NMAstudio:
a fully interactive web-application for producing and visualizing network meta-analyses

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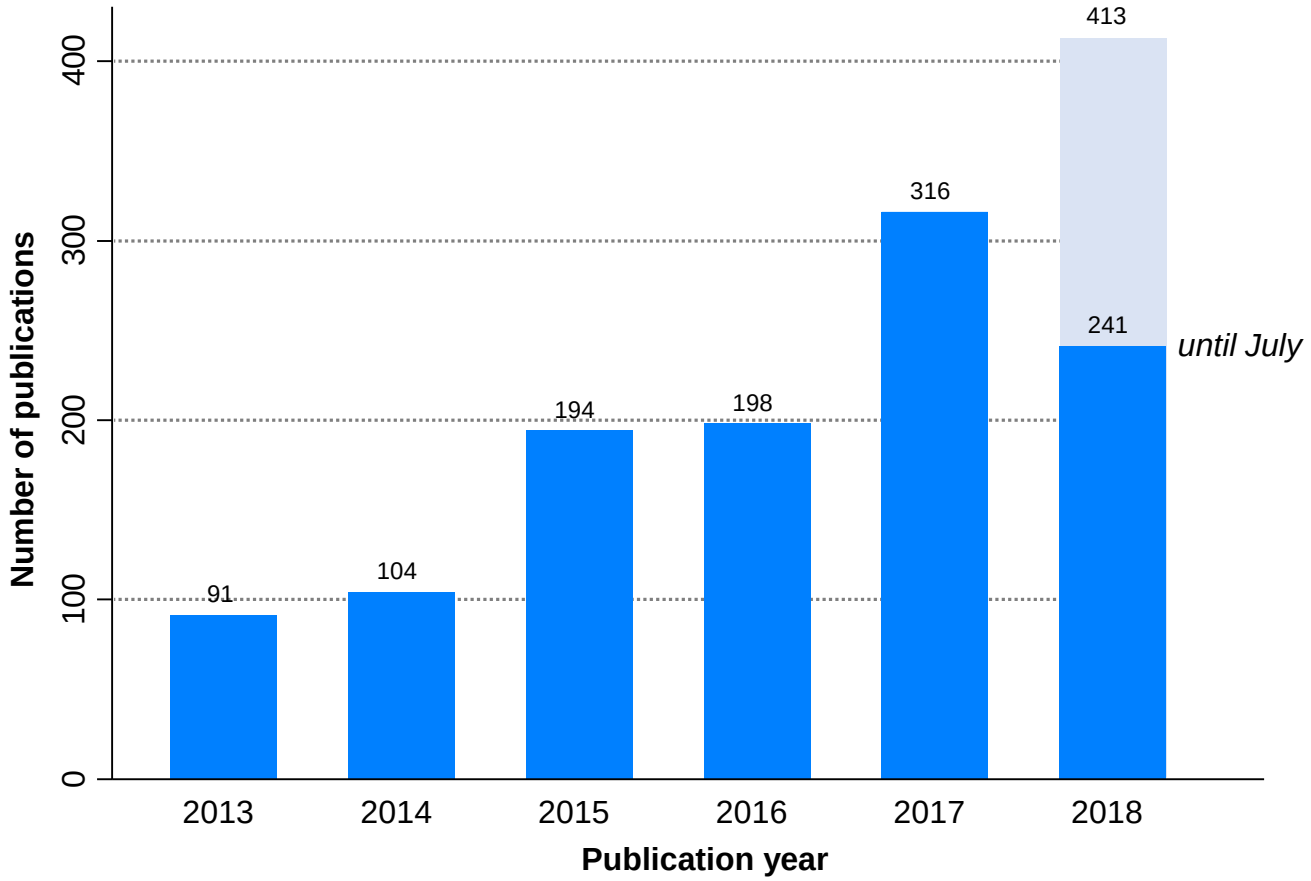
Background

- Network meta-analysis combines all available evidence on a clinical question with respect to the effects of multiple interventions



Veroniki et al. Systematic Reviews 2021

Background

- Network meta-analysis combines all available evidence on a clinical question with respect to the effects of multiple interventions

- Key reporting items are missing in the majority of published NMAs
  - may be due to the restriction in the word count required by most journals

- Validity of NMA results relies on assumptions
  - may report that assumptions were assessed but without providing more details on this

- Presentation of individual study data has worsened
  - may be because larger and more complex networks are being structured

NMAstudio (http://www.nmastudioapp.com/)

- A fully interactive application aiming to
  - enhance transparency, interpretation, and reproducibility of the findings
  - facilitate understanding of results and their limitations by non-experts
  - allow interaction among interested end-users

- Key feature: direct connection between the network diagram and data-results

- Allows
  - to perform the statistical synthesis (based on the netmeta package in R)
  - to evaluate the required assumptions
  - to create novel visualizations

Graph Settings

Enter the label size:

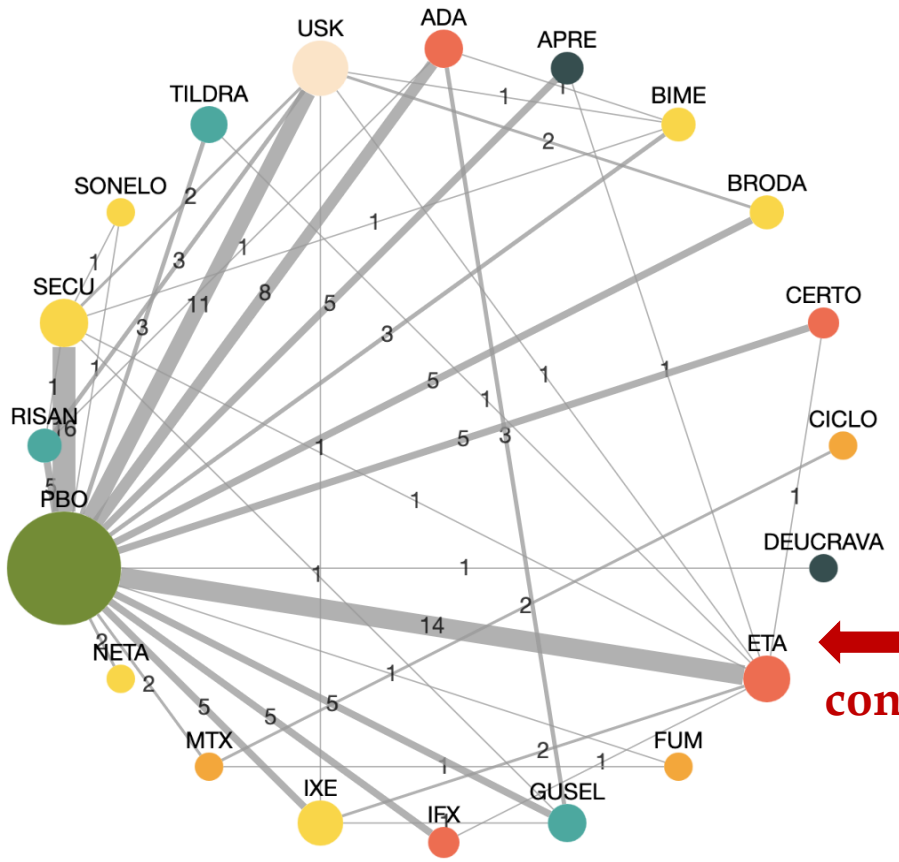
e.g. 30px

Search the intervention:

e.g. PBO

CLICK + SHIFT to select multiple network items

Click on an edge to get information.



connected

Data | Transitivity checks | Forest plots | League Table | Consistency checks | Funnel plots | Ranking plots

Upload your data

1963 2021

studlab	id	treat1	treat2	TE	seTE	pasi90	n1	sae	n2	co_inter	sample_	age	male	duration
ACCEP...	1	ETA	USK	-0.589	0.11	80	347	231	556	0	903	45	613	19
Igarashi...	2	USK	PBO	2.501	0.991	48	126	1	32	0	160	45	126	16
Krueger...	3	USK	PBO	3.168	0.995	95	256	1	64	0	320	45	222	18
PHOENI...	4	USK	PBO	2.994	0.446	200	511	5	255	0	766	45	531	20
PHOENI...	5	PBO	USK	-4.154	0.576	3	410	382	820	0	1230	47	840	20
PEARL_...	6	USK	PBO	3.385	1	30	61	1	60	0	121	41	103	13
FEATUR...	7	SECU	PBO	4.155	1.411	63	118	0	59	0	177	46	117	19
ERASU...	8	SECU	PBO	3.701	0.576	240	490	3	248	0	738	45	509	17.5
FIXTUR...	9	PBO	ETA	-2.595	0.457	5	326	67	326	0	1306	44	929	16.5
FIXTUR...	9	PBO	SECU	-3.437	0.446	5	326	312	654	0	1306	44	929	16.5
FIXTUR...	9	ETA	SECU	-0.842	0.116	67	326	312	654	0	1306	44	929	16.5
Papp_2...	10	SECU	PBO	1.452	0.997	20	103	1	22	0	125	46	91	18
Rich_2013	11	SECU	PBO	2.675	0.998	73	337	1	67	0	404	44	306	17

Graph Settings

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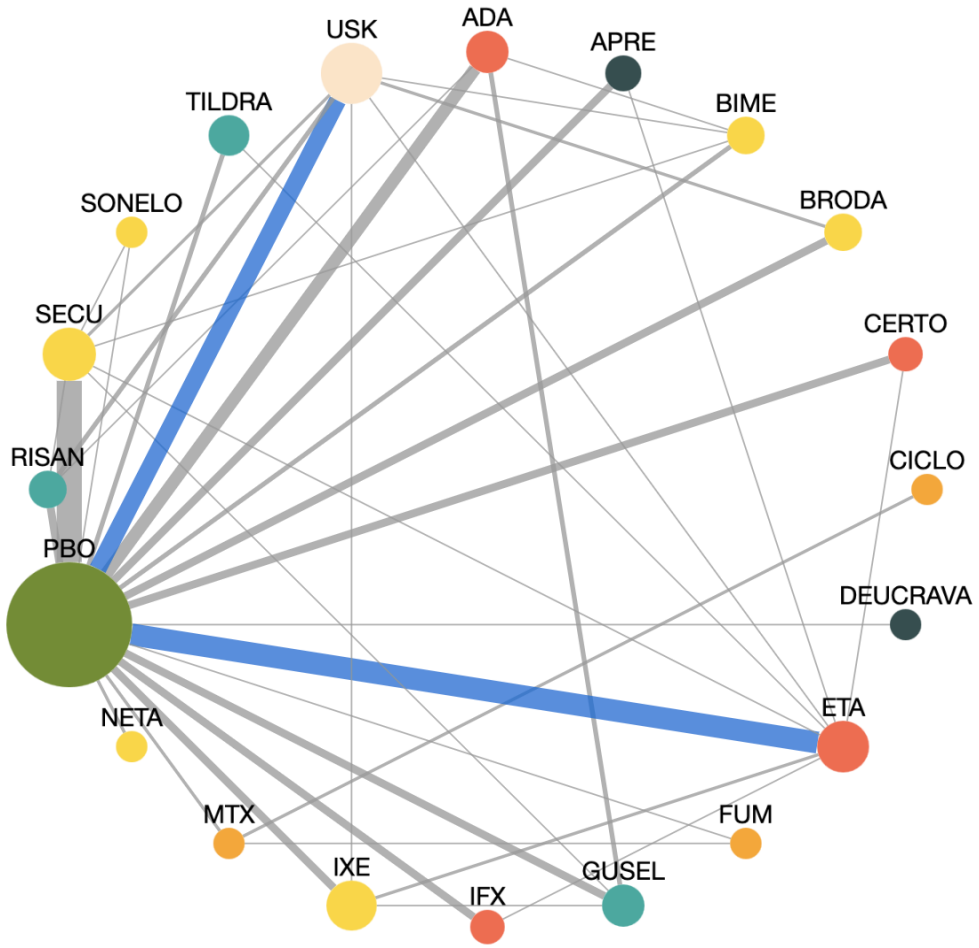
Search the intervention: e.g. PBO

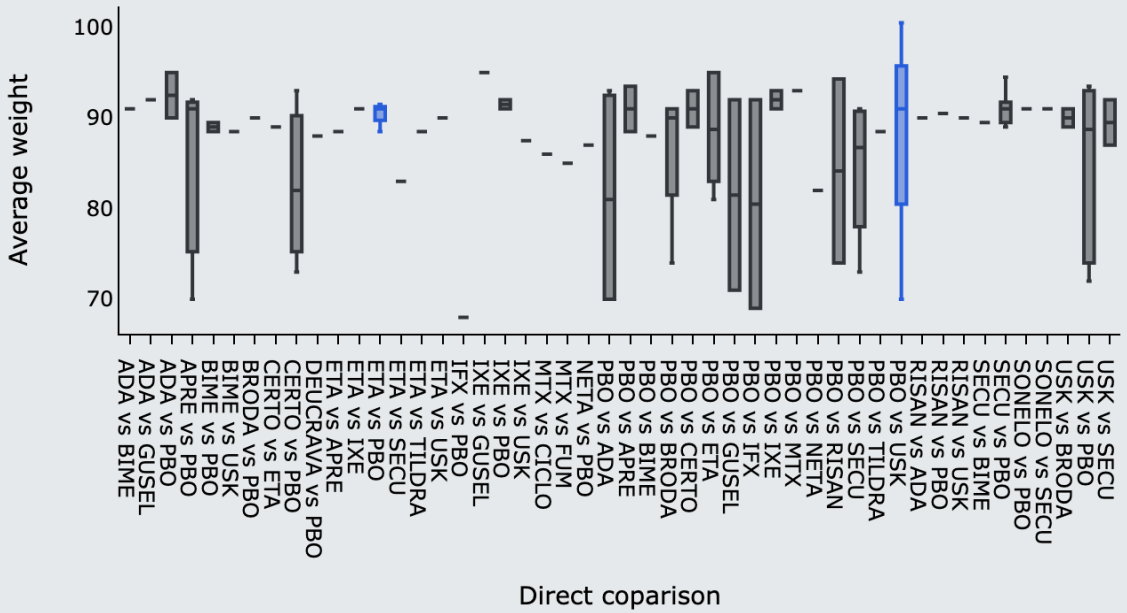


CLICK + SHIFT to select multiple network items

ETA vs PBO: 14 studies

Data	Transitivity checks	Forest plots	League Table	Consistency checks	Funnel plots	Ranking plots

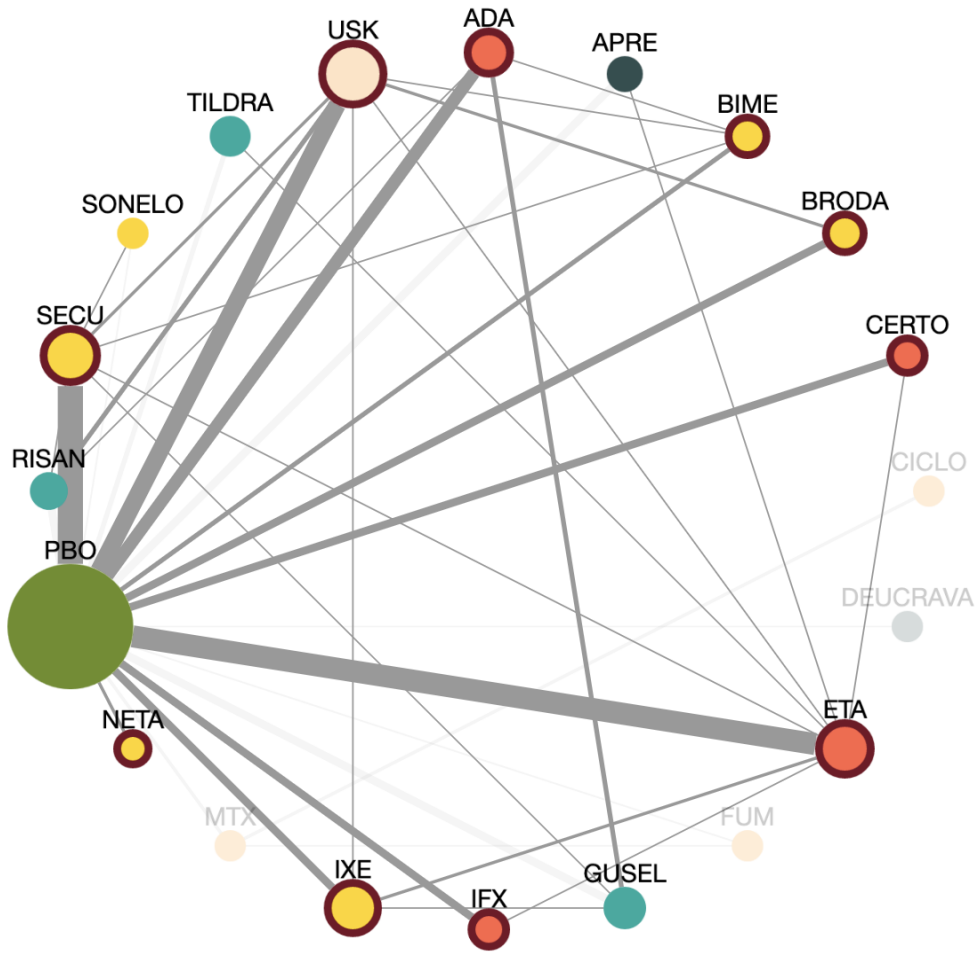
Choose effect modifier: weight



Graph Settings

Enter the label size: e.g. 30px

Search the intervention: e.g. PBO



CLICK + SHIFT to select multiple network items

Click on an edge to get information.

Data	Transitivity checks	Forest plots	League Table	Consistency checks	Funnel plots	Ranking plots

Upload CINeMA report 1 for outcome 1

Upload CINeMA report 2 for outcome 2

Risk of Bias CINeMA rating

CINeMA rating: Very Low High

Treatment	ADA	ETA	CERTO	SECU	IXE	BIME	BRODA	NETA	IFX	USK
ADA	ADA	1.26 (0.73, 2.18)	1.44 (0.58, 3.56)	0.95 (0.59, 1.52)	1.11 (0.65, 1.9)	1.93 (0.9, 4.13)	0.98 (0.51, 1.86)	1.28 (0.05, 31.64)	0.85 (0.37, 1.94)	1.04 (0.64, 1.7)
ETA	1.63 (1.43, 1.86)	ETA	1.14 (0.47, 2.78)	0.75 (0.47, 1.21)	0.88 (0.55, 1.41)	1.53 (0.67, 3.47)	0.77 (0.41, 1.46)	1.01 (0.04, 25.01)	0.67 (0.3, 1.52)	0.82 (0.51, 1.33)
CERTO	1.31 (0.97, 1.77)	0.8 (0.61, 1.06)	CERTO	0.66 (0.27, 1.58)	0.77 (0.31, 1.91)	1.34 (0.45, 4.0)	0.68 (0.26, 1.77)	0.89 (0.03, 23.73)	0.59 (0.2, 1.76)	0.72 (0.3, 1.74)
SECU	0.66 (0.61, 0.72)	0.41 (0.36, 0.45)	0.51 (0.38, 0.68)	SECU	1.17 (0.73, 1.87)	2.04 (0.93, 4.44)	1.03 (0.57, 1.86)	1.35 (0.06, 33.12)	0.9 (0.41, 1.99)	1.1 (0.75, 1.61)
IXE	0.57 (0.52, 0.64)	0.35 (0.32, 0.39)	0.44 (0.33, 0.59)	0.87 (0.8, 0.95)	IXE	1.74 (0.76, 3.96)	0.88 (0.46, 1.68)	1.15 (0.05, 28.51)	0.77 (0.34, 1.75)	0.94 (0.58, 1.53)
BIME	0.57 (0.52, 0.63)	0.35 (0.31, 0.4)	0.44 (0.32, 0.59)	0.87 (0.81, 0.92)	1.0 (0.9, 1.1)	BIME	0.51 (0.21, 1.22)	0.66 (0.03, 17.39)	0.44 (0.16, 1.24)	0.54 (0.25, 1.15)
BRODA	0.72 (0.63, 0.82)	0.44 (0.38, 0.51)	0.55 (0.4, 0.75)	1.09 (0.98, 1.21)	1.25 (1.11, 1.42)	1.26 (1.12, 1.41)	BRODA	1.31 (0.05, 32.95)	0.87 (0.36, 2.12)	1.07 (0.61, 1.87)
NETA	3.86 (1.74, 8.55)	2.37 (1.07, 5.26)	2.96 (1.28, 6.84)	5.85 (2.65, 12.93)	6.72 (3.04, 14.89)	6.74 (3.04, 14.93)	5.37 (2.42, 11.91)	NETA	0.67 (0.03, 17.47)	0.81 (0.03, 20.02)
IFX	0.35 (0.14, 0.84)	0.21 (0.09, 0.52)	0.26 (0.1, 0.67)	0.52 (0.22, 1.27)	0.6 (0.25, 1.46)	0.6 (0.25, 1.47)	0.48 (0.2, 1.17)	0.09 (0.03, 0.29)	IFX	1.22 (0.55, 2.71)
USK	0.92 (0.84, 1.01)	0.56 (0.5, 0.63)	0.7 (0.52, 0.94)	1.39 (1.31, 1.47)	1.6 (1.46, 1.74)	1.6 (1.48, 1.73)	1.28 (1.17, 1.39)	0.24 (0.11, 0.53)	2.65 (1.09, 6.43)	USK

Forthcoming features

- Data synthesis
  - sensitivity and subgroup analyses
  - Bayesian models and connection with Stata (network package)
  - models for rare events

- Interpretation
  - system of warnings
  - pop-up windows explaining numerical summaries in light of limitations
  - further interaction with the users

- Transparency
  - requirement of protocol
  - storage of analysis steps along with the data