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# Presentation of Data & Results in Network Meta-Analysis

Complex Reviews Support Unit  
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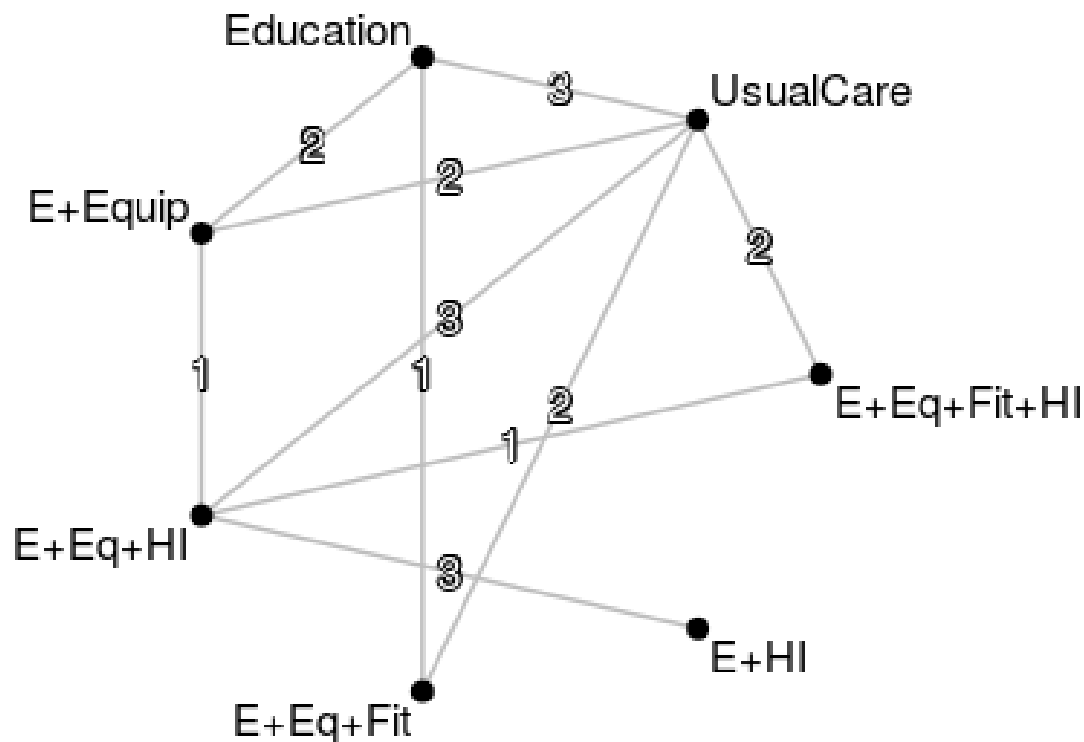


UNIVERSITY OF  
**LEICESTER**

# **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

**Education vs UsualCare**

Gielen 2007	1.36 [0.53, 3.46]
Gielen 2001	0.95 [0.14, 6.41]
Mock 2003	1.78 [0.51, 6.18]

**E+Equip vs UsualCare**

Clamp 1998	6.27 [1.10, 35.65]
Miller 1982	1.66 [0.36, 7.73]

**E+Equip vs Education**

Barone 1986	2.29 [0.28, 19.07]
Bulzacchelli 2009	1.06 [0.33, 3.38]

**E+Eq+HI vs UsualCare**

Hendrickson 2002	19.92 [2.63, 150.77]
Sangvai 2007	16.00 [1.85, 138.10]
Kendrick 1999	1.18 [0.42, 3.30]

**E+Eq+HI vs E+Equip**

Gielen 2002	0.82 [0.20, 3.32]
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**E+Eq+Fit vs UsualCare**

DiGuseppi 2002	1.11 [0.24, 5.24]
Watson 2005	1.83 [0.84, 4.01]

**E+Eq+Fit vs Education**

Sznajder 2003	9.90 [2.39, 41.01]
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**E+HI vs E+Eq+HI**

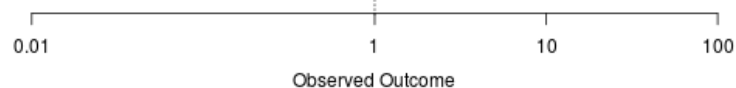
Johnston 2000	23.26 [0.50, 1073.46]
King 2001	1.02 [0.45, 2.32]
Matthews 1988	1.00 [0.17, 5.88]

**E+Eq+Fit+HI vs UsualCare**

Phelan 2010	3.02 [0.88, 10.32]
Schwarz 1993	7.19 [3.10, 16.72]

**E+Eq+Fit+HI vs E+Eq+HI**

Harvey 2004	4.82 [2.61, 8.92]
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# Forest Plot of Individual Study Results

- Sub-divided by intervention comparisons

# **PRESENTATION OF NMA DATA**

# Triangle table of results

Pairwise  
results

UsualCare	0.70 [0.33; 1.49]	0.38 [0.15; 0.96]	.	0.34 [0.11; 1.12]	0.63 [0.27; 1.49]	0.20 [0.09; 0.44]
0.88 [0.47; 1.63]	Education	.	0.82 [0.28; 2.39]	0.10 [0.02; 0.42]	.	.
0.54 [0.27; 1.07]	0.62 [0.26; 1.49]	E+Eq+HI	0.94 [0.39; 2.31]	0.82 [0.20; 3.29]	.	0.21 [0.08; 0.56]
0.51 [0.17; 1.58]	0.58 [0.17; 2.05]	0.94 [0.39; 2.31]	E+HI	.	.	.
0.50 [0.23; 1.06]	0.57 [0.26; 1.25]	0.92 [0.38; 2.22]	0.97 [0.28; 3.42]	E+Equip	.	.
0.37 [0.18; 0.79]	0.43 [0.18; 1.01]	0.69 [0.25; 1.89]	0.73 [0.19; 2.81]	0.76 [0.27; 2.10]	E+Eq+Fit	.
0.16 [0.08; 0.31]	0.18 [0.07; 0.45]	0.29 [0.14; 0.62]	0.31 [0.10; 1.00]	0.32 [0.12; 0.84]	0.42 [0.16; 1.16]	E+Eq+Fit+HI

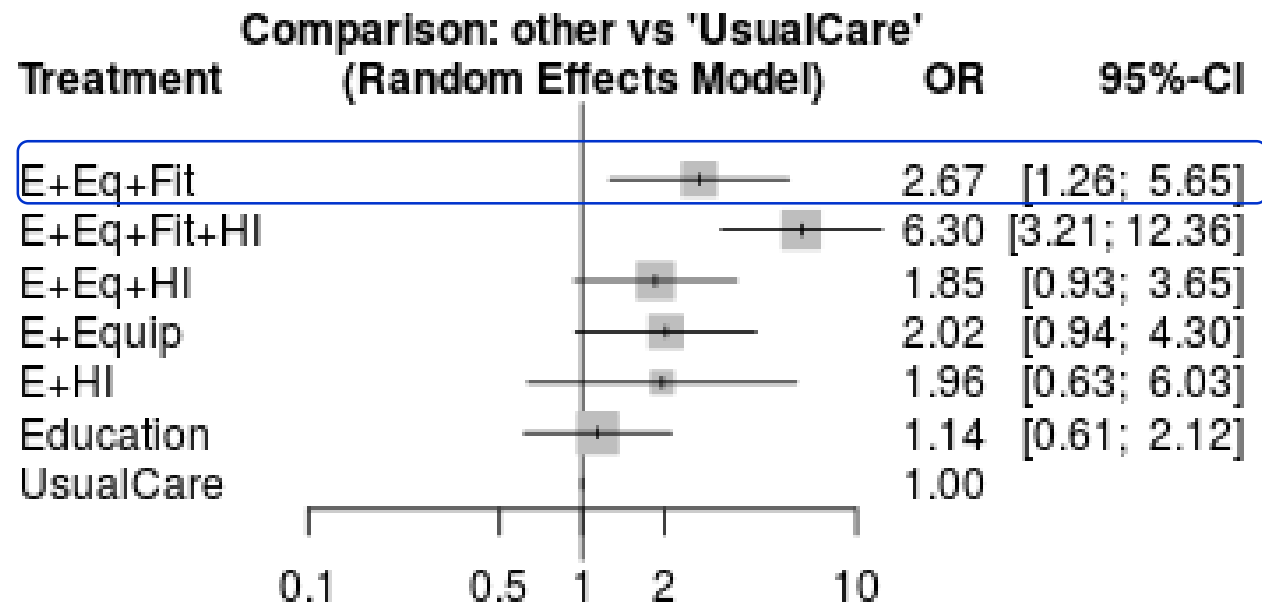
NMA results

Plot from MetaInsight

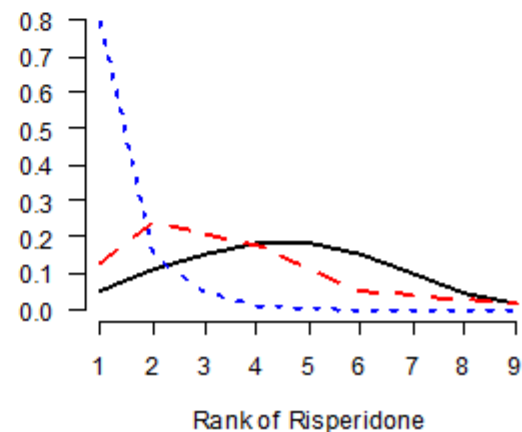
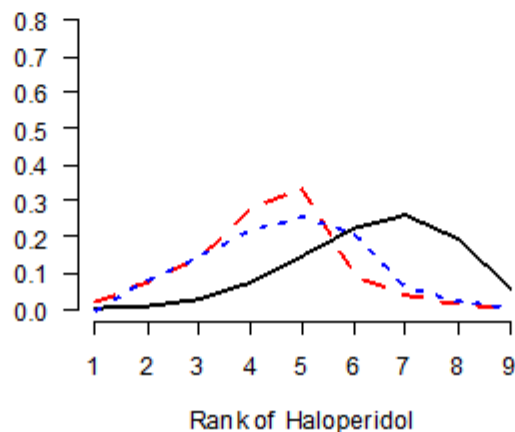
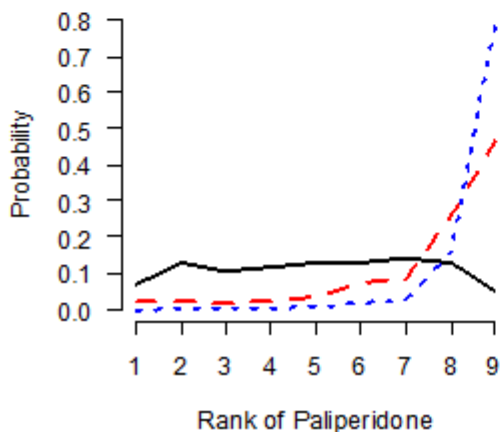
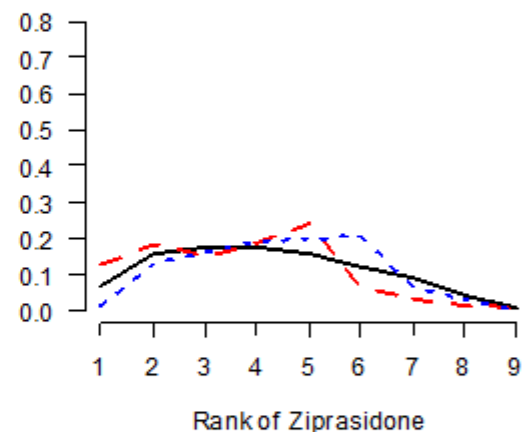
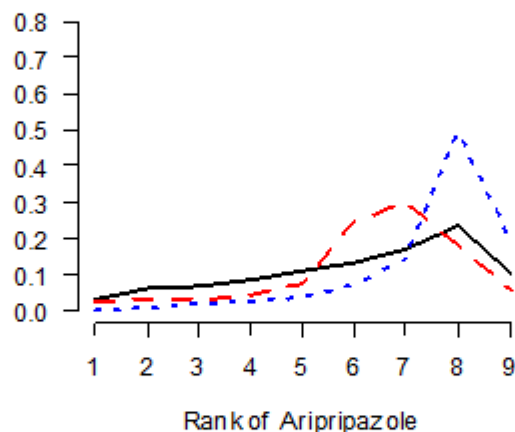
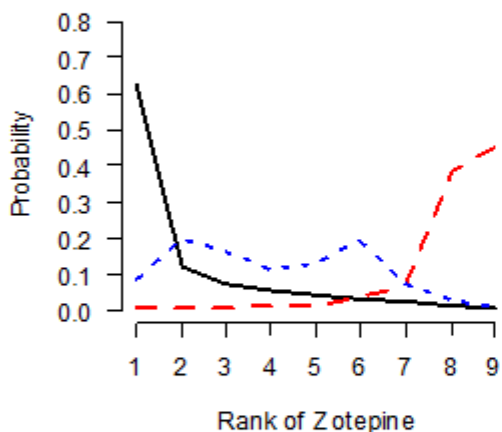
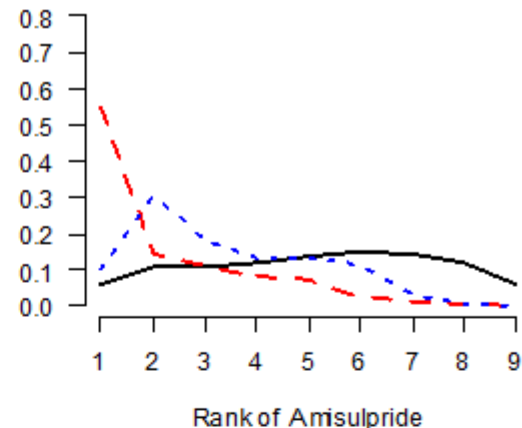
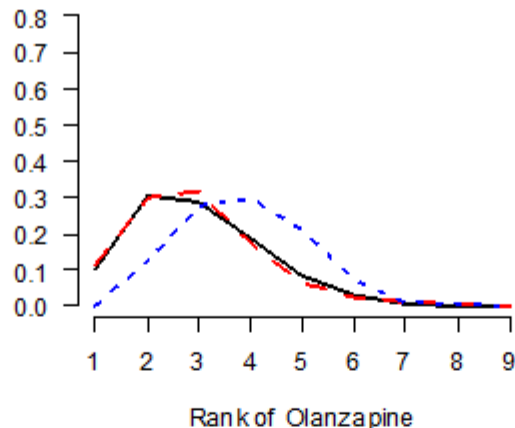
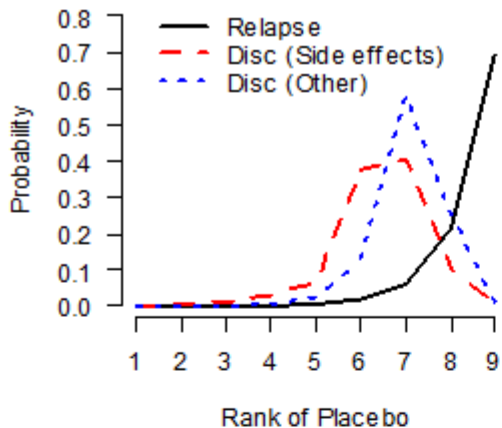
# Summary Forest Plot

Summary estimates for each pair of treatments

**NOT** Individual Study estimates



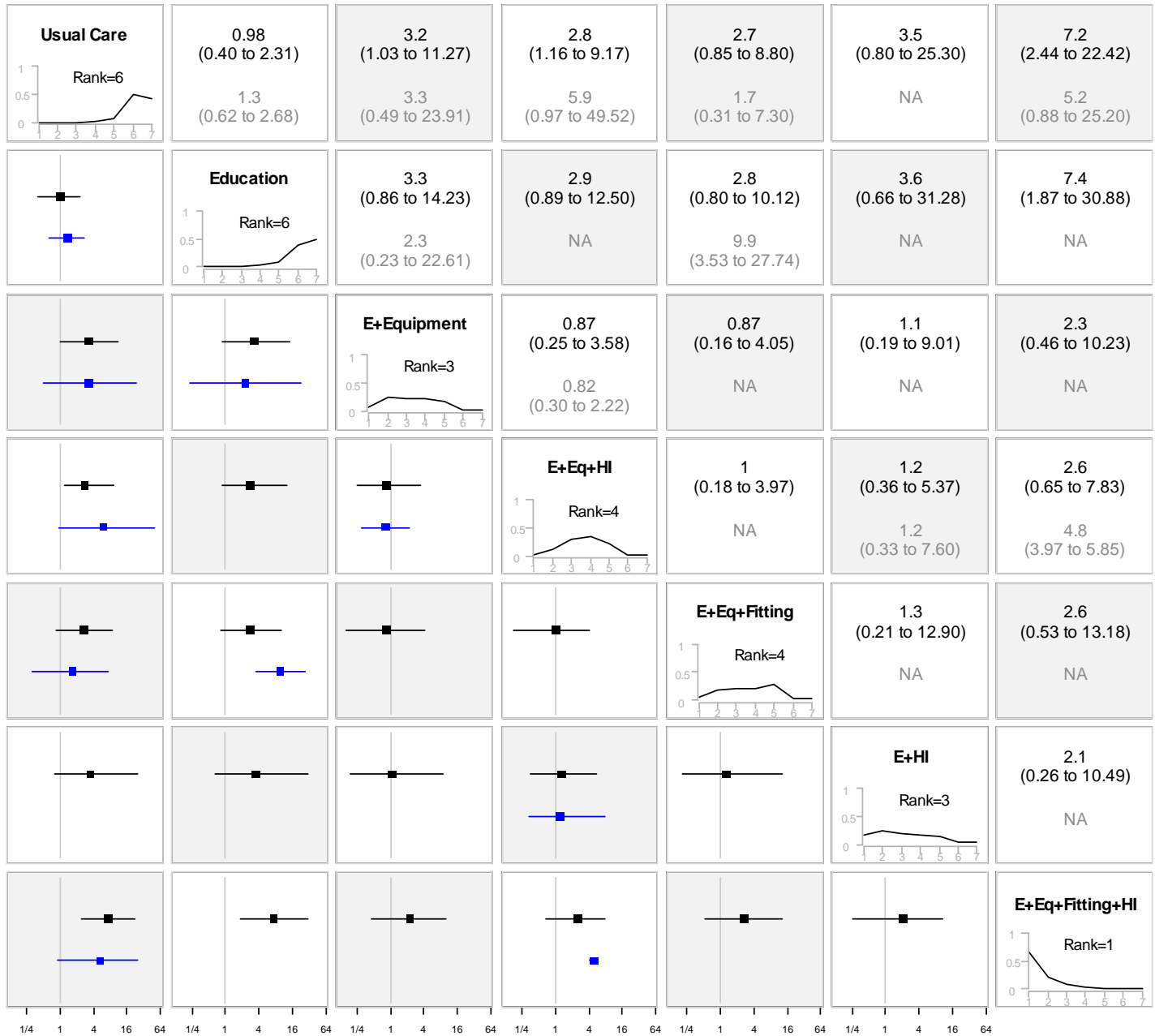
# Rank-o-grams





# Summary Forest Plot Matrix

Summary Forest Plot Matrix for Smoke Alarm Uptake



Key:

NMA results in black; Pairwise MA results in grey.

A total of 7 interventions were compared in this NMA.

Interventions are displayed in the order that they were entered in the analysis.

Odds Ratio with 95% CrI (log scale)

Heterogeneity: betw een-study variance = 0.59; 95% CrI (0.123 to 2.201) **9**

# Summary Forest Plot Table

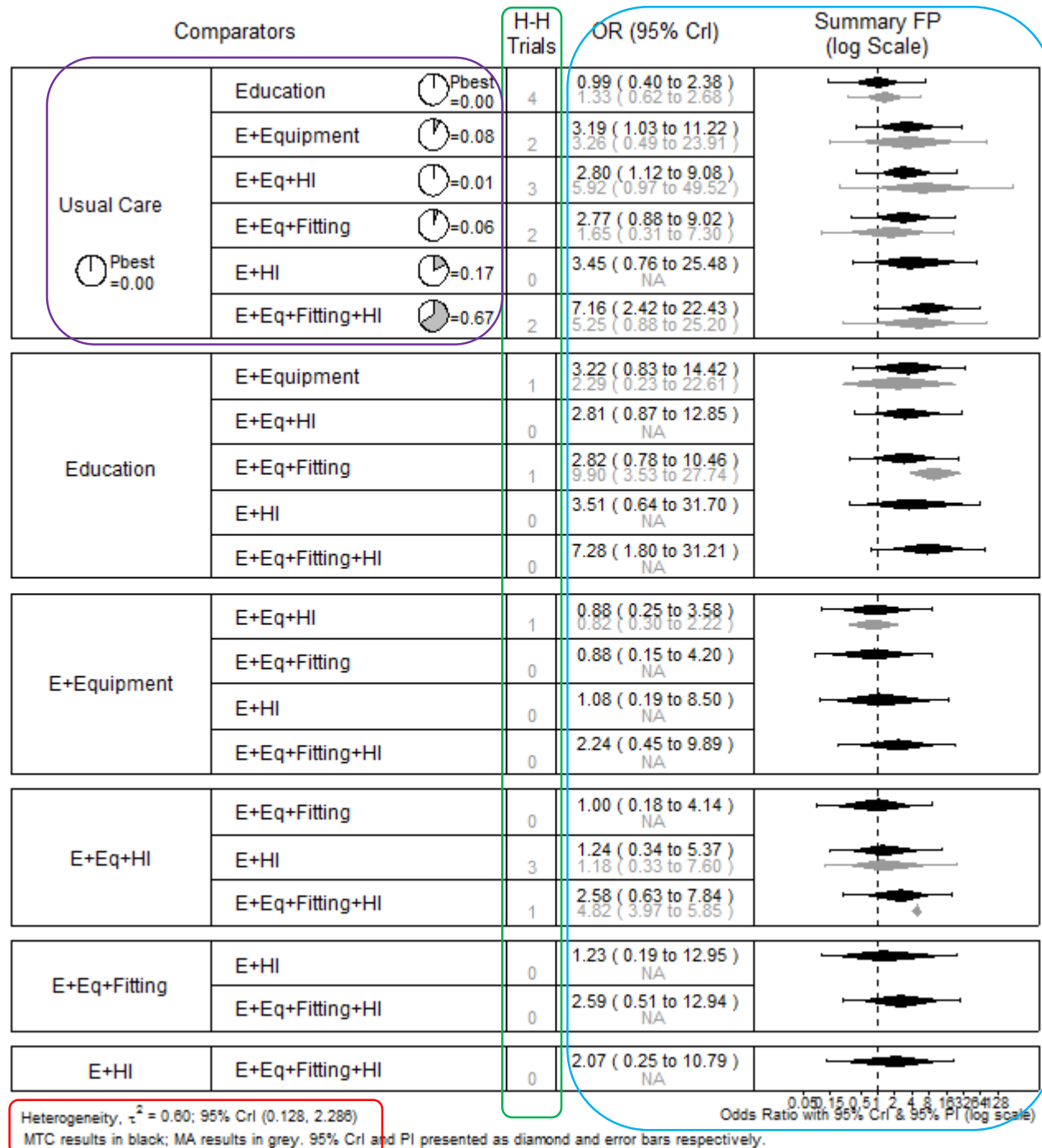
NMA & pairwise  
MA estimates and  
plots on the same  
graph

Probability best

Heterogeneity  
estimate  
presented

Column showing  
Head-to-Head  
Trial counts

Graph can extend  
easily to another  
page



# Implementation

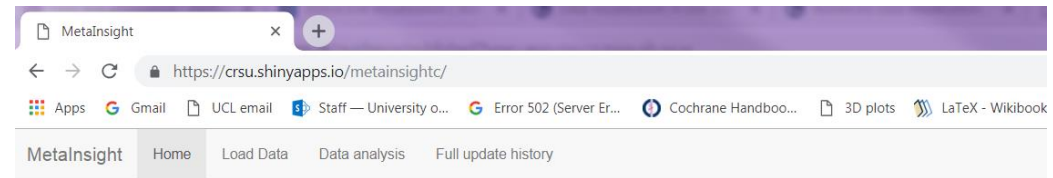
- Stata:
  - network (White IR. Network meta-analysis. *Stata Journal* 2015;15:951)
- R:
  - netmeta (Rücker G et al. netmeta: Network meta-analysis using frequentist methods. R package version 0.9-8. Available: <http://CRAN-R.project.org/package=netmeta>)
  - GeMTC (vanValkenhoef G, Kuiper J. gemtc: Network meta-analysis using Bayesian methods. R package version 0.8-2. Available <http://CRAN-R.project.org/package=gemtc>)
  - 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 <http://CRAN-R.project.org/package=pcnetmeta>)

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

# MetaInsight

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

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



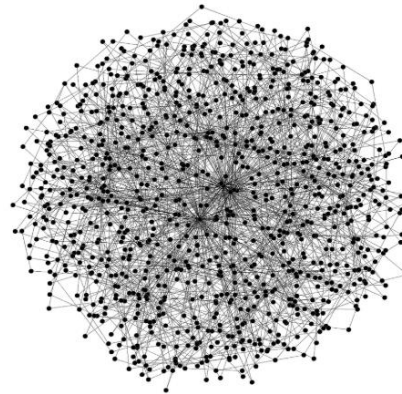
MetaInsight (continuous) V1.1\*\* [Beta](#)

[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](mailto: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>