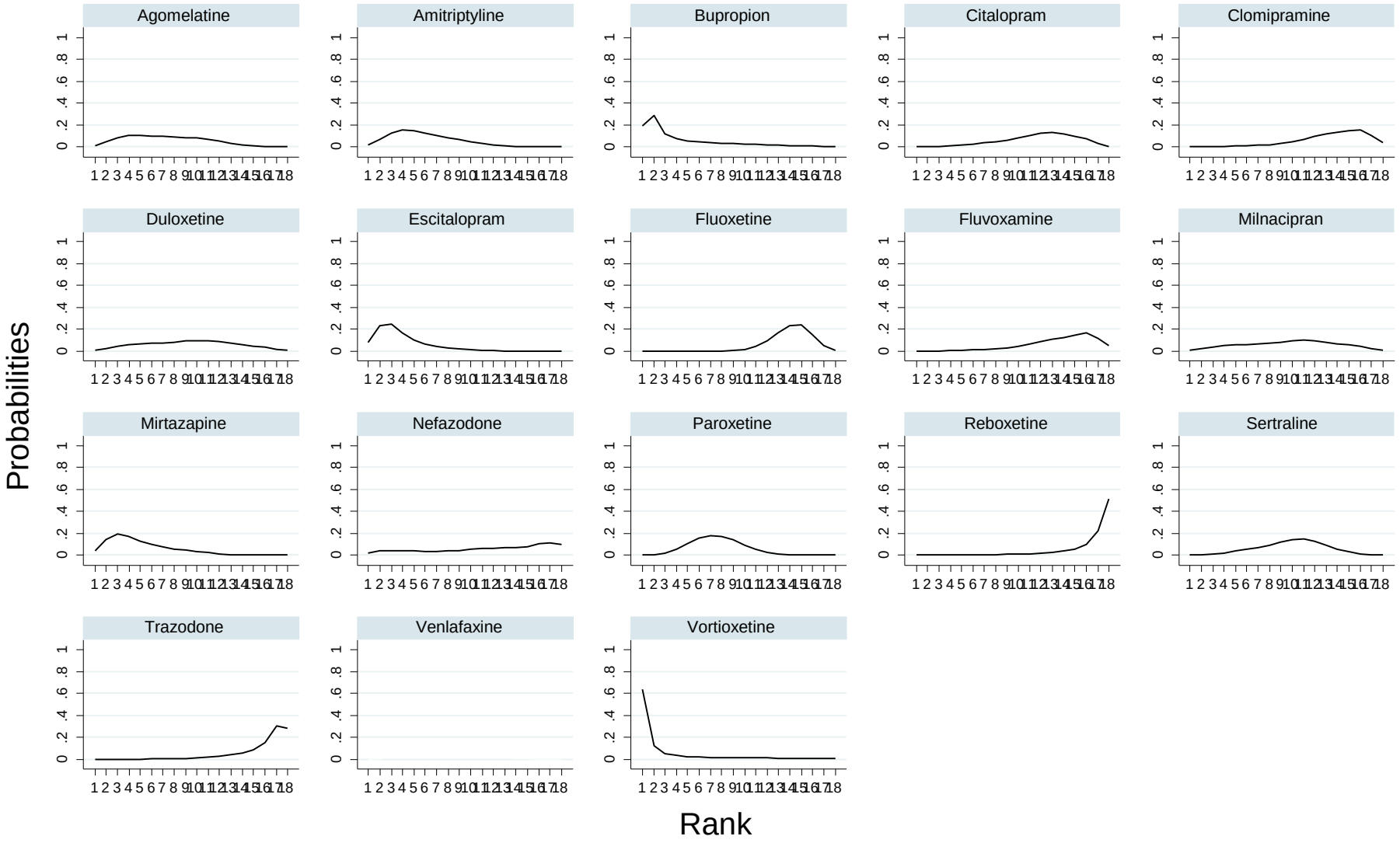
What is SUCRA? (1)

Probabilities (p) that vortioxetine produces a better outcome than each other treatment (i)

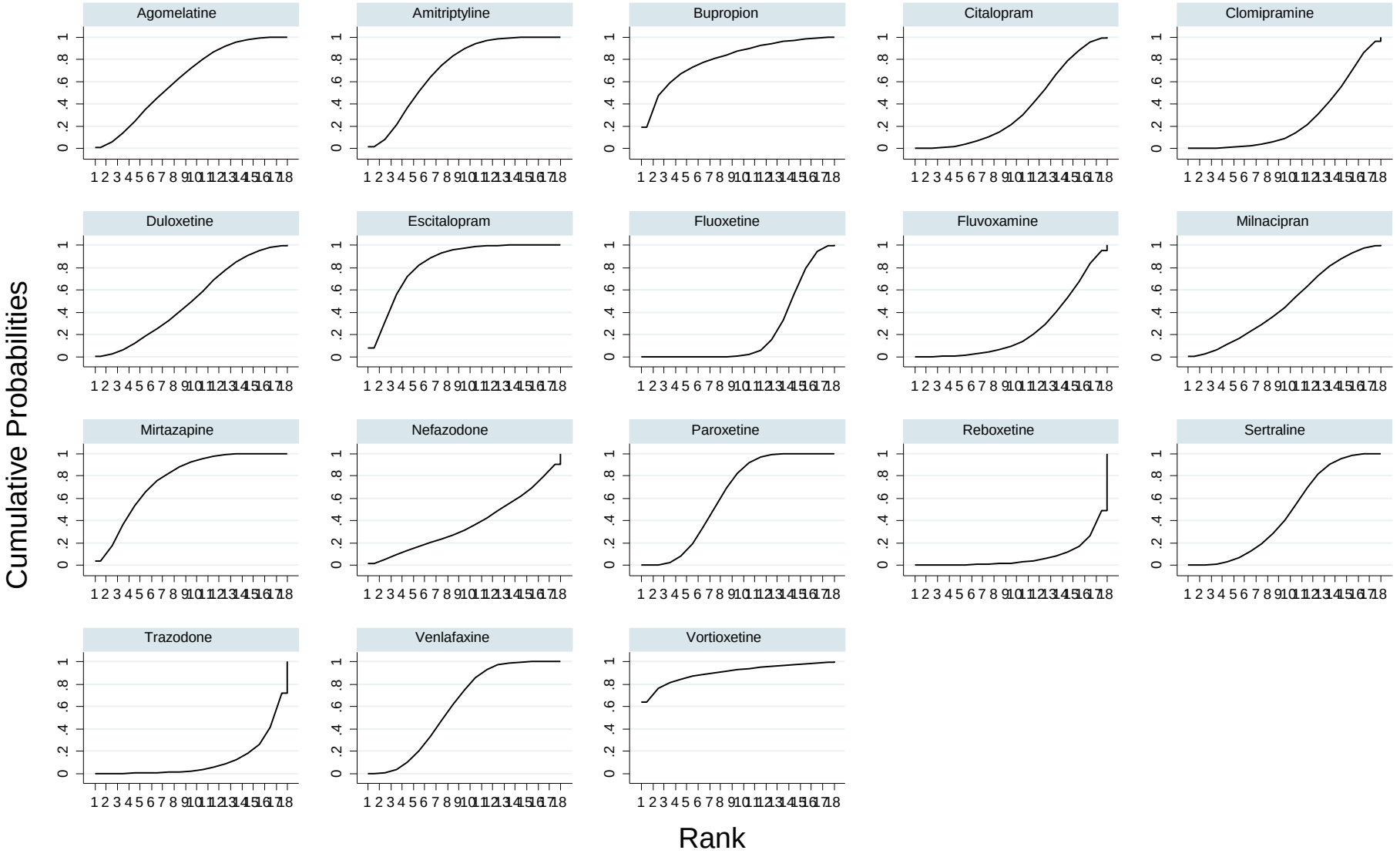
88.7	86.1	73.8	95.2	96.8	91.9	79.1	97.5	96.9	92.2	83.8	92.6	90.2	99.1	93.6	98.7	91.4

$$SUCRA_{vort} = \sum_{i=1, i \neq vort}^{T} \frac{p_{vort-i}}{T-1} = 91\%$$

Probabilities of producing the best, second best, etc. outcome

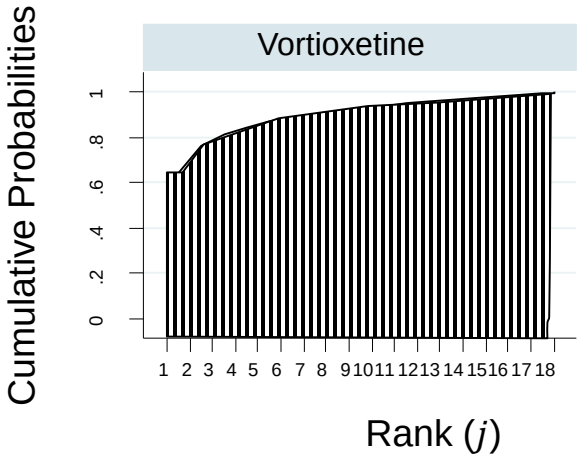


Cumulative probabilities of producing the best, second best, etc. outcome



What is SUCRA? (2)

$$SUCRA_{vort} = \sum_{j=1}^{T-1} \frac{cump_{vort-j}}{T-1} = 91\%$$



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What is SUCRA?

$$SUCRA_{vort} = \sum_{j=1}^{T-1} \frac{cump_{vort-j}}{T-1} = 91\%$$

$$SUCRA_{vort} = \sum_{i=1, i \neq vort}^{T} \frac{p_{vort-i}}{T-1} = 91\%$$

SUCRA of treatment i = The percentage of the effectiveness/safety of a treatment that would be ranked first without any uncertainty

= The percentage of treatments worse than i

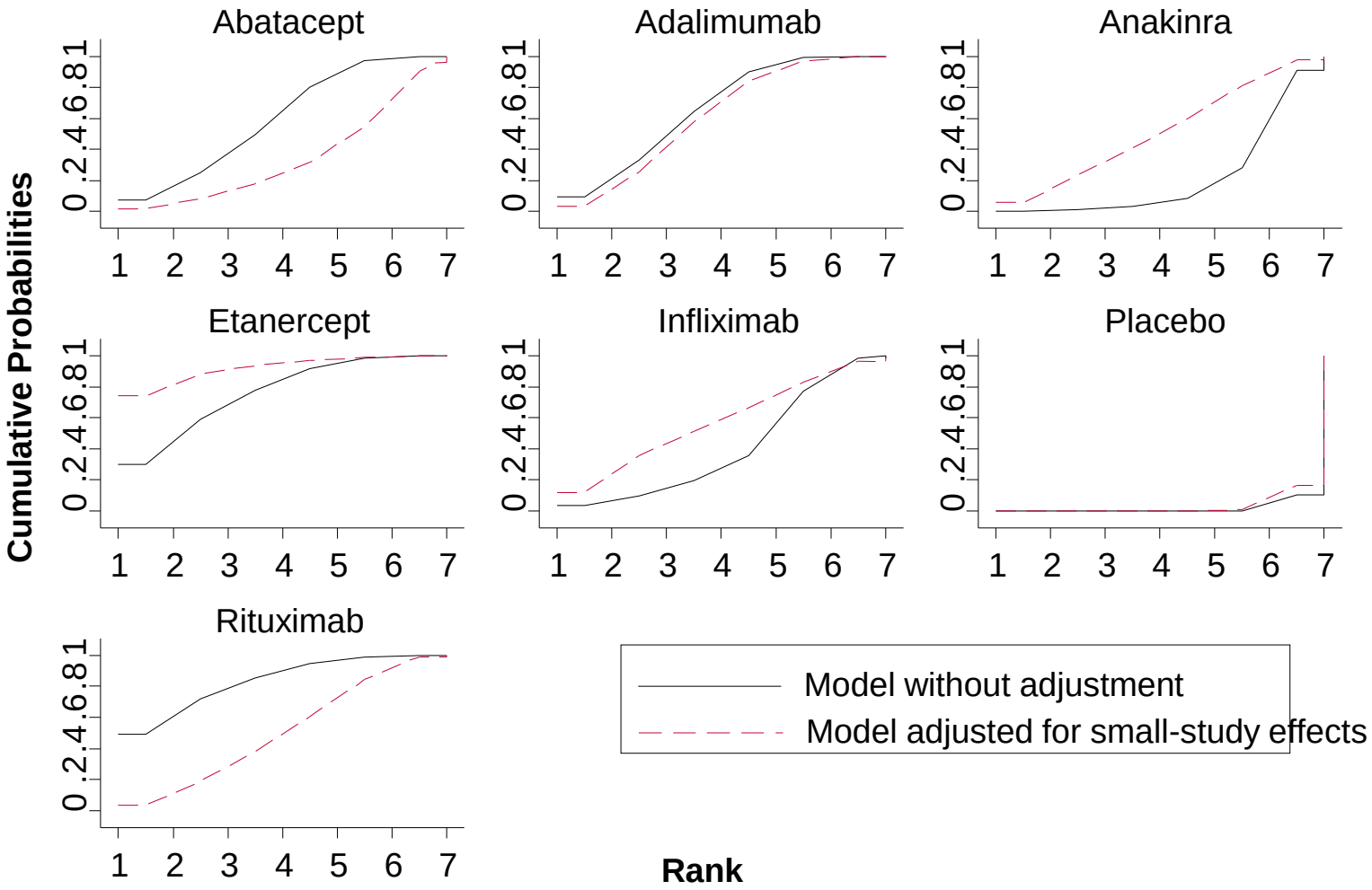
Mean ranks

Use the weighted average of all possible ranks with weights the ranking probabilities for each treatment

$$\text{Mean rank}_{vort} = \sum_{j=1}^{T} \left(p_{vort-j} * j \right)$$

Smaller mean rank values correspond to more effective/safer treatments

Adjusted ranking probabilities



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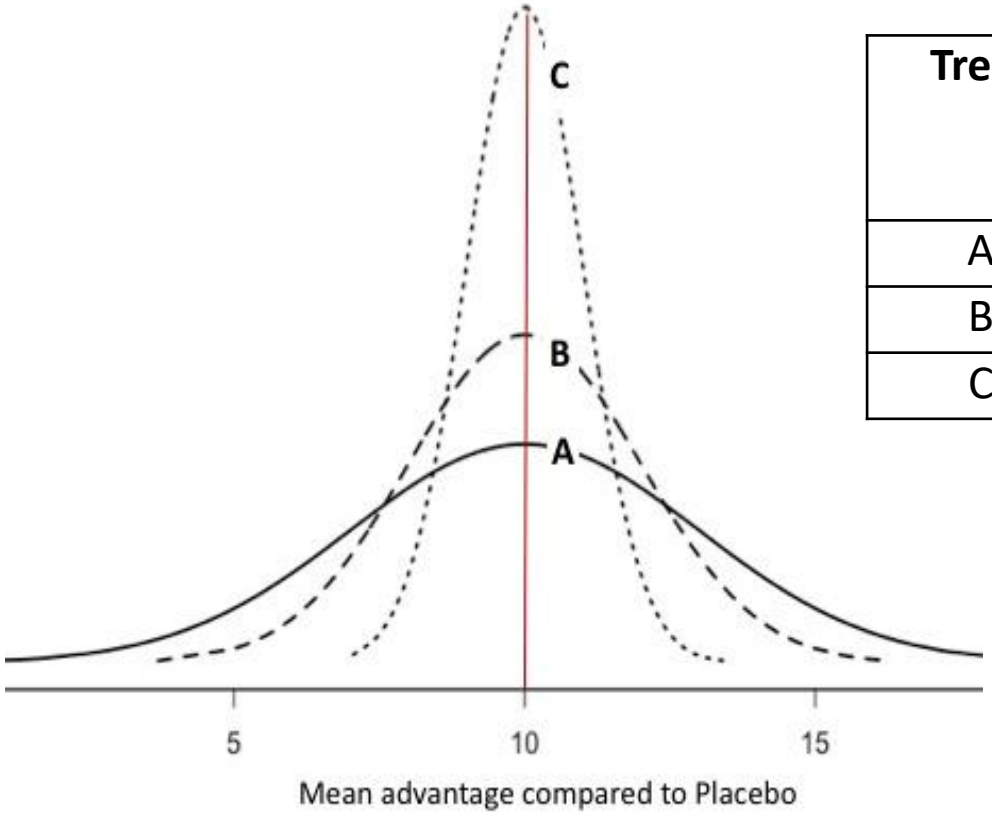
SUCRAs vs P(best)

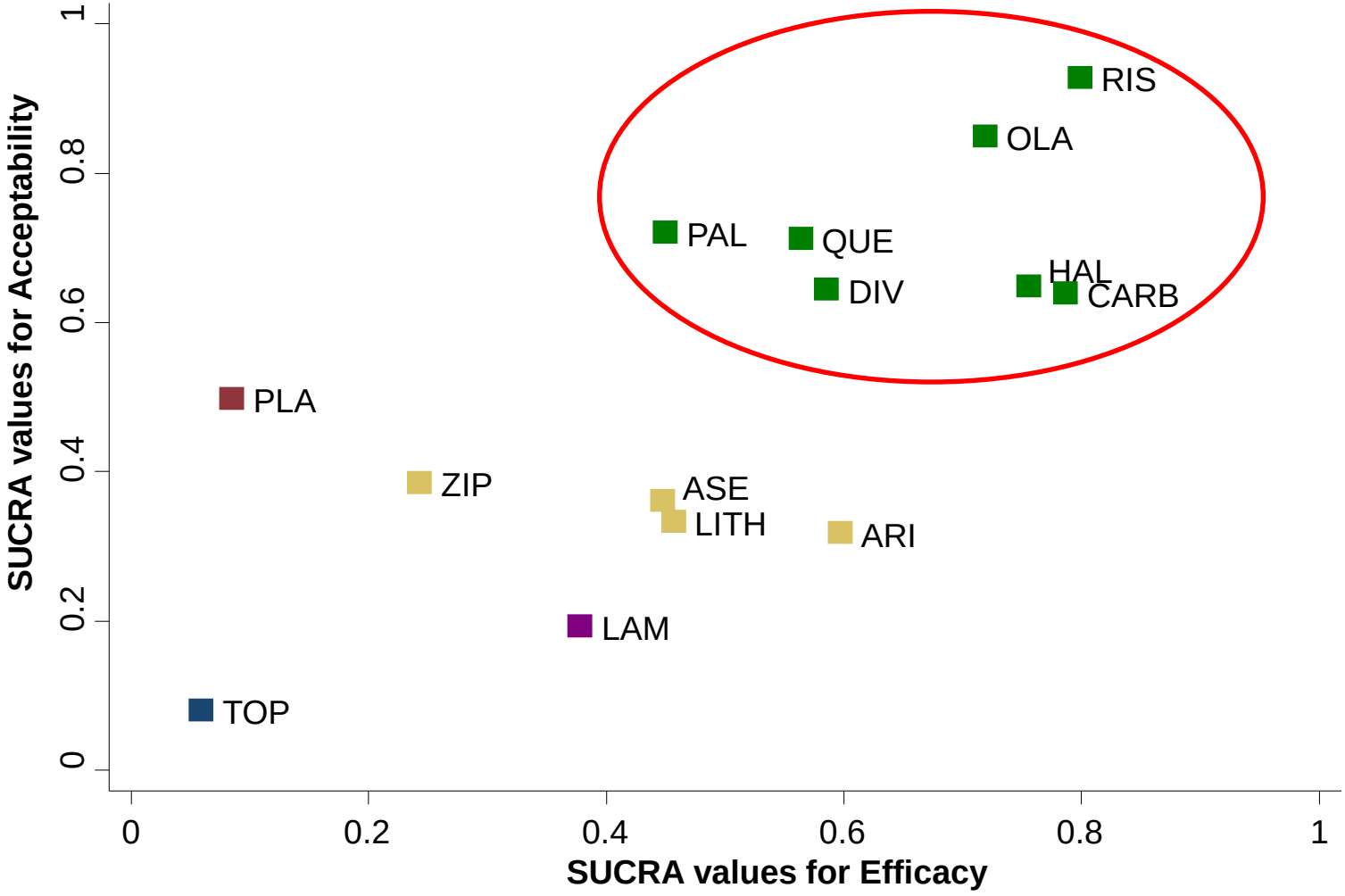


Treat	Prob of best outcome	SUCRA	Mean Rank
A	40%	67%	2
B	33%	67%	2
C	27%	67%	2

Ranking based on probabilities

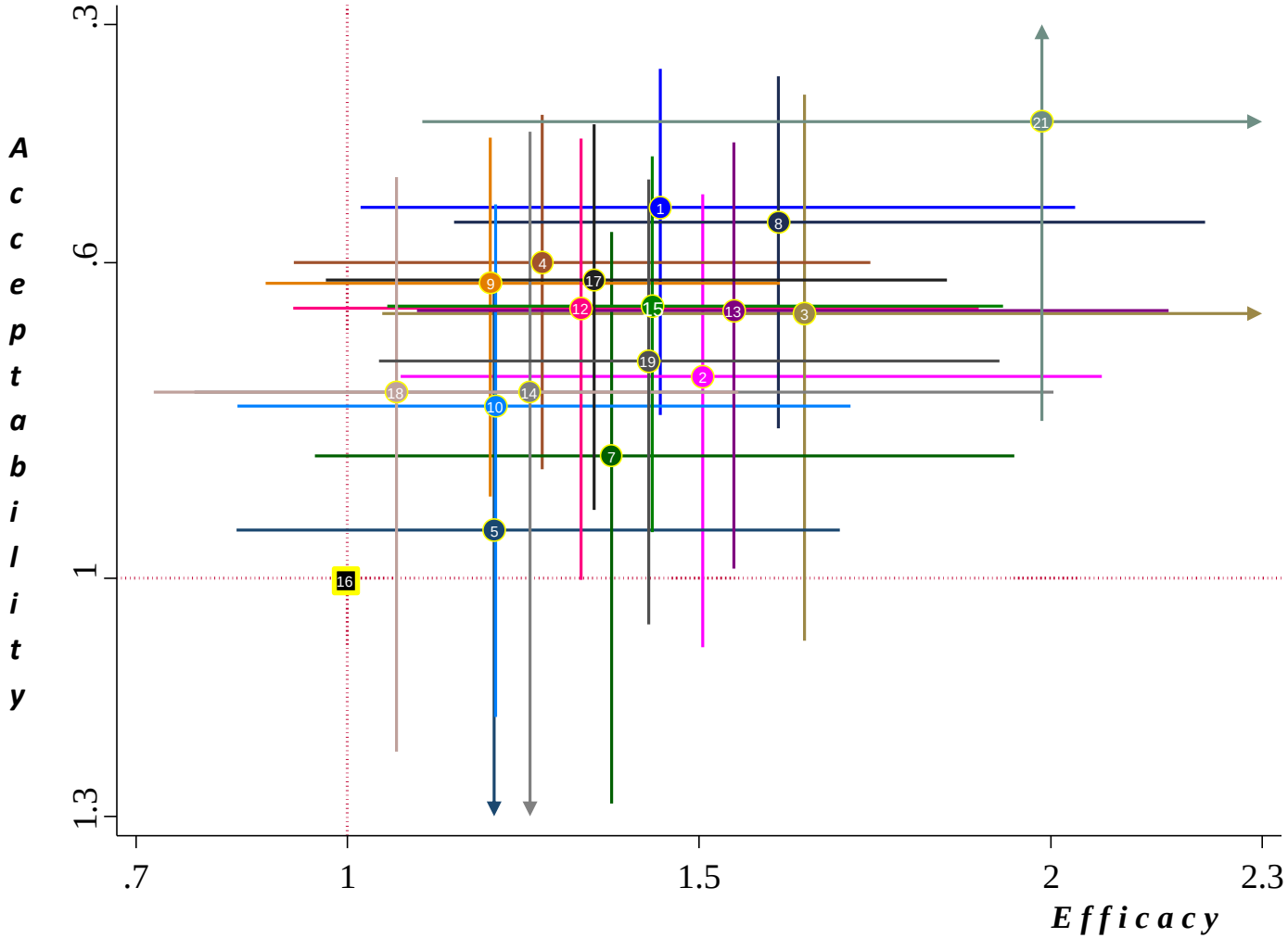
- **Using P(best) to rank treatments can be misleading!**
- Ranking based on SUCRAs or Mean Ranks accounts better for the uncertainty in relative ranking
- **Ranking measures are conditional on the set of treatments being compared**
  - This means SUCRAs, Mean ranks and possibly the ranking will change if a subset of the treatments are compared
- Ranking measures are not a substitute for relative treatment effects!
- **Avoid ranking** when there is a lot of uncertainty in the estimated effects or when there are **important differences in the uncertainty** across comparisons

Two-dimensional display for ranking



Chaimani et al Plos One 2013

Two-dimensional display for relative effects



Cipriani et al Lancet 2018