

# Systematic review of retention interventions\*

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\*Brueton et al. Strategies to improve retention in randomized trials. Cochrane Database of Systematic Reviews 2013, Issue 12. Art. No.: MR000032. DOI: 10.1002/14651858.MR000032.pub2.

\*Brueton et al. Strategies to improve retention in randomised trials: a Cochrane systematic review and meta-analysis. *BMJ Open* (*in press*).

\*Brueton et al. Use of strategies to improve retention in primary care randomised trials: a qualitative study with in-depth interviews. *BMJ Open* (*in press*).

# Introduction

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- People drop out of trials for many reasons
- Loss to follow-up after randomisation can lead to:
  - Incomplete outcome data
  - Reduce trial power to detect a true difference between the control and intervention group
  - If ignored can lead to exaggerated effects in favour of the treatment or control group
  - Many strategies used to increase retention
  - Not many evaluated
  - We are unsure of the effect of these strategies in trials

# Introduction

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## 3 prior systematic reviews:

- Edwards: Response to postal and electronic questionnaires in surveys, cohort studies and trials  
Effective strategies: monetary and non monetary incentives, shorter questionnaires, and communication
- Booker: Retention in cohort studies. Narrative review.  
Heterogeneity and few trials. Data not pooled
- Nakash: Questionnaire response in health care trials cohort studies and surveys. Meta-analysis. Reminder letters, telephone contact, short questionnaires effective

Difficult to apply results to randomised trials

# Methods

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## Objectives

- To quantify the effect of strategies to increase retention in randomised trials
- To investigate if there is a variation in effect by type of strategy evaluated

## Eligibility

- Randomised retention trials embedded in host randomised trials that compared strategies to increase trial retention

## Exclusion

- Cohort studies, surveys

# Methods

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- Sources searched
  - 9 bibliographic databases
  - All published abstracts Society for Clinical Trials
  - Trial registers
  - MRC GPRF and CTU databases
  - Reference lists included papers, relevant reviews
  - Survey of 49 UK CTUs
- Potentially eligible trials screened by 2 authors
- Data extraction for host and retention trials
- Contacted authors for missing data

# Methods: analysis

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- Primary endpoint retention
- Effect measure - risk ratios
- Studies pooled using the fixed effect model
- Heterogeneity measured and also explored with subgroup analyses
  - Diversity of trials and interventions not anticipated so some pre specified analyses not viable
  - Instead new subgroups defined prior to analyses
- Sensitivity analyses to assess robustness of results
- For factorial trials all main effects included as separate trial comparisons (as far as possible)

# Included retention trials

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- 24,304 abstracts and titles
- 38 retention trials and 54 comparisons
- Most were response to postal or electronic questionnaires
- Fewer about trial retention
- Host trials, conducted in disease areas e.g. cancer screening, alcohol dependency, stroke, healthy volunteers
- In different settings
- UK, USA, Australia
- Retention trials published and unpublished

# Strategies identified

Strategy	Intervention evaluated	Number of studies
Incentives	Monetary, offers of, vouchers, gifts	11
Communication	Emails, texts, letter, post, telephone	10
Communication and incentives	Monetary/non monetary incentives with postal questionnaire strategies	4
New questionnaire designs	Short versus long, order of questions, relevant and less relevant to condition	9
Methodology	Open vs. blind design	1
Behavioural	Motivational workshops	2
Case management	Trial assistants managing follow-up	1

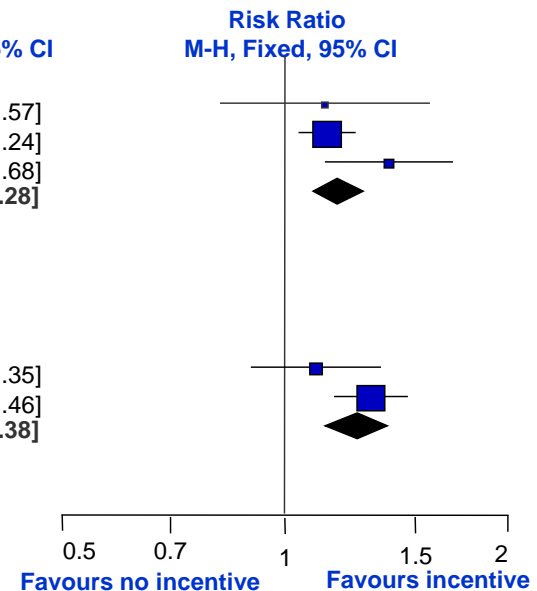


# Incentive vs. no incentive: monetary

- 5 subgroups of incentives vs. no incentive
- Large difference in effect by subgroup of incentive so subgroups not pooled

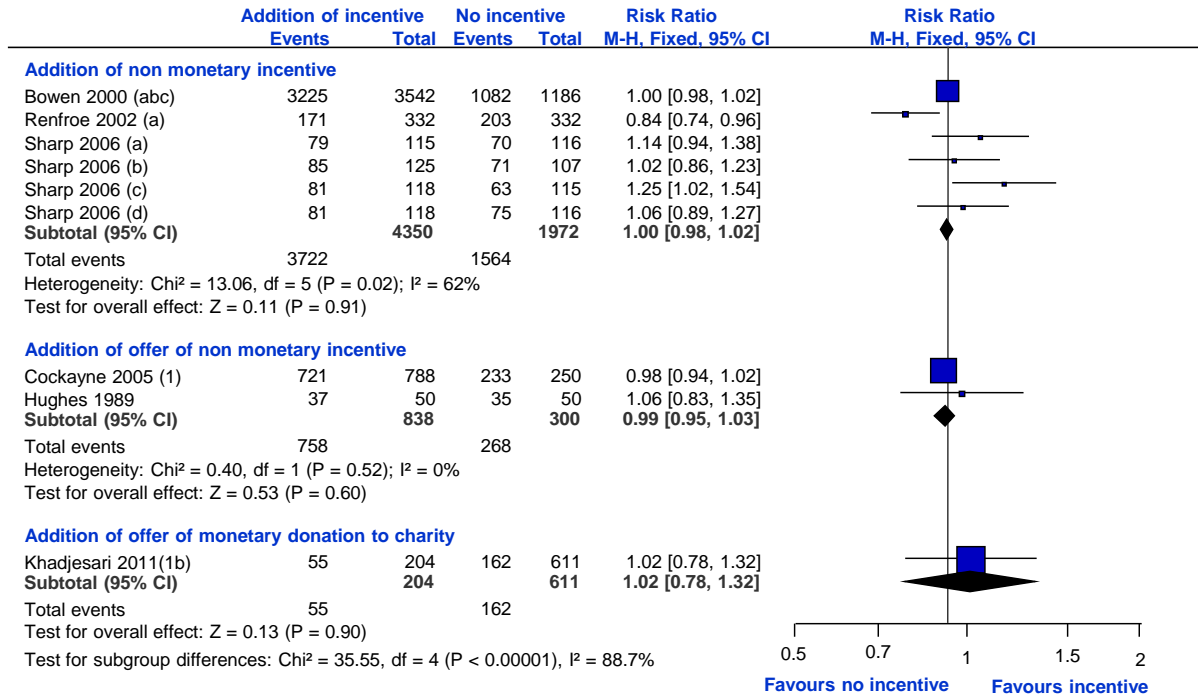
	Addition of incentive		No incentive		Risk Ratio
	Events	Total	Events	Total	M-H, Fixed, 95% CI
<b>Addition of monetary incentive</b>					
Bauer 2004 (ab)	77	200	34	100	1.13 [0.82, 1.57]
Gates 2009	560	1070	493	1074	1.14 [1.05, 1.24]
Kenyon 2005	156	369	108	353	1.38 [1.13, 1.68]
<b>Subtotal (95% CI)</b>		<b>1639</b>		<b>1527</b>	<b>1.18 [1.09, 1.28]</b>
Total events	793		635		
Heterogeneity: $\text{Chi}^2 = 3.13$ , $\text{df} = 2$ ( $P = 0.21$ ); $I^2 = 36\%$					
Test for overall effect: $Z = 4.21$ ( $P < 0.0001$ )					

<b>Addition of offer of monetary incentive/prize draw</b>					
Khadjesari 2011 (1ac)	120	411	162	611	1.10 [0.90, 1.35]
Khadjesari 2011 (2)	476	1296	364	1295	1.31 [1.17, 1.46]
<b>Subtotal (95% CI)</b>		<b>1707</b>		<b>1906</b>	<b>1.25 [1.14, 1.38]</b>
Total events	596		526		
Heterogeneity: $\text{Chi}^2 = 2.13$ , $\text{df} = 1$ ( $P = 0.14$ ); $I^2 = 53\%$					
Test for overall effect: $Z = 4.50$ ( $P < 0.00001$ )					



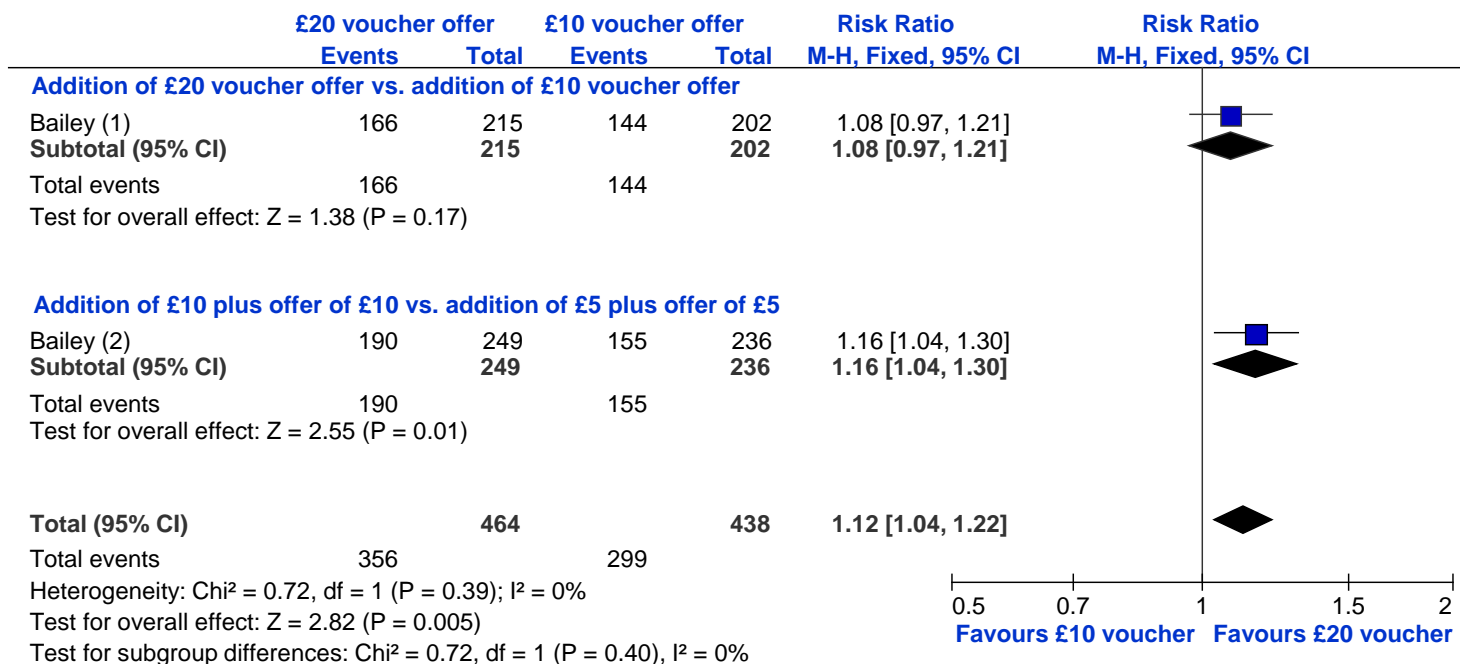
- Monetary incentives better than no incentive to increase response to postal questionnaires (RR=1.18,  $P < 0.0001$ )
- Offer of monetary incentive better than no offer to increase electronic questionnaire response (RR=1.25,  $p < 0.00001$ )

# Incentive vs. no incentive: non monetary



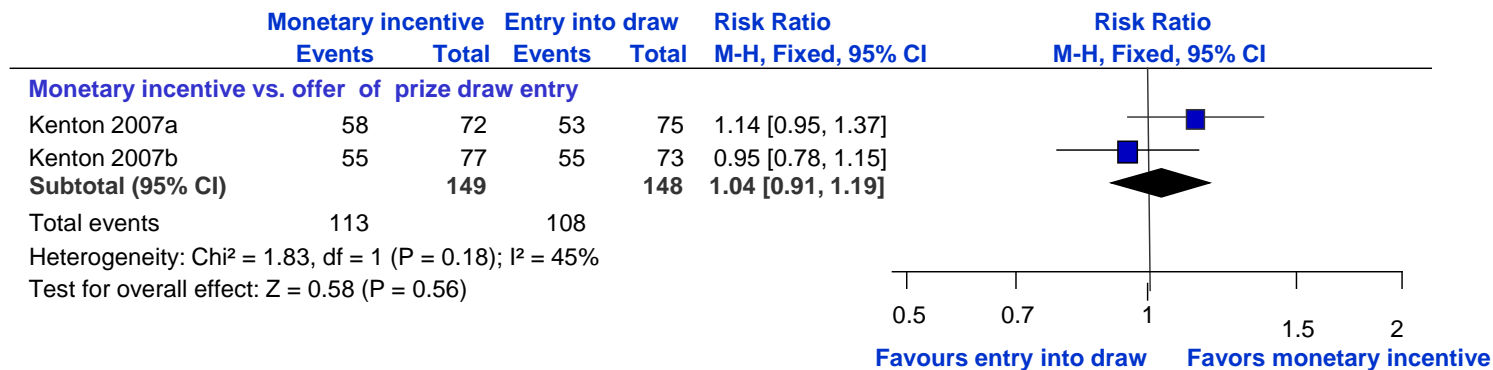
- No clear evidence that:
  - non monetary incentives are better no incentive (RR=1.00, p=0.91) some heterogeneity (p=0.02)
  - offer of non monetary incentive is better than no offer (RR=0.99, p=0.60)
  - offer of a donation to charity is better than no offer (RR=1.02, p=0.90)

# Higher vs. lower value incentive



- Higher value incentives are better than lower for postal questionnaire plus biomedical specimen kit (RR 1.12; p = 0.005)

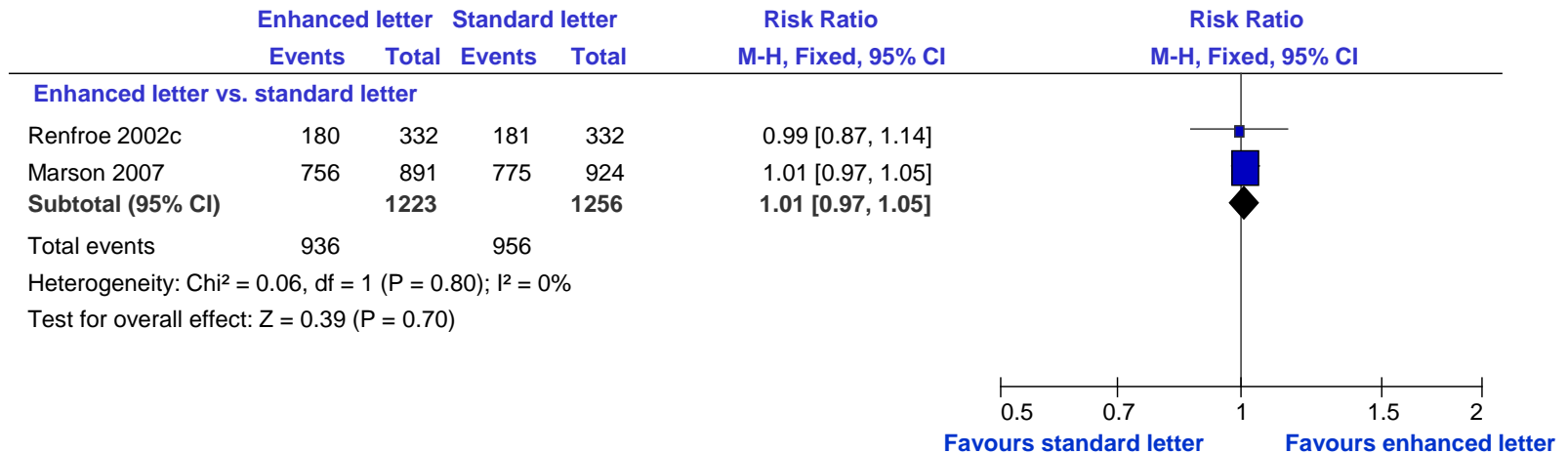
# Addition of monetary incentive vs. offer of prize draw entry



- No clear evidence that giving a monetary incentive is better than an offer of entry into a prize draw on postal questionnaire response (RR=1.04; p=0.56)

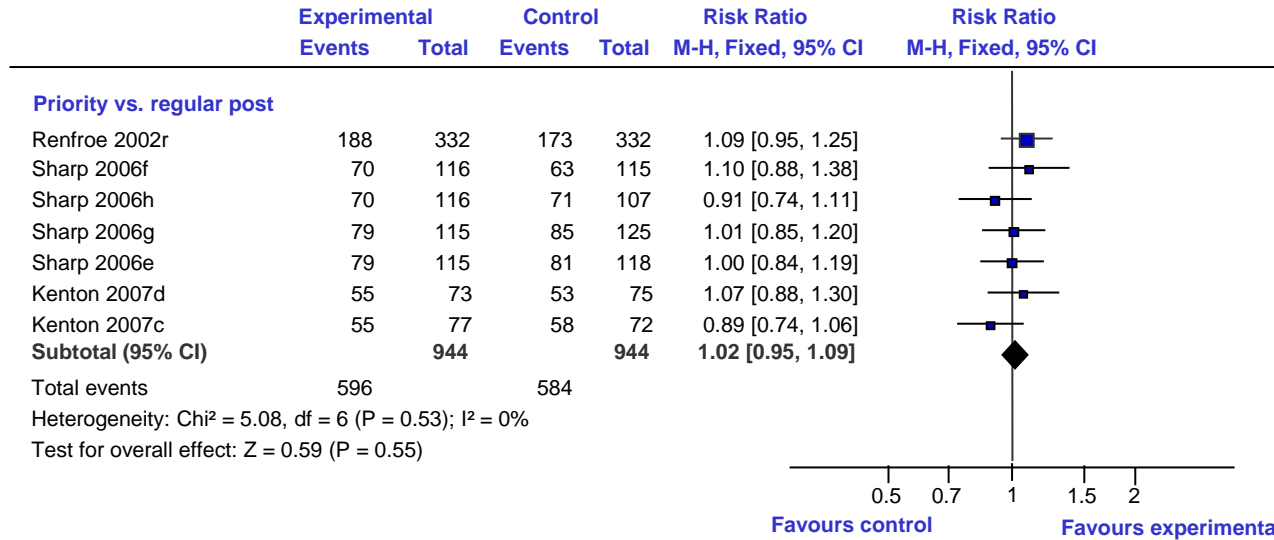
# Communication: enhanced vs. standard letter

Communication strategies so different these were analysed separately



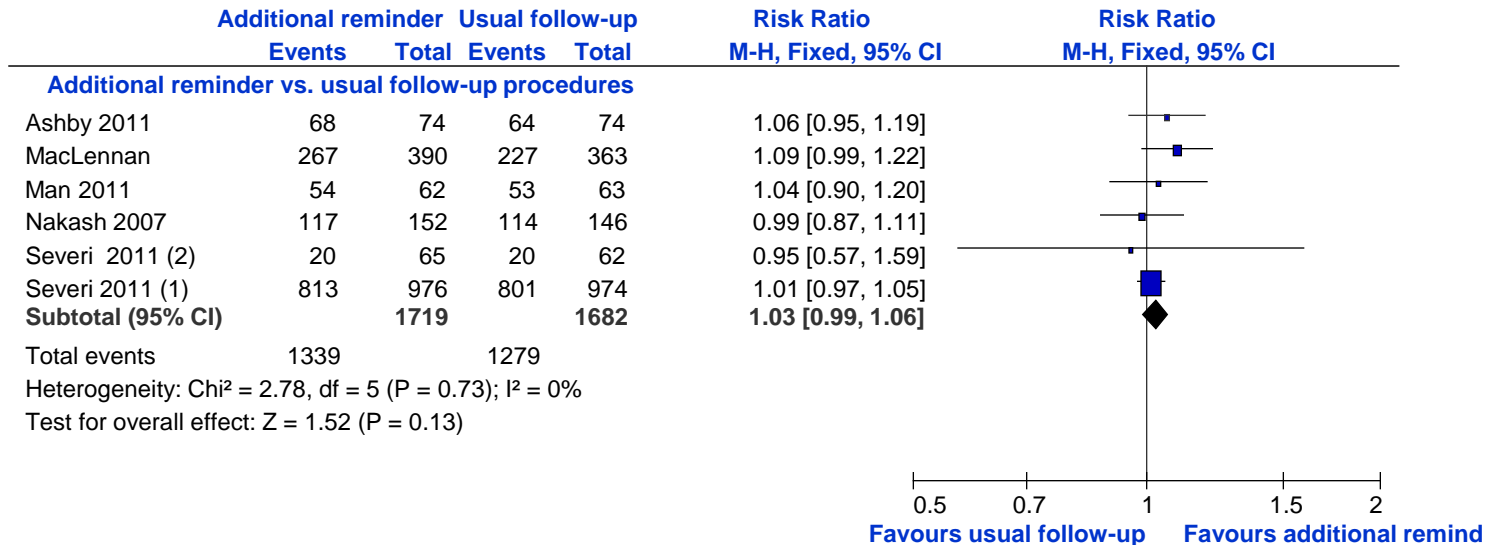
- Suggests no clear effect of enhanced letter on postal questionnaire response (RR=1.01,  $p = 0.70$ )

# Communication: priority vs. regular post



- No clear evidence that priority post is more effective than regular post (RR=1.02, p=0.55)

# Communication: additional reminder vs usual follow-up



- No clear evidence that an extra reminder is better than usual follow-up on postal questionnaire response (RR=1.03; p=0.13)

# Communication: based on single trials

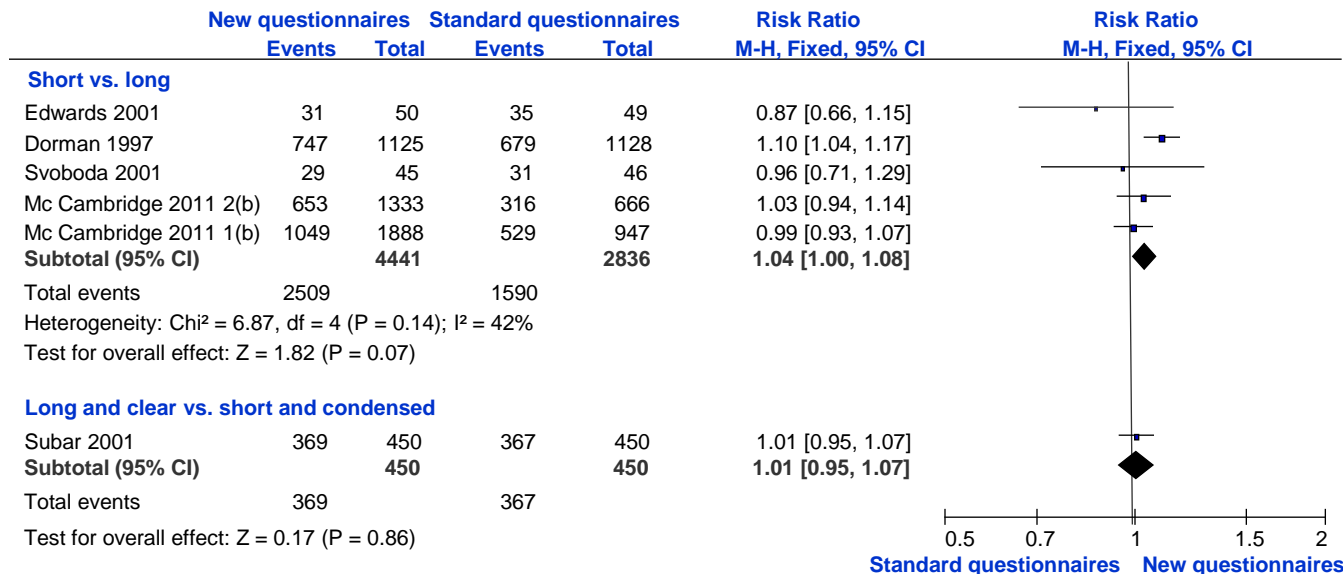
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- Recorded delivery is more effective than a telephone reminder (RR=2.08; 1.11-3.87, p=0.02)
- A package of postal communication strategies (TDM) more effective than standard postal procedures (RR=1.43; 1.22-1.67, p<0.0001)
- Completion of questionnaires by nurse /lay person less effective than questionnaires sent by post (RR=0.90; 0.88-0.92 p<0.00001)
- No clear evidence that:
  - A telephone survey is better than a monetary incentive sent with a questionnaire (RR=1.08 ; 0.94-1.24, p=0.27)
  - Questionnaires sent early are better than those sent later (RR=1.10; 0.96-1.26, p=0.19)
  - A monthly reminder to sites of upcoming assessment is better than usual reminders (RR=0.96; 0.83-1.11, p=0.57)



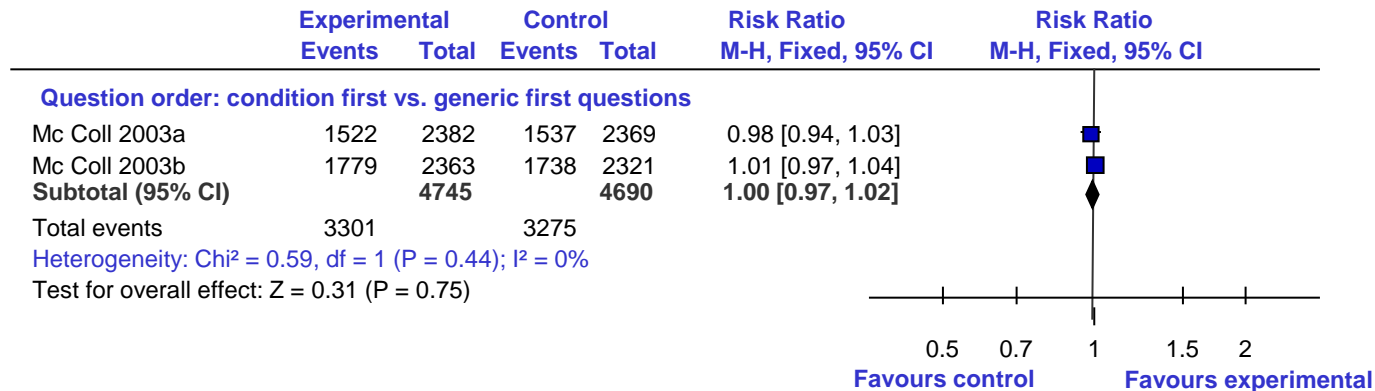
# New questionnaires: length

Some heterogeneity between questionnaire subgroups  
 $p=0.11$ , not reasonable to pool different interventions



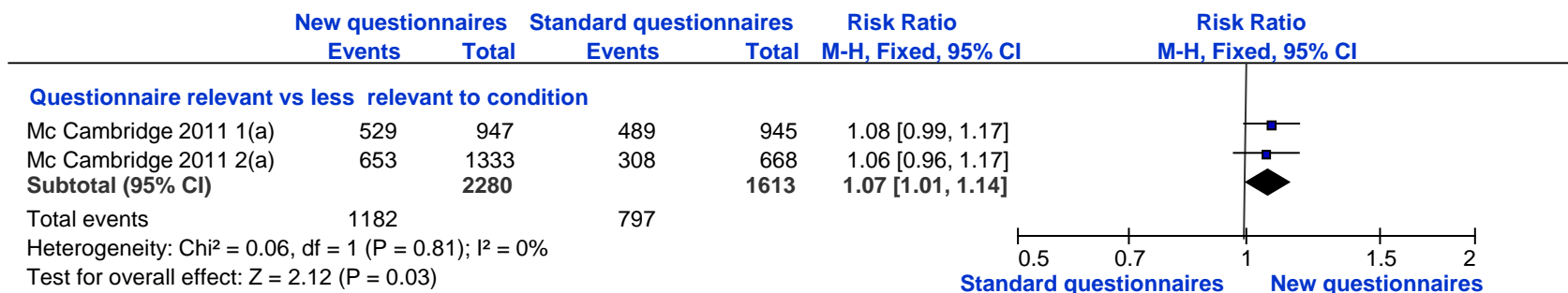
- No clear evidence that short questionnaires are more effective than long (RR=1.04,  $p=0.07$ )
- No clear evidence that long clear questionnaires are more effective than short condensed questionnaires (RR=1.01,  $p=0.86$ )

# New questionnaires: question order



- No clear evidence that placing disease/condition questions before generic questions is more effective (RR=1.00, p=0.75)

# Questionnaires: relevance to condition



- More relevant questionnaires are better than less relevant ones for increasing response to electronic questionnaires (RR 1.07; p= 0.03)

# Other retention strategies

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## Methodology (1 trial)

- Open trial design better than blind design (RR=1.37, 1.16-1.63, p=0.0003)

## Behavioural strategies (2 trials)

- No clear evidence that behavioural strategies are better than standard information (RR=1.08, 0.93-1.24, p=0.31)

## Case management (1 trial)

- No clear evidence that intensive case management is better than standard follow-up procedures (RR=1.00, 0.97-1.04, p=0.99)

# Summary of results

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- Good evidence of better questionnaire response for:
  - Monetary incentives
  - Offers of monetary incentives
- Some evidence of better questionnaire response based on single trials for:
  - Package of postal communication strategies TDM
  - Recorded postal delivery instead of telephone reminder
  - Questionnaire instead of interview
  - Open rather than blind design
- No good evidence of better response/retention for:
  - Gift incentives or offers of gifts
  - Enhanced letters, priority post, additional reminders
  - Questionnaire order
  - Shorter questionnaires
  - Case management
  - Motivational/behavioural strategies

# Discussion

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- Sometimes the evidence of effect and no effect is limited as based on 1 trial
- Few trials about strategies to improve return to sites
- Fewer trials targeting trial management at site level
- No trials from developing country settings
- Consider absolute effects of effective strategies
- When to plan which strategies to use? Build into planning phase vs. when it occurs
- Shift toward electronic data collection e.g. on line trials, web based data collection, tablets
- Qualitative work with participants and trialists

# Discussion

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Application of these results would depend upon:

- Participant characteristics
- Disease area
- Trial context
- Follow-up procedures
- Costs and use of additional resources

# Acknowledgements

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