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# Presentation of Data & Results in Network Meta-Analysis

#### Complex Reviews Support Unit CRSU

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The Complex Reviews Support Unit is funded by the National Institute for Health Research (project number 14/178/29)









## **PRESENTATION OF STUDY DATA**

#### **Network Diagram**

#### Network plot of all studies



It is essential to check that the network is **CONNECTED** before starting the analysis

Plot from MetaInsight



# Forest Plot of Individual Study Results

 Sub-divided by intervention comparisons

Plot from MetaInsight

## **PRESENTATION OF NMA DATA**



NMA results

Plot from MetaInsight

#### **Summary Forest Plot**





Rank-o-grams



Summary Forest Plot Matrix

Summary Forest Plot Matrix for Smoke Alarm Uptake

NMA & pairwise MA estimates and plots on the same graph

Probability best

Heterogeneity estimate presented

Column showing Head-to-Head Trial counts

Graph can extend easily to another page

Comparators				H-H Trials	OR (95% Crl)	Summary FP (log Scale)
		Education	Pbest =0.00	4	0.99 ( 0.40 to 2.38 ) 1.33 ( 0.62 to 2.68 )	
9		E+Equipment	0.08	2	3.19 ( 1.03 to 11.22 ) 3.26 ( 0.49 to 23.91 )	
nd		E+Eq+HI	<b></b> =0.01	3	2.80 ( 1.12 to 9.08 ) 5.92 ( 0.97 to 49.52 )	
ne	Usual Care	E+Eq+Fitting	0.06	2	2.77 ( 0.88 to 9.02 ) 1.65 ( 0.31 to 7.30 )	
	DPbest =0.00	E+HI	<b>D=0.17</b>	0	3.45 ( 0.76 to 25.48 ) NA	
		E+Eq+Fitting+HI	0.67	2	7.16 ( 2.42 to 22.43 ) 5.25 ( 0.88 to 25.20 )	
		E+Equipment		1	3.22 ( 0.83 to 14.42 ) 2.29 ( 0.23 to 22.61 )	
		E+Eq+HI		0	2.81 ( 0.87 to 12.85 ) NA	
	Education	E+Eq+Fitting		1	2.82 ( 0.78 to 10.46 ) 9.90 ( 3.53 to 27.74 )	
		E+HI		0	3.51 ( 0.64 to 31.70 ) NA	
		E+Eq+Fitting+HI		0	7.28 ( 1.80 to 31.21 ) NA	
5	E+Equipment	E+Eq+HI		1	0.88 ( 0.25 to 3.58 ) 0.82 ( 0.30 to 2.22 )	
		E+Eq+Fitting		0	0.88 ( 0.15 to 4.20 ) NA	
		E+HI		0	1.08 ( 0.19 to 8.50 ) NA	
		E+Eq+Fitting+HI		0	2.24 ( 0.45 to 9.89 ) NA	
	E+Eq+HI	E+Eq+Fitting		0	1.00 ( 0.18 to 4.14 ) NA	
		E+HI		3	1.24 ( 0.34 to 5.37 ) 1.18 ( 0.33 to 7.60 )	
hd		E+Eq+Fitting+HI		1	2.58 ( 0.63 to 7.84 ) 4.82 ( 3.97 to 5.85 )	
r	E · E · E · E	E+HI		0	1.23 ( 0.19 to 12.95 ) NA	
	E+Eq+Filling	E+Eq+Fitting+HI		0	2.59 ( 0.51 to 12.94 ) NA	
	E+HI	E+Eq+Fitting+HI		0	2.07 ( 0.25 to 10.79 ) NA	
	Heterogeneity, $\tau^2 = 0.60$ ; 95% Crl (0.128, 2.288)			Odds	0.050 15 0 5 1 2 4 8 183284128 s Ratio with 95% Crl & 95% PI (log scale)	

MTC results in black; MA results in grey. 95% Crl and PI presented as diamond and error bars respectively.

### Implementation

- Stata:
  - network (White IR. Network meta-analysis. Stata Journal 2015;15:951)
- R:
  - netmeta (Rücker G et al. netmeta: Network meta-analysis using frequentist methods. R package version 0.9-8. Available: <u>http://CRAN-R.project.org/package=netmeta</u>)
  - GeMTC (vanValkenhoef G, Kuiper J. gemtc: Network meta-analysis using Bayesian methods. R package version 0.8-2. Available <u>http://CRAN-R.project.org/package=gemtc</u>)
  - pcnetmeta (Lin L et al. Performing arm-based network meta-analysis in R with the pcnetmeta package. *Journal of Statistical Software* 2017;80:1. Available <u>http://CRAN-R.project.org/package=pcnetmeta</u>)

The specialist knowledge required for using Stata, R and WinBUGS has been identified as a barrier to the uptake of network meta-analysis methods

## Metalnsight

An interactive web-based tool for conducting network meta- analysis

https://crsu.shinyapps.io/ metainsightc/



#### MetaInsight (continuous) V1.1\*\* Beta

For binary outcomes please click here.



#### \*\* New features updated on 1 March 2019 \*\* :

#### Click here to view a full update history of MetaInsight - continuous data

 This version now allows uploading data in 'long' format (1 study arm per row), in addition to the 'wide' format (1 whole study per row). For existing users (breaking change): Please note that the required heading names have been changed slightly compared to the last version so you will need to change the names of the headings in your existing data files accordingly. Please see instructions on the 'Load Data' page.

Rhiannon K Owen, Naomi Bradbury, Yiqiao Xin, Nicola Cooper, and Alex Sutton For feedback/questions about this app please contact rhiannon.owen@le.ac.uk

### **References and Resources**

Dias S, Ades AE, Welton NJ, Jansen JP, Sutton AJ. Network Meta-analysis for Decision Making. Wiley, 2018

Tan SH, Bujkiewicz S, Sutton AJ, Dequen P, Cooper NJ. Presentational approaches used in the UK for reporting evidence synthesis using indirect and mixed treatment comparisons. *Journal of Health Services Research and Policy* 2013; 18(4): 224-232.

Multiple Treatments Meta-analysis (MTM) Presenting the results from an MTM analysis. http://www.mtm.uoi.gr/index.php/how-to-do-an-mtm/10-how-to-do-an-mtm/20-results