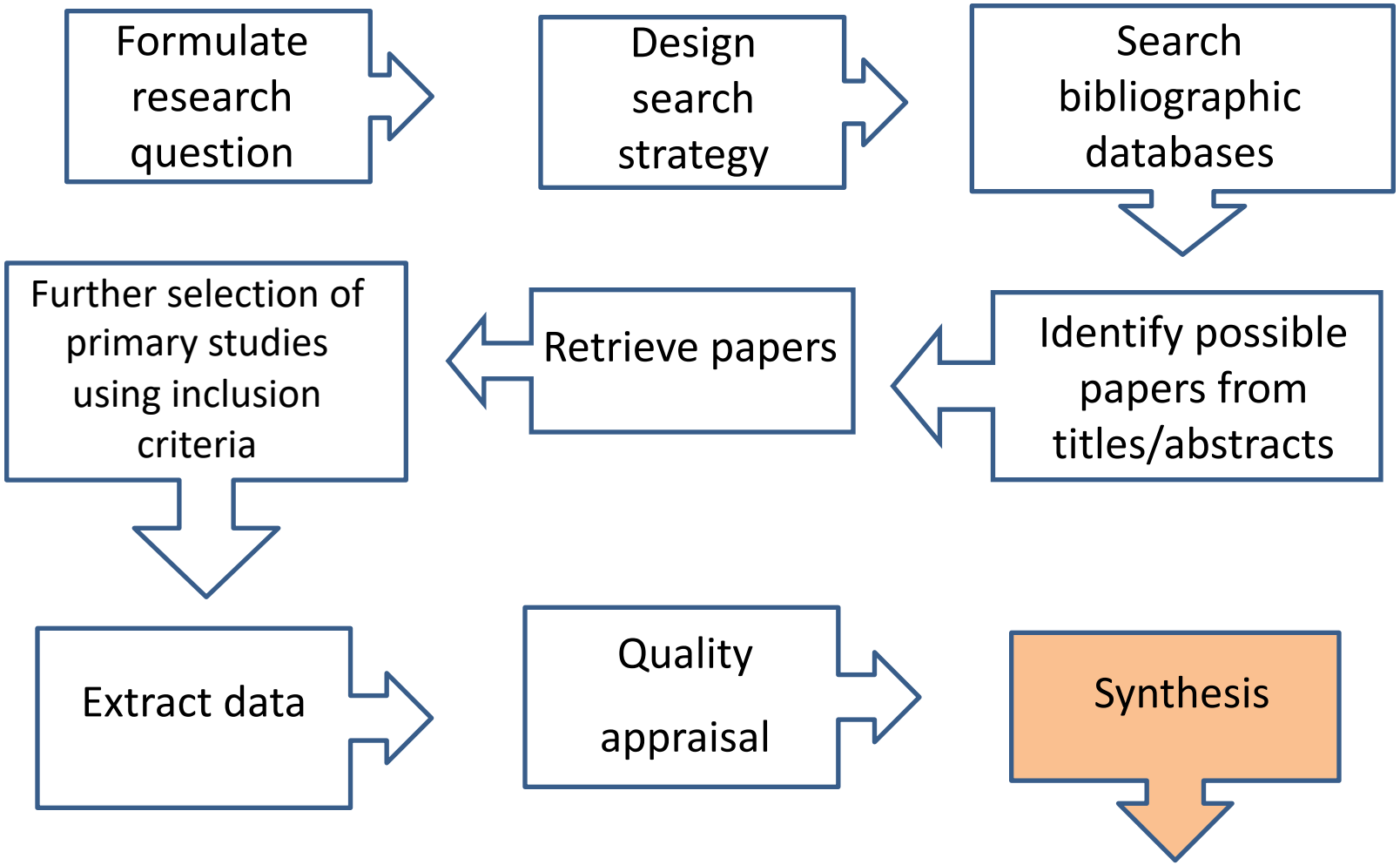
Introduction to meta-analysis in Review Manager (RevMan). 5.2

Xiaojin Yu

The systematic review process



Session overview

- Open Revman
- Adding studies
- Add comparison
- Add outcome
- Data entry
- Conducting meta-analysis
- Generating plots and graphs

Review Manager（RevMan）

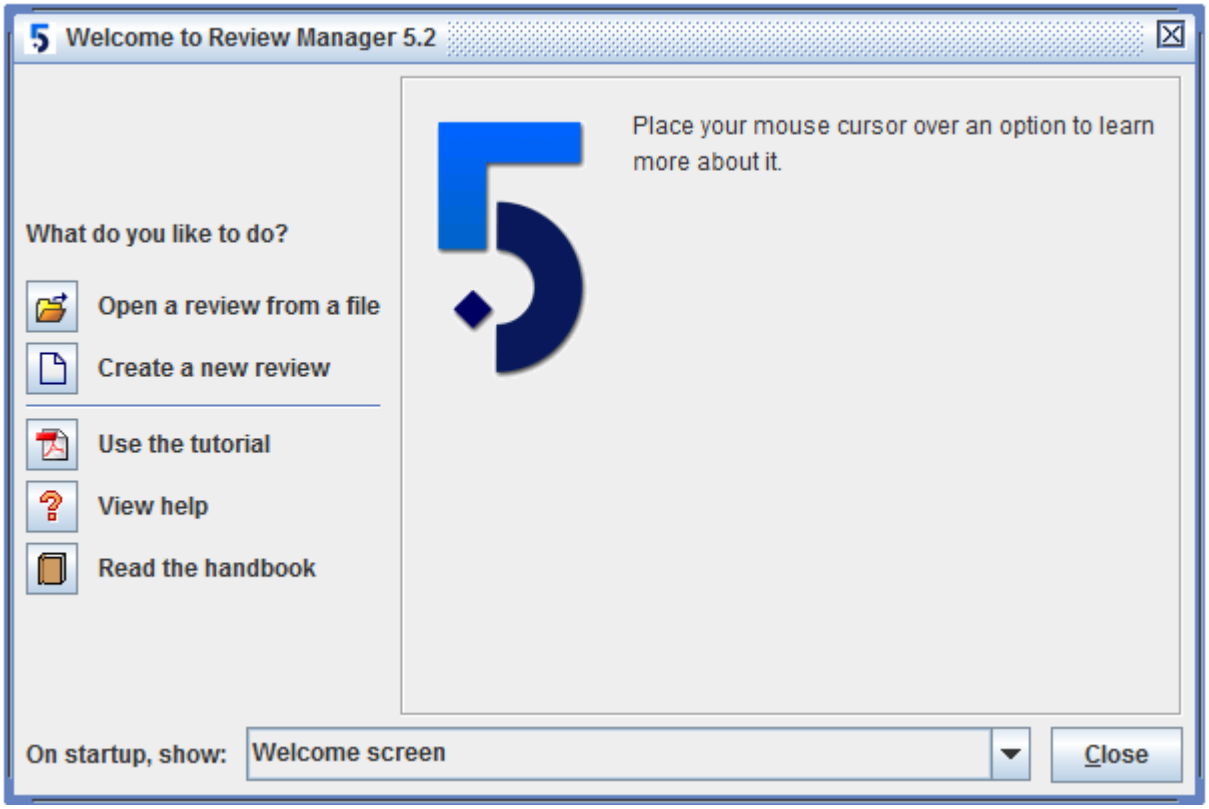
- A software FROM The Cochrane Collaboration for preparing and maintaining Cochrane reviews.
- RevMan facilitates preparation of protocols and full reviews
- It is most useful when you have formulated the question for the review and allows you to:
  - prepare the text,
  - build the tables showing the characteristics of studies and the comparisons in the review,
  - add study data,
  - perform meta-analyses and
  - present the results graphically.
- Download here： http://ims.cochrane.org/revman/download

Categorical data Example

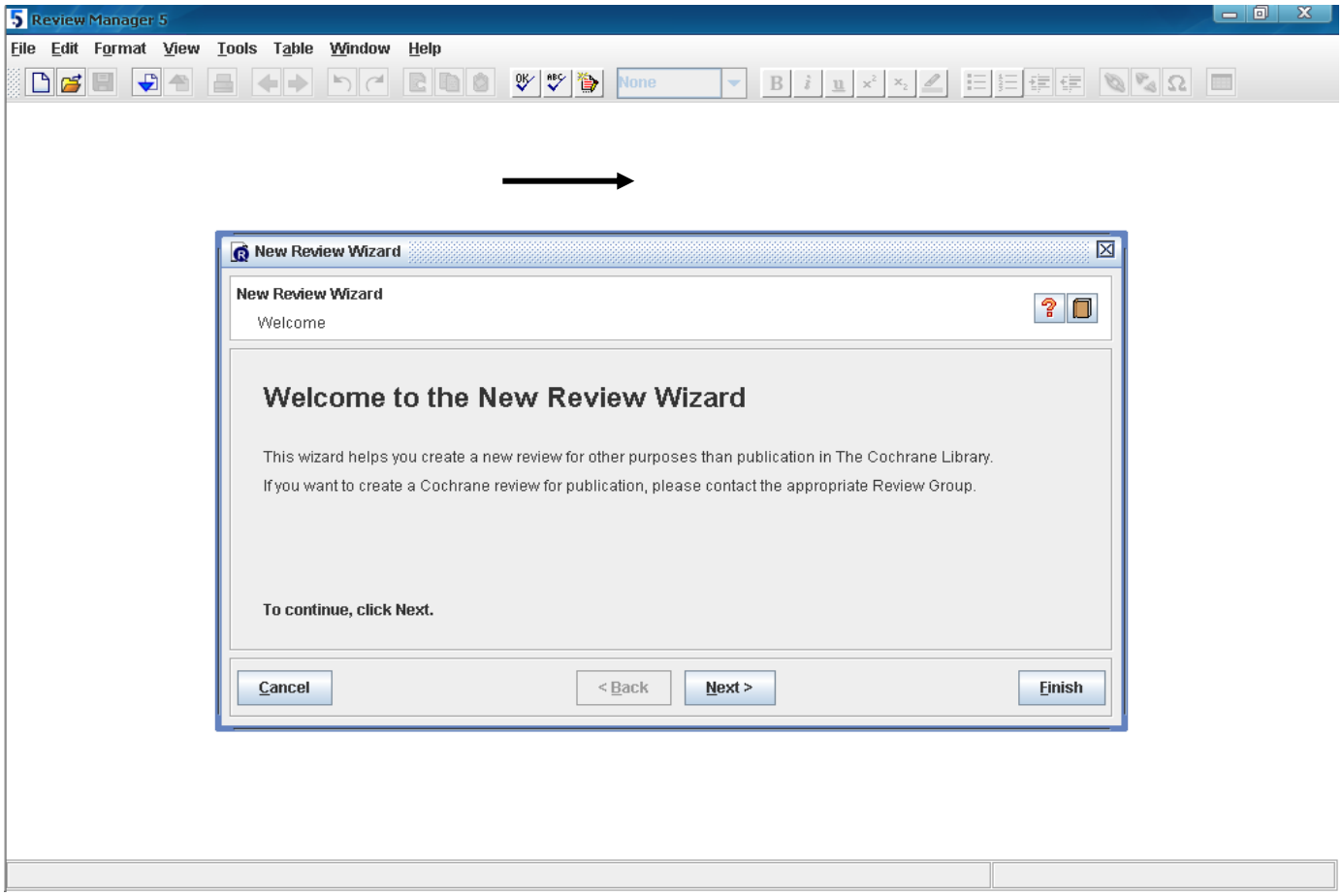
studies	ASprin		placebo	
	death(n)	total(N)	death(n)	total(N)
MRC-1 1974	49	615	67	624
CDP 1976	44	758	64	771
MRC-2 1979	102	832	126	850
GASP 1979	32	317	38	309
PARIS 1980	85	810	52	406
AMIS 1980	246	2267	219	2257
ISIS-2 1988	1570	8587	1720	8600

RevMan5.2 tour

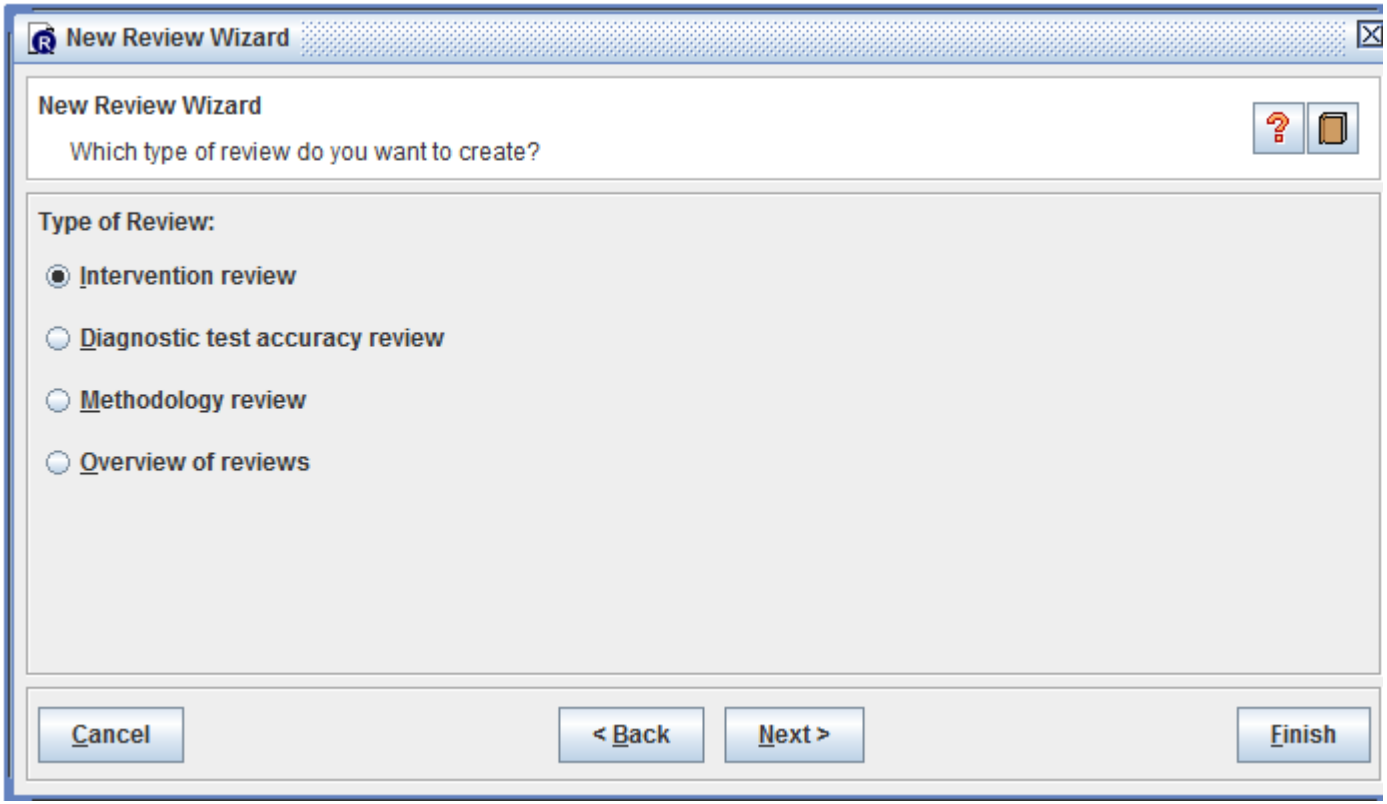
- Building your review or protocol
- Add studies
- Assess studies
- Data input


Welcome to Review Manager 5.2
What do you like to do?
Open a review from a file
Create a new review
Use the tutorial
View help
Read the handbook
Place your mouse cursor over an option to learn more about it.
On startup, show:
Welcome screen
Close

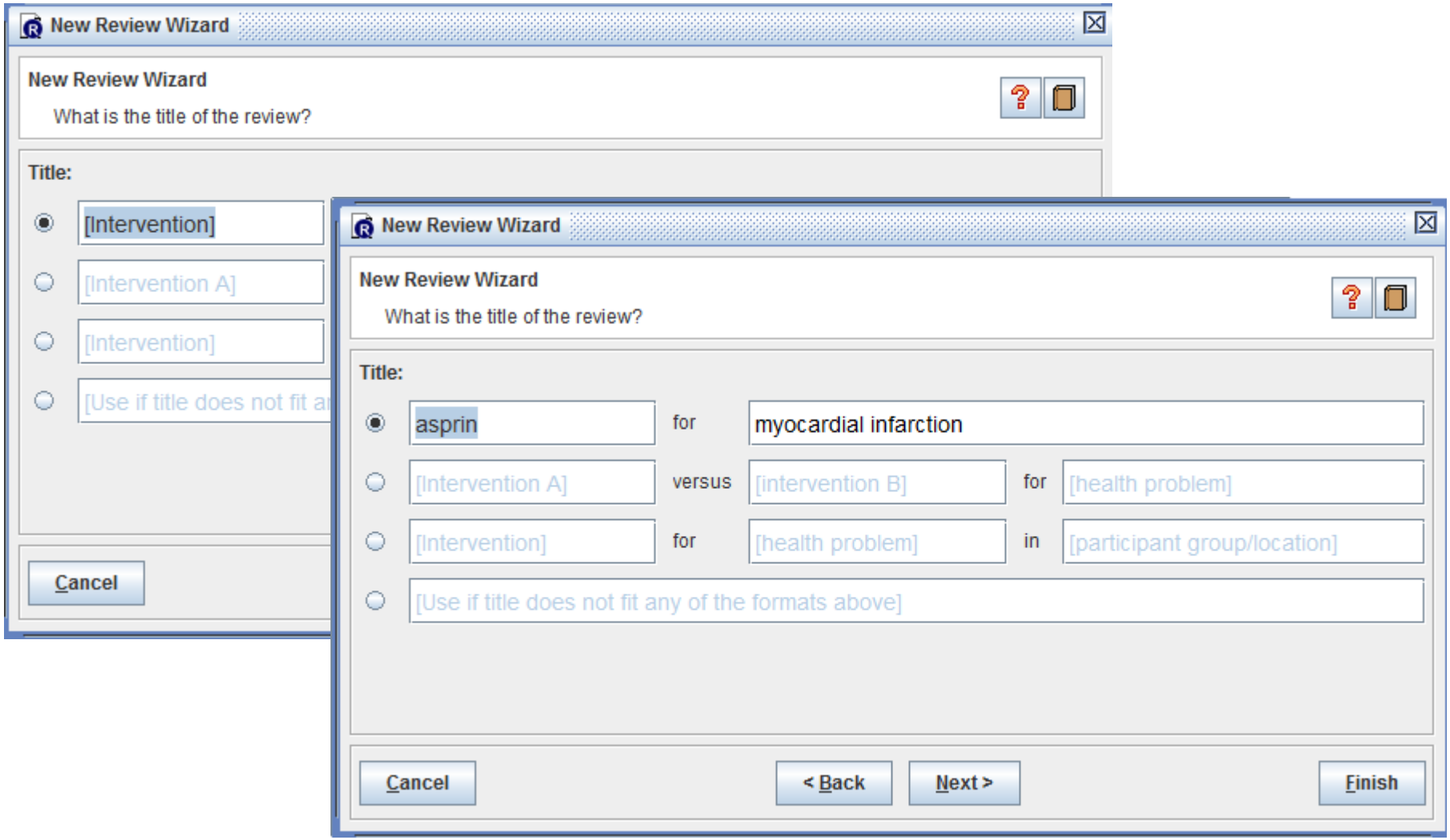
Welcome page



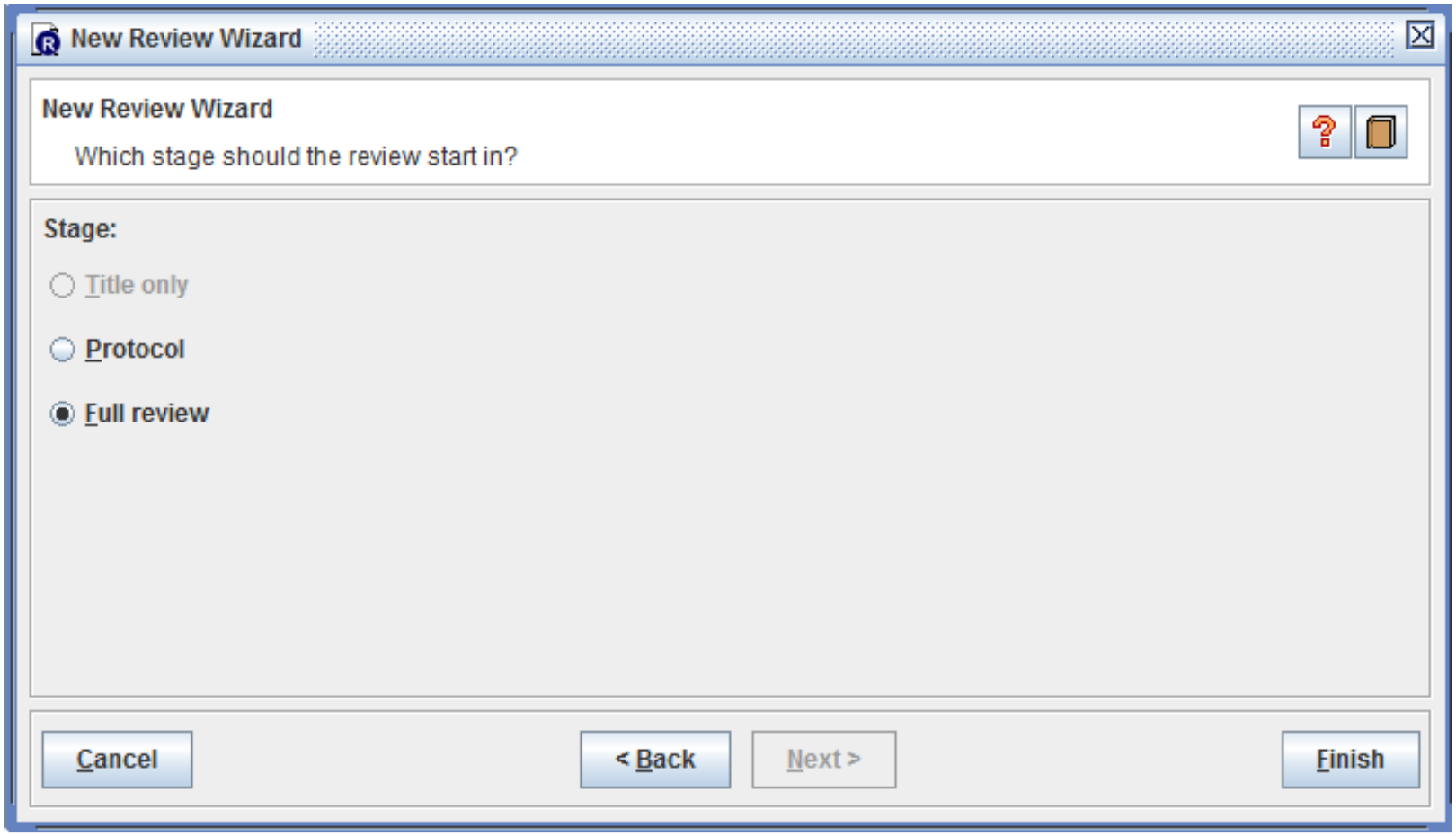
Types of review



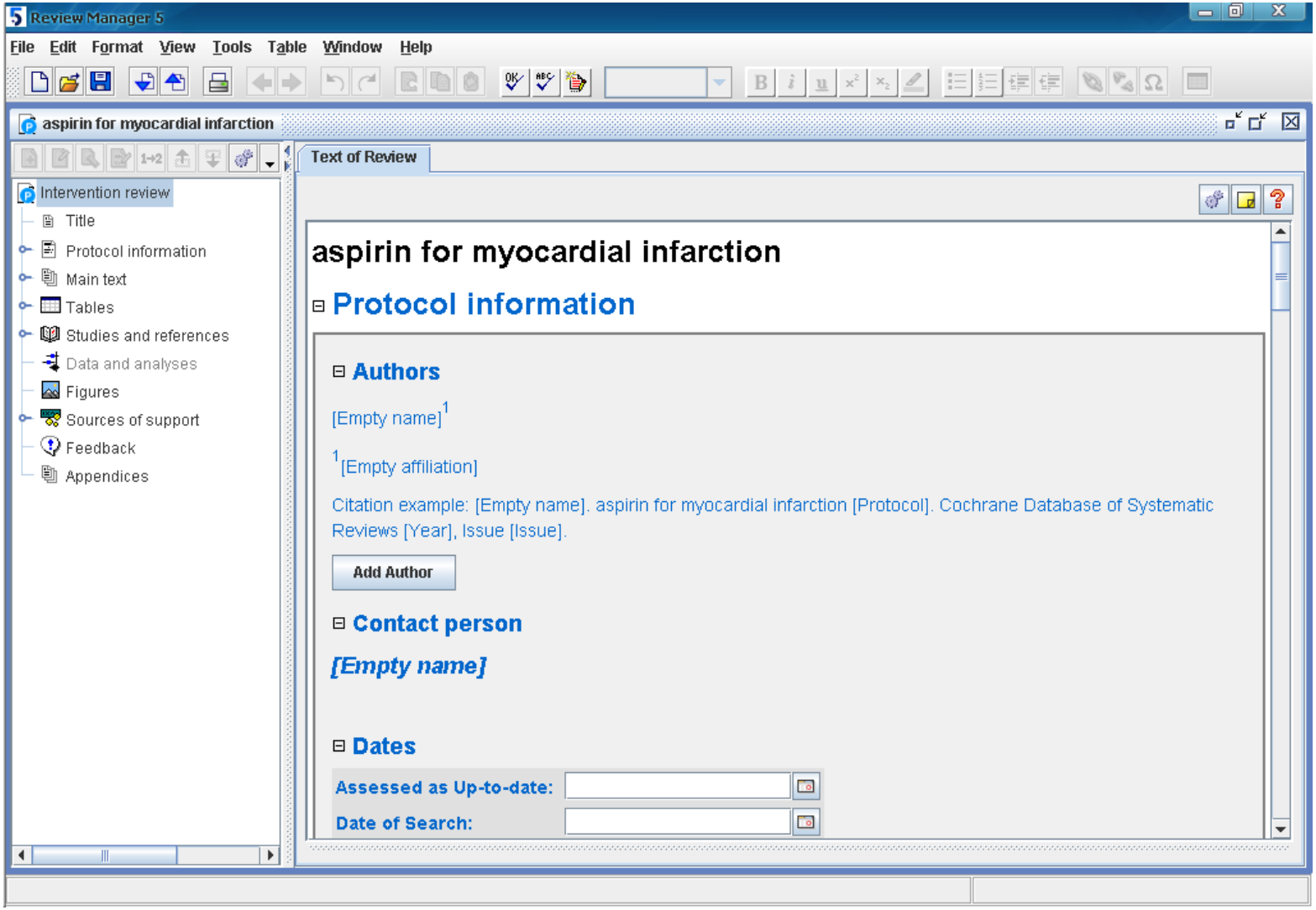
Title of your SR



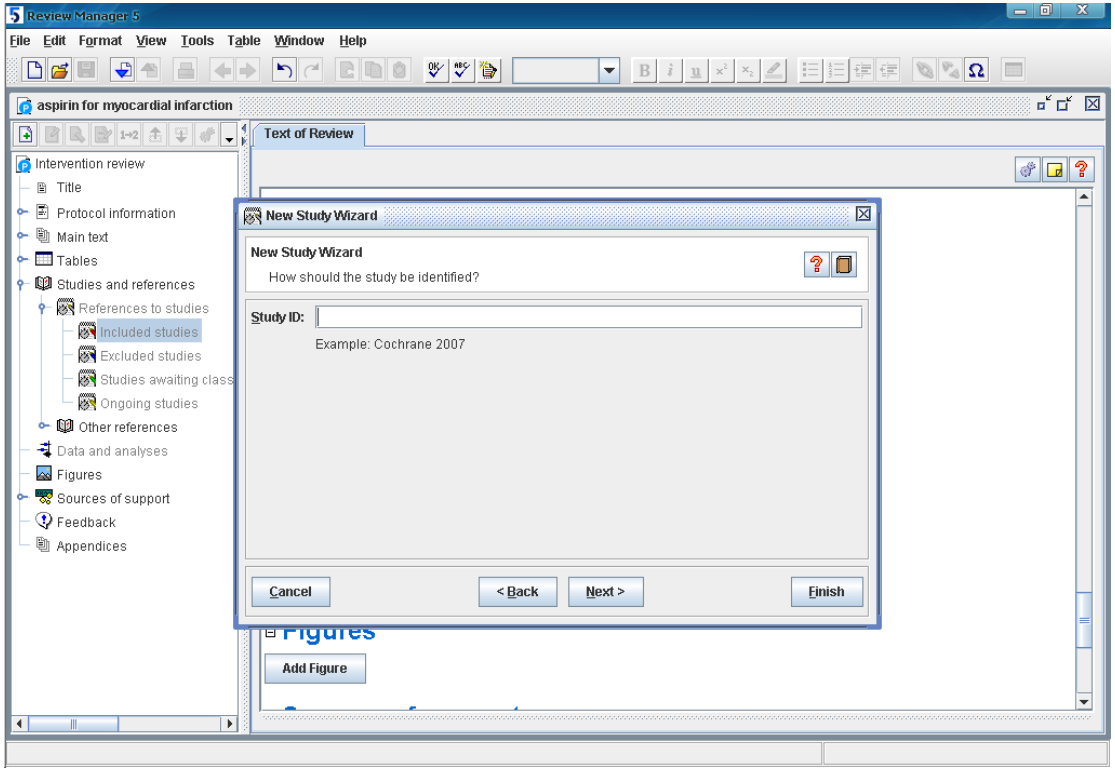
Protocol or Full review



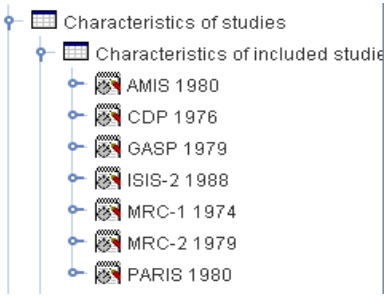
There you are

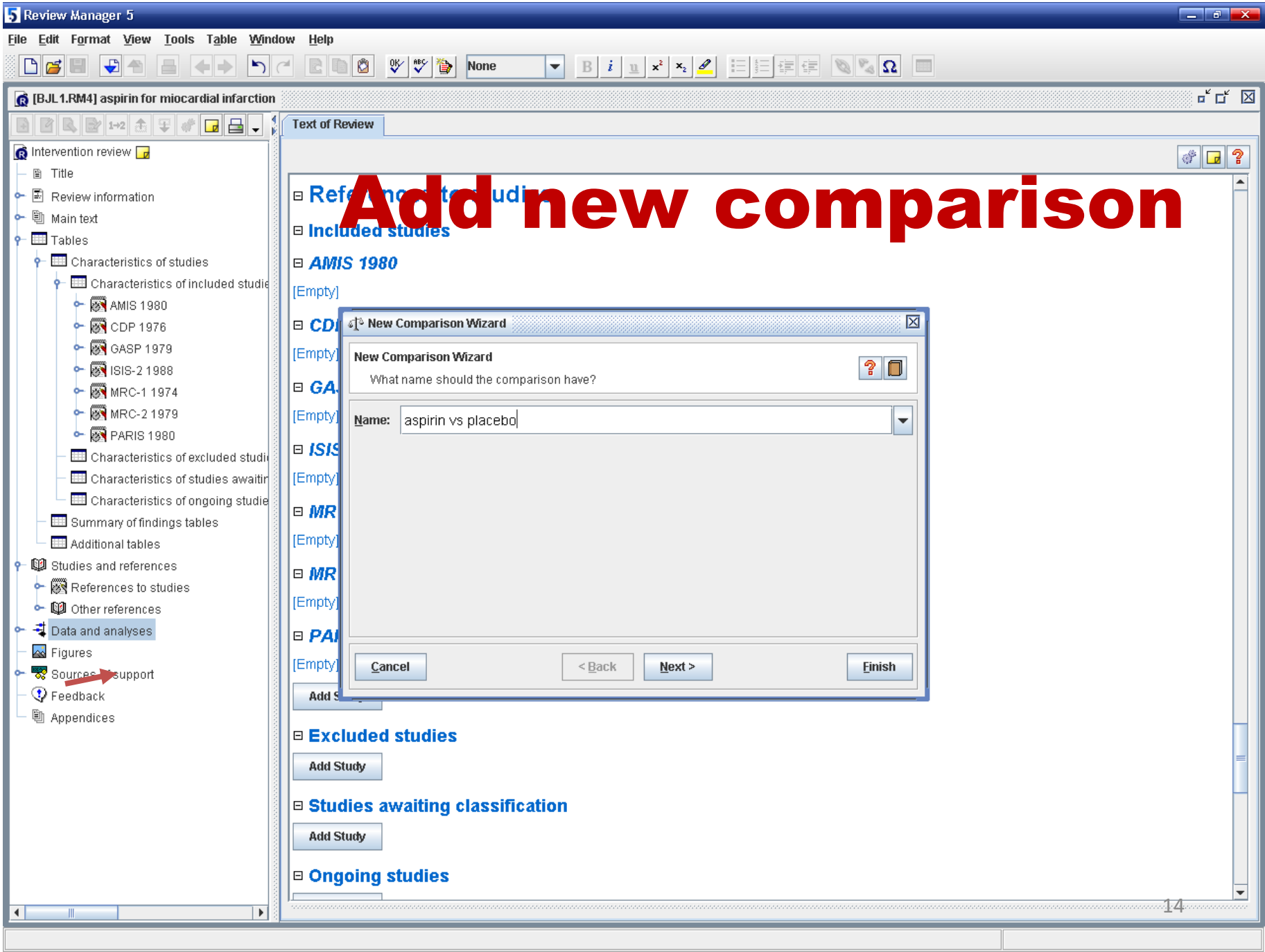


Add Studies & references



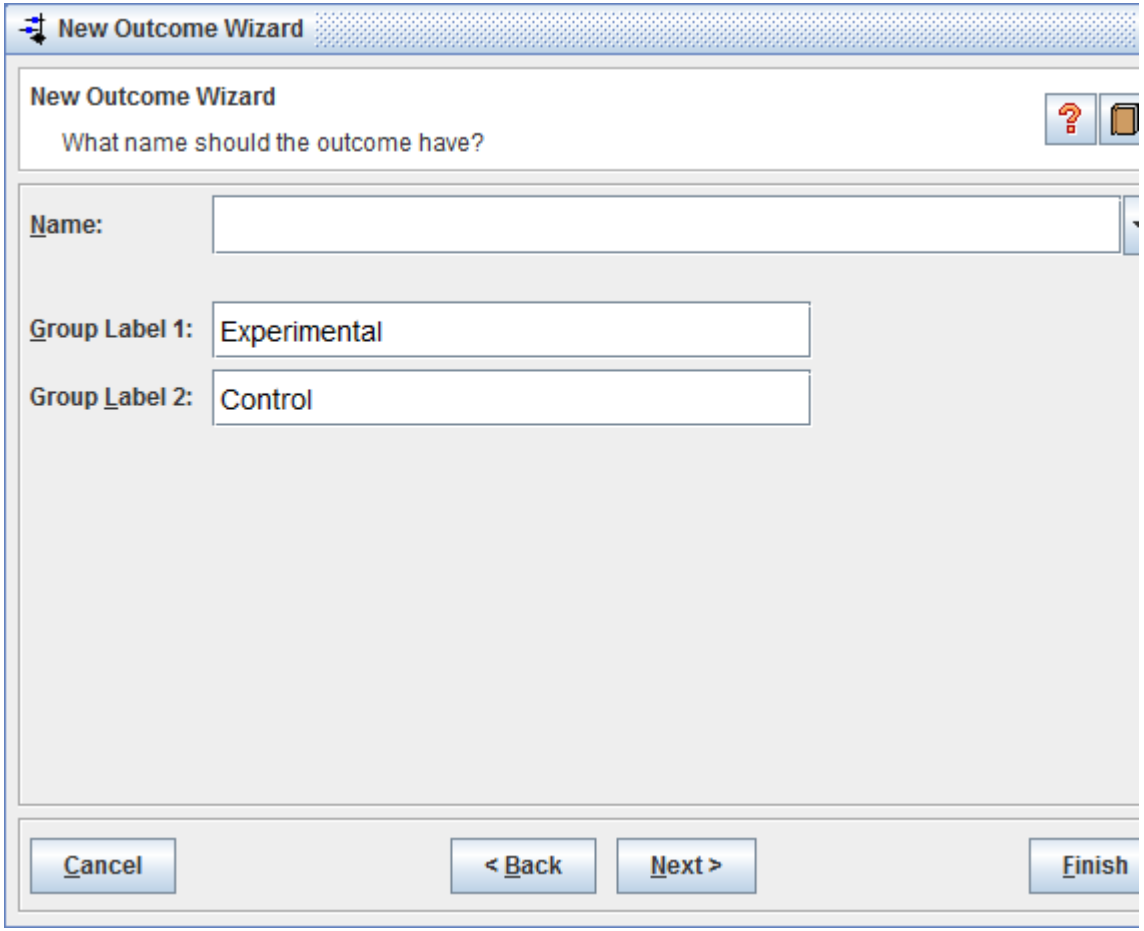
- ① “Studies and references” “References to studies”;
- ② “References to studies” “Included studies”;
- ③ “Add Study”_ “New Study Wizard”
- ④ “New Study Wizard”， “Study ID”




Review Manager 5
File Edit Format View Tools Table Window Help
None
[BJL1.RM4] aspirin for miocardial infarction
Text of Review
Intervention review
Title
Review information
Main text
Tables
Characteristics of studies
Characteristics of included studie
AMIS 1980
CDP 1976
GASP 1979
ISIS-2 1988
MRC-1 1974
MRC-2 1979
PARIS 1980
Characteristics of excluded studi
Characteristics of studies awaitir
Characteristics of ongoing studie
Summary of findings tables
Additional tables
Studies and references
References to studies
Other references
Data and analyses
Figures
Sources of support
Feedback
Appendices
Add new comparison
Included studies
AMIS 1980
[Empty]
[Empty]
[Empty]
[Empty]
[Empty]
[Empty]
[Empty]
Excluded studies
Add Study
Studies awaiting classification
Add Study
Ongoing studies
New Comparison Wizard
New Comparison Wizard
What name should the comparison have?
Name: aspirin vs placebo
Cancel
< Back
Next >
Finish

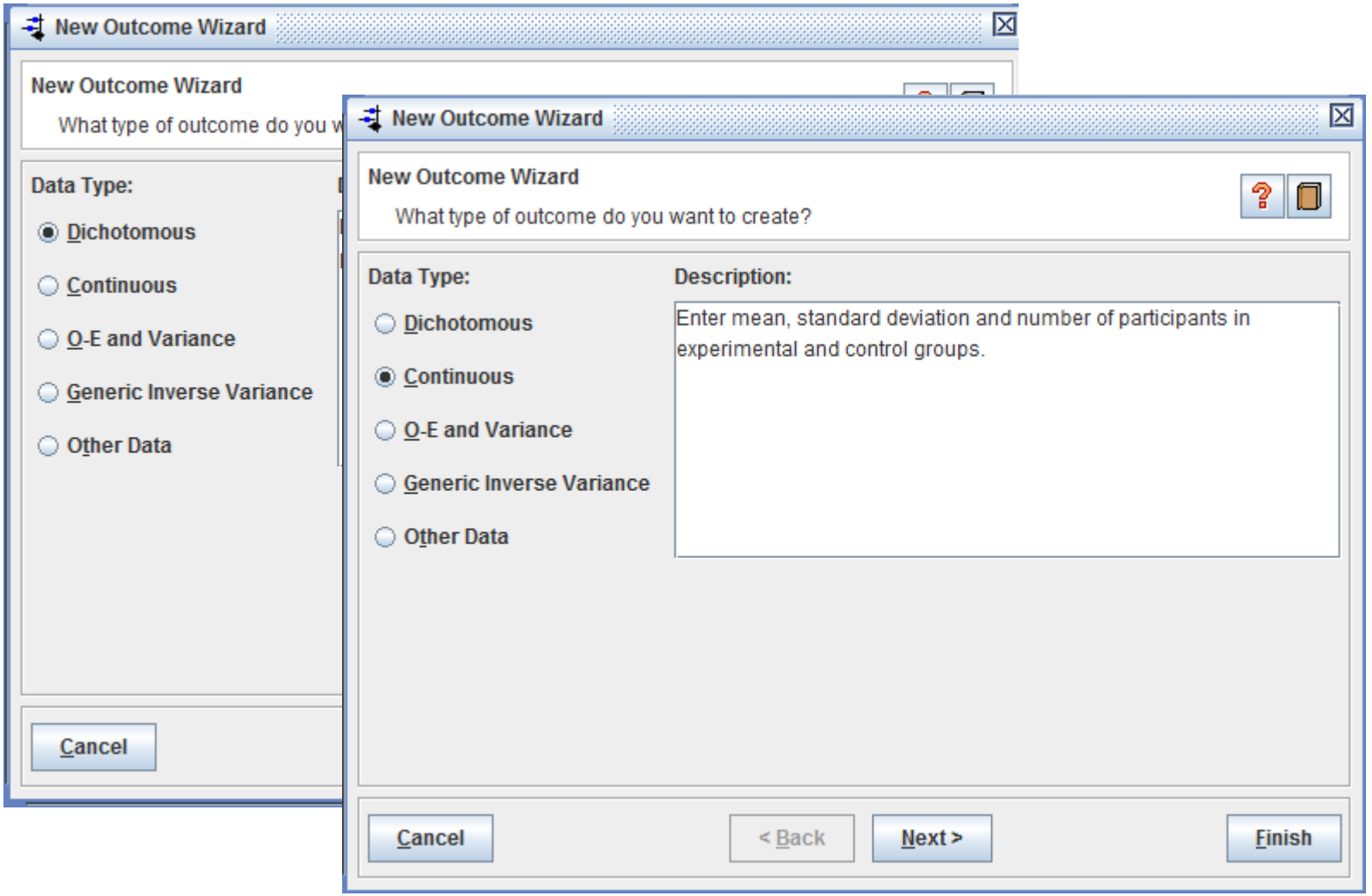
Add outcome

- Mortality
- Blood pressure

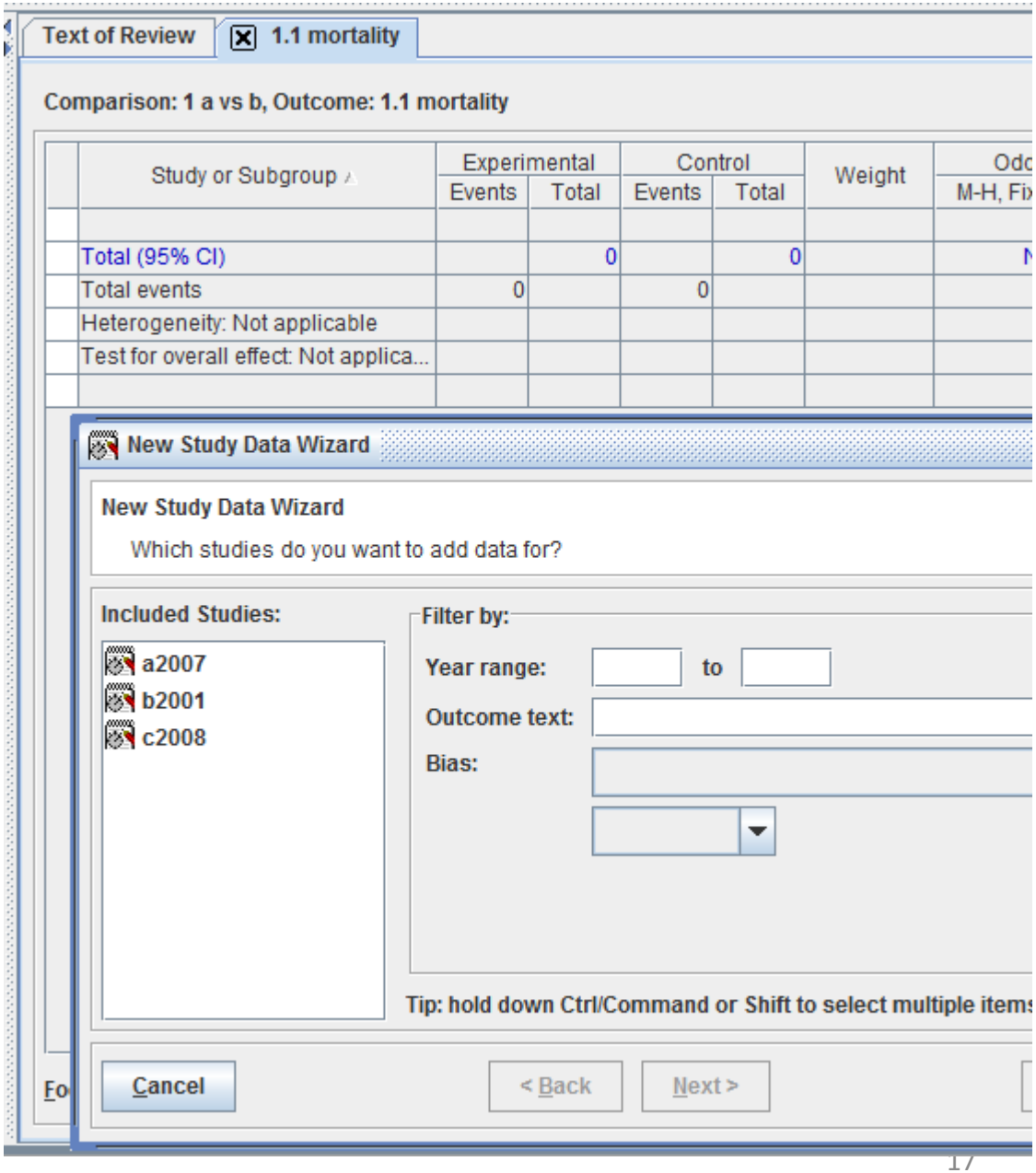


Data & analyses

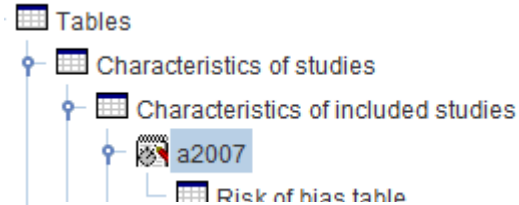
"Data and Analysis" add new comparison Outcome Wizard"
"Dichotomous"



Add data


Text of Review
1.1 mortality
Comparison: 1 a vs b, Outcome: 1.1 mortality
Study or Subgroup
Experimental
Events
Total
Control
Events
Total
Weight
Total (95% CI)
0
0
Total events
0
0
Heterogeneity: Not applicable
Test for overall effect: Not applica...
New Study Data Wizard
New Study Data Wizard
Which studies do you want to add data for?
Included Studies:
a2007
b2001
c2008
Filter by:
Year range:
to
Outcome text:
Bias:
Tip: hold down Ctrl/Command or Shift to select multiple items
Cancel
< Back
Next >

Appraise studies



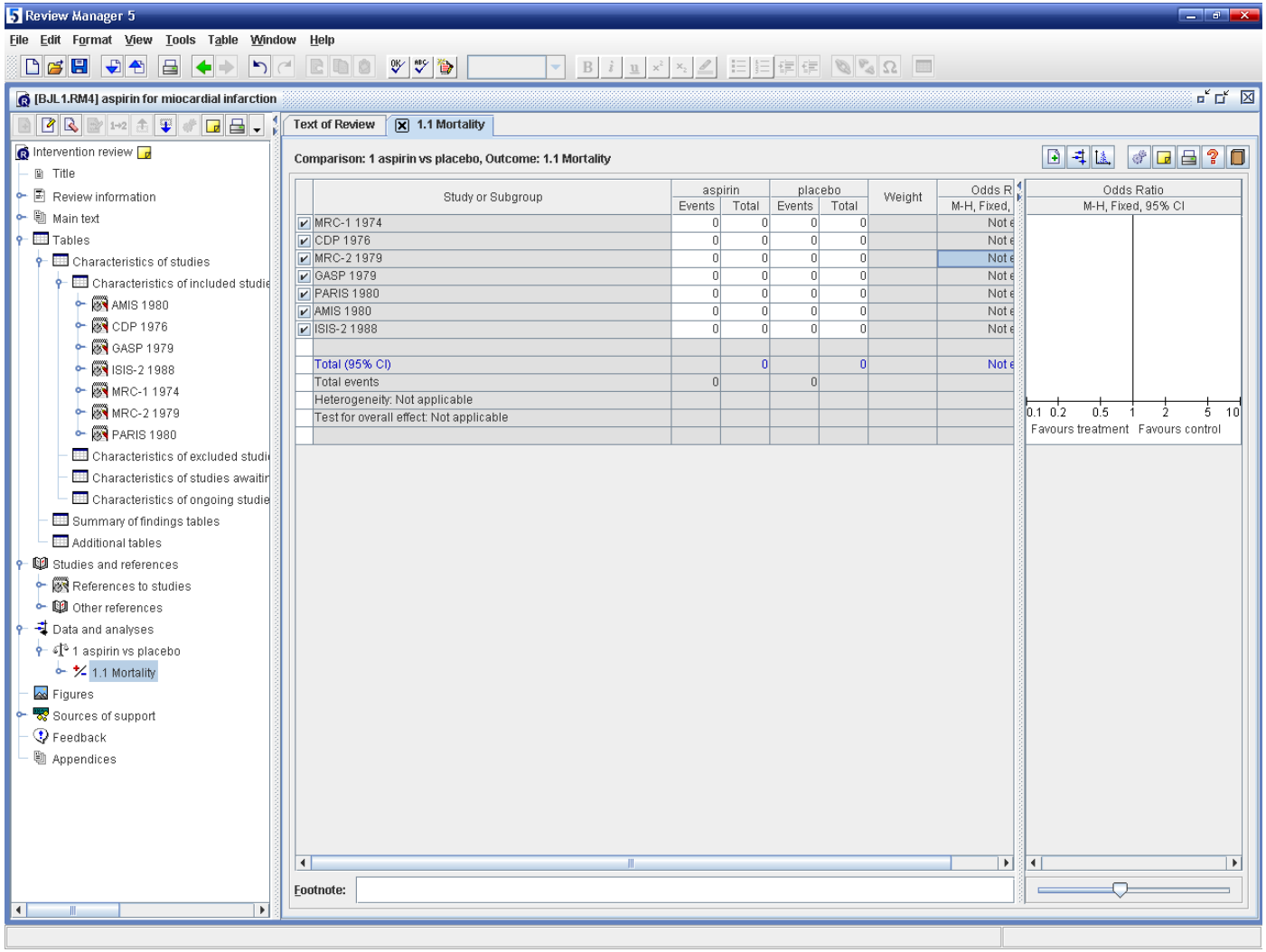
a2007

Methods	
Participants	
Interventions	
Outcomes	
Notes	

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	
Other bias	Unclear risk	

Data input

- Choose studies you want to use



Categorical data Example

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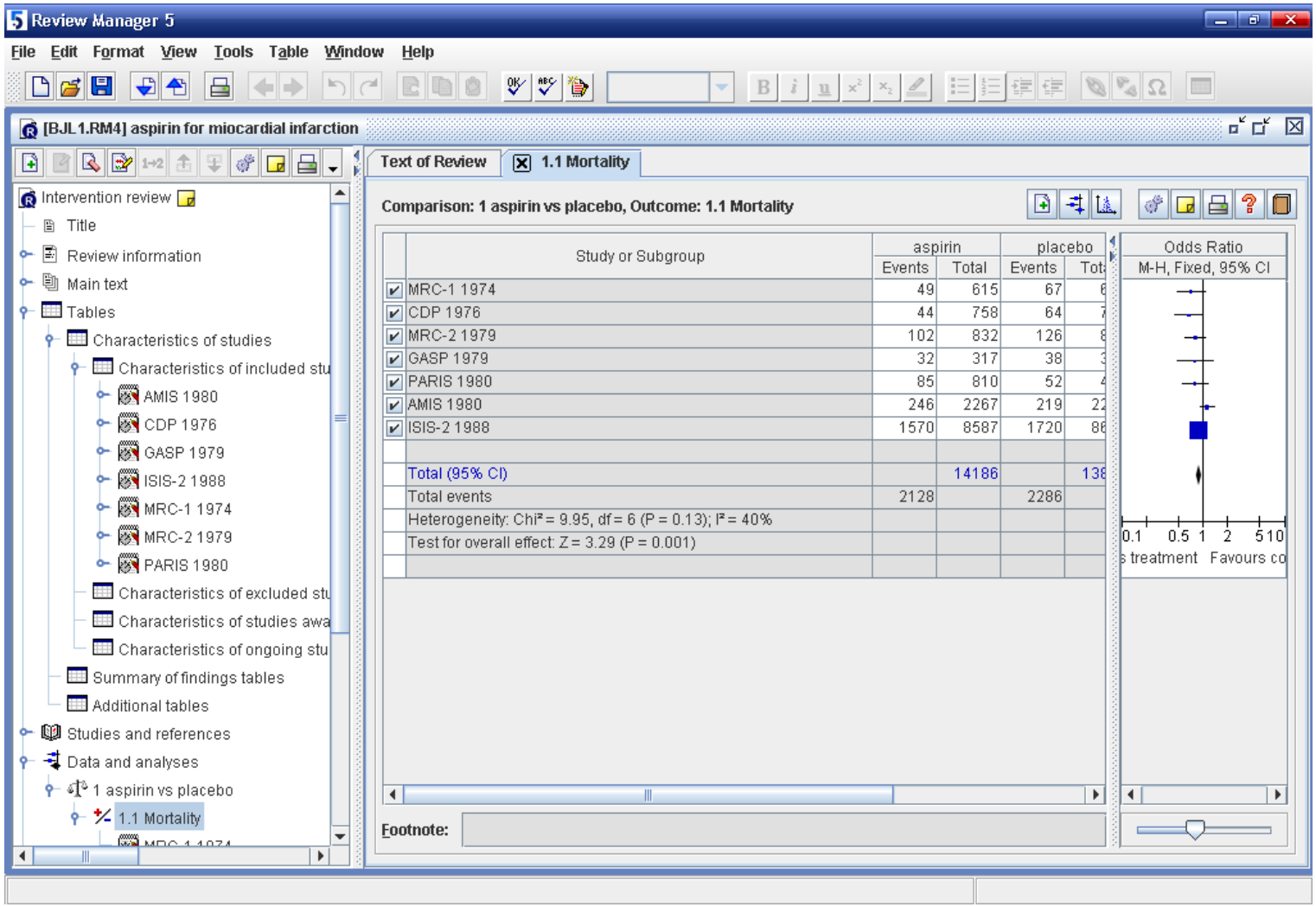
Data input


Review Manager 5
File Edit Format View Tools Table Window Help
[BJL1.RM4] aspirin for miocardial infarction
Text of Review
1.1 Mortality
Intervention review
Title
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Main text
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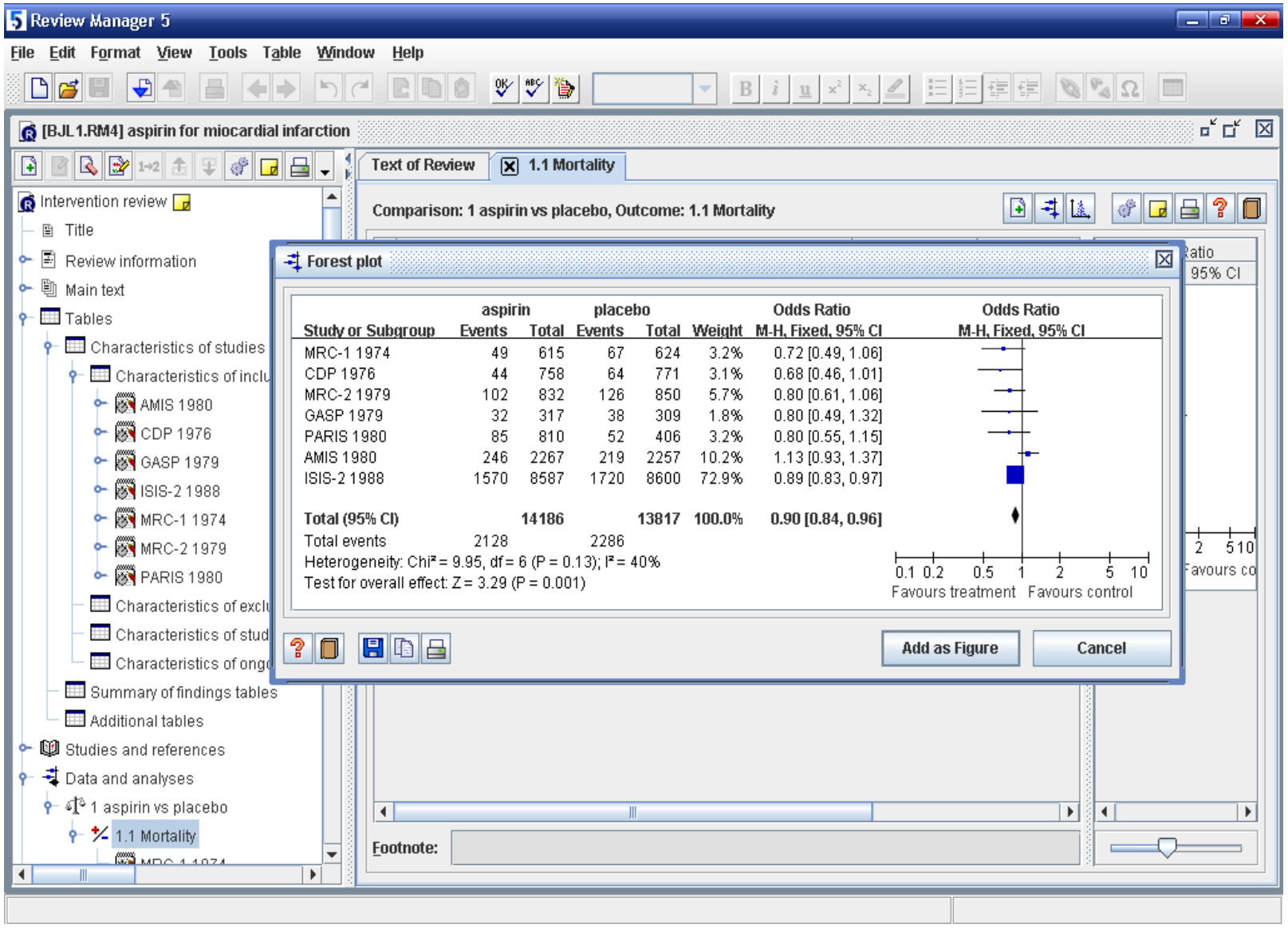
GASP 1979
ISIS-2 1988
MRC-1 1974
MRC-2 1979
PARIS 1980
Characteristics of excluded stu
Characteristics of studies awa
Characteristics of ongoing stu
Summary of findings tables
Additional tables
Studies and references
Data and analyses
1 aspirin vs placebo
1.1 Mortality
Comparison: 1 aspirin vs placebo, Outcome: 1.1 Mortality
Study or Subgroup
aspirin
placebo
Odds Ratio
Events
Total
Events
M-H, Fixed, 95% CI
MRC-1 1974 49 615 67
CDP 1976 44 758 64
MRC-2 1979 102 832 126
GASP 1979 32 317 38
PARIS 1980 85 810 52
AMIS 1980 246 2267 219
ISIS-2 1988 1570 8587 1720
Total (95% CI) 14186
Total events 2128 2286
Heterogeneity: Chi² = 9.95, df = 6 (P = 0.13); I² = 40%
Test for overall effect: Z = 3.29 (P = 0.001)
0.1 0.5 1 2 5 10
Footnote:

outcome

- all done!

forest plot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Forest plot
aspirin
placebo
Odds Ratio
Odds Ratio
Study or Subgroup Events Total Events Total Weight M-H, Fixed, 95% CI
M-H, Fixed, 95% CI
MRC-1 1974 49 615 67 624 3.2% 0.72 [0.49, 1.06]
CDP 1976 44 758 64 771 3.1% 0.68 [0.46, 1.01]
MRC-2 1979 102 832 126 850 5.7% 0.80 [0.61, 1.06]
GASP 1979 32 317 38 309 1.8% 0.80 [0.49, 1.32]
PARIS 1980 85 810 52 406 3.2% 0.80 [0.55, 1.15]
AMIS 1980 246 2267 219 2257 10.2% 1.13 [0.93, 1.37]
ISIS-2 1988 1570 8587 1720 8600 72.9% 0.89 [0.83, 0.97]
Total (95% CI) 14186 13817 100.0% 0.90 [0.84, 0.96]
Total events 2128 2286
Heterogeneity: Chi² = 9.95, df = 6 (P = 0.13); I² = 40%
Test for overall effect: Z = 3.29 (P = 0.001)
0.1 0.2 0.5 1 2 5 10
Favours treatment Favours control
Add as Figure
Cancel
95% CI
Footnote:

results

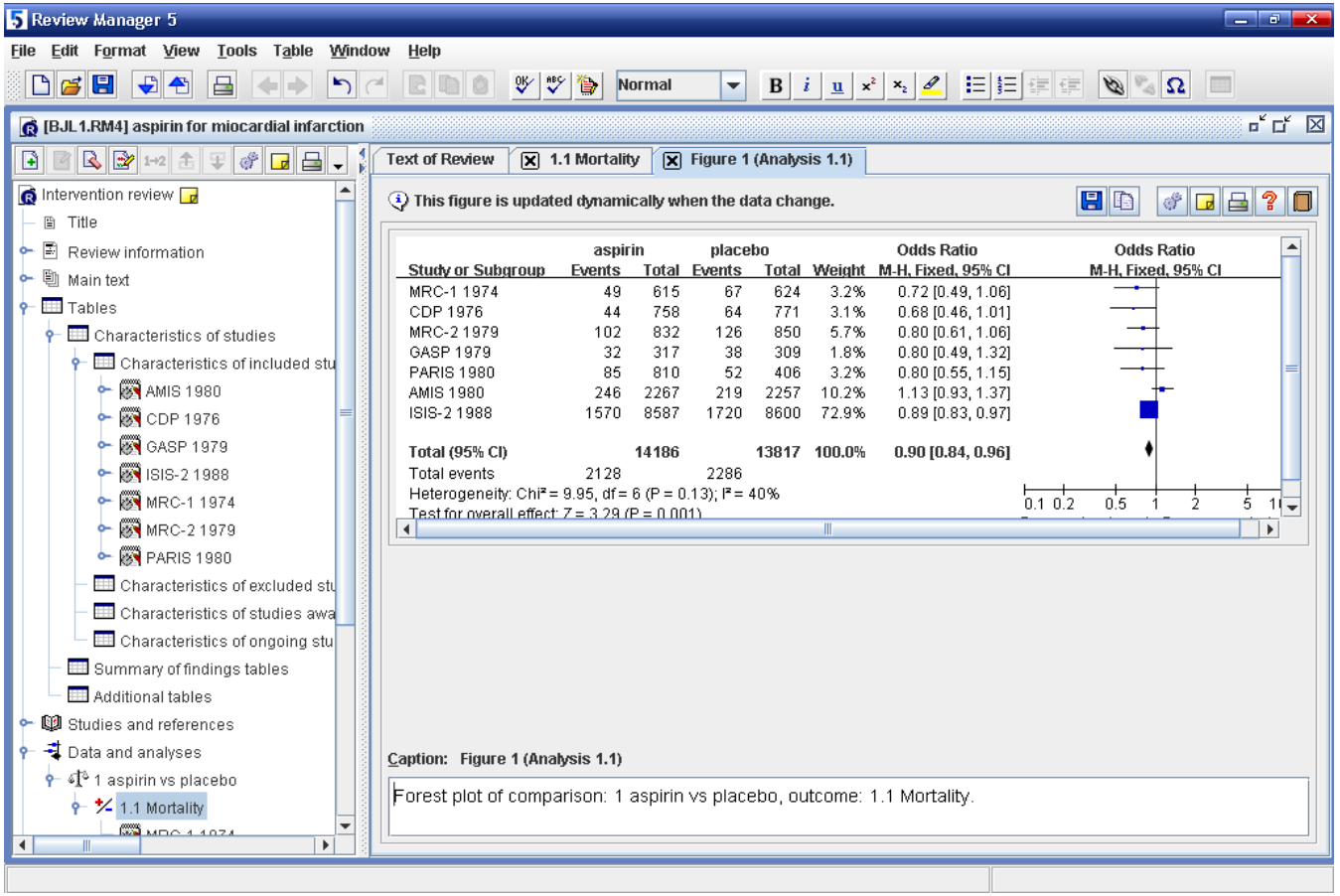
Review Manager 5
File Edit Format View Tools Table Window Help
Normal
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Figure 1 (Analysis 1.1)
Intervention review
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This figure is updated dynamically when the data change.
aspirin
placebo
Odds Ratio
Odds Ratio
Study or Subgroup Events Total Events Total Weight M-H, Fixed, 95% CI
M-H, Fixed, 95% CI
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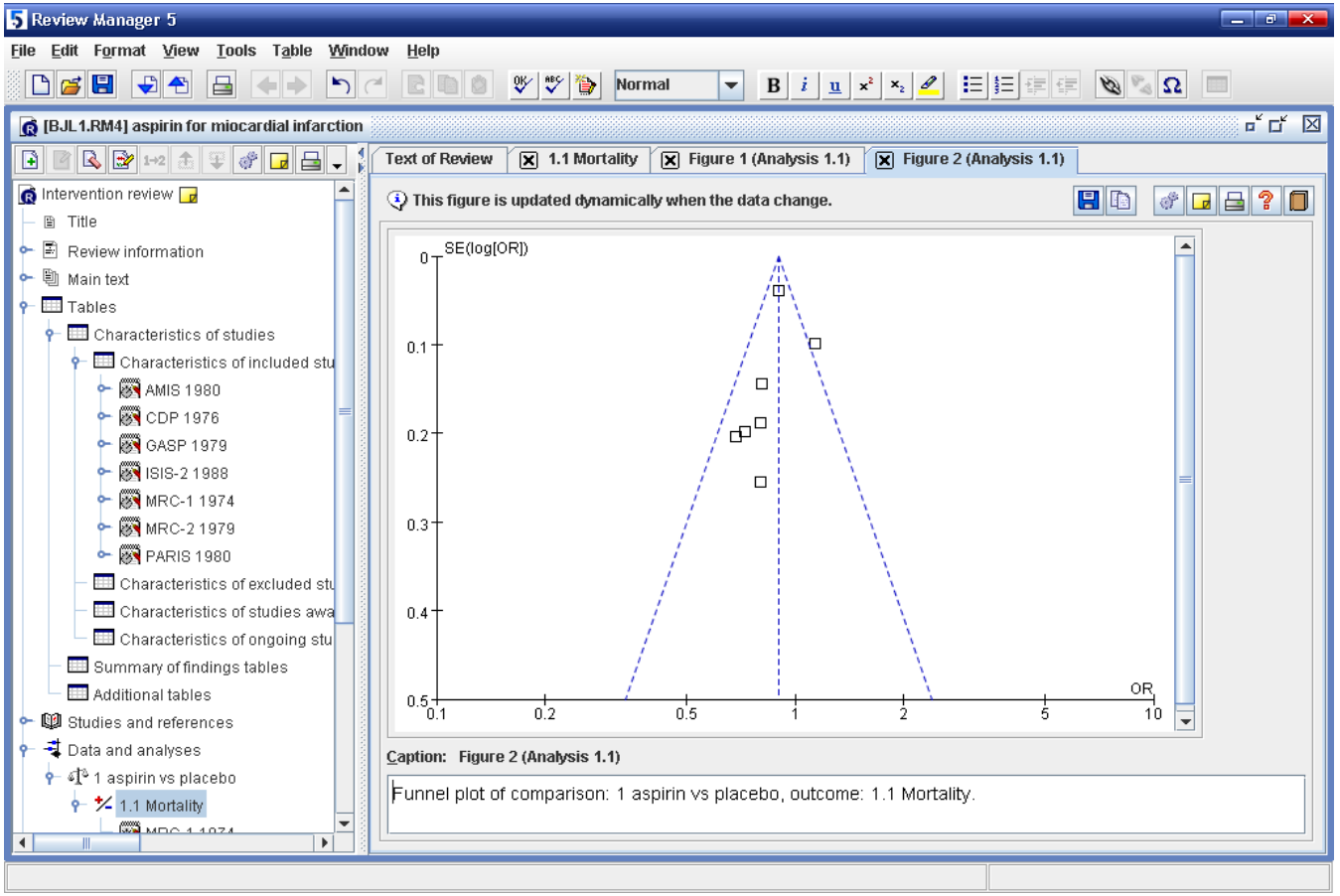
Test for overall effect: Z = 3.29 (P = 0.001)
0.1 0.2 0.5 1 2 5
Caption: Figure 1 (Analysis 1.1)
Forest plot of comparison: 1 aspirin vs placebo, outcome: 1.1 Mortality.

Funnel plot


Review Manager 5
File Edit Format View Tools Table Window Help
Normal
[BJL1.RM4] aspirin for miocardial infarction
Text of Review
1.1 Mortality
Figure 1 (Analysis 1.1)
Figure 2 (Analysis 1.1)
Intervention review
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Review information
Main text
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CDP 1976
GASP 1979
ISIS-2 1988
MRC-1 1974
MRC-2 1979
PARIS 1980
Characteristics of excluded stu
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Characteristics of ongoing stu
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1 aspirin vs placebo
1.1 Mortality
This figure is updated dynamically when the data change.
SE(log[OR])
0
0.1
0.2
0.3
0.4
0.5
0.1
0.2
0.5
1
2
5
10
OR
Caption: Figure 2 (Analysis 1.1)
Funnel plot of comparison: 1 aspirin vs placebo, outcome: 1.1 Mortality.

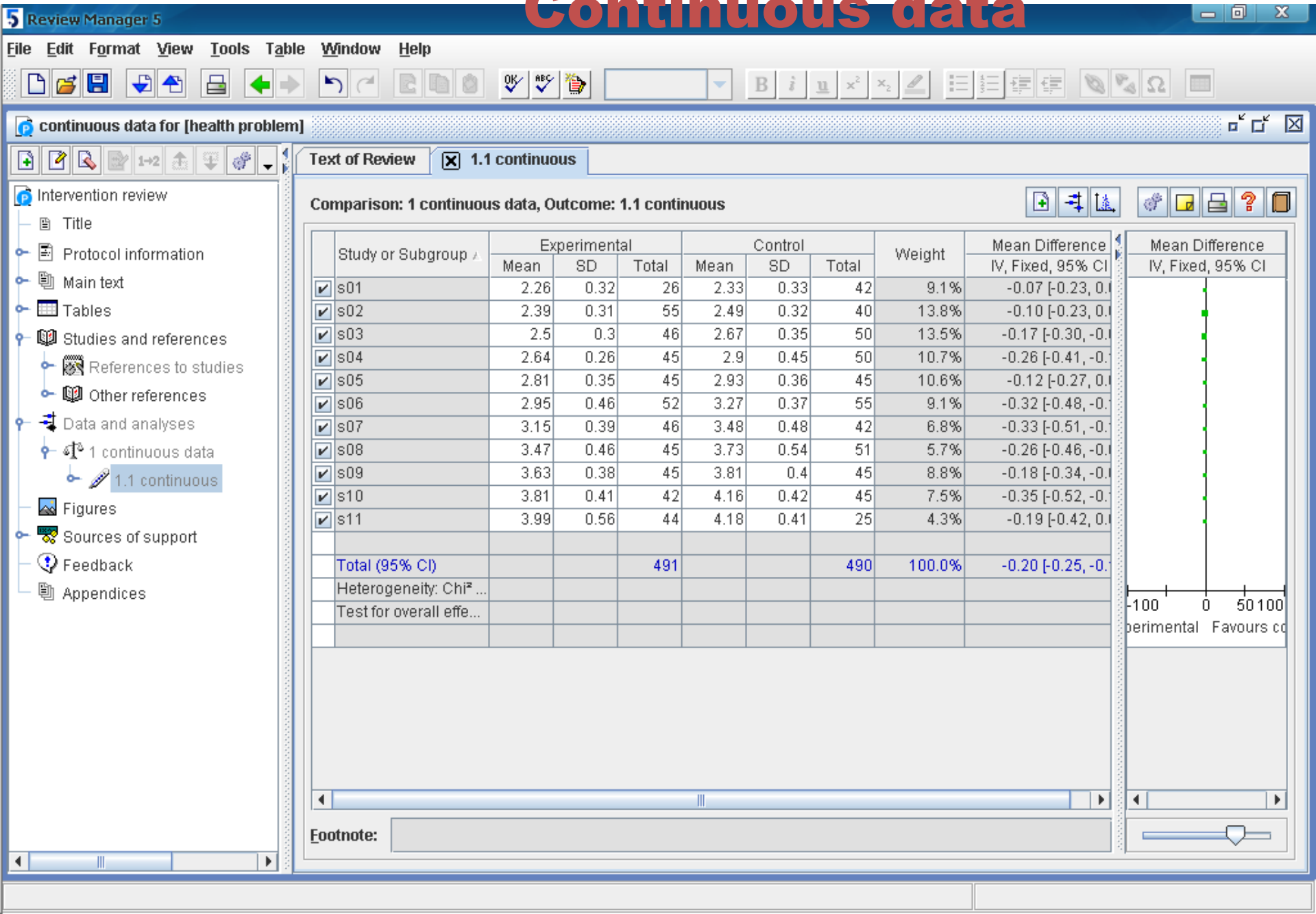
result for Meta analysis

- Effect size & 95%CI　　0.90(0.84-0.96）
- Fixed effect model or random effect model
  - test for heterogeneity,χ2，P，(χ2=9.55，P=0.13，*I*2＝40％）
- Test for overall effect, Z and P（Z= 3.29，P=0.001）

Questions For you

- 1.How many types of studies can be pooled?
- 2. What does mean by comparison in Revman?
- 3. What does mean by outcome?
- 4.How many types of data can be ?
- 5.what results do you get from Revman?
- 6. can you assess the quality of studies in Revman?

Continuous data



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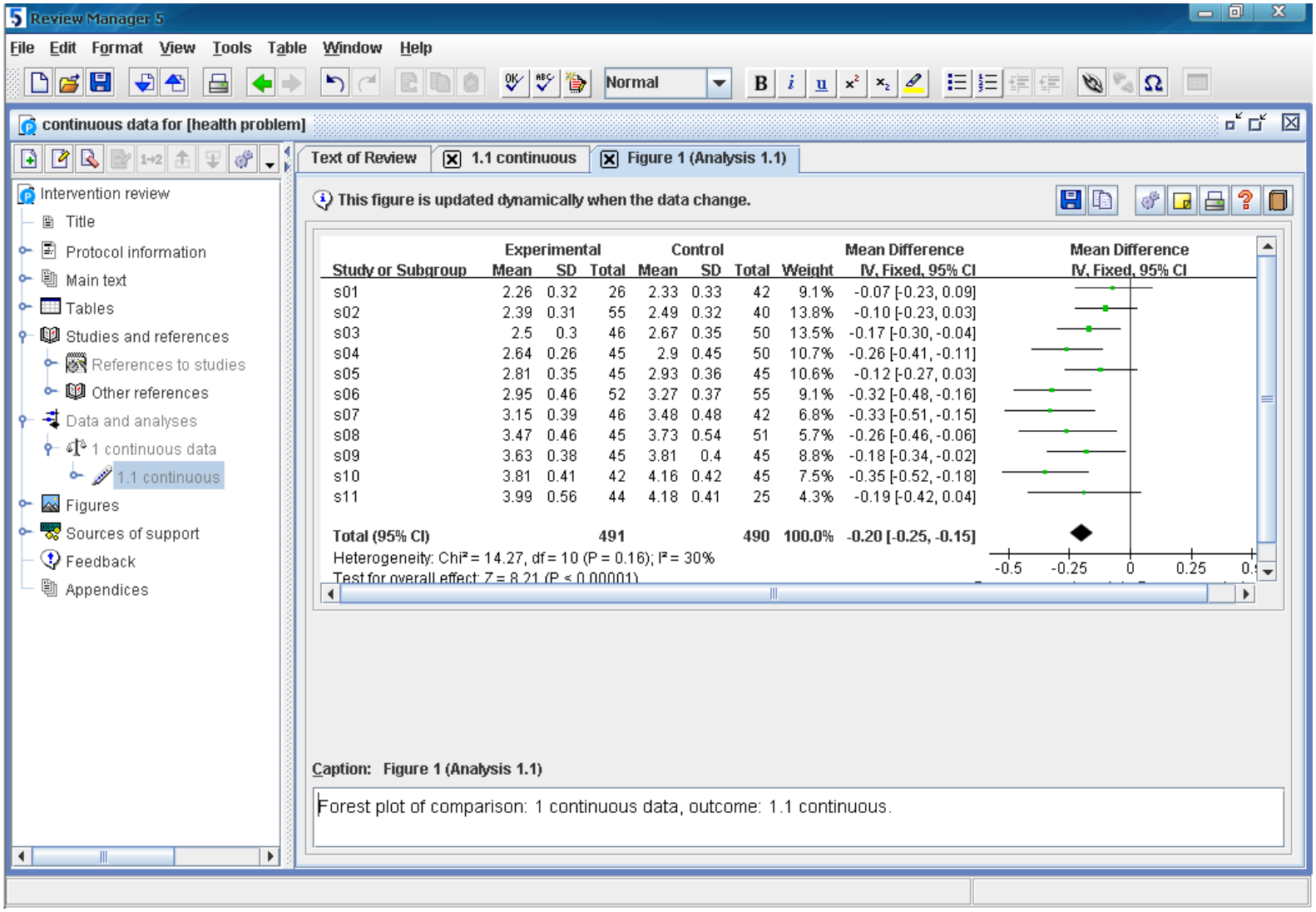

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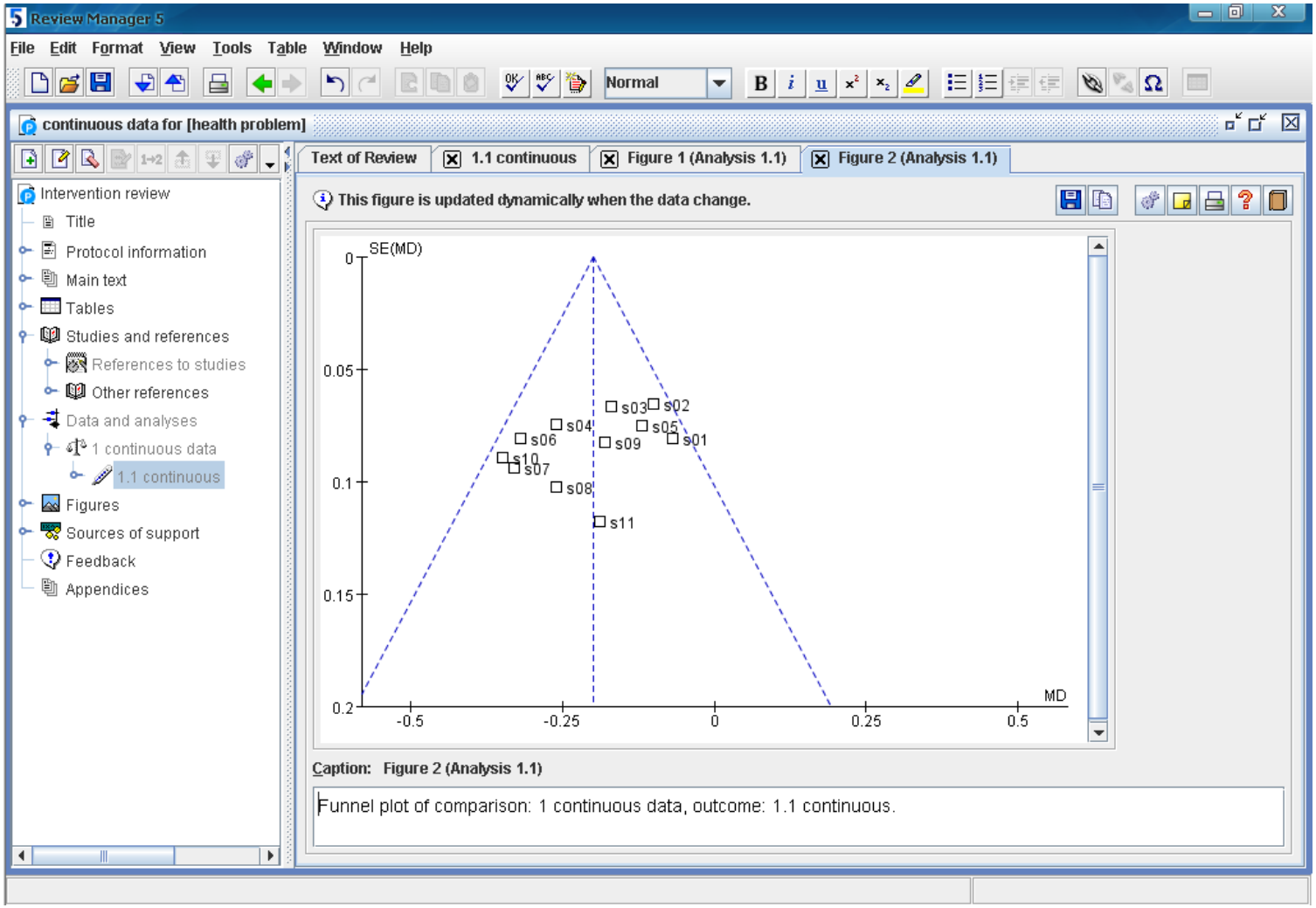

Questions ?

- Time for Practice
- Questions any time!