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Strategies to improve retention in randomised trials (Review)

Gillies K, Kearney A, Keenan C, Treweek S, Hudson J, Brueton VC, Conway T, Hunter A, Murphy L, Carr PJ, Rait G, Manson P, Aceves-Martins M

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[Methodology Review]

Strategies to improve retention in randomised trials

Katie Gillies[1], Anna Kearney[2], Ciara Keenan[3], Shaun Treweek[1], Jemma Hudson[1], Valerie C Brueton[4], Thomas Conway[5], Andrew Hunter[6], Louise Murphy[6], Peter J Carr[6], Greta Rait[7], Paul Manson[8], Magaly Aceves-Martins[1]

[1]Health Services Research Unit, University of Aberdeen, Aberdeen, UK. [2]Dept. of Health Data Science, University of Liverpool, Liverpool, UK. [3]Campbell UK & Ireland, Centre for Evidence and Social Innovation, Queen's University, Belfast, UK. [4]Department of Adult Nursing, Florence Nightingale Faculty of Nursing Midwifery and Palliative Care, King's College, London, UK. [5]Clinical Research Facility Galway, National University of Ireland Galway, Galway, Ireland. [6]School of Nursing and Midwifery, National University of Ireland Galway, Galway, Ireland. [7]Research Department of Primary Care and Population Health, University College London, London, UK. [8]Health Services Research Unit (HSRU), University of Aberdeen, Aberdeen, UK

Contact address: Katie Gillies, k.gillies@abdn.ac.uk.

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ABSTRACT

Background

Poor retention of participants in randomised trials can lead to missing outcome data which can introduce bias and reduce study power, affecting the generalisability, validity and reliability of results. Many strategies are used to improve retention but few have been formally evaluated.

Objectives

To quantify the effect of strategies to improve retention of participants in randomised trials and to investigate if the effect varied by trial setting.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Scopus, PsycINFO, CINAHL, Web of Science Core Collection (SCI-expanded, SSCI, CPSI-S, CPCI-SSH and ESCI) either directly with a specified search strategy or indirectly through the ORRCA database. We also searched the SWAT repository to identify ongoing or recently completed retention trials. We did our most recent searches in January 2020.

Selection criteria

We included eligible randomised or quasi-randomised trials of evaluations of strategies to increase retention that were embedded in 'host' randomised trials from all disease areas and healthcare settings. We excluded studies aiming to increase treatment compliance.

Data collection and analysis

We extracted data on: the retention strategy being evaluated; location of study; host trial setting; method of randomisation; numbers and proportions in each intervention and comparator group. We used a risk difference (RD) and 95% confidence interval (CI) to estimate the effectiveness of the strategies to improve retention. We assessed heterogeneity between trials. We applied GRADE to determine the certainty of the evidence within each comparison.

Main results

We identified 70 eligible papers that reported data from 81 retention trials. We included 69 studies with more than 100,000 participants in the final meta-analyses, of which 67 studies evaluated interventions aimed at trial participants and two evaluated interventions aimed at trial staff involved in retention. All studies were in health care and most aimed to improve postal questionnaire response. Interventions were categorised into broad comparison groups: Data collection; Participants; Sites and site staff; Central study management; and Study design.

These intervention groups consisted of 52 comparisons, none of which were supported by high-certainty evidence as determined by GRADE assessment. There were four comparisons presenting moderate-certainty evidence, three supporting retention (self-sampling kits, monetary reward together with reminder or prenotification and giving a pen at recruitment) and one reducing retention (inclusion of a diary with usual follow-up compared to usual follow-up alone). Of the remaining studies, 20 presented GRADE low-certainty evidence and 28 presented very low-certainty evidence.

Our findings do provide a priority list for future replication studies, especially with regard to comparisons that currently rely on a single study.

Authors' conclusions

Most of the interventions we identified aimed to improve retention in the form of postal questionnaire response. There were few evaluations of ways to improve participants returning to trial sites for trial follow-up. None of the comparisons are supported by high-certainty evidence. Comparisons in the review where the evidence certainty could be improved with the addition of well-done studies should be the focus for future evaluations.

PLAIN LANGUAGE SUMMARY

Strategies that might help to encourage people to continue to participate in a randomised trial (a type of scientifc study)

Why is this review important?

Randomised trials are a type of scientific study typically used to test new healthcare treatments. In a randomised trial, people who agree to take part are randomly (by chance) put into one of two or more treatment groups and then studied for a period of time. The research team try to keep in touch with them to collect information about how they are doing. This 'follow up' can last from days to years depending on the trial, but the longer the trial lasts, the more difficult it can be. This might be because people are too busy to reply, are unable to come to a clinic, or just do not want to participate any longer. Keeping people in a trial is called 'retention'. If retention is poor, it can make the trial results less certain but most trials do not get data from all the people who started out in the trial.

The information gathered during follow-up, sometimes called data, helps the trial team to determine which of the treatments being tested works the best. Often this information is collected directly from patients by asking them to complete a questionnaire or by asking them to come back for a clinic visit.

There are many ways to collect data from people in trials. These include using letters, the internet, telephone calls, text messaging, face-to-face meetings or the return of medical test kits. Research teams use different methods to try to collect data and it's important to know which strategies are effective and worthwhile, which is why we did this review to compare the success of different strategies.

How did we identify and evaluate the evidence?

We searched scientific databases for studies that compared strategies that research teams use to improve trial retention against each other or against not using such a strategy.We looked for studies that included participants from any age, gender, ethnic, language or geographic group. We then compared the results of the studies, and summarised the evidence that we had found. Finally, we rated our confidence in this evidence, based on factors such as the methods used in the studies and their size, and the consistency of findings across studies.

What did we find?

We identified 70 relevant articles, which reported 81 retention studies involving more than 100,000 participants, that had investigated different ways of trying to encourage randomised trial participants to provide data and stay in the trial. We organised these into broad comparison groups but, unfortunately, we are not able to say with confidence that any of the results we found is a true effect and not caused by other factors, such as flaws with the design of the studies. As such, the effect of ways to encourage people to stay involved in trials is still not clear and more research is needed to see if these retention methods really do work.

How certain is the evidence and how up-to-date is this review?

The strategies we identified were tested in randomised trials run in many different disease areas and settings but, in some cases, were tested in only one trial. None of the comparisons we made provided high quality evidence and more studies are needed to help provide more confidence for the results we did find. The evidence in this Cochrane Review is current to January 2020.

SUMMARY OF FINDINGS

Summary of findings 1. Questionnaire design: short vs usual questionnaire

Short questionnaire compared with long questionnaire for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: short questionnaire

Comparison: usual questionnaire

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Short questionnaire	Usual questionnaire			
Retention [follow-up]	As measured				
	Low[a]		**RR 1.01** (0.89 to 1.14)	3252 (3)	⊕⊖⊖⊖ **very low**
	25 per 100	**25 per 100** (22 to 29)			
	Medium[a]				
	50 per 100	**51 per 100** (45 to 57)			
	High[a]				
	80 per 100	**81 per 100** (71 to 91)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of a short questionnaire** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence

High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 2. Questionnaire design: addition of diary to usual follow-up vs usual follow-up

Addition of diary to usual follow-up compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: diary

Comparison: no diary

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Diary	No diary			
Retention [follow-up]	**Low[a]**		**RR 0.97** (0.96 to 0.98)	9906 (2)	⊕⊕⊕⊖ **moderate**
	25 per 100	**24 per 100** (24 to 25)			
	Medium[a]				
	50 per 100	**49 per 100** (48 to 49)			
	High[a]				
	80 per 100	**78 per 100**			

	(77 to 78)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of not including a diary** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a]We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 3. Data collection location and method: telephone follow-up vs postal questionnaire

Telephone follow-up compared with postal questionnaire for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: telephone follow-up

Comparison: postal questionnaire

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Telephone follow-up	Postal questionnaire			
Retention [follow-up]	**Low[a]**		**RR 1.04** (0.94 to 1.17)	1006 (2)	⊕⊖⊖⊖ **very low**
	25 per 100	**26 per 100** (24 to 29)			
	Medium[a]				

50 per 100	**52 per 100** (47 to 59)
High[a]	
80 per 100	**83 per 100** (75 to 94)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of telephone follow-up** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 4. Data collection location and method: return postage

Return postage compared with control intervention for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: various return postage strategies

Comparison: control intervention

Outcomes	**Illustrative comparative risks* (95% CI)**		**Relative effect (95% CI)**	**No of Participants (studies)**	**Certainty of the evidence (GRADE)**
	Assumed risk	**Corresponding risk**			
	Various return postage strategies **(such as free post versus second class stamp; high**	**Standard return postage**			

	priority mail stamp versus usual postage; and personal form)				
Retention [follow-up]	**Low**[a]		**RR 1.06** (0.99 to 1.15)	1543 (3)	⊕⊕⊖⊖ **low**
	25 per 100	**27 per 100** (25 to 29)			
	Medium[a]				
	50 per 100	**53 per 100** (50 to 58)			
	High[a]				
	80 per 100	**85 per 100** (79 to 92)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 5. Reminders: electronic reminder vs usual follow-up

Electronic reminder compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: electronic reminder

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Electonic reminder	Usual follow-up				
Retention [follow-up]	**Low[a]**		**RR 1.01** (0.95 to 1.09)	790 (3)	⊕⊕⊝⊝ **low**	
	25 per 100	**25 per 100** (24 to 27)				
	Medium[a]					
	50 per 100	**51 per 100** (48 to 55)				
	High[a]					
	80 per 100	**81 per 100** (76 to 87)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of an electronic reminder** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 6. Prompts: Electronic prompt vs no prompt

Electronic prompt compared with no prompt for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: electronic prompt

Comparison: no prompt

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Electronic prompt	No prompt				
Retention [follow-up]	**Low[a]**		**RR 1.03** (0.98 to 1.08)	2897 (5)	⊕⊖⊖⊖ **very low**	
	25 per 100	**26 per 100** (25 to 27)				
	Medium[a]					
	50 per 100	**52 per 100** (49 to 54)				
	High[a]					
	80 per 100	**82 per 100** (78 to 86)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of electronic prompts** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 7. Prompts: Telephone prompt vs usual follow-up

Telephone prompt compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: telephone prompt

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Telephone prompt	Usual follow-up				
Retention [follow-up]	**Low[a]**		**RR 1.02** (0.85 to 1.22)	943 (2)	⊕⊖⊖⊖ **very low**	
	25 per 100	**26 per 100** (21 to 31)				
	Medium[a]					
	50 per 100	**51 per 100** (43 to 61)				
	High[a]					
	80 per 100	**82 per 100** (68 to 98)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of telephone prompts** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 8. Prompts: personalised prompt vs usual follow-up

Personalised prompt compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: personalised prompt

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Personalised prompt	Usual follow-up				
Retention [follow-up]	**Low[a]**		**RR 0.97** (0.89 to 1.07)	701 (2)	⊕⊕⊖⊖ **low**	
	25 per 100	**24 per 100** (22 to 27)				
	Medium[a]					
	50 per 100	**49 per 100** (45 to 54)				
	High[a]					

	80 per 100	**78 per 100** (71 to 86)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of personalised prompts** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 9. Monetary incentives: addition of monetary incentives vs usual follow-up

Addition of monetary incentives compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: monetary incentives

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Monetary incentives	Usual follow-up				
Retention [follow-up]	**Low[a]**		**RR 1.20** (1.06 to 1.36)	3166 (3)	⊕⊕⊖⊖ **low**	
	25 per 100	**30 per 100** (27 to 34)				

Medium[a]	
50 per 100	**60 per 100** (53 to 68)
High[a]	
80 per 100	**96 per 100** (85 to [109)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of monetary incentives** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 10. Monetary incentives: addition of monetary incentives vs addition of a monetary reward

Addition of monetary incentives compared with addition of a monetary reward for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: monetary incentive

Comparison: monetary reward

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			

	Monetary incentive	Monetary reward			
Retention [follow-up]	**Low[a]**		**RR 1.00** (0.91 to 1.09)	3765 (4)	⊕⊖⊖⊖ **very low**
	25 per 100	**25 per 100** (23 to 28)			
	Medium[a]				
	50 per 100	**50 per 100** (46 to 55)			
	High[a]				
	80 per 100	**80 per 100** (73 to 87)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 11. Monetary incentives: addition of monetary reward vs usual follow-up

Addition of monetary reward compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: monetary reward

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Monetary reward	Usual follow-up			
Retention [follow-up]	**Low[a]**		**RR 1.02** (0.96 to 1.09)	1159 (3)	⊕⊖⊖⊖ **very low**
	25 per 100	**26 per 100** (24 to 27)			
	Medium[a]				
	50 per 100	**51 per 100** (48 to 55)			
	High[a]				
	80 per 100	**82 per 100** (77 to 87)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of monetary reward** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 12. Non-monetary incentives: addition of pen vs usual follow-up

Pen compared with no pen for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: pen

Comparison: no pen

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Pen	No pen			
Retention [follow-up]	**Low[a]**		**RR 1.02** (1.00 to 1.05)	13013 (5)	⊕⊕⊖⊖ **low**
	25 per 100	**26 per 100** (25 to 26)			
	Medium[a]				
	50 per 100	**51 per 100** 50 to 53)			
	High[a]				
	80 per 100	**82 per 100** (80 to 84)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 13. Maintaining participant engagement: newsletter vs usual follow-up

Newsletter compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: newsletter

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Newsletter	Usual follow-up			
Retention [follow-up]	**Low[a]**		**RR 0.99** (0.95 to 1.04)	5622 (4)	⊕⊖⊖⊖ **very low**
	25 per 100	**25 per 100** (24 to 26)			
	Medium[a]				
	50 per 100	**50 per 100** (48 to 52)			
	High[a]				
	80 per 100	**79 per 100** (76 to 83)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 14. Maintaining participant engagement: post-it note vs usual follow-up

Post-it note compared with usual follow-up for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: post-it note

Comparison: usual follow-up

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)
	Assumed risk	Corresponding risk			
	Post-it note	Usual follow-up			
Retention [follow-up]	**Low[a]**		**RR 1.00** (0.99 to 1.01)	4698 (3)	⊕⊕⊖⊖ **low**
	25 per 100	**25 per 100** (25 to 25)			
	Medium[a]				
	50 per 100	**50 per 100** (50 to 51)			
	High[a]				

	80 per 100	**80 per 100** (79 to 81)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of a post-it note** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 15. Behavioural interventions: theory informed cover letter vs usual cover letter

Theory informed cover letter compared with usual cover letter for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: theory informed cover letter

Comparison: usual cover letter

Outcomes	**Illustrative comparative risks* (95% CI)**		**Relative effect (95% CI)**	**No of Participants (studies)**	**Certainty of the evidence (GRADE)**
	Assumed risk	**Corresponding risk**			
	Theory informed cover letter	**Usual cover letter**			
Retention [follow-up]	**Low[a]**		**RR 1.05** (0.98 to 1.12)	3343 (4)	⊕⊖⊖⊖ **very low**
	25 per 100	**26 per 100** (25 to 28)			

Medium[a]	
50 per 100	**53 per 100** (49 to 56)
High[a]	
80 per 100	**84 per 100** (78 to 90)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **effect of a theory informed cover letter** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

Summary of findings 16. Impact of recruitment: optimised information vs standard information

Addition of optimised information compared with standard information for trial retention

Patient or population: trial participants being followed up for data collection

Settings: any setting

Intervention: optimised patient information leaflet (PIL)

Comparison: standard PIL

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Certainty of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				

	Optimised PIL	Standard PIL			
Retention [follow-up]	**Low[a]**		**RR 0.96** (0.85 to 1.09)	1285 (2)	⊕⊖⊖⊖ **very low**
	25 per 100	**24 per 100** (21 to 27)			
	Medium[a]				
	50 per 100	**48 per 100** (43 to 55)			
	High[a]				
	80 per 100	**77 per 100** (68 to 87)			

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).
CI: confidence interval; **RR:** risk ratio.

GRADE Working Group grades of evidence
High certainty: we are very confident that the true effect lies close to that of the estimate of the effect.
Moderate certainty: we are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low certainty: our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very low certainty: we have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

[a] We selected low, medium and high illustrative retention levels of 25%, 50% and 80% based on prior experience with trial retention and evidence from the literature. For example, it has been previously stated that it is common for up to 20% trial participants to drop out before the trial finishes (Walsh 2015), as such we set the upper limit of good retention as 80%. The other extreme of 25% was informed by evidence that some trials (largely internet based) can have retention as low as 10% to 25% (Murray 2009). The mid point of 50% was a judgement made by the review team and was deemed appropriate given the evidence for the other parameters.

BACKGROUND

Randomised trials are considered the gold standard for evaluating the effectiveness and efficacy of interventions. Poor retention (or high attrition) in randomised trials has serious consequences for the validity, reliability and usability of their results. Missing data, resulting from poor retention, are of particular concern if the data that are not missing are not at random. In other words, if there is a difference in the amount of missing data between the trial arms or amongst people who are more unwell. However, even if data are missing at random, this is also a potential problem because it will weaken the power of the trial and mean that more participants are needed to achieve a satisfactory sample size. It has been proposed that loss of less than 5% is not problematic but that more than 20% is a serious threat to validity, with anything in between also requiring attention (Fewtrell 2008; Schulz 2002). Recent work suggests that up to 50% of all trials have loss to follow-up of more than 11% (Walters 2016).

Missing data from loss to follow-up can be dealt with statistically by various methods including, for example, imputing values based on assumptions about the missing data to give a conservative estimate of the treatment effect (methods such as maximum likelihood estimation routines or multiple imputation). However, the risk of bias still remains when trials do not collect adequate data to give accurate estimates (Hollis 1999). Loss to follow-up from randomised trials can sometimes go unreported and using different, but plausible, assumptions about outcomes for participants lost to follow-up can change the results of randomised trials (Walsh 2014). However, rather than adjusting for missingness in the analysis of a trial, and inflating the sample size during recruitment, it seems much more sensible to mitigate the problem of poor retention by designing and evaluating approaches and strategies to maximise data collection. Not knowing how best to retain people in trials means trials will take longer (and cost more) and may expose additional patients to unnecessary risk or forgo the opportunity for others to receive effective treatments. Evidence for effective retention strategies would enable trial teams to include strategies in their trial which are likely to maximise trial design, efficiency and reduce research waste.

This is a substantially revised update of the first full version of this Cochrane Methodology Review (Brueton 2013). The scope of this review is restricted to interventions that are designed to maximise data collection from trial participants once they have been recruited and randomised. The Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT) guidelines define non-retention as instances in which participants are prematurely 'off-study' (i.e. consent withdrawn or lost to follow-up), and therefore outcome data cannot be obtained (Chan 2013). However, participants can still be 'on-study' but not provide outcome data. Trial non-retention is distinct from non-adherence to the trial intervention, which refers to the degree to which the behaviour of trial participants corresponds to the intervention assigned to them. There are Studies Witihin A Trial (SWAT) for this (Bensaaud 2020), but it is not within the scope of this review.

Description of the methods being investigated

Strategies to improve trial retention include those designed to generate maximum data return or compliance and follow-up procedures that aim to collect data from participants (e.g. weight measurements, blood tests). These strategies can include how outcomes are collected (e.g. postal or telephone); who collects outcomes (e.g. participant-reported or routine data), when outcomes are collected and also consider, where outcomes are collected (e.g. postal questionnaire or clinic visits).

OBJECTIVES

To quantify the effects of strategies for improving retention of participants in randomised trials. A secondary objective is to investigate if the effects vary by trial setting.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised and quasi-randomised trials of interventions to improve retention of participants in randomised trials (hereafter referred to as retention trials).

Strategies to improve retention are designed to have an impact after participants are randomised to one of the intervention groups of the host and the retention trial, however, they could be delivered at any point (including at the time of recruitment, for example by modifying the information that focuses on retention that is presented to potential participants). Participants in the host trials cover a range of groups and can include (but not be limited to): patients, public, healthcare professionals, etc, and likewise the retention trials might include a range of designs such as individually-randomised, cluster-randomised, etc. We excluded trials of strategies that were intended to increase recruitment only, because these are covered by a complementary Cochrane Methodology Review (Treweek 2018). We excluded cohort studies with embedded randomised retention trials, which are the subject of a separate systematic review (Booker 2011).

When referring to embedded trials, we mean randomised trials of retention interventions (e.g. monetary incentives to improve response to postal questionnaires) that are set within a clinical trial (e.g. drug treatment for stroke). Clinical trials that embed retention trials are sometimes referred to as the host trial. Embedded trials are also sometimes referred to as Studies Within A Trial or SWATs. As per guidance by Treweek 2018, 'a SWAT is a self-contained research study that has been embedded within a host trial with the aim of evaluating or exploring alternative ways of delivering or organising a particular trial process'.

Types of data

We included retention trials within the context of a host randomised trial with participants from any age, gender, ethnic, language and geographic groups. We included unpublished and published participant retention data from randomised trials addressing health care (including all disciplines and disease areas) and non-healthcare (education, social sciences) topics. We also included trials set in the community that were healthcare-related. However, whilst the setting could be non-health care, the outcomes being measured in the host randomised trial were required to be clinical- or health-related. The retention trials were embedded in real trials (host trials) and not hypothetical trials.

Types of methods

Any intervention that aimed to improve retention of participants to a randomised trial. We considered any strategy aimed at increasing retention, whether it was directed towards the clinician, researcher or participant. The retention trials included at least one randomised comparison of two or more strategies to improve retention, or compared one or more strategies with usual study procedures. We also included trials with any combination of strategies to increase retention. Strategies could include any of the following:

- data collection (e.g. shorter length of follow-up or variation in follow-up visit frequency);
- participant strategies (e.g. monetary incentives, non-monetary incentives, reminders, behavioural strategies, etc);
- sites and site staff (e.g. monitoring approaches);
- central study management (e.g. patient and public involvement);
- study design (e.g. blinding and treatment preference).

For trials that simultaneously evaluated more than one intervention, unless designed as a factorial trial, or interaction effects were accounted for in the analysis, interventions had to be separated by at least six months to be considered eligible for the review. The reason for this was to account for contamination effects from carry over of previous intervention effects.

Types of outcome measures

Primary outcomes

The proportion of participants retained at the primary analysis point as defined in each individual retention trial is our primary outcome. If the primary outcome was not predefined in a retention trial, we took the first time point reported for analysis. In most cases, this was final response. If retention at a number of time points was reported and no clear time point for the primary outcome for the retention trial was stated, we took data for the nearest time point to the intervention in the retention trial analyses. For studies that reported data captured 'without additional chasing' (i.e. no further standard follow-up processes such as telephone calls were included before data collection), this was selected as the primary analysis point for data to be included in this review. For studies that delivered an intervention at trial recruitment, we took the total number of participants in the intervention trial as the number who consented as the denominator and the number retained as the numerator. All decisions about primary outcome timing were based on the retention trial publication and discussion within our team; we did not check study protocols or contact authors for clarification.

Secondary outcomes

This update includes no secondary outcomes. This is a change from the previous version of the review (Brueton 2013) which stated "Retention of participants at secondary analysis points" as a secondary outcome. However, because this is rarely reported, we decided to no longer include it as a secondary outcome.

Search methods for identification of studies

We used the Online Resource for Recruitment research in Clinical triAls (ORRCA, www.orrca.org.uk) database to search for studies that had been published up to the end of December 2017. As the scope of this update had changed from that of the original review (Brueton 2013), we re-ran the full search from database inception rather than only for the period required for the update (which would have been 2013 to 2020). The ORRCA database provides a comprehensive online database of published research (empirical and non-empirical) about recruitment and/or retention to clinical research. ORRCA is populated from an extensive systematic search of the Cochrane Library, MEDLINE (Ovid), SCOPUS, CINAHL, psycINFO, and SCI-EXPANDED and SSCI (via ISI Web of Science). The search strategy used to populate ORRCA was based on the original Cochrane Review of strategies to improve trial retention (Brueton 2013), but updated and extended to ensure capture of all relevant studies in this area (see below and Appendices for details). Eligible articles are categorised on the ORRCA database according to research methods and host study characteristics. We searched the ORRCA retention database in April 2020 to identify randomised evaluations of retention strategies that were nested within randomised trials (including factorial, cluster and cross-over trials), patient preference studies, registries or where the host study type was unknown.

The search strategy used to develop ORRCA aimed to identify published research addressing retention challenges in healthcare and social science settings involving any method of follow-up. At the time of updating this review, ORRCA only captured studies published until January 2018. Therefore we also ran the search strategy across all platforms described above, to capture studies published between January 2018 and January 2020.

Electronic searches

Each search comprised a filter to identify randomised trials plus free-text terms and database subject headings relating to reducing loss to follow-up or increasing retention (Appendix 1). Electronic databases that we searched included the following.

- Cochrane Central Register of Controlled Trials (CENTRAL) (to January 2020)
- MEDLINE (OVID) (1950 to January 2020) (Appendix 1)
- CINAHL (Cumulative Index to Nursing and Allied Health; 1981 to January 2020) (Appendix 1)
- PsycINFO (1806 to January 2020) (Appendix 1)
- SCOPUS (to January 2020)
- Web of Science Core Collection (SCI-expanded, SSCI, CPSI-S, CPCI-SSH and ESCI) (1900 to January 2020)

Searching other resources

We also searched the SWAT repository (SWAT) to identify retention trials that were unpublished or ongoing.

Data collection and analysis

Selection of studies

All review authors were involved in the screening of titles and abstracts retrieved by the searches (in batches of 600) using a predesigned study eligibility screening form. A random 10% of each batch and all potentially eligible titles and abstracts were double screened by one of the review team (KG). We obtained full-text papers for all potentially eligible studies for inclusion. All review authors were involved in independently assessing full-text articles to determine if they fulfilled the inclusion criteria, with

two review authors allocated to each full-text article. We contacted study authors for electronic copies of papers that we could not access through library sources. We were able to obtain copies of all the potentially eligible papers, or abstracts, that we wanted to screen. When necessary, we sought information from the original investigators for potentially eligible trials where we wished to clarify eligibility. We resolved disagreements by discussion with a third review author (MAM or KG).

Data extraction and management

All review authors were involved in independently extracting data from included studies using a prespecified data extraction form, with two review authors allocated to each study. A third review author (MAM) checked the extractions for inconsistencies and any discrepancies were resolved by discussion with another review author (KG). Data extracted for the host trial were: design, location, setting, population, intervention, and comparator. For the embedded retention trial, we extracted data on: randomised or quasi-randomised; design; aim; definition of retention used; retention period; the source of the retention trial sample (e.g. all host participants, participants lost to follow-up, etc), and participant details. The retention strategy details extracted included: type, theoretically based; description; frequency and timing; mode of delivery; co-interventions; economic information; resource requirements, numbers and proportions of participants in the intervention and comparator groups of the retention trial.

Assessment of risk of bias in included studies

All included studies (from previous version of review (n = 32) and this update (n = 39)) were assessed independently by two review authors (KG and MAM or ST) for risk of bias using the Cochrane 'Risk of bias' tool (Higgins 2008a), with any disagreements being resolved by a third member of the review team (ST or MAM). Information on risk of bias for all included studies is presented in the Characteristics of included studies table. When assessing studies on 'Blinding of participants and/or personal', we determined that if study authors noted that participants/personnel were not able to be blinded but that they were not given explicit knowledge of the retention trial and/or there was no way staff could use this knowledge to influence the objective outcome of retention, we determined these to be of low risk of bias for this domain. Likewise, when assessing 'Blinding of outcome assessment' we made a judgement as to whether the lack of blinding of outcome assessors would impact on their assessment of the objective outcome of retention. For the majority assessed, we considered studies to be low risk of bias on this domain. If studies were scored as low risk of bis on any one element, or unclear on any one element, this was the corresponding overall risk of bias rating.

We applied GRADE to all comparisons, including when only one study was available for a comparison (Guyatt 2008). For meta-analyses, GRADE assessment data for the relevant meta-analyses are provided in the relevant 'Summary of findings' table.

For single studies, we used the rules applied in the Cochrane recruitment review (Treweek 2018), with all studies initially assigned a high GRADE rating of certainty, with the following rules then applied to determine the overall rating.

- Study limitations: downgrade all studies at high risk of bias by two levels; downgrade all studies at uncertain risk of bias by one level.
- Inconsistency: assume no serious inconsistency.
- Indirectness: assume no serious indirectness (all studies provided direct retention data).
- Imprecision: downgrade all single studies by one level because of the sparsity of data; downgrade by a further level if the confidence interval is wide and includes a risk difference of zero.
- Reporting bias: assume no serious reporting bias.

We provided an informative statement with each GRADE assessment following the guidance in GRADE Guideline 26 (Santesso 2020). This uses both the GRADE assessment and the effect size to produce an informative statement. We used the following rules regarding effect size.

- Large effect: 10% or over
- Moderate effect: 5% to 9%
- Small important effect: 2% to 4%
- Trivial, small unimportant effect or no effect: 0% to- 1%

We applied the same rules to effect size, regardless of whether the effect was an increase or a decrease in retention.

As per the Cochrane recruitment review (Treweek 2018), we did not exclude studies that were assessed to be at high risk of bias. However, where a high risk of bias study is the only study in a comparison, we do not describe them in the Results or Discussion sections due to the low confidence we have in their findings. We encourage more rigorous evaluations of these interventions but would discourage interpretation about their effects on retention from existing evaluations. The exception to this is if the data from high risk of bias studies could be included in a meta-analysis alongside data from other studies and where a cumulative judgement on the certainty of the body of evidence using GRADE (as described above) could then be done.

Measures of the effect of the methods

We calculated risk difference (RD) and 95% confidence intervals (CIs) for retention to determine the effect of strategies on this outcome.

Unit of analysis issues

For retention trials that randomised individuals and clusters, the unit of analysis was the participant. For cluster-randomised trials that ignored clustering in the analysis, we inflated the standard errors (SEs) to avoid over precise estimates of effect as follows (Higgins 2008b).

1. We calculated the RD, 95% CI and SE based on participants in the usual way (i.e. ignoring clustering).
2. This SE was then inflated using the design effect to get an adjusted SE: adjusted SE = SE X√ design effect. With the design effect calculated as follows: design effect = 1 + (M - 1) Intra-cluster coefficient (ICC) where M = mean cluster size, ICC = the intracluster correlation coefficient.
3. Where published ICCs were not available, we used the mean ICC from appropriate external estimates for Land 2007. This was the mean of estimates for the return of EuroQol questionnaires (ICC = 0.054) from a source recommended by the *Cochrane Handbook for Systematic Reviews of Interventions* (Section 16.3.4) (Higgins 2008b) and www.abdn.ac.uk/hsru/documents/iccs-web.xls (last accessed 24 November 2020).

4. We entered the effect estimate and the new updated SE into Review Manager 5 using the generic inverse variance (RevMan 2012).

Where the number of participants randomised was not clearly stated in the included study report, we contacted the study authors for this information.

Dealing with missing data

For unpublished studies, we contacted study authors for data for the'R risk of bias' assessment, numbers randomised to each group and numbers retained in each group at the primary endpoint.

Assessment of heterogeneity

We agreed the presence of heterogeneity of the intervention effect where the Chi^2 statistic has a significance level of 0.10 (representing a 10% chance of a Type I error). This figure was chosen as it counterbalances the relatively low power of the test. We also used the I^2 test (Higgins 2003). It represents the total variation across studies and is unlike the Chi^2 test in that it is independent from the number of studies. Instead theI^2 is based on treatment effect. Heterogeneity was also explored through subgroup analyses.

Assessment of reporting biases

We would have assessed reporting bias using tests for funnel plot asymmetry if sufficient data were available (Egger 1997; Sterne 2008).

Data synthesis

We grouped included trials based on the type of intervention under investigation with groups directly informed by the ORRCA retention domains (https://www.orrca.org.uk/Uploads/ORRCA_Retention_Domains.pdf). We added a further domain within the 'Participants' domain to allow separate consideration of prompts and reminders targeting retention. This classification resulted in five broad categories with intervention functions grouped within them.

1. Data collection (Category A), interventions include:
   a. questionnaire design;
   b. data collection frequency/timing;
   c. data collection location and method.
2. Participants (Category B), interventions include:
   a. reminders - *intention to be received after a retention time point is reached;*
   b. prompts - *intention to be received before a retention time point is reached;*
   c. monetary incentives and rewards- *includes both incentives (i.e. not conditional on behaviour) and rewards (i.e. is conditional on behaviour);*
   d. non-monetary incentives;
   e. maintaining participant engagement;
   f. behavioural intervention.
3. Sites and site staff (Category C), interventions include:
   a. prompt;
   b. monitoring visits.
4. Central Study Management (Category D), interventions include:
   a. patient public involvement.
5. Study design (Category E), interventions include:
   a. impact of recruitment;
   b. blinding and treatment preference.

We present the results as RD, pooled using a random-effects model for all meta-analyses with more than one included study,and with associated CIs where sufficient data were available. If heterogeneity was detected and could not be explained by subgroup or sensitivity analyses, we did not pool results.

For factorial trials, the data for different categories of interventions were included as separate trial comparisons. For multiple retention trials conducted within the same host trial that were not designed to allow for interaction effects between interventions (i.e. did not stratify at randomisation or account for interaction effects in analysis), we pre-specified the requirement for interventions to be delivered at least six months apart in order to minimise the potential for any intervention interaction effects. In order to minimise interaction effects, we chose not to include data in the meta-analyses from trials that had evaluated interventions within six months of each other that had not accounted for the interaction effects in the analysis. This resulted in three studies and data from a further four studies (with multiple evaluations) being omitted from our analyses.

Subgroup analysis and investigation of heterogeneity

We planned to explore the following factors in subgroup analyses assuming enough studies were identified within each comparison.

- Type of design used to evaluate the retention strategy (randomised versus quasi-randomised)
- Setting of the host trial (e.g. primary versus secondary care, healthcare setting versus non-healthcare setting)
- Disease area of the host trial (e.g. oncology versus ante-natal)
- Duration of follow-up (e.g. short versus long term)
- Value of monetary incentive (e.g. £5 versus £10 etc)

Sensitivity analysis

To assess the robustness of the results, we planned sensitivity analyses that excluded quasi-randomised retention trials.

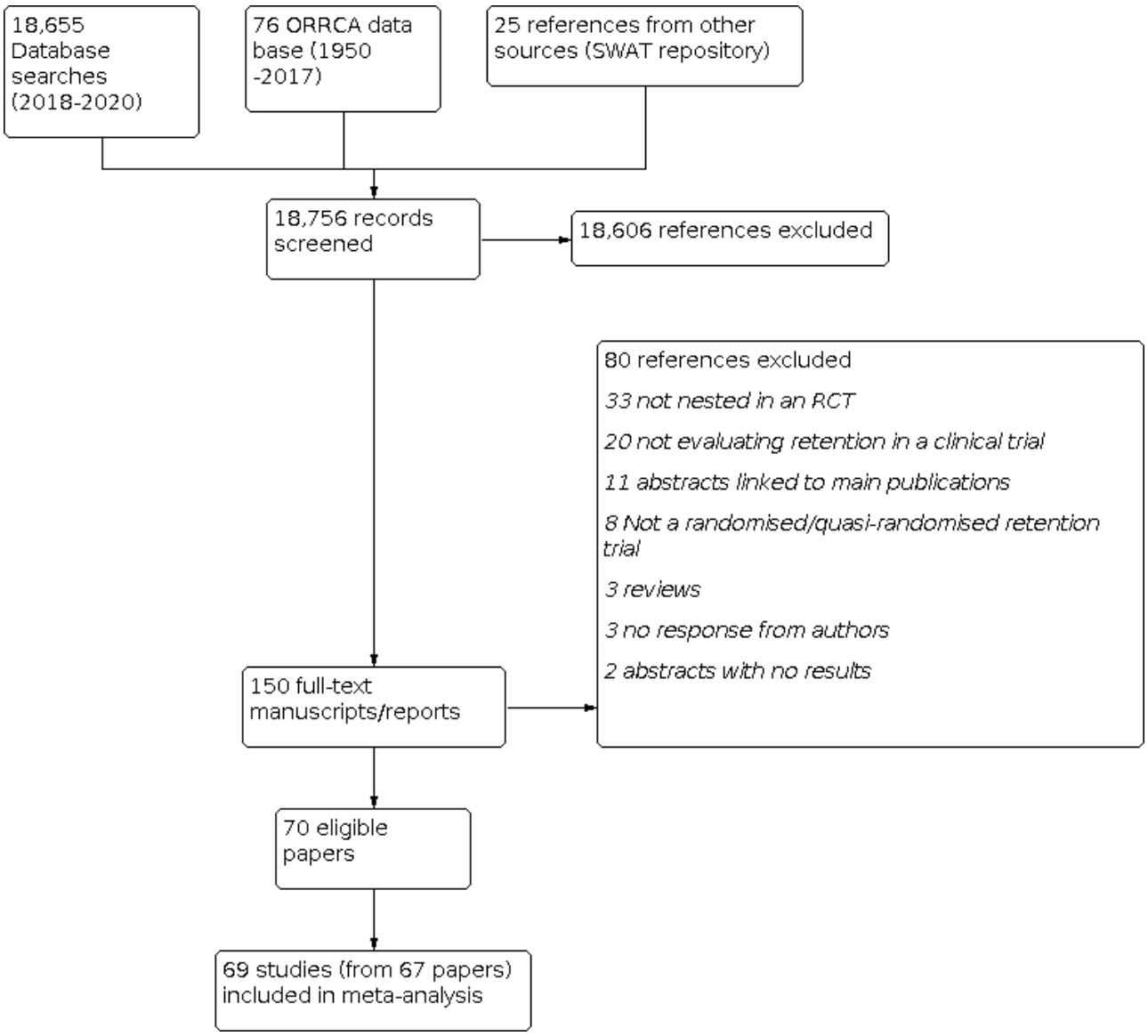
RESULTS

Description of studies

The studies are described in the Characteristics of included studies, Characteristics of studies awaiting classification, Characteristics of ongoing studies, and Characteristics of excluded studies tables. We identified 18,756 abstracts, titles and other records and sought the full text for 150 records to confirm eligibility. In total, 70 papers (reporting data from 81 retention trials) were considered eligible for inclusion (Figure 1). The studies were conducted in eight countries with two multi-national studies. The majority of studies (n = 53) were conducted in the UK followed by the USA (n = 10) (Table 1). Of these 70 papers, 68 evaluated interventions targeting trial participants and two evaluated interventions targeting individuals involved in trial retention. A total of 101,689 participants were included across the retention trials, which included all participants originally randomised to the retention trial. Included retention trials were conducted in a broad spectrum of clinical conditions across a range of different settings including primary care,

secondary care, and community settings. However, similar to the previous version of this review (Brueton 2013), the included studies were predominantly composed of studies evaluating interventions to improve questionnaire return (n = 70) rather than clinic attendance (n = 2).

Figure 1. 1 Included studies flow diagram.



The majority of the included trials (42 host trials) included a single retention trial. Some of the included studies reported multiple retention trials (i.e. tested more than one intervention) within one publication (non-factorial) such as Dinglas 2015 (two retention trials), Edwards 2016 (three retention trials), Goulao 2020 (four retention trials), and Keding 2016 (three retention trials). Other retention trials were reported separately but embedded within the same host trial. These included trials by Avenell 2004 and MacLennan 2014 in the RECORD fracture prevention trial; Cockayne 2017 and Rodgers 2019 in the REFORM trial; Khadjesari 2011 and McCambridge 2011 in the Down your Drink Trial; Bailey 2013 in a feasibility study for the Sex unzipped website; McColl 2003 - Trial 1 and McColl 2003 - Trial 2 in the COGENT trial; Mitchell 2011, Mitchell 2012, and Bell 2016 in the SCOOP trial; Cochrane 2020, James 2020 and Whiteside 2019 in the OTIS trial; and Mitchell 2020a and Mitchell 2020b in the KReBS trial.

There was too much variability and not enough depth (i.e. meaningful replication) in the data set to allow us to conduct any of our planned subgroup analyses.

Two studies (Letley 2000 and Sutherland 1996) are awaiting classification. We were unable to include them due to a lack of information on the number of participants randomised to each arm (Letley 2000), or whether the feasibility they report ahead of the full trial was also randomised (Sutherland 1996).

Risk of bias in included studies

See Characteristics of included studies, Figure 2 and Figure 3. Authors of trials included in the meta-analysis reported their studies as either randomised (n = 70) or quasi-randomised (n = 2). One study included both randomised and quasi-randomised retention trials (Edwards 2016). The overall risk of bias was considered low for 14 studies, unclear for 50 studies and high for eight studies.

Figure 2. 'Risk of bias' summary: review authors' judgements about each risk of bias item for each included study.

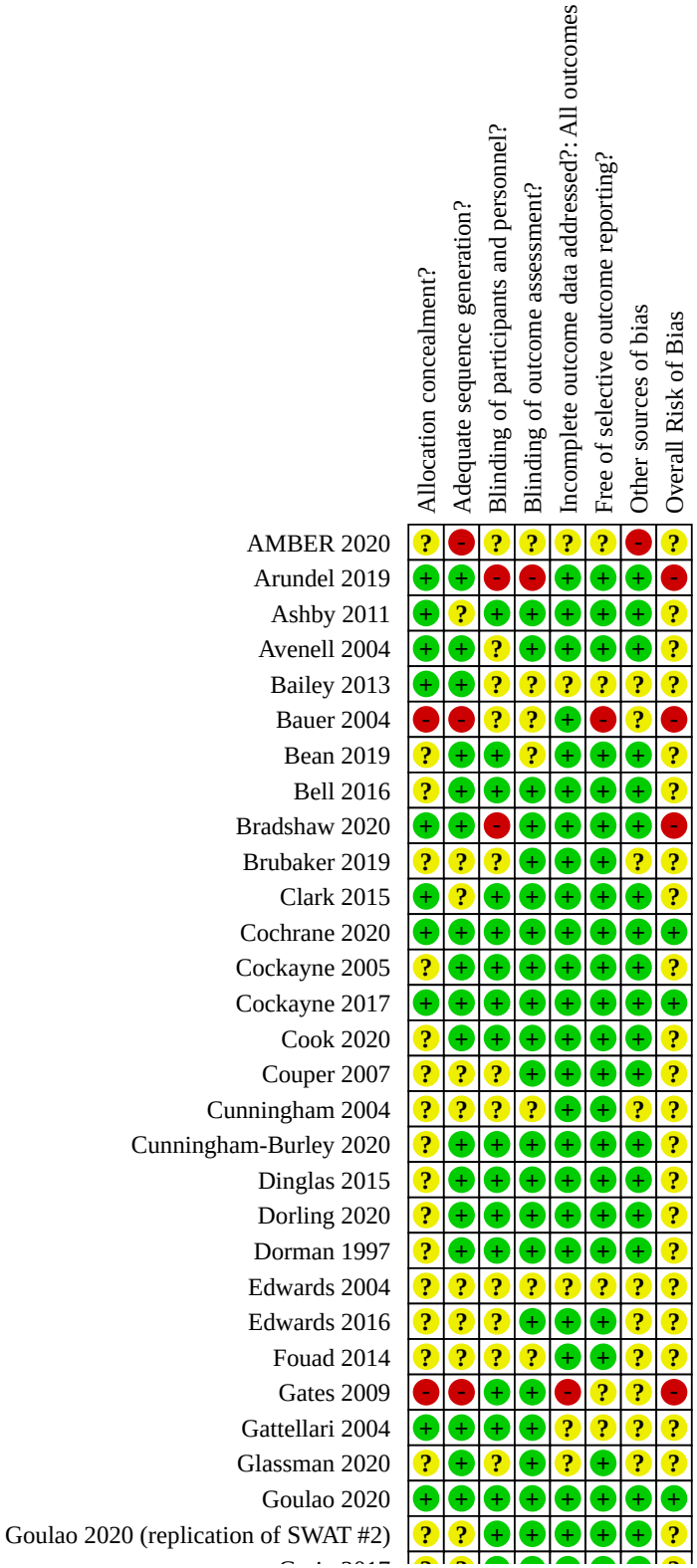


Figure 2. (Continued)

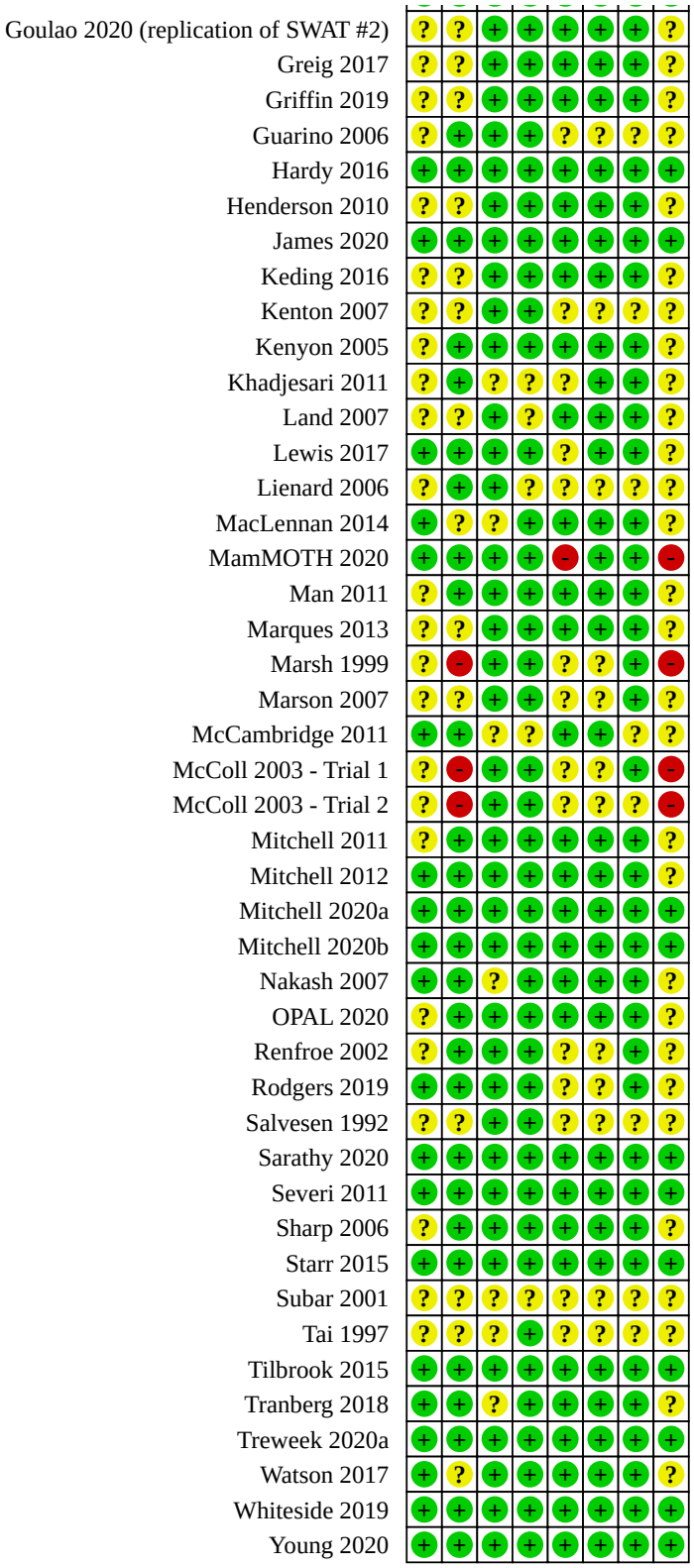
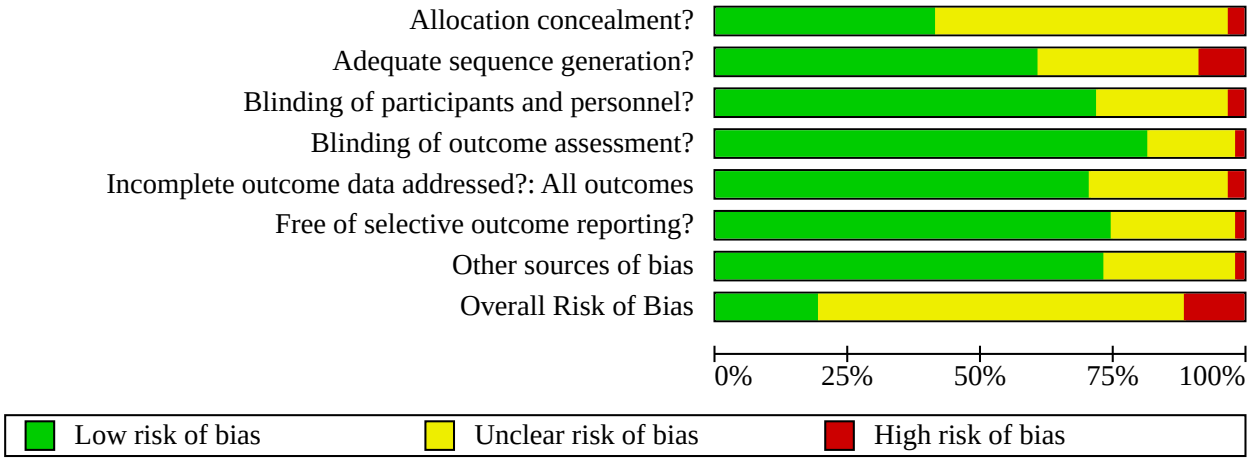


Figure 3. 'Risk of bias' graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



Effect of methods

We only report comparisons including studies (single studies or overall comparisons) at low or unclear risk of bias in these results. The list of all 52 comparisons, including those of high risk of bias, is included in Table 2, Table 3, Table 4, Table 5 and Table 6. The categorisation of interventions into categories, based on the ORRCA retention domains, was not always clear and was largely informed by the original study authors' intention as described or implied within their report.

'Summary of findings' tables were produced for all interventions where more than one study evaluated effectiveness. This provided 16 in total: Summary of findings 1, Summary of findings 2, Summary of findings 3, Summary of findings 4, Summary of findings 5, Summary of findings 6, Summary of findings 7, Summary of findings 8, Summary of findings 9, Summary of findings 10, Summary of findings 11, Summary of findings 12, Summary of findings 13, Summary of findings 14, Summary of findings 15 and Summary of findings 16.

Data Collection - Category A (Table 2)

Fourteen studies across nine comparisons focused on aspects of data collection to improve retention. The results from studies, or comparisons, that were low or unclear risk of bias are presented below and included 35,215 participants. We have not presented data for comparisons where only a single high risk of bias study was available for any of the compairsons across categories.

Questionnaire design

1. The evidence is very uncertain about the effect of a short questionnaire compared to the usual trial questionnaire: risk difference (RD) = 0% (95% confidence interval (CI) -8% to 8%); GRADE: very low; (Analysis 1.1, Summary of findings 1). This result is based on three studies, n = 3252: Edwards 2004 (head injury), Subar 2001 (cancer screening) and Dorman 1997 (stroke).
2. Addition of a diary to usual follow-up compared to usual follow-up alone probably reduces retention slightly: RD = -3% (95% CI -4% to -2%); GRADE: moderate; (Analysis 2.1, Summary of findings 2). This result is based on two studies, n =9906: Griffin 2019 (falls prevention) and Marques 2013 (hip/knee replacement).

Data collection frequency/timing

1. The evidence is very uncertain about the effect of a final questionnaire sent at trial close out compared to last study visit: Renfroe 2002 (arrhythmia): RD = 7% (95% CI -1% to 14%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 479; wide CI crossing RD = 0) (Analysis 4.1).

Data collection location and method

1. The evidence is very uncertain about the effect of postal follow-up compared to clinic follow-up on retention: Greig 2017 (nail-bed injury): RD = 16% (95% CI -8% to 40%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 60; wide CI crossing RD = 0) (Analysis 5.1).
2. The evidence is very uncertain about the effect of telephone follow-up compared to postal follow-up on retention: RD = 2% (95% CI -4% to 9%); GRADE: very low; (Analysis 6.1, Summary of findings 3). This result is based on two studies, n = 1006: Couper 2007 (obesity) and Marsh 1999 (injury prevention).
3. First class postage for outward mail compared to second class postage may increase retention slightly: Sharp 2006 (cervical screening): RD = 2% (95% CI -4% to 8%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 level: imprecision-single study, n = 930) (Analysis 7.1)
4. Various strategies compared to usual practice for return postage, such as free post versus second class stamp; high priority mail stamp versus usual postage; and personal form may increase retention slightly: RD = 4% (95% CI -0% to 9%); GRADE: low; (Analysis 8.1, Summary of findings 4). This result is based on three studies, n = 1543: Sharp 2006 (cervical screening), Dorman 1997 (stroke) and Dinglas 2015 (acute lung injury)

5. The use of self-sampling kits (directly mailed or an invitation to order) probably increases retention: Tranberg 2018 (cervical screening) split across several subgroups: RD = 9% (95% CI 4% to 13%); GRADE moderate (-1 level: imprecision-single study, n = 19,582) (Analysis 9.1).

Participants - Category B (Table 3)

The domain for interventions focusing on participants contained the largest number of interventions (35 comparisons) and studies (n = 49) and included 57,033 participants are presented below.

Reminders

1. Electronic reminders compared to usual follow-up may result in little or no difference to retention RD = 1% (95% CI -4% to 6%); GRADE: low; (Analysis 10.1, Summary of findings 5). This result is based on three studies, n = 790: Ashby 2011 (migraine), Keding 2016 (depression),and Starr 2015 (ureteric stones).
2. The evidence is very uncertain about the effect on retention of action oriented electronic reminders (e.g. 'ACTION REQUIRED' in email subject line) compared to a standard electronic reminder: Edwards 2016 (depression with cardiovascular disease): RD = -4% (95% CI -10% to 3%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 231; wide CI crossing RD = 0) (Analysis 11.1).
3. The evidence is very uncertain about the effect on retention of a personalised versus a non-personalised reminder: Nakash 2007 (severe ankle sprains): RD = -1% (95% CI -11% to 8%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 298; wide CI crossing RD = 0) (Analysis 12.1).
4. Telephone reminders compared to usual follow-up may result in little or no difference to retention: Severi 2011 (smoking cessation): RD = -1% (95% CI -18% to 15%); GRADE low (-2 levels: imprecision-single study, n = 127; wide CI crossing RD = 0) (Analysis 13.1).
5. Telephone reminders compared to postal reminders, may result in a large increase in retention: Tai 1997, (asthma and/or diabetes): RD = -19% (95% CI -33% to -5%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 levels: imprecision-single study, n = 148) (Analysis 14.1).

Prompts

1. The evidence is very uncertain about the effect on retention of electronic prompts compared to no prompt: RD = 2% (95% CI -1% to 6%); GRADE: very low; (Analysis 15.1, Summary of findings 6). This result is based on five studies, n = 2897: Bradshaw 2020 (eczema), Clark 2015 (chronic obstructive pulmonary disease), Keding 2016 (depression), Man 2011 (low back pain), and Starr 2015 (ureteric stones).
2. The evidence is very uncertain about the effect on retention of telephone prompts compared to usual follow-up: RD = 1% (95% CI -10% to 12%); GRADE: very low; (Analysis 16.1, Summary of findings 7). This result is based on two studies, n = 943: Edwards 2016 (depression with cardiovascular disease) and MacLennan 2014 (fracture prevention).
3. Prenotification cards compared to no card may increase retention slightly: Treweek 2020a, n = 558 (breast cancer prevention): RD = 3% (95% CI -3% to 10%); GRADE low (-2 levels: imprecision-single study; wide CI crossing RD = 0) (Analysis 17.1).
4. Use of a sticker on envelope compared to no sticker may result in little or no difference to retention: Goulao 2020. (dentistry): RD = 1% (95% CI -7% to 10%); GRADE low (-2 levels: imprecision-single study, n = 517; wide CI crossing RD = 0) (Analysis 18.1).
5. Personalised prompts compared to usual follow-up may reduce retention slightly: RD = -2% (95% CI -9% to 5%); GRADE: low; (Analysis 19.1, Summary of findings 8). This result is based on two studies, n = 701: Cochrane 2020 (falls prevention) with low risk of bias and Nakash 2007 (severe ankle sprains) with unclear risk of bias.
6. Electronic prompts compared to electronic reminders seemed to favour electronic reminders may increase retention slightly: Sarathy 2020 (frozen shoulder): RD 2% (95% CI -6% to 9%) GRADE low (-2 levels: imprecision-single study, n = 269; wide CI crossing RD = 0) (Analysis 20.1)

Monetary incentives and rewards

1. Monetary incentives compared to no incentive may increase retention: RD = 7% (95% CI 4% to 11%); GRADE: low; (Analysis 21.1, Summary of findings 9). This result is based on three studies, n = 3166: Bauer 2004 (smoking cessation), Gates 2009 (acute whiplash) both with high risk of bias, and Kenyon 2005 (neonatal) with unclear risk of bias. A sensitivity analysis was conducted that excluded the quasi-randomised trial (Gates 2009). This showed a similar effect in that it may increase retention: RD 9%, 95% CI 2% to 16%; but the certainty in the certainty in the evidence is GRADE low (Analysis 21.2)
2. Addition of monetary incentives to all trial arms may favour the higher value incentive to increase retention: Bauer 2004 (smoking cessation): RD = 10% (95% CI 3% to 23%); GRADE: low (-2 levels: imprecision-single study, n = 200 ; wide CI crossing RD = 0) (Analysis 21.1)
3. The evidence is very uncertain about the effect on retention of the addition of a monetary incentive (unconditional) versus addition of a monetary reward (conditional): RD = -0% (95% CI -7% to 6%); GRADE: very low; (Analysis 23.1, Summary of findings 10). This result is based on four studies, n = 3765: Bradshaw 2020 (eczema), Dorling 2020 (infant feeding), Cook 2020 (influenza), Young 2020 (lung cancer screening) .
4. The evidence is very uncertain about the effect of the addition of a monetary reward compared to usual follow-up on retention: RD = 2% (95% CI -3% to 6%); GRADE: very low; (Analysis 24.1, Summary of findings 11). This result is based on three studies, n = 1159: Marsh 1999 (injury prevention), Watson 2017 (haemorrhoids) and focus on return of postal questionnaires and found no effect: RD = 0% (95% CI -6% to 7%). The third study, Arundel 2019 (smoking cessation), shows an effect on attendance at follow-up visits. A sensitivity analysis excluding the quasi-randomised trial (Marsh 1999) showed a similar effect on retention with sustained uncertainty in the evidence: RD 1%, 95% CI -4% to 6%: GRADE: very low (Analysis 24.2).
5. Addition of a monetary reward to both trial arms delivered either with the prenotification or with the reminder letter, probably increases retention: Hardy 2016 (labour): RD = 9% (95% CI 3% to 15%); GRADE moderate (-1 level: imprecision-single study, n = 1018) (Analysis 25.1).
6. The evidence is very uncertain about the effect on retention of the addition of a monetary incentive compared to inclusion in a lottery: Kenton 2007, (postnatal depression): RD = 2% (95% CI -9% to 12%);GRADE very low (-1 level: study limitations– unclear

risk of bias;-2 levels: imprecision-single study, n = 281; wide CI crossing RD = 0) (Analysis 26.1).

7. The evidence is very uncertain about the effect on retention of inclusion in a lottery compared to usual follow-up: Henderson 2010 (sexual health): RD = -1% (95% CI -3% to 2%); GRADE very low (-1 level: study limitations– unclear risk of bias;-2 levels: imprecision-single study, n = 4206; wide CI crossing RD = 0) (Analysis 27.1).
8. The evidence is very uncertain about the effect on retention of inclusion in a high- versus low-value lottery: Henderson 2010 (sexual health): RD = 2% (95% CI -1% to 6%); GRADE very low (-1 level: study limitations– unclear risk of bias;-2 levels: imprecision-single study, n = 2758; wide CI crossing RD = 0) (Analysis 28.1).

Non-monetary incentives

1. Addition of a pen compared to no pen may increase retention slightly: RD = 2% (95% CI 0% to 4%); GRADE: low; (Analysis 29.1, Summary of findings 12). This result is based on five studies, n = 13,013: Mitchell 2020a (knee replacement), James 2020 (falls prevention), Bell 2016 (fracture prevention), Cunningham-Burley 2020 (falls prevention), and Sharp 2006 (cervical screening).
2. Inclusion of a societal benefit message compared to usual follow-up may result in little or no difference to retention: Severi 2011 (smoking cessation): RD = -0% (95% CI -4% to 4%); GRADE low (-2 levels: imprecision-single study, n = 1950; wide CI crossing RD = 0) (Analysis 30.1).
3. The evidence is very uncertain about the effect on retention of providing a certificate of appreciation compared to no certificate: Renfroe 2002 (arrhythmia): RD = -5% (95% CI -13% to 3%); GRADE very low (-1 level: study limitations– unclear risk of bias;-2 levels: imprecision-single study, n = 479; wide CI crossing RD = 0) (Analysis 31.1).

Maintaining participant engagement

1. The evidence is very uncertain about the effect on retention of including a newsletter compared to no newsletter: RD = -0% (95% CI -4% to 3%); GRADE: very low; (Analysis 32.1, Summary of findings 13). This result is based on four studies, n = 5622: Goulao 2020 (dentistry), Mitchell 2012 (fracture prevention), Rodgers 2019 (fall prevention), and MamMOTH 2020 (chronic pain).
2. The offer of recieving the results of the resutls of the trial compared to no offer may result in little to no difference to retention based on very uncertian evidence: Cockayne 2005 (fracture prevention): RD = -2% (95% CI -5% to 2%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 1038; wide CI crossing RD = 0) (Analysis 33.1).
3. Including a social incentive (e.g. personalised table of questionnaire response to date to evidence previous responses noted and valued) in the cover letter compared to the standard cover letter may result in little or no difference to retention James 2020 (falls prevention): RD = -1% (95% CI -4% to 2%); GRADE low (-2 levels: imprecision-single study, n = 755; wide CI crossing RD=) (Analysis 34.1).
4. The evidence is very uncertain about the effect on retention of varying the signatory on cover letters: Renfroe 2002 (arrhythmia): RD = 2% (95% CI -6% to 10%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 479; wide CI crossing RD = 0) (Analysis 35.1).
5. The evidence is very uncertain about the effect on retention of including a deadline for completion versus no deadline, Gattellari 2004 (prostate cancer): RD = 4% (95% CI -5% to 12%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 246; wide CI crossing RD = 0) (Analysis 36.1).
6. The evidence is very uncertain about the effect on retention of adding an estimate of time to completion versus no addition: Marson 2007 (epilepsy): RD = 1% (95% CI -2% to 4%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 1815; wide CI crossing RD = 0) (Analysis 37.1).
7. The evidence is very uncertain about the effect on retention of comparing brown to white envelopes: Mitchell 2011 (fracture prevention): RD = 2% (95% CI -1% to 5%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 1119; wide CI crossing RD = 0) (Analysis 38.1).
8. Addition of a post-it note compared to no post-it note or alternative post-it notes may result in little or no difference to retention: RD = 0% (95% CI -1% to 1%); GRADE low; (Analysis 39.1, Summary of findings 14). This result is based on eight trials from three studies, n = 4698: Rodgers 2019 (fall prevention), Lewis 2017 (depression), and Tilbrook 2015 (neck pain).
9. Inclusion of a newspaper article about the trial compared to no article may increase retention: Salvesen 1992 (pregnancy): RD = 8% (95% CI 1% to 15%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 level: imprecision-single study, n = 716) (Analysis 40.1).
10. Frequency of telephone contact comparing only at baseline to annual contact to contact only at baseline may increase retention: Glassman 2020 (diabetic retinopathy): RD = 8% (95% CI 1% to 15%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 level: imprecision-single study, n = 305) (Analysis 41.1).
11. The evidence is very uncertain about the effect on retention of a request for a collateral (i.e. a contact person) compared to no request or request with 50% chance of contact: Cunningham 2004 (alcohol consumption): RD = 7% (95% CI -1% to 16%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 408; wide CI crossing RD = 0) (Analysis 42.1).

Behavioural interventions

1. The evidence is very uncertain about the effect on retention of a theory informed cover letter compared to a usual cover letter: RD = 3% (95% CI -2% to 8%); GRADE very low; (Analysis 43.1, Summary of findings 15). This result is based on four trials, n = 3343 from three studies: Goulao 2020, Goulao 2020 (replication of SWAT #2) (both dentistry), OPAL 2020 (urinary incontinence), and AMBER 2020 (multiple sclerosis).
2. The evidence is very uncertain about the effect on retention of motivational interviewing compared to usual follow-up: Bean 2019 (childhood obesity): RD = 0% (95% CI -17% to 17%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 128; wide CI crossing RD = 0) (Analysis 44.1).

Sites and site staff - Category C (Table 4)

Two studies assessed interventions, grouped into two comparisons, aimed at trial sites. One, a cluster-randomised trial but reporting data on questionnaires returned (Land 2007) and the other an individually-randomised trial reporting submission of case report forms by sites (Lienard 2006).

Prompts

1. The evidence is very uncertain about the effect on retention of prompts targeting sites for upcoming assessment compared to no prompts: Land 2007 (breast cancer prevention): RD = -3% (95% CI -13% to 7%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study; wide CI crossing RD = 0) (Analysis 45.1).

Monitoring visits

1. The evidence is very uncertain about the effect on retention of on site monitoring compared to no visits: Lienard 2006 (breast cancer treatment): RD = -5% (95% CI -20% to 10%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 69; wide CI crossing RD = 0) (Analysis 46.1).

Central Study Management - Category D (Table 5)

Only one study (Fouad 2014) assessed the effect of a central study management intervention on retention. This study was judged to be at unclear risk of bias and involved 632 participants.

Patient Public Involvement

1. A peer-led follow-up strategy compared to usual follow-up may result in a large increase in retention: Fouad 2014 (cervical cancer): RD = 22% (95% CI 14% to 30%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 levels: imprecision-single study, n = 632) (Analysis 47.1).

Study design - Category E (Table 6)

Five studies across two comparisons evaluated five interventions targeting aspects of study design. These comparisons included 2160 participants.

Impact of recruitment

1. The evidence is very uncertain about the effect on retention of video-enhanced patient information compared to standard information: Brubaker 2019 (urinary incontinence): RD = 3% (95% CI -5% to 12%); GRADE very low (-1 level: study limitations– unclear risk of bias; -2 levels: imprecision-single study, n = 285; wide CI crossing RD = 0) (Analysis 48.1).
2. The evidence is very uncertain about the effect on retention of optimised patient information compared to standard patient information: RD = -3% (95% CI -13% to 7%); GRADE: very low; (Analysis 49.1, Summary of findings 16). This result is based two studies, n = 1285: Cockayne 2017 (falls prevention) and Guarino 2006 (Gulf War Syndrome).
3. The addition of optimised information, either as bespoke or template formats, may increase retention: Cockayne 2017 (falls prevention): RD = 6% (95% CI -7% to 20%); GRADE low (-2 levels: imprecision-single study, n = 131; wide CI crossing RD = 0) (Analysis 50.1).
4. Giving a pen at recruitment compared to no pen probably increases retention: Whiteside 2019 (falls prevention): RD = 20% (95% CI 7% to 32%); GRADE moderate (-1 level: imprecision-single study, n = 92) (Analysis 51.1).

Blinding and treatment preference

1. Randomising participants at recruitment to an open rather than a blinded trial may result in a large increase in retention: Avenell 2004 (fracture prevention): RD = 13% (95% CI 4% to 22%); GRADE low (-1 level: study limitations– unclear risk of bias; -1 level: imprecision-single study, n = 367) (Analysis 52.1).

DISCUSSION

Principal findings

As it stands, there is nothing in the evidence base with high-certainty evidence (as determined by GRADE) that can be applied to trials to improve trial retention. Four interventions have moderate-certainty evidence, although one of them (adding a diary to usual follow-up) probably reduces retention. Given the frequency with which diaries are used in trials, this is a useful piece of information. The bulk of all retention intervention evidence is rated as low or very low certainty using GRADE. Whilst there are replications of a few interventions, most (33 of 51 comparisons) have been evaluated in a single study. However, what is more encouraging is that of the 68 studies identified, 33 of those have been published in the last five years, indicating a ground swell in efforts for evaluations of interventions to improve trial retention. Now, the focus needs to be on more joined up rigorous evaluations of existing or priority interventions to industrialise the evidence generation in this area.

The previous version of this Cochrane Review identified monetary incentives as an effective strategy for improving return of postal questionnaires (Brueton 2013). Whilst the overall findings remained the same in this update (addition of a monetary incentive compared to usual follow-up) with an improvement in retention (RD: 7% (95% CI 4% to 11%), the overall certainty in the evidence was assessed as low, largely due to two of the three studies in this comparison being assessed as high risk of bias. Therefore, further replications of the evaluation of monetary incentive compared to no monetary incentive are still required in well-designed studies. Also, mirroring the previous version of this Cochrane Review (Brueton 2013), this update predominantly identified studies that aimed to improve questionnaire return with a very small proportion (3%, n = 2) of all included studies targeting clinic attendance. There may be several reasons for this large evidence gap. Firstly, many trials that collect patient-reported outcome data do so through self-completion of questionnaires which can be administered remotely. It may also be perceived that return of a questionnaire is an easier behaviour to target and change than attending a clinic follow-up visit. However, as face-to-face visits are central to many, perhaps most, trials there is a critical need to identify effective ways to enhance clinic follow-up. One suggestion could be to identify high-quality evidence for interventions that have been shown to improve clinic attendance at clinical care appointments and evaluate them for use in a trial setting e.g. electronic text notifications (Robotham 2016). Examining systematic reviews of factors known to affect retention (e.g. Skea 2019), such as the compatibility of trial

processes with participants' capabilities, would provide targets for well-designed future interventions.

Some comparisons with low-certainty evidence should be considered for future replication studies to help improve the overall certainty in the evidence (see Implications for methodological research). For example: return postage strategies (Analysis 8.1); addition of a pen versus no pen (Analysis 29.1); and electronic reminders compared to usual follow-up (Analysis 10.1). There is also merit in conducting replication of interventions evaluated in single studies, especially where the single studies have moderate-certainty evidence and potentially large overall effect sizes, such as: giving a pen at recruitment (Analysis 51.1), and addition of monetary rewards to both trial arms (Analysis 25.1).

Many of these comparisons and single-study evaluations offer improvements in the region of 1% to 7%, the latter of which we would consider a moderate effect size. However, one of the included studies (GRADE low) which evaluated a peer-led intervention to improve retention in a cervical screening trial found an overall improvement of 22% (Analysis 47.1), which we would consider a large effect size. This should also be a focus for future evaluation. A single additional study could improve the GRADE assessment to moderate if the results were consistent with the existing study. Although these patient and public involvement (PPI) interventions are likely to be more costly to develop and implement, if the gains seen are replicable, the benefit of a large effect may outweigh the costs. This is especially true where poor retention is dealt with by inflating the recruitment target to compensate for future expected loss-to-follow-up; given that recruitment is both difficult and expensive. Future evaluations and development of interventions should also consider how to meaningfully include patient and public partners in these embedded evaluations of retention interventions. Ensuring the interventions are embedded in trial participants' accounts of barriers to retention will be key to developing interventions that target what actually matters to trial participants.

PPI interventions and their impact on trial retention was identified as one of the Top 10 research questions from a James Lind Priority Setting Partnership exercise to identify the unanswered questions for trial retention (Brunsdon 2019). Many of the evaluations in this update fit within some of those questions but they tend to cluster around question 4 "What are the best ways to encourage trial participants to compete the tasks (e.g. attend follow-up visits, complete questionnaires) required by the trial?". There are still very few evaluations of how to encourage participants to attend clinic visits and the same can be said for interventions targeting trial staff involved with retention.

We are hopeful that through key initiatives such as the PROMETHEUS (PROMoting THE USe of SWATs) project that collaborative efforts in this area will ensure that high-quality evaluations of retention interventions are conducted in a timely manner (PROMETHEUS). More so, specific support from funders such as the National Institute for Health Research Health Technology Assessment Programme (UK) and the Health Research Board (Ireland) to provide funding for embedding these evaluations within ongoing trials should encourage trial teams to ensure they develop the evidence base whilst delivering their trials. Future evaluations (of any retention intervention) should also consider economic evaluation. Some trials included in this review did consider cost, with some authors hypothesising what the overall cost reduction could be for the strategy as a whole and others providing more clear examples of cost-effectiveness by demonstrating cost per additional person retained. For example, Gates 2009 demonstrated that their use of monetary incentives cost £67.29 for every questionnaire returned. Similarly, Cunningham-Burley 2020 demonstrated the cost of using a pen to retain an extra participant was £10.56. These two examples show the potential difference in costs of implementing retention interventions (both for evaluation and in practice) and, therefore, cost is an important outcome for evaluators to include in future comparisons so as to provide trial teams with the information they need to make a decision on what will work from an effectiveness and an economic perspective.

Finally, we welcome notifications for missed or newly published studies that require inclusion in future updates of this review.

AUTHORS' CONCLUSIONS

Implication for systematic reviews and evaluations of healthcare

Trialists should consider including well-designed evaluations of strategies to increase retention in randomised trials. A focus on replication of existing interventions for which additional high-quality evidence is required should be the priority rather than uncoordinated scattergun approaches to identify improvements.

Implication for methodological research

There are key recommendations for methodological research in this area.

Prioritisation: this is important both in terms of replication of existing studies and development and evaluation of interventions for priority questions. With regard to replication of existing studies, we believe there are three categories consisting of eight interventions in total that could immediately benefit from further research. These are presented below in order of priority. Decisions about whether further evaluation is required have been guided by Treweek 2020b, but are largely based on the fact that none of these comparisons have high GRADE certainty in the evidence.

Category A – interventions with multiple existing evaluations that currently provide low-certainty evidence but rigorous replication could move the evidence up to moderate or high certainty. These are presented in order of effect size from highest (7%) to lowest (1%), which also corresponds with the predicted cost of each.

1. Monetary incentive compared to no incentive.

2. Return postage strategies (e.g. such as free post versus second class stamp; high-priority mail stamp versus usual postage; and personal form) compared to usual practice for return postage.

3. Addition of a pen versus no pen.

4. Electronic reminders compared to usual follow-up.

Two other interventions were identified that fulfilled this criterion, but which may have a detrimental effect on retention and have therefore not been prioritised for further evaluations at this stage: Personalised prompts compared to no prompt, and inclusion of a diary in addition to normal follow-up.

Category B – interventions with multiple existing evaluations but which together currently provide low- or very low-certainty evidence and which are nevertheless likely to be in routine use.

5. Post-it note compared to no post-it note or alternative post-it notes (e.g. printed versus handwritten).

6. Newsletter compared to no newsletter.

Category C - interventions currently with a single evaluation but which provide moderate-certainty evidence and large potential effect sizes (RD 20% and 9%, respectively), are relatively easy to implement and may be cheap to implement.

7. Giving a pen at recruitment.

8. Addition of monetary rewards to both trial arms.

One further intervention (use of self-sampling kits (directly mailed or an invitation to order)) also had moderate-certainty evidence of benefit for retention but given it would only be of relevance for a small sub-set of trials, it was judged to be of lower priority than the other two.

In addition to these replications, the questions identified in the PRioRiTY II project (which aimed to identify the unanswered questions for trial retention research) should act as a guiding framework to enable research teams to develop interventions to improve retention for which there is community buy-in and desire for evidence (Brunsdon 2019). For example, questions in the Top 10 do consider impacts on trial staff, yet only two of the 68 studies included in this review evaluated strategies targeting staff. Likewise, retention behaviours that go beyond participants returning a trial questionnaire, such as attending a follow-up clinic, also warrant evaluation.

Design: well-designed retention trials that are considered from the design stage of the host trial are also key. Ensuring appropriate detail in terms of process and intervention are critical for timely replication. As a minimum, SWATs should have a publicly available outline registered on the SWAT repository (SWAT).

Reporting: retention trials were often poorly reported, without CONSORT flow diagrams, clear primary outcomes, sample size, and sociodemographic composition. In the context of this review, this meant that we had to contact authors for unreported data that we needed for robust meta-analyses. Trialists writing their reports should adhere to CONSORT guidelines for trial reporting (Moher 2010), which would facilitate the synthesis of results in future methodology reviews. Guidance for reporting embedded recruitment trials have been developed and these could also serve as a set of guiding principles when reporting embedded retention trials (Madurasinghe 2016). Furthermore, clarity on the intention of interventions with regard to their proposed mechanism of action and reporting on all key aspects (for example using the TiDier framework (Hoffman 2014)) is important for future replication and, when available, implementation of effective strategies.

Context: linked to prioritisation, it is important to consider which areas in terms of trial populations and contexts need more attention. The majority of the trials included in this review included white adults in non-emergency settings who were able to consent for themselves in high-income countries. Research to understand whether the findings from interventions shown to be effective in this population translate into other settings (e.g. in people from ethnic backgrounds, paediatric trials, emergency care trials, and trials in adults who lack capacity and other underserved groups).This additional contextual information is essential for making informed decisions about whether further replication studies are required (Treweek 2020b).

Collaboration: in order to generate evidence on what interventions do, or do not improve retention, there needs to be coordinated collaboration to enable key questions to be answered in a timely fashion. This is of critical importance. The current approach is more scattergun than targeted. Ongoing efforts such as the PROMETHEUS project and Trial Forge aim to offer support (both in terms of advice but also tools such as text for ethics applications etc) for trial teams conducting SWATs and encourage parallel evaluations of interventions across a range of trials. Funders also have a role to play and whilst recent times have seen a shift to funds being available to support SWATs (especially in the UK and Ireland), a move to commissioned calls to evaluate priority SWAT interventions might accelerate the evidence generation for priority topics.

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

AMBER 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, secondary care settings. Not all participants in the host trial that took part in this embedded trial. Only those who had yet to complete the study at the time of the SWAT set up. Total n = 64, age NR; sex NR.
Comparisons	*Intervention group* received a tested a theoretically informed letter sent with the questionnaire *Control group* received a standard letter
Outcomes	Questionnaires returned
Notes	6 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	No information of the nested RCT was provided.
Adequate sequence generation?	No	According to the authors, the randomisation list was generated and was not concealed.
Blinding of participants and personnel?	Unclear	Participants were unaware if they were receiving a standard or theory-based cover letter but may have noticed from earlier letters that it had a different "tone"
Blinding of outcome assessment?	Unclear	No information of the nested RCT was provided.
Incomplete outcome data addressed? All outcomes	Unclear	No concerns raised.
Free of selective outcome reporting?	Unclear	No concerns raised.
Other sources of bias	No	No further concerns raised.

AMBER 2020 *(Continued)*

Overall Risk of Bias	Unclear	Unclear

Arundel 2019

Study characteristics		
Methods	Parallel RCT, individuals randomised	
Data	UK, 21 NHS Trusts and 16 primary care settings. All host trial participants, as a source of the retention trial sample. Total n = 434; age NR; sex NR	
Comparisons	*Intervention group* were contacted by the research team to arrange their follow-up appointment. They were advised of the potential of receiving £10 cash reliant on providing a carbon monoxide breath test in addition to the £10 gift voucher routinely provided all other pre-planned retention strategies within host trial. *Control group* received a £10 gift voucher routinely provided and all other pre-planned retention strategies within host trial.	
Outcomes	Proportion of participants completing a test.	
Notes	Retention period: 6-month follow-up and the response time was two months after initial contact.	
Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Participants were allocated with a 2:1 allocation ratio.
Adequate sequence generation?	Yes	An independent statistician carried out simple randomisation using random numbers.
Blinding of participants and personnel?	No	It was not possible to blind research staff to the participant's allocation.
Blinding of outcome assessment?	No	It was not possible to blind research staff to the participant's allocation.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	No	Unclear

Ashby 2011

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, community setting. All host trial participants, as a source of the retention trial sample. Host trial participants who provided an e-mail address or SMS number were included. Total n = 178; mean age 46.7 (SD 10.7) years; 87% females
Comparisons	*Intervention group* received an SMS text message, e-mail message, or both. *Control group* received no message.
Outcomes	Questionnaires returned (questionnaire response rate).
Notes	Retention period: 1 month.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	An independent data manager was responsible for generating the allocation sequence and assigning participants into intervention and control groups.
Adequate sequence generation?	Unclear	Randomly-generated numbers were used to list all participants by ID number. No clarification of how the numbers were generated.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	All data accounted for.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Avenell 2004

Study characteristics	
Methods	RCT, individuals randomised
Data	UK, secondary care setting.

Avenell 2004 *(Continued)*

	Participants were those approached about the host trial and willing to receive further information about taking part. Total n = 180; mean age 77 (SD 5) years; 82.8% females
Comparisons	*Intervention group* received full information provided to eligible people, who were approached by a nurse and informed they would know their treatment allocation *Control group* received conventional trial methods, comprising randomised blinded, placebo-controlled.
Outcomes	Participants remaining in the study (i.e. not withdrawn).
Notes	Retention period: 12 months.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The study nurse then used a pre-programmed laptop computer to generate random allocation to either the open-trial design or the blinded, placebo-controlled trial design in a 1: 2 ratio.
Adequate sequence generation?	Yes	Computer used to generate random allocation to either the open-trial design or the blinded.
Blinding of participants and personnel?	Unclear	Participant unblinded but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Bailey 2013

Study characteristics	
Methods	R 2x2 factorial RCT, individuals randomised
Data	UK, community setting (online) Host trial respondents who agreed to be contacted. However, 15 were randomly selected from each of the 20 original US communities to participate. Total n= 1030; range age 18-20 years; sex NR

Bailey 2013 *(Continued)*

Comparisons	*Interventions group 1* were allocated to a postal request for a urine sample for genital chlamydia testing and receipt for £10 shopping voucher *Interventions group 2 Interventions group 1* were allocated to a postal request for a urine sample for genital chlamydia testing and receipt for £20 shopping voucher *Control group* no request for a sample nor vouchers
Outcomes	Completion of sexual health survey and return of kits
Notes	Retetnion period: 3 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	At recruitment, all participants were randomised in a factorial (2x2) design to either the intervention or control website and to receive or not receive a urine sample kit for chlamydia testing at follow-up. In addition, the final 902 participants were randomised after recruitment to a £10 or £20 voucher to complete follow-up as requested.
Adequate sequence generation?	Yes	The first two randomisations were performed using an automated computer algorithm and the third was performed off-site by random permutation of participant identifiers. Participants were automatically allocated by computer to control or intervention after submitting baseline data.
Blinding of participants and personnel?	Unclear	Not reported in the paper.
Blinding of outcome assessment?	Unclear	Not reported in the paper.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Bauer 2004

Study characteristics

Methods	Parallel RCT, individuals randomised
Data	US, multi-centre community setting. Host trial respondents that agreed to be contacted. However, 15 were randomly selected from each of the 20 original US communities to participate.

Bauer 2004 *(Continued)*

	Total n = 300; range age 38-77 years; 58.3% female; 65%; White non-Hispanic; 41% reported 13-15 years of education; 40% had an income >US$60,000; 60.3% were married.
Comparisons	*Interventions group 1* received an incentive of US$10 *Interventions group 2* received an incentive of US$2 *Control group* received no incentive (US$0)
Outcomes	Return of DNA kits and questionnaire.
Notes	Retention period: unclear. DNA kit and questionnaire to be returned within 24 hours of completing.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	No	Among host trial respondents that agreed to be contacted, 15 randomly selected from each of the 20 originals—no allocation concealment.
Adequate sequence generation?	No	Among host trial respondents that agreed to be contacted, 15 randomly selected from each of the 20 originals. No sequence was generated.
Blinding of participants and personnel?	Unclear	Not reported in the paper.
Blinding of outcome assessment?	Unclear	Not reported in the paper.
Incomplete outcome data addressed? All outcomes	Yes	Clearly stated in the paper and missing values accounted for.
Free of selective outcome reporting?	No	Missing data.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	No	High

Bean 2019

Study characteristics

Methods	Parallel RCT, Individuals randomised
Data	US, primary care setting. Screened, eligible participants were randomised at telephone screening to participate in either retention intervention or the main host trial. Total n = 64; mean age 40.7 (SD 10.2); 90.6% females; 51.6% were Black or African American; 42.2% were White or Caucasian; 34.4% reported having some college degree, and 32.8% reported having a college degree; 21.9% had an income US$≥75,000.
Comparisons	*Intervention group* received two brief pre-treatment motivational interviewing.

Bean 2019 *(Continued)*

	Control group received the host trial intervention or control, both with no motivational interviewing component
Outcomes	Enhance retention beyond baseline or to increase treatment attendance
Notes	Retention period: baseline, post-test, and 4-months follow-up assessment

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Random number generator developed by the study biostatistician
Blinding of participants and personnel?	Yes	Trained, blinded staff measured parent and child height and weight using a stadiometer and digital bariatric scale, respectively. Trained, blinded ratters coded randomly selected 20-minute segments of each session; all sessions were double rated by two independent ratters.
Blinding of outcome assessment?	Unclear	Trained, blinded ratters coded randomly selected 20-minute segments of each session; all sessions were double rated by two independent ratters.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Bell 2016

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, primary care setting. All host trial participants, as a source of the retention trial sample. Host trial participants from 5 centres were followed up using postal questionnaires at the fifth year of follow-up. Total n = 7,655; range age 70-85 years; 100% females.
Comparisons	*Intervention group* received trial-branded pen with the 60-month follow-up questionnaire. *Control group* 60-month follow-up questionnaire alone.
Outcomes	Questionnaire return.
Notes	Retention period: 60 months follow-up.

Bell 2016 *(Continued)*

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	A computer-randomisation package was used to allocate all eligible participants
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Bradshaw 2020

Study characteristics

Methods	Parallel factorial RCT, individuals randomised
Data	UK, mainly secondary care centres with a smaller number of primary care centres. All host trial participants, as a source of the retention trial sample. Total n = 1394; age NR; sex NR
Comparisons	*Intervention groups 1* received an SMS message (text message) was sent the day before the e-mail with the link to the questionnaire. *Intervention groups 2* received a further £10 high-street shopping voucher sent by post to parents at around 22 months before the 24-month visit. *Intervention groups 3* received a further £10 high-street shopping voucher given at the visit. *Control group* received no SMS or voucher.
Outcomes	Collection of outcome data
Notes	Retention periods: 3-, 6-, 12-, 18- and 24-months

Risk of bias

Item	Authors' judgement	Support for judgement

Bradshaw 2020 *(Continued)*

Allocation concealment?	Yes	Using an allocation schedule created by the Nottingham Clinical Trials Unit
Adequate sequence generation?	Yes	Research nurses randomised participants to the BEEP host trial by accessing an online system provided by the co-ordinating centre. The second randomisation was then automatically performed for the SWAT to each of the retention strategies (1:1).
Blinding of participants and personnel?	No	Participants were informed in the host trial information sheet about the SWAT for SMS notification for questionnaires and timing of the voucher for the 24-month visit but were not informed at the time of the randomisation of their allocated groups for the SWAT. Research nurses were not blinded
Blinding of outcome assessment?	Yes	The Trial Management Team and the research nurses were not blinded to the allocations for the SWAT. The sequence of allocations for the SWAT was concealed from the statisticians until the database was locked in the host trial. However, objective outcome, participants blind (did not know there was a study) staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	No	No

Brubaker 2019

Study characteristics	
Methods	RCT, individuals randomised.
Data	US, multi-centre setting. Participants who completed 24-month follow-up outcomes were included. Total n= 305, mean age 57.4 (SD 10.8) years; 100% females; 83.9% White.
Comparisons	*Intervention group* received a standardised video followed by the usual consent process. *Control group* received the usual consent process alone.
Outcomes	Follow-up data collection.
Notes	Retention period: 36-, 48- and 60-months (a window of 3 months on each side of the visit was allowed for data collection).

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	The study co-ordinator was not masked to the enrolment intervention

Brubaker 2019 *(Continued)*

Adequate sequence generation?	Unclear	Not discussed in the paper.
Blinding of participants and personnel?	Unclear	Only mentions that the study co-ordinator was not masked to the enrolment intervention. However, unclear for participants or other personnel.
Blinding of outcome assessment?	Yes	Evaluators of outcome assessments were masked to surgical, behavioural therapy with pelvic floor muscle training and enrolment process randomisations
Incomplete outcome data addressed? All outcomes	Yes	The detail provided on lost and withdrawn participants
Free of selective outcome reporting?	Yes	They present and describe additional outcomes as 'exploratory'.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Clark 2015

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, primary care setting. Those participants taking part in the host trial who provided a mobile phone number and/or an electronic mail address were randomised. Total n = 437; mean age 50.4 (SD 9.4) years; 46.2% females.
Comparisons	*Intervention group* received an SMS or e-mail to return the study questionnaire. *Control group* received the usual no electronic prompt to return the study questionnaire.
Outcomes	Questionnaires returned.
Notes	Retention period: 2-6 months (depending on site) after randomisation. Response period was up to 2 months after the follow-up questionnaire was sent.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Participants were securely randomised to either receiving an electronic prompt or not by the data manager at the York Trials Unit. Simple randomisation between the two groups was undertaken without any blocking or stratification.
Adequate sequence generation?	Unclear	The method used to randomise participants is not stated in the paper. There is an imbalance between the numbers receiving e-mails and SMS text messages see consort diagram.

Clark 2015 *(Continued)*

Blinding of participants and personnel?	Yes	The data manager was unaware of any baseline characteristics of participants before randomisation
Blinding of outcome assessment?	Yes	Not discussed in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	Everything accounted for.
Free of selective outcome reporting?	Yes	Author report on all expected outcomes stated in the aims of the paper.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Cochrane 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, community setting. Host trial participants who agreed to receive text communication during participation, provided a mobile number, and were due to receive their four-month post-randomisation postal questionnaire were included. Total n = 283; mean age 77.3 (SD 5.9) years; 64% female.
Comparisons	*Intervention group 1* received a personalised text message four days after their four-month questionnaire was posted. *Intervention group 2* received the usual standard text alone.
Outcomes	Questionnaires returned.
Notes	Retention period: 4-months.

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Allocations were generated by the host trial statistician, before being shared with the data management staff responsible for the setup of the text messaging system.
Adequate sequence generation?	Yes	Randomised (1:1) using randomly varying blocks of four and six, stratified by host trial group allocation.
Blinding of participants and personnel?	Yes	Participants were not aware of their involvement within this SWAT, only to the OTIS trial group allocation. But data entry staff were blinded.

Cochrane 2020 *(Continued)*

Blinding of outcome assessment?	Yes	Objective outcome, participants (do not know there is a study) data entry staff blind, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Cockayne 2005

Study characteristics	
Methods	Parallel RCT, clusters randomised
Data	UK, community setting. Participants who were due to be sent a final follow-up questionnaire as part of the host trial. Total n = 1038; mean age 76.4 (SD 4.6); 100% females.
Comparisons	*Intervention group* participants were offered the results of the trial in a postal questionnaire. *Control group* participants did not receive the offer of knowing the results of the trial.
Outcomes	Return of final follow-up questionnaire.
Notes	Retention period: Three weeks. Those participants nor returning questionnaires within three weeks were sent up to two reminder letters, questionnaires and business reply envelopes, three and six weeks after the initial mailing.

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	An independent researcher from the York Trials Unit randomised eligible women in a 3:1 ratio in favour of offering the results of the trial, by computer
Blinding of participants and personnel?	Yes	Not clear if participants were blinded to effect of embedded trial intervention on retention but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Statistical analysis was not undertaken blind to group allocation. However, objective outcome, participants blind (did not know there is a study) staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.

Cockayne 2005 *(Continued)*

Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Cockayne 2017

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK and Ireland, in either primary or secondary care settings. Participants who could be randomised as there was sufficient capacity in the clinics to see them. Total n = 193; mean age 78.1 (6.8) years; 56.5% females.
Comparisons	*Intervention group 1* received an optimised version of the participant information sheet and invitation letter developed through bespoke user testing. *Intervention group 2* received an optimised template-developed participant information sheet and the original invitation letter. *Control group* received the control participant information sheet for the host trial and control invitation letter.
Outcomes	Proportion of participants retained in the trial post-randomisation
Notes	Retention period: 3 months.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Participants were then sent the allocated invitation pack by members of the research team based at the University of York.
Adequate sequence generation?	Yes	An independent data manager, who was not involved in the recruitment of participants, generated the allocation sequence for the embedded methodology trial electronically
Blinding of participants and personnel?	Yes	The researchers, participants and podiatrists were blind to the allocation.
Blinding of outcome assessment?	Yes	The researchers, participants and podiatrists were blind to the allocation.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.

Cockayne 2017 *(Continued)*

Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Cook 2020

Study characteristics	
Methods	Parallel RCT, cluster randomisation
Data	UK, primary care setting. Host trial was a multinational trial. Only UK sites were included. 42 out of the 43 participant GP surgeries were included. Total n = 345; median age of intervention group 26 (IQR 12,46) years and control group median 36 (IQR 23,53) years; 60.4% females.
Comparisons	*Intervention group* received a £20 gift voucher given to study at the end of the recruitment visit. *Control group* were informed that a £20 gift voucher would be given upon the return of the trial symptom diary, and voucher then sent to those who returned a diary by the trial team.
Outcomes	Proportion of participants returning a symptom diary.
Notes	Retention period: 14 days.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not discussed in the paper.
Adequate sequence generation?	Yes	The trial sites were the unit of randomisation. The sites were cluster-randomised to keep the process as straight forward as possible for the recruiters. Randomisation was performed in two waves (before the start of seasons 2 and 3) using computer-generated random numbers carried by one of the investigators.
Blinding of participants and personnel?	Yes	GP practices were not blinded to their allocation due to the necessity of them either distributing the incentives initially or not. Participants were unaware that there was a SWAT taking place as it was thought this might influence whether or not they returned their diary.Unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not discussed in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	Whether the Symptom diary was returned, when it was received and how many pages were completed. There was no imputation of outcome data for sites where no-one was recruited, or where a participant did not return their Symptom diary.

Cook 2020 *(Continued)*

Free of selective outcome reporting?	Yes	All data reported for pre-specified objectives.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Couper 2007

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	US, community setting (online intervention). A sample of host trial participants that did not return their 12-month questionnaire (from the 3 US regions) who approved the follow-up study. Sampling involved a subset of participants who did not return any questionnaires as this was the largest group. Total n = 700; age NR; sex NR.
Comparisons	*Intervention group* received a telephone follow-up. *Control group* received mail follow-up a questionnaire with $US5 incentive enclosed.
Outcomes	Questionnaire return
Notes	Retention period: 3-, 6- and 12-months

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not discussed in the paper.
Adequate sequence generation?	Unclear	Three hundred of the nonrespondents being randomly assigned to telephone and 400, to mail. The disproportionate allocation reflects the cost differential
Blinding of participants and personnel?	Unclear	Not discussed in the paper. Unblinded staff may have potential for influence due to phone call.
Blinding of outcome assessment?	Yes	Not discussed in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	Reports reasons why not all analysed in each arm (duplicates and those subsequently found to be ineligible).
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.

Couper 2007 *(Continued)*

Overall Risk of Bias	Unclear	Unclear

Cunningham 2004

Study characteristics		
Methods	Parallel RCT, individuals randomised.	
Data	Canada, community setting. Participants who provided address to participate in the 6-month follow-up. Total n = 204, age NR, sex NR.	
Comparisons	*Intervention group 1* were asked to provide a collateral. *Intervention group 2* asked to provide collateral and told that there was a 50% chance that the collateral would be contacted. All those respondents asked for collateral were told that the collateral would receive a CAN$20 payment for a brief telephone interview. *Control group* was not asked to provide a collateral.	
Outcomes	Proportion of respondents who returned the survey at follow-up.	
Notes	Retention period: 6 months.	
Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not discussed in the paper.
Adequate sequence generation?	Unclear	Not discussed in the paper.
Blinding of participants and personnel?	Unclear	Not discussed in the paper.
Blinding of outcome assessment?	Unclear	Not discussed in the paper.
Incomplete outcome data addressed? All outcomes	Yes	Outcomes seem to be clearly reported.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Cunningham-Burley 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, secondary care setting. Participants in the host trial who were due to be sent their 14-week postal questionnaire. Total n = 1466, mean age 43.0 (SD 11.3) years, sex 86.1%.
Comparisons	*Intervention group* received a branded pen with their questionnaire. *Control group* did not receive a pen.
Outcomes	Proportion of participants who return the questionnaire.
Notes	Retention period: 14-week questionnaire

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not discussed in the paper
Adequate sequence generation?	Yes	Participants were allocated to either the intervention (pen) or control (no pen) group using simple randomisation in a 1:1 ratio. The allocation sequence was generated by the host trial statistician, who was not involved in sending out the questionnaires.
Blinding of participants and personnel?	Yes	Participants were not aware of their involvement in this SWAT, but due to the nature of the intervention participants and study team members could not be blinded to group allocation.Unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not discussed in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Dinglas 2015

Study characteristics	
Methods	Two RCTs, individuals randomised.
Data	US, secondary care setting.

Dinglas 2015 *(Continued)*

	1) Trial 1 (mail trial): participants who had been enrolled before the introduction of this survey were sequentially randomised. Total n = 332; mean age 48.8 (SD 15.0) years; 52% females; 20% of ethnic minorities (i.e. African American, Asian, American Indian and Alaskan Native), 24% unemployed; 46% retired or disabled. 2) Trial 2 (Phone trial): non-responders from the prior mail and those excluded from mail trial due to lack of a correct mailing address were eligible. Total n = 171; mean age 46.0 (SD 14.7) years; 51% females; 26% of ethnic minorities (i.e. African American, Asian, American Indian and Alaskan Native), 26% unemployed; 43% retired or disabled.
Comparisons	1) Trial 1 (Mail trial) participants were randomised to mailed letters every two weeks until the survey was completed. *Intervention group 1* received a "personal format letter" in which their mailing address and the return address were handwritten, and a traditional stamp was stamped using the envelope. *Intervention group* 2 received a "business format letter" in which the addresses were typed, and a commercial stamp-machine affixed the postage. 2) Trial 2 (Phone trial): started 20 days after the end of the mail trial. These telephone calls were made once weekly by the same caller, for up to 4 weeks, until the participant was reached by telephone or the participant called back and completed the survey. *Intervention group* receive a personalised voice message. *Control group* received generic voice message.
Outcomes	Participant to complete the insurance survey.
Notes	Retention period: 1) Trial 1 (mail trial): unclear. However, every two weeks until the survey was completed, or the participant was sent a total of 4 mailings. Trial 2 (Phone trial): unclear. However, once weekly by the same caller, for up to 4 weeks

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not discussed in the paper.
Adequate sequence generation?	Yes	In both the mail and the phone trials, randomisation was performed by a statistician using computer-generated random numbers with an allocation ratio of 1:1.
Blinding of participants and personnel?	Yes	Given the nature of this study design, outcome assessment was not blinded, but participants were blinded. Unclear about the personnel. unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Given the nature of this study design, outcome assessment was not blinded. However, objective outcome, participants blinded (did not know there was a study) telephone contact was only those participants who received the scripted message, not those who were spoken to, staff have no/very limited plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed?	Yes	No concerns raised.

Dinglas 2015 *(Continued)*

All outcomes		
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Dorling 2020

Study characteristics		
Methods	Parallel RCT, individuals randomised	
Data	UK and Ireland Republic, secondary care. Participants from the host trial who were due to be sent a questionnaire at the age of 24 months. Total n= 799; mean age 30.9 (SD 6.2) years; 100% females.	
Comparisons	*Intervention group 1* received the first paper letter to parents included a promise of an incentive (£15 gift voucher redeemable at some shops) after receipt of a completed form. *Intervention group 2* received the first paper letter to parents would enclose the incentive (£15 gift voucher redeemable at high-street shops) before the receipt of a completed form.	
Outcomes	Rate of questionnaire return.	
Notes	Retention period: 24 months	
Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Infants from multiple births were allocated to the same incentive group. Vouchers were allocated per questionnaire, so parents of multiple births received a voucher for each infant.
Adequate sequence generation?	Yes	Participants were randomised in a 1:1 allocation ratio by permuted block randomisation (using variable block sizes) and stratified by original SIFT allocation.
Blinding of participants and personnel?	Yes	The SIFT office staff at the NPEU CTU were aware of participant allocation owing to the nature of the interventions and the practicalities involved in sending out the letters and the vouchers. Not clear if participants were blinded to effect of embedded trial intervention on retention but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.

Dorling 2020 *(Continued)*

Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Dorman 1997

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	UK, secondary care setting. Multinational host trial. Only UK sites took part in this trial. Participants who had been entered by UK centres who were not known to be dead. Total n = 2253, age NR, sex NR.
Comparisons	*Intervention group 1* received a short questionnaire: EuroQol questionnaire (six separate questions and a visual analogue scale) sent by post. *Intervention group 2* received a long questionnaire: SF36 (34 separate questions) sent by post.
Outcomes	Questionnaire response rate
Notes	Retention period: unclear. Follow-up time point not specified. Authors mention as quote:"response to first mailing or response after two mailings".

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not discussed in the paper.
Adequate sequence generation?	Yes	Authors response "generated by a computer".
Blinding of participants and personnel?	Yes	Authors reported, quote: "there was no blinding for either study staff or participants." Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Authors reported, quote: "there was no blinding for either study staff or participants". No clarification on outcome assessment. However, objective outcome, participants blind (did not know there was a study) staff had no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	Everyone is included in the denominator as well as a compilation of data
Free of selective outcome reporting?	Yes	All defined outcomes reported
Other sources of bias	Yes	No further concerns raised.

Dorman 1997 *(Continued)*

Overall Risk of Bias	Unclear	Unclear

Edwards 2004

Study characteristics	
Methods	RCT, unclear if individuals or clusters randomised.
Data	UK, setting unclear. Data retrieved from a review. Data on included participants not available. Total n = 99, age NR; sex NR
Comparisons	*Intervention group* received a one-page questionnaire that contained seven questions. *Intervention group 2* received three-page questionnaire contained 16 questions with space provided for comments.
Outcomes	Questionnaire return.
Notes	Retention period: Unclear. The publication says that reminders sent after 1- and after 2- months.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Random allocation: central computer
Adequate sequence generation?	Unclear	No information provided.
Blinding of participants and personnel?	Unclear	No information provided.
Blinding of outcome assessment?	Unclear	No information provided.
Incomplete outcome data addressed? All outcomes	Unclear	No information provided.
Free of selective outcome reporting?	Unclear	No information provided.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Edwards 2016

Study characteristics	

Edwards 2016 *(Continued)*

Methods	Trial 1: Quasi randomised, Trial 2 and 3 parallel RCTs
Data	UK, community setting Trial 1 was introduced six months into the trial, so did not include all host trial participants. Total n = 190, mean age 50.1 (SD 13.5) years; 70% females. Trial 2 included participants from the Bristol study centre who were due to complete the 12-month. Total n = 251, mean age 49.6 (SD 13.3) years; 69.7% females Trial 3 involved 'approx. half' of participants at Sheffield and Southampton. Total n = 231, mean age 49.2 (SD 11.8) years; 64% females
Comparisons	This reference contains three trials within: Trial 1. Advance notification through pre-calling trial *Intervention group* received an advance notification telephone call (i.e. a pre-call) from a researcher one to three days ahead of being sent the questionnaire. *Control group* received e-mailed or were posted the questionnaire without a telephone call. Trial 2. Research team study photo *Intervention group* to receive a cover letter with a colour photo of the Bristol research team. *Control group* to receive the standard, black and white cover letter without a photo. Trial 3. Action-oriented e-mail reminder subject line *Intervention group* receive either the intervention reminder e-mail subject line. *Control group* the standard reminder e-mail subject line.
Outcomes	Follow-up questionnaire response
Notes	Retention period: Trial 1: 8-month follow-up Trial 2 and 3: 12-month follow-up.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Trial 1: No Trial 2 and 3: Yes For Trial 1 it is possible to foresee who will get what.
Adequate sequence generation?	Unclear	Trial 1: No Trial 2 and 3: Yes Trial 1 is unclear because they ordered host trial randomisation date and for SWAT just alternated host trial participants to SWAT int or control. It depends on what the randomisation system used in the host trial is doing re—minimisation, stratification. Plausible I think that initial randomisation in host trial

Edwards 2016 *(Continued)*

		could be a bit different, and perhaps something different about people who sign up at the start of the trial, or potential at sites before others.
Blinding of participants and personnel?	Unclear	Trial 1: unclear Trial 2 and 3: Yes Not clear if the researcher making phone call knew what the SWAT trial was about, which could influence what was said, and therefore what was done by participant.
Blinding of outcome assessment?	Yes	Trial 1-3: Yes. No concerns raised in any of the studies.
Incomplete outcome data addressed? All outcomes	Yes	Trial 1-3: Yes. No concerns raised in any of the studies.
Free of selective outcome reporting?	Yes	Trial 1-3: Yes. No concerns raised in any of the studies.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Fouad 2014

Study characteristics	
Methods	RCT, cluster randomised
Data	US, community setting. Participants from the host trial residing two low-income communities in Jefferson County, Alabama, matched according to population demographics. Total n = 632; mean age 27.1 (SD NR); 100% females; 90.8% Afro American; 53.0% with Highschool degree or less.
Comparisons	*Intervention group* received Community Health Advisor supported retention activities (four types of communication and support), in addition to the reminder calls, cards, and retention incentives offered by the ALTS trial (US$20 at each visit and US$100 and a gift bag at final visit). *Control group* received only the reminder calls, cards, and retention incentives offered by the ALTS trial.
Outcomes	Retention in trial for four follow-up visits
Notes	Retention period: Four follow-up visits (time unclear).

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	No details provided in the paper.
Adequate sequence generation?	Unclear	No details provided in the paper.

Fouad 2014 *(Continued)*

Blinding of participants and personnel?	Unclear	No details provided in the paper.
Blinding of outcome assessment?	Unclear	No details provided in the paper.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Gates 2009

Study characteristics	
Methods	Quasi-randomisation, individuals randomised
Data	UK, secondary care setting. The sample included all host trial participants were being sent a follow-up questionnaire at 4 months or 8 months. Total n = 2144; mean age 36.9 (SD 13.3) years; 56% females
Comparisons	*Intervention group* received a £5 gift voucher, redeemable at a range of shops with their questionnaire, and a covering letter including a sentence explaining that the voucher is to thank participants for their time and effort. *Control group* received no gift voucher, and a standard covering letter
Outcomes	Questionnaire return
Notes	Retention period: 4 and 8 months

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	No	There was lack of concealment of allocations before randomisation.
Adequate sequence generation?	No	Allocation to trial arms was according to whether a specific digit of the participant's trial number was odd or even.
Blinding of participants and personnel?	Yes	Trial office staff were unblinded. Unclear about other personnel or participants. Not clear if participants were blinded to effect of embedded trial intervention on retention but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Trial office staff were unblinded. However, objective outcome, participants blind (did not know there is a study) staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.

Gates 2009 *(Continued)*

Incomplete outcome data addressed? All outcomes	No	There is a difference between the CONSORT diagram and Table 2 regarding the number of non-responders.
Free of selective outcome reporting?	Unclear	Concerns raised due to inconsistency of outcome reporting (see above).
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	No	Low

Gattellari 2004

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	Australia, primary care setting. All host trial participants lost to follow-up, as the source of the retention trial sample. Total n = 246; mean age NR, 0% females
Comparisons	*Intervention group* received a cover letter with their follow-up questionnaire that advised them to return their questionnaire within 1 week—a reminder phone call scheduled 11 days after letter 18 days after initial mail.The not of the follow-up questionnaire, and an extra remainder *Control group* received standard covering letter with no deadline.
Outcomes	Proportion of participants who returned the follow-up questionnaire.
Notes	Retention period: unclear. Participants were asked to 1 week + 18 days (non-responders were scheduled to receive a reminder letter 18 days after the initial mailout).

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Information about randomisation was sealed in sequentially-ordered opaque envelopes.
Adequate sequence generation?	Yes	The randomisation sequence was generated by a computer program using block randomisation. Block size was varied to obscure randomisation sequence.
Blinding of participants and personnel?	Yes	No details provided in the paper. Unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	No details provided in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	No details provided in the paper.

Gattellari 2004 *(Continued)*

Free of selective outcome reporting?	Unclear	No details provided in the paper.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Glassman 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	USA, secondary care setting. All participants from the host trial. Total n = 305; median age from intervention group 53 (44–60) years, and in the control group 51 (45–59) years; 44.2% females; 52.4% Non-Hispanic White; 25.5% Hispanic or Latino; 15% Non-Hispanic Black or African American.
Comparisons	*Intervention group* received telephone calls at baseline, six months, and at annual visits after that (annual contact). *Control group* received a call at baseline only (baseline contact).
Outcomes	Visit completion rates.
Notes	Retention period: 24-,36-, 48- and 60-months visits

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not described in the paper
Adequate sequence generation?	Yes	Randomisation was stratified by treatment group and performed using study website using computer-generated random numbers
Blinding of participants and personnel?	Unclear	Not described in the paper and telephone calls from staff may have potential to unblind participants or affect outcome.
Blinding of outcome assessment?	Yes	Not described in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	The trial clearly reported why participants randomised where not included in the main analysis – withdrawn with reasons and death but this is at 5 years only
Free of selective outcome reporting?	Yes	All defined outcomes reported
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Goulao 2020

Study characteristics	
Methods	Parallel RCTs, individual randomisation.
Data	UK, primary care setting (dental practices). All participants from both host trials. Trial 1-3: Total n = 1877; host trial participants were on average, 48 (SD 16) years, 65% females.
Comparisons	Trial 1: *Intervention group* received a logo sticker on questionnaire envelopes *Control group* received no sticker Trial 2: *Intervention group* received a tested theoretically informed letter sent with the questionnaire *Control group* received a standard letter Trial 3: *Intervention group* received a tested theoretically informed newsletter sent before the questionnaire *Control group* received no newsletter
Outcomes	Questionnaire return
Notes	Retention periods: Trial 1: 12 months Trial 2: 12 months or 24 months Trial 3: unclear

Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Trial 1: computer-generated by an independent statistician Trial 2 and 3: the centralised computerised system automatically through simple randomisation
Adequate sequence generation?	Yes	Trial 1: simple randomisation via an automated, central randomisation service in a 1:1 participant randomised 2-arm parallel trial. Trial 2: were randomised via an automated, central randomisation service in a 1:1 participant randomised 2-arm parallel trial Trial 3: were randomised via an automated, central randomisation service in a 1:1 participant
Blinding of participants and personnel?	Yes	Not described in the paper. Unblinding not likely to impact objective outcome

Goulao 2020 *(Continued)*

Blinding of outcome assessment?	Yes	Not described in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Goulao 2020 (replication of SWAT #2)

Study characteristics	
Methods	Parallel RCTs, individual randomisation.
Data	UK, primary care setting (dental practices). All participants from both host trials. Total n = 2372; participants on average 48 (SD 15) years, 60% were female.
Comparisons	*Intervention group* received a tested theoretically informed letter sent with the questionnaire. *Control group* received a standard letter.
Outcomes	Questionnaire return
Notes	Retention periods: replication trial: 24 months follow-up

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported.
Adequate sequence generation?	Unclear	Not reported
Blinding of participants and personnel?	Yes	Not described in the paper. Unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not described in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.

Goulao 2020 (replication of SWAT #2) *(Continued)*

Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Greig 2017

Study characteristics		
Methods	Parallel RCT, individuals randomised	
Data	UK, secondary care. All host trial participants were included in this trial. Total n = 60; mean age 5.8 (SD 3.5); 48.3% females.	
Comparisons	*Intervention group 1* had a postal follow-up. *Intervention group 2* had a clinic follow-up.	
Outcomes	Participants with a valid response.	
Notes	Retention period: 4 months.	
Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Not reported in the paper.
Blinding of participants and personnel?	Yes	Not clear if participants were blinded to effect of embedded trial intervention on retention but unblinding not a likely impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Griffin 2019

Study characteristics	
Methods	RCT, individuals randomised
Data	UK, primary care setting. All host trials participants included. Total n = 9375; mean age 77.9 (SD 5.8) years; 52.4% females; 61% married.
Comparisons	Participants were randomised allocated participants to receive prospective monthly falls diaries for one simultaneous 4-month period: · *Intervention group 1* received falls diaries from randomisation to 4 months follow-up. · *Intervention group 2* received falls diaries from 5 and 8 months. · *Intervention group 3* received falls diaries from or between 9 and 12 months Furthermore, all trial participants received a postal questionnaire at baseline and at 4-, 8-, 12-, and 18-months post-randomisation to evaluate data retrospectively.
Outcomes	Number of participants who provided falls data on a full set of diaries and on the questionnaire for the corresponding period
Notes	Retention period: up to 4 months. Data also available for 5-8 months and 9-12 months.

Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	This nested trial design used a separate randomisation strategy to allocate trial participants. However, allocation concealment unclear.
Adequate sequence generation?	Unclear	This nested trial mentions that the design used a different randomisation strategy to allocate trial participants. However, not reported the sequence generation. The number of people in the control arm was higher compared at the intervention arm.
Blinding of participants and personnel?	Yes	Not reported in the paper.Unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Guarino 2006

Study characteristics	
Methods	Parallel RCT, cluster randomised
Data	USA, secondary care setting. All host trial participants included. Total n = 1092; mean age 40.6 (SD 8.7) years; 14.8% females; 53.8% white non-Hispanic; 24.3% were Black, non-Hispanic; Mean education years 14.0 (SD 1.9) years; 81% were employed.
Comparisons	*Intervention group* received a consent form that was revised by a consumer focus group. The changes involved revising treatment and eligibility descriptions, specifying participants would receive renumeration for three follow-up visits but not treatment session, eliminating the enumeration for the risks of exercise. *Control group* received the original consent form with no modifications
Outcomes	Attendance at follow-up visit/ collection of primary outcomes.
Notes	Retention period: 3-, 6- and 12-months.

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Participating centres were randomised to either the participant- or investigator developed consent document in a 1:1 ratio.
Blinding of participants and personnel?	Yes	IRB and sites were only shown the consent form they were randomised to.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	It states missing data were excluded and not imputed, but it does not expand on this or highlight where there were missing data.
Free of selective outcome reporting?	Unclear	There is a lack of clarity around the definitions of 'retention' Adherence. At times this refers to visit attendance at other times primary outcome data
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Hardy 2016

Study characteristics	
Methods	Parallel RCT, individuals randomised.

Hardy 2016 *(Continued)*

Data	UK, secondary care setting. Participants from the host trial who consented 1-year follow-up. Total n = 1018; mean age 29.1 (SD 5.5) years; 100% women; 17.9% were firm the most deprived SES category and 13.3% were from the least deprived SES category; 83% were White.
Comparisons	*Intervention group* 1 received an incentive cover letter sent with the first mailout of the questionnaire containing details of a promise of a £10 gift voucher (redeemable at some shops) on the return of a completed questionnaire. The covering letter included a sentence explaining that the voucher was to thank participants for their time and effort. All reminder letters included a sentence about the incentive. *Intervention group 2* received a cover letter sent at first mailout did not mention the incentive. If the questionnaire was not returned, all reminder letters detailed the promise of a £10 gift voucher on the return of a completed questionnaire.
Outcomes	Return of questionnaires
Notes	Retention period: 12-months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The allocation was by computer random number generation and stratified by host trial allocation and by the centre.
Adequate sequence generation?	Yes	The randomisation schedule was generated by the National Perinatal Epidemiology Unit Clinical Trials Unit and sent to the host trial office at the Comprehensive Clinical Trials Unit at University College London via a secure weblink.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Henderson 2010

Study characteristics

Methods	Parallel RCT, clusters randomised

Henderson 2010 *(Continued)*

Data	UK. Schools and then community setting. All host trial participants, as a source of the retention trial sample. Total n = 4134; range age 13-20 years old; Sex NR.
Comparisons	*Intervention group 1* had a chance of winning 1 of 25 £20 shopping vouchers. *Intervention group 2* had a chance of winning one £500 shopping voucher. *Control group* received no incentive.
Outcomes	Increased response rate.
Notes	Retention period: unclear.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Just mentions quote: "randomly assigned groups clustered" by school"
Blinding of participants and personnel?	Yes	Mostly handled through post/web and asking for an interview required the participant to do something before anyone could influence the decision to ask for an interview.
Blinding of outcome assessment?	Yes	No concerns raised.
Incomplete outcome data addressed? All outcomes	Yes	For Wave 3 considered in this review.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

James 2020

Study characteristics	
Methods	2x2 factorial RCT, individuals randomised.
Data	UK, community setting. Participants from the host trial who were due to be sent a questionnaire at 12 months. Total n = 779; mean age 79.7 (SD 6.2) years; 63.9% females.
Comparisons	*Intervention group 1* received a branded pen and a standard cover letter.

James 2020 *(Continued)*

	Intervention group 2 received a branded pen and a social incentive cover letter. *Intervention group 3* received no pen and a social incentive cover letter. *Control group* received no pen, standard cover letter. All participants received an unconditional £5 note with the questionnaire.
Outcomes	Questionnaire return
Notes	Retention period: 12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The allocation sequence was generated by the host trial statistician, who was not involved with the sending of the questionnaires,
Adequate sequence generation?	Yes	The participants were randomised in a single block in a 1:1:1:1 ratio
Blinding of participants and personnel?	Yes	Participants were blind to their participation. Research administrators and research team members posting the questionnaire packs were not blind to the intervention; Not clear if participants were blinded to effect of embedded trial intervention on retention but unblinding likely not impact objective outcome.
Blinding of outcome assessment?	Yes	However, administrators who recorded the outcome data were blind to allocation
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Keding 2016

Study characteristics

Methods	Factorial RCT, individuals randomised.
Data	UK, primary care setting. All host trial participants who consented to SMS notifications. Total n = 523; mean age 41.0 (SD 11.5) years; 76% females; 41% were full time workers.
Comparisons	Three sequential trials: Trial 1 (3-month follow-up): *Intervention group* received pre-notification text.

Kending 2016 *(Continued)*

	Control group received no text. Trial 2 (6-month follow-up): *Intervention group* received a pre-notification text *Control group* received a post notification text Trial 3 (9-month follow-up): *Intervention group* received a post notification reminder text *Control group* did *not* receive a text
Outcomes	Proportion of participants who returned a valid questionnaire to the trial team.
Notes	Retention period: 3-, 6- and 9-months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Not reported in the paper.
Blinding of participants and personnel?	Yes	independent randomisation and that participants were blind to the trial hypothesis.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Kenton 2007

Study characteristics	
Methods	Factorial RCT, individuals randomised
Data	Canada, community setting. All host trial participants in the intervention arm as a source of the retention trial sample. Total n = 281; age NR; sex NR.

Kenton 2007 *(Continued)*

Comparisons	Participants were randomised to: a) Receiving a monetary incentive alone (CAN$2 coin mailed with the questionnaire). b) Receiving a monetary incentive and 'high priority' stamp to the mailing envelope. c) Receiving lottery alone (draw for a CAN$50 gift certificate upon questionnaire receipt). Or a lottery and 'high priority' stamp to the mailing envelope.
Outcomes	Questionnaire return
Notes	Retention period: unclear

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the abstract.
Adequate sequence generation?	Unclear	Not reported in the abstract.
Blinding of participants and personnel?	Yes	Not reported in the abstract but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the abstract. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the abstract.
Free of selective outcome reporting?	Unclear	Not reported in the abstract.
Other sources of bias	Unclear	Abstract poorly reported.
Overall Risk of Bias	Unclear	Unclear

Kenyon 2005

Study characteristics

Methods	Parallel RCT, individuals randomised
Data	UK, secondary care setting. All host trial participants (parents) who consented to the follow-up study but did not return the questionnaire. Total n = 722; age NR; sex NR
Comparisons	*Intervention group* received a £5 voucher (redeemable at some shops) with their mailed questionnaire,

Kenyon 2005 *(Continued)*

	Control group received no voucher.
Outcomes	Questionnaire return
Notes	Retention period: 84 months after the original trial. The retention time was six weeks after an initial questionnaire sent in the follow-up study.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Randomly assigned by computer
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Khadjesari 2011

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, secondary care setting. All host trial participants (parents) who consented to the follow-up study but did not return the questionnaire. Total n = 722; age NR; sex NR
Comparisons	*Intervention group* received a £5 voucher (redeemable at some shops) with their mailed questionnaire, *Control group* received no voucher.
Outcomes	Questionnaire return.
Notes	Retention period: 84 months after the original trial. The retention time was six weeks after an initial questionnaire sent in the follow-up study.

Khadjesari 2011 *(Continued)*

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Randomly assigned by computer
Blinding of participants and personnel?	Unclear	Not reported in the paper.
Blinding of outcome assessment?	Unclear	Not reported in the paper.
Incomplete outcome data addressed? All outcomes	Unclear	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Land 2007

Study characteristics	
Methods	Parallel RCT, cluster randomised.
Data	USA, multi-centre cancer clinical trials. Not clear which participants were included in the nested RCT. Total n = 3104; 41.7% of the participants had between 50-59 years old; 100% females; and 87.7% were White.
Comparisons	*Intervention group* received a monthly reminder to sites listing participants who were due to have a measure in the next three months. *Control group* received no reminder.
Outcomes	The receipt of an expected form for a given institution, participant, and assessment time point. A form was considered expected if the participant had survived past the scheduled time point.
Notes	Retention period: unclear

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.

Land 2007 *(Continued)*

Adequate sequence generation?	Unclear	Not reported in the paper.
Blinding of participants and personnel?	Yes	Protocol reported as "double-blind"
Blinding of outcome assessment?	Unclear	Not reported in the paper. Site assessed objective outcome
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Lewis 2017

Study characteristics	
Methods	RCT, individuals randomised.
Data	UK, primary care setting. All host trial participants, as a source of the retention trial sample. Participants who were due to be sent a follow-up questionnaire for the host trial were included. Total n = 611; mean age 74.0 (SD 6.5) years; 59.5% female.
Comparisons	*Intervention group* received a questionnaire with a printed Post-it® note. *Control group* questionnaires without a note.
Outcomes	Questionnaire return
Notes	Retention period: 4 months.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The personnel who added the Post-it® notes to questionnaires were different to those who had participant contact to ensure allocation concealment.
Adequate sequence generation?	Yes	Participant allocation was carried out by simple computerised randomisation using an SQL function through the trial management database by the York Trials Unit.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome

Lewis 2017 *(Continued)*

Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Participants who reached four months follow-up before commencement recruitment, as well as participants who asked to be withdrawn from the CASPER trials or did not want to receive a questionnaire at this time point were excluded.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Lienard 2006

Study characteristics	
Methods	RCT, clusters randomised.
Data	France, secondary care setting. The number of case report forms completed by sites was included. 69 centres, one participant (35/68 in the Visited group, 34/67 in the Non-visited group). Total n = 66; age NR; sex NR.
Comparisons	*Intervention group* centres received a systematic on-site visit (Visited group) *Control group* did not receive a systematic on-site visit (Non-visited group)
Outcomes	Quantity of data spontaneously reported.
Notes	Retention period: unclear.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Randomly allocated by the coordinating office to either the Visited or Non-visited group, by a minimisation technique, to ensure a balance between groups concerning centre type and location.
Blinding of participants and personnel?	Yes	Sites blinded.
Blinding of outcome assessment?	Unclear	Not reported in the paper. Site objective assessment
Incomplete outcome data addressed?	Unclear	Not reported in the paper.

Lienard 2006 *(Continued)*

All outcomes		
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

MacLennan 2014

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	UK, secondary care setting. Non-responders to annual questionnaires. Total n = 753; mean age 77 (SD 6.0) years; 85.1% female.
Comparisons	*Intervention group* received a telephone call from the trial office ahead of the reminder questionnaire in addition to the usual reminder schedule. *Control group* received the usual reminder schedule only.
Outcomes	Response rates to the reminder questionnaire.
Notes	Retention period: 12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Eligible participants were stratified by their host trial allocation and randomised using a computerised central allocation process at the Trial Office.
Adequate sequence generation?	Unclear	Not reported in the paper.
Blinding of participants and personnel?	Unclear	Not reported in the paper but as staff delivered telephone call is some potential for unblinding and impact on outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.

MacLennan 2014 *(Continued)*

Overall Risk of Bias	Unclear	Unclear

MamMOTH 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	UK, primary care setting. All host trial participants were included, however, those who had withdrawn from the main trial before the time of the 24-month follow-up, or were deceased, were not. Total n = 1001; mean age 59 (SD 14.3) years; 58.8% females.
Comparisons	*Intervention group* received a newsletter one month before the 24-month paper follow-up questionnaire was due to be sent. The newsletter included details of the host trial and the participants involved. *Comparator group* did not receive a newsletter. They just received their final 24-month follow-up questionnaire as usual.
Outcomes	Follow-up data provided by participants.
Notes	Retention period: 24 months The MAmMOTH study was funded by Arthritis Research UK (now Versus Arthritis), Grant number 20748 awarded to University of Aberdeen (CI Professor GJ Macfarlane.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The randomisation was carried out by CHaRT after recruitment to the Main Trial was complete.
Adequate sequence generation?	Yes	Randomisation was carried out by CHaRT, after recruitment was complete, to ensure the two groups were balanced for Main Trial Treatment allocation, and for centre (i.e. the GP practice the participant was registered at).
Blinding of participants and personnel?	Yes	Neither the participants nor the trial team were blinded to the allocation of receipt of a newsletter or not. Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Assessment of the outcome was not blinded. However, objective outcome, participants blind (don't know there is a study) staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	No	Because this was an intention to treat analysis, some of those allocated to the newsletter did not receive the intervention, but were still included in the main analysis in the intervention group, as were those allocated to no newsletter included in the comparator group.
Free of selective outcome reporting?	Yes	Only one outcome was examined – retention defined as the return of 24-month follow-up data.
Other sources of bias	Yes	No further concerns raised.

MamMOTH 2020 *(Continued)*

Overall Risk of Bias	No	High

Man 2011

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, primary care setting. Participants from the host trial who provided an electronic mail address and/or mobile phone. Total n = 125; mean age 46 (SD 11); 74.4% females.
Comparisons	*Intervention group* received an electronic reminder *Control group did not* receive a reminder.
Outcomes	Questionnaire returned
Notes	Retention period: 6 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	An independent data manager generated a computerised sequence to randomly allocate participants regardless of yoga host trial treatment allocation.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No concerns raised.
Overall Risk of Bias	Unclear	Unclear

Marques 2013

Study characteristics	

Marques 2013 *(Continued)*

Methods	Parallel RCT, individuals randomised
Data	UK, secondary care setting. All pilot host trial participants were included. Total n = 85; range age 26 to 92 years; 64% females; 31% were single; 8% were Non-White; 33% had higher education; 19% were working,
Comparisons	*Intervention group* received a resource use log at baseline were participants could prospectively record their use of health services and expenses by using tick boxes and open questions. *Control group* did not receive a resource use log.
Outcomes	Diary return rate
Notes	Retention period: 3 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Not reported in the paper.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Marsh 1999

Study characteristics

Methods	Quasi randomised, clusters randomised
Data	UK, a multi-centre trial recruiting participants from hospital outpatient clinics. Participants included parents of children aged 3–12 months registered with the practices participating in the main trial.

Marsh 1999 *(Continued)*

	Total n = 434; age NR; sex NR
Comparisons	*Intervention group 1* received postal administration with financial incentive (£2 voucher to spend in a local children's store) once the completed diary had been received or postal group without financial incentive *Intervention group 2* received telephone administration with financial incentive (£2 voucher to spend in a local children's store) once the completed diary had been received or telephone group without financial incentive *Control group* were selected from four practices and their matched control practices were selected for the clinic visits
Outcomes	Return of diaries
Notes	Retention period: Unclear

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	No	Quasi-randomised.Allocation to trial arms was according to the order the participant appeared in an existing list
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	No	High

Marson 2007

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, secondary care setting. It is unclear if all participants from host trial were involved. Total n = 1815; age NR; sex NR

Marson 2007 *(Continued)*

Comparisons	*Intervention group* received a cover letter though post with the questionnaire that included an estimate of the length of time that it may take to complete. *Control group* received standard cover letter with no indication of length of time required.
Outcomes	Return of questionnaire.
Notes	Retention period: baseline assessment

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the monograph.
Adequate sequence generation?	Unclear	Not reported in the monograph.
Blinding of participants and personnel?	Yes	Not reported in the monograph but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the monograph.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the monograph. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Free of selective outcome reporting?	Unclear	Not reported in the monograph.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

McCambridge 2011

Study characteristics	
Methods	RCT, individuals randomised
Data	UK, community setting. The numbers of participants in the present trial slightly exceed those in the parent trial as some participants completed the first randomisation to secondary outcome questionnaire and did not complete the subsequent randomisation to parent trial study condition. Total n = 8285 (4957 in trial 1 and 3328 in trial 2), mean age 37.8 (SD 10.8), 57% female.
Comparisons	All participants were sent e-mail requests for follow-up data: Trial 1: in the pilot phase after 1 and 3 months Trial 2: in the main trial phase after 3 and 12 months
Outcomes	Proportion of participants who responded

McCambridge 2011 *(Continued)*

Notes	Retention period: Trial 1: 1 and 3 months Trial 2: 3 and 12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Randomisation could not be subverted, therefore, by the trial team, and allocation was fully concealed.
Adequate sequence generation?	Yes	Randomisation was performed by a computer-generated randomisation procedure
Blinding of participants and personnel?	Unclear	Participants were blinded to the conduct of this trial. However, unclear about personnel.
Blinding of outcome assessment?	Unclear	Not reported in the paper.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

McColl 2003 - Trial 1

Study characteristics

Methods	RCT, clusters randomised
Data	UK. Primary care setting. All host trial participants, as a source of the retention trial sample. Total n = 6576; mean age 59.6 (SD 13.7) years, 50.8% females; 66% were married; 60% were unemployed; 54.2% had no formal education qualifications.
Comparisons	Participants were randomised to two different versions of a self-response questionnaire: *Intervention group 1,* condition-specific measures of quality of life preceded generic instruments *Intervention group 2,* the relative position of the questionnaire was reversed.
Outcomes	Response rates on the questionnaire
Notes	Retention period: 9 months

McColl 2003 - Trial 1 *(Continued)*

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not described only that participants were randomly assigned to each group.
Adequate sequence generation?	No	A random sample of 80 participants per condition per practice was selected.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	No	High

McColl 2003 - Trial 2

Study characteristics	
Methods	RCT, clusters randomised
Data	UK. Primary care setting. All host trial participants, as a source of the retention trial sample. Total n = 6576; mean age 59.6 (SD 13.7) years, 50.8% females; 66% were married; 60% were unemployed; 54.2% had no formal education qualifications.
Comparisons	Participants were randomised to two different versions of a self-response questionnaire: *Intervention group 1,* condition-specific measures of quality of life preceded generic instruments *Intervention group 2,* the relative position of the questionnaire was reversed.
Outcomes	Response rates on the questionnaire run
Notes	Retention period: 9 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not described only that participants were randomly assigned to each group.

McColl 2003 - Trial 2 *(Continued)*

Adequate sequence generation?	No	A random sample of 80 participants per condition per practice was selected.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	No	High

Mitchell 2011

Study characteristics	
Methods	RCT, individual randomisation
Data	UK, primary care setting. All host trial participants, as a source of the retention trial sample. Total n = 2803; range age from 70 to 85 years old; 100% females
Comparisons	*Intervention group 1* received an invitation mailing packs with a white envelope. *Intervention group 2* received an invitation mailing packs with a brown envelope.
Outcomes	Questionnaire return
Notes	Retention period: this trial was done in the first phases of the host trial. This comprise the return of the invitation pack 14 days after the original questionnaire was sent

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	These packs were alternately arranged (brown, white, brown, white, etc.). In each GP practice, an alphabetical (by surname) list of all eligible participants was produced by the practice. Participants were sent a brown or white envelope depending on the colour in the sequence.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome

Mitchell 2011 *(Continued)*

Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Mitchell 2012

Study characteristics	
Methods	Parallel RCT, Individuals randomised
Data	UK, primary care setting. The sample size was arbitrary in that it was limited to the numbers of host trial participants recruited at the two sites. Total n = 2704; Range age from 70 to 85 years old; 100% females.
Comparisons	*Intervention group* received a newsletter approximately 6 weeks before the follow-up questionnaire *Control group* did not receive a newsletter.
Outcomes	Questionnaire return
Notes	Retention period: 24 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The randomisation was undertaken by the York data manager who randomised to two equally sized groups in one single block allocation (the block was the size of all the potential participants).
Adequate sequence generation?	Yes	A computer program randomly divided the total numbers of participants into two equally.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.

Mitchell 2012 *(Continued)*

Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Mitchell 2020a

Study characteristics	
Methods	Parallel RCT, Individuals randomised
Data	UK, secondary care setting. Participants from the host trial who provided they had opted in to receiving SMS messages and were not deceased or withdrawn from follow-up before being due to be sent their 12-month postal questionnaire Total n = 1465; mean age 66.8 (8.5); 54.0% females.
Comparisons	*Intervention group* received a personalised text message four days after their 12-month questionnaire was sent. *Control group* received a non-personalised text message.
Outcomes	Questionnaire return
Notes	Retention period: 12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Participants were randomised into the embeded trial using simple randomisation in a 1:1 allocation ratio. The allocation schedule was generated by a researcher at the Trials Unit not involved in the recruitment or follow-up of participants.
Adequate sequence generation?	Yes	Participants were randomised into the embeded trial using simple randomisation in a 1:1 allocation ratio. The allocation schedule was generated by a researcher at the Trials Unit not involved in the recruitment or follow-up of participants.
Blinding of participants and personnel?	Yes	Participants were not informed of their explicit participation in the embeded trial, but due to the nature of the intervention could not be blinded to whether the text was personalised or non-personalised. Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	It was not possible to blind research staff to SWAT allocation. However, objective outcome, participants blinded (did not know there was a study), staff have

Mitchell 2020a *(Continued)*

		no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Mitchell 2020b

Study characteristics	
Methods	Parallel RCT, Individuals randomised
Data	UK, secondary care setting. All participants from the host trial being due to be sent their 12-month postal questionnaire Total n = 2306; mean age 69.0 (8.9); 55.2% females.
Comparisons	*Intervention group* addition of a pen *Control group* did not receive a pen.
Outcomes	Questionnaire return
Notes	Retention period: 12 months

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Two batches, using a 1:1 allocation ratio, in a single large block the size of the batch
Adequate sequence generation?	Yes	Generated by a statistician at York Trials Unit using Stata v15
Blinding of participants and personnel?	Yes	Participants were not informed of their explicit participation in the SWAT, but due to the nature of the intervention could not be blinded. Researchers were not blinded as well. Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	It was not possible to blind research staff to SWAT allocation.However, objective outcome, participants blinded (don't know there is a study), staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed?	Yes	No concerns raised.

Mitchell 2020b *(Continued)*

All outcomes		
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Nakash 2007

Study characteristics	
Methods	RCT, individuals randomised
Data	UK, secondary care setting. Only certain centres were included in this nested trial. Total n = 298, age range 29.5 (SD 10.5), sex 40.9%; 24% were professional
Comparisons	*Intervention group* received a trial calendar. *Control group* did not receive na calendar.
Outcomes	Questionnaire return
Notes	Retention period: 1-, 3- and 9-months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Allocation concealment was ensured by using a remote computer-generated randomisation system that was independently administered and quality controlled.
Adequate sequence generation?	Yes	A computer-generated random sequence was used to allocate host trial participants to either the 'Calendar' or 'No Calendar' group.
Blinding of participants and personnel?	Unclear	Due to the nature of the trial, blinding of the participant and those administering the intervention to treatment allocation was not possible. Some communication between trial office and participants.
Blinding of outcome assessment?	Yes	Personnel responsible for data inputting and outcome assessment were, however, blind to treatment allocation However, objective outcome, participants blind (did not know there was a study) staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.

Nakash 2007 *(Continued)*

Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

OPAL 2020

Study characteristics

Methods	Parallel RCT, individuals randomised.
Data	UK, secondary care settings. not ALL participants in the trial that took part in the trial. Only those due to be receiving their 12- or 24-month questionnaire at the time the trial was running.
Comparisons	*Intervention group* received a tested theoretically informed letter sent with the questionnaire *Control group* received a standard letter
Outcomes	Questionnaires returned
Notes	12 or 24 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	No information of the nested RCT was provided.
Adequate sequence generation?	Yes	The database would automatically produce the appropriate letter for each woman
Blinding of participants and personnel?	Yes	Women were unaware if they were receiving a standard or theory-based cover letter but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	No information of the nested RCT was provided.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Renfroe 2002

Study characteristics

Renfroe 2002 *(Continued)*

Methods	2x2x2x2 factorial RCT, individuals randomised.
Data	USa and Canada All surviving participants were involved in this nested trial. Total n = 640; Mean age 63.6 (SD 10.0) years old; 11.4% females; 63.9%were high school graduates.
Comparisons	1) Trial 1 measured mode of delivery. Surveys were sent to participants by either overnight express mail in vs regular mail delivered by the postal service in the other half 2) Trial 2 measured enclosure of a certificate of appreciation. Some participants received packets including a certificate of appreciation, while the others did not. 3) Trial 3 measured the effect of timing of the delivery. Some participants received the survey within 2–3 weeks after the last hot trial follow-up visit versus after the trial closed out in the other half (1–4 months after the last follow-up visit). 4) Trial 4 measured the effect of a signature on the cover letter thanking them for their participation. The trial coordinator signed half the letters, and the principal investigator signed the other half. Participants were randomly assigned to received one of 16 combinations of these four factors.
Outcomes	Questionnaire return
Notes	Retention period: unclear, authors state as "end of the study".

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in this abstract.
Adequate sequence generation?	Yes	Patients were initially randomised (1:1) into one of two arms.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Rodgers 2019

Study characteristics

Rodgers 2019 *(Continued)*

Methods	Factorial RCT, individuals randomised
Data	UK, primary care setting. Participants in the host trial who were due to be sent their 12-month follow-up questionnaire who had not withdrawn or requested not to be sent the 12-month questionnaire. Total n = 826; mean age 77.5 (SD 7.0) years old; 61.6% females.
Comparisons	Participants were assigned to one of the following six groups: a) trial update newsletter plus handwritten Post-it® note applied to the questionnaire b) newsletter plus printed Post-it®; c) newsletter only d) handwritten Post-it® note only e) printed Post-it ® note only f) none
Outcomes	Return of questionnaire
Notes	Retention period: 12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	An independent data manager who was not involved in the recruitment of participants generated the allocation sequence.
Adequate sequence generation?	Yes	Generated the allocation sequence by computer and allocated participants in a 1:1:1:1:1:1 ratio.
Blinding of participants and personnel?	Yes	Not reported in the paper but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Salvesen 1992

Study characteristics	
Methods	RCT, individuals randomised
Data	Norway, primary care setting. Participants received an accompanying newspaper article with a description of the study, a postal questionnaire and a postage-paid. Non-responders of this first nested trial were included. Total n = 716; age NR; 100% female.
Comparisons	*Intervention group* received a newspaper article with a description of the study. A photocopy of the article was randomly allocated with a letter of reminder, and the response was monitored for 30 days. *Control group* no newspaper article sent.
Outcomes	Questionnaire return.
Notes	Retention period: unclear

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Unclear	Not reported in the letter to the editor.
Adequate sequence generation?	Unclear	Not reported in the letter to the editor.
Blinding of participants and personnel?	Yes	Not reported in the letter to the editor but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the letter to the editor.However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the letter to the editor.
Free of selective outcome reporting?	Unclear	Not reported in the letter to the editor.
Other sources of bias	Unclear	Letter to the editor with few detailed provided.
Overall Risk of Bias	Unclear	Unclear

Sarathy 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, secondary care All host trial participants, as a source of the retention trial sample, were included.

Sarathy 2020 *(Continued)*

	Total n = 269; mean age 53.5 (SD 7.6) years; 65% females
Comparisons	*Intervention group* received text messages as pre-notification on the day of the questionnaire mailout. *Control group* post notification four days after the questionnaire mailout.
Outcomes	Questionnaire return
Notes	Retention period: 3 months post-randomisation into the host trial

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	A statistician at YTU generated the allocation sequence and the assignment of participants to either SMS group.
Adequate sequence generation?	Yes	Randomisation was achieved using computer-generated random permuted blocks with a 1:1 ratio
Blinding of participants and personnel?	Yes	Participants did not know they were taking part in the SWAT and were therefore blinded. However unclear about personnel. However unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	The analysis was undertaken on an intention-to-treat basis by a statistician blind to group allocation. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Severi 2011

Study characteristics

Methods	Parallel RCT, individuals randomised
Data	UK, community setting. For trial 1 participants who enrolled between 1 March 2009 and 1 June 2009 and had provided postal addresses were eligible. For trial 2 host trial participants >6 weeks overdue for cotinine sample follow-up were eligible. Trial 1: Total n = 1950; age NR; 45.3% females Trial 2: Total n = 127; age NR; 47.2% females

Severi 2011 *(Continued)*

Comparisons	Trial 1 aimed to evaluate the effect on the trial follow-up of written information regarding the benefits of participation to society. *Intervention group* received written information on a refrigerator magnet by post between 16 and 20 weeks after randomisation into the host trial followed by a mobile phone text message three days after the host trial postal follow-up questionnaire was sent. *Control group* received a text message reminding participant follow-up. Trial 2 aimed to evaluate the effect on the trial follow-up of a telephone call from a senior female clinician and researcher *Intervention group* received a telephone call from senior female clinician and researcher inviting the participant to complete follow-up. *Control group* received standard host trial procedures.
Outcomes	Trial 1: Completed follow-up questionnaires Trial 2: Completed cotinine sample follow-up
Notes	Retention periods: Trial 1: 30 weeks from randomisation. Trial 2: unclear

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	In both studies, the allocation of the participants to the intervention or control group was concealed from the investigators.
Adequate sequence generation?	Yes	Trial 1: The participants were allocated to intervention or control through minimisation (using Minim software). Trial 2: This was a single-blind controlled trial, with those recording and assessing outcomes blind to the intervention.
Blinding of participants and personnel?	Yes	Not possible to blind participants. The allocation was concealed from investigators
Blinding of outcome assessment?	Yes	Both studies were a single-blind controlled trial, with those recording and assessing outcomes blind to the intervention.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised
Overall Risk of Bias	Yes	Low

Sharp 2006

Study characteristics	
Methods	2 x 2 x 2 factorial parallel RCT, Individuals randomised
Data	UK, secondary care setting. Participants due to receive a host trial questionnaire were involved. Total n = 930; mean age 34 (SD 10.4); 100% females; 96% White.
Comparisons	Three trials were evaluated in this study: Trial 1: *Intervention group* received a TOMBOLA-branded pen *Control group* received no pen Trial 2: *Intervention group* questionnaire was dispatched by first class post *Control group* questionnaire was dispatched by second class Trial 3: *Intervention group* received an enclosed pre-addressed return envelope on which there was a second-class postage stamp *Control group* received Freepost business-reply envelope. This generated eight intervention groups: 1. standard (i.e. no pen, second class dispatch, Freepost return envelope) 2. pen 3. pen and first-class dispatch 4. first-class dispatch 5. stamp on the return envelope 6. stamp on the return envelope and pen 7. stamp on the return envelope and first-class dispatch stamp on the return envelope, pen and first-class dispatch
Outcomes	Questionnaire response rate
Notes	Retention period: 12-, 18-, 24- and 30-months questionnaires

Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Yes	Computer randomised by two authors using random numbers, to one of the eight intervention groups

Sharp 2006 *(Continued)*

Blinding of participants and personnel?	Yes	Not reported in the paper. Not clear if participants were blinded to effect of embedded trial intervention on retention and unblinding but likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Staff not blind but they had no influence on a participant's decision to reply
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised
Overall Risk of Bias	Unclear	Unclear

Starr 2015

Study characteristics	
Methods	2×2 partial factorial RCT, individuals randomised.
Data	UK, secondary care setting. Participants who were newly randomly assigned to the host trial had not reached the 4-week time point and were willing to supply a mobile phone number, or an e-mail address were included. Total n = 418; mean age 41 (SD 11.1) years; 20% females.
Comparisons	Two trials were included in this study: Trial 1: *Intervention group* received an SMS text message pre-notification of the delivery of the initial 4- and 12-week questionnaires. *Control group* received no message. Trial 2 (for participants who did not respond to the initial 4- or 12-week questionnaire): *Intervention group* received an e-mail which included a link to complete the questionnaire online or was invited to return the paper copy if they wished. *Control group* received their reminder by post with a further copy of the questionnaire.
Outcomes	Questionnaire return.
Notes	Retention period: 1- or 3- months questionnaire

Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	A computer-generated system that was concealed and remote from the users.

Starr 2015 *(Continued)*

Adequate sequence generation?	Yes	Participants were randomly allocated to the intervention on a 1:1 basis,
Blinding of participants and personnel?	Yes	Due to the nature of the intervention, it was not possible to blind the participants or trial office staff to allocation. Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	The researchers remained blinded.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised
Overall Risk of Bias	Yes	Low

Subar 2001

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	USA, secondary care setting. Three out of 10 screening centres were included in this trial. Total n = 900; age of participants >50 years old, 51% were females.
Comparisons	*Intervention group 1* received by mail the Diet History Questionnaire (including frequency of intake for 114 individual food items, five questions about the proportions, four summary questions, and nine questions on the use of vitamin and mineral supplement) accompanied by a cover letter and a postage-paid return envelope. *Intervention group 2* received by mail a 36-page machine readable food frequency questionnaire, accompanied by a cover letter and a postage-paid return envelope. For participants who did not return their questionnaires within three weeks, up to five telephone calls were made by staff at each centre.
Outcomes	Questionnaires returned
Notes	Retention period: 36 months

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Not reported in the paper.

Subar 2001 *(Continued)*

Blinding of participants and personnel?	Unclear	Not reported in the paper.
Blinding of outcome assessment?	Unclear	Not reported in the paper.
Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Unclear	No concerns raised.
Overall Risk of Bias	Unclear	Unclear

Tai 1997

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, primary care setting. All host trial participants lost to follow-up who had a telephone. Total n = 148, median age 43.7; sex NR
Comparisons	*Intervention group 1* received a telephone reminder after non-response to 1st reminder. *Intervention group 2* were sent a new set of questionnaires with the reminder letter and sent after non-response to 1st reminder.
Outcomes	Questionnaires returned
Notes	Retention period: unclear

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Unclear	Not reported in the paper.
Adequate sequence generation?	Unclear	Just says randomised
Blinding of participants and personnel?	Unclear	Does not mention blinding and it is not clear if the researchers making calls were also part of the main trial team. In principle, they could have influenced the outcome depending on their knowledge of allocation.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.

Tai 1997 *(Continued)*

Incomplete outcome data addressed? All outcomes	Unclear	Not reported in the paper.
Free of selective outcome reporting?	Unclear	Not reported in the paper.
Other sources of bias	Unclear	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Tilbrook 2015

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	UK, primary care setting. Participants who were due to receive either their 6-month follow-up questionnaire or who had not fully or partially withdrawn from the host trial were included. Total n = 499; mean age 53 (SD 13.7); 68.5% female.
Comparisons	*Intervention group* received a signed Post-it® note with handwritten text, in black ink (by four researchers), signed with the first name of the person whose name was on the cover letter accompanying the questionnaire in addition to the 'standard' contact(sent an SMS message 7 days before they were due to receive the questionnaire encouraging them to return the questionnaire). *Control group* received standard contact procedures
Outcomes	Questionnaire response
Notes	Retention period: 6 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	Conducted by one of the York Trials Unit's data managers so allocation concealment was achieved.
Adequate sequence generation?	Yes	The randomisation sequence was generated by computer.
Blinding of participants and personnel?	Yes	Researchers signed the post it. but unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	The response rate was determined by York Trials Unit data clerks who were not aware to which group the participants belonged.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.

Tilbrook 2015 *(Continued)*

Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Tranberg 2018

Study characteristics	
Methods	Parallel RCT, individuals randomised
Data	Denmark, community setting. Participants that were due to receive the host trial second remainder. Total n = 9791; range age 30-64 years; 100% females.
Comparisons	*Intervention group 1* (directly mailed group) received a modified second reminder, a leaflet, and a self-sampling kit. *Intervention group 2* (opt-in group) received the same material as those in the directly mailed group but received no kit. Additionally, the leaflet for this group held information describing how to order the kit by e-mail, text message, phone, or via a study webpage. *Control group* received a standard second reminder that informed them about the current test opportunity.
Outcomes	Participation rate (by returning a self-sample or attending regular cytology screening).
Notes	Retention period: 6 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The randomisation list was produced by an independent programmer who was not otherwise involved in the trial
Adequate sequence generation?	Yes	Web-based computer randomisation in RedCap was used to allocate eligible participants to the three groups of the trial at a 1:1:1 ratio by the method of individual randomisation with randomly varying block sizes of 3, 6, and 9.
Blinding of participants and personnel?	Unclear	The women were unaware of the randomisation, but blinding of the participants and study staff was impossible due to the nature of the interventions. Unblinding not likely to impact objective outcome. Phone contact in intervention could have influenced outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.

Tranberg 2018 *(Continued)*

Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Treweek 2020a

Study characteristics	
Methods	Parallel RCT, clusters randomised
Data	UK, secondary care setting. All host trial participants were considered in this trial. Total n = 560; age NR; 100% females
Comparisons	*Intervention group* received a pre-notification card sent around 1 month before the face-to-face primary outcome measurement visit. *Control group* received no pre-notification card.
Outcomes	Proportion attending the primary outcome measurement visit.
Notes	Retention period:12 months

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	The list was then passed to the data manager at Tayside Clinical Trials Unit to implement.
Adequate sequence generation?	Yes	Two-arm, parallel randomised with a 1:1 allocation ratio, stratified by centre. One of the authors prepared a central randomisation list using.
Blinding of participants and personnel?	Yes	All trial team members were blind to host trial allocation. Primary outcome visits were organised, done and recorded by research nurses, who had no knowledge of the SWAT or host trial allocation. However, unclear about participants. However, unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	All trial team members were blind to host trial allocation. Primary outcome visits were organised, done and recorded by research nurses, who had no knowledge of the SWAT or host trial allocation.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.

Treweek 2020a *(Continued)*

Overall Risk of Bias	Yes	Low

Watson 2017

Study characteristics		
Methods	2x2 factorial RCT, individuals randomised.	
Data	UK, secondary care setting. Participants the host trial who had yet to receive their 12-and 24-month follow-up questionnaires. Total n = 521; age ranged from 38 to 61 years; 49.8% females.	
Comparisons	*Intervention group 1* received unconditional £5 high-street gift voucher at 12 but not 24 months. *Intervention group 2* received unconditional £5 high-street gift voucher at 12 and 24 months. *Intervention group 3* received unconditional £5 high-street gift voucher at 24 but not 12 months. *Control group* did not receive a voucher.	
Outcomes	Questionnaire return	
Notes	Retention period:12 and 24 months	
Risk of bias		
Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Not reported in the monograph.
Adequate sequence generation?	Unclear	Simple randomisation (1:1:1:1) was completed to allocate the host trial participants to one of the four groups
Blinding of participants and personnel?	Yes	Not reported in the monograph.However, unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the monograph. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Unclear	Unclear

Whiteside 2019

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	UK, community setting Participants from two of the UK-based GP practices involved in the host trial. Total n = 1943; age NR; sex NR.
Comparisons	*Intervention group* received a pen with trial invitation pack. *Control group* did not receive a pen in their invitation pack.
Outcomes	Participant retention and return of screening form
Notes	Retention period: remaining in trial at 3 months

Risk of bias

Item	**Authors' judgement**	**Support for judgement**
Allocation concealment?	Yes	Generation of the allocation sequence was undertaken by the host trial statistician, who was not involved with the production of the invitation packs, using Stata version 13.
Adequate sequence generation?	Yes	A 2:1 allocation ratio was used, in favour of the no pen arm.
Blinding of participants and personnel?	Yes	Not reported in the paper. Staff may not have been blinded, but they had no influence on decision by the participant to respond. Also unblinding not likely to impact objective outcome
Blinding of outcome assessment?	Yes	Not reported in the paper. However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No further concerns raised.
Overall Risk of Bias	Yes	Low

Young 2020

Study characteristics	
Methods	Parallel RCT, individuals randomised.
Data	UK, community setting

Young 2020 *(Continued)*

	Trial participants who received a positive blood test result were included in this nested study. Total n = 1079; age >50 years; 50.4% females.
Comparisons	*Intervention group 1* received an unconditional £5 multistore voucher *Intervention group 2* received a conditional (on completion of the questionnaire) £5 multistore voucher.
Outcomes	Questionnaire response rate.
Notes	Retention period:1-, 3-, 6- and 12-months.

Risk of bias

Item	Authors' judgement	Support for judgement
Allocation concealment?	Yes	SWAT randomisation was conducted independently by a specialist unit. Individuals were stratified by host trial group (control arm, positive test, and negative test) and
Adequate sequence generation?	Yes	ordered randomly on computer-generated lists.
Blinding of participants and personnel?	Yes	Participants were not informed about the different conditions for receiving vouchers. Researchers mailing questionnaires, vouchers, and making telephone reminder calls were not blinded to condition. Unblinding not likely to impact objective outcome.
Blinding of outcome assessment?	Yes	Not reported in the paper However, objective outcome, staff have no plausible additional opportunity to influence postal response rate once questionnaires sent.
Incomplete outcome data addressed? All outcomes	Yes	No concerns raised. The analysis does ignore some data, but everything is presented so possible to redo, and everything is accounted for even if not used.
Free of selective outcome reporting?	Yes	No concerns raised.
Other sources of bias	Yes	No concerns raised.
Overall Risk of Bias	Yes	Low

IQR: interquartile range; **NR:** not reported; **RCT:** randomised controlled trial; **SD:** standard deviation; **SWAT:** Studies Witihin A Trial;

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Abboah-Offei 2020	Not nested in an RCT
Alexander 2008	Not nested in an RCT
Arnevik 2009	[Excluded in the original review] This retention trial was not embedded in a randomised trial.
Arundel 2017	Not evaluating retention

Study	Reason for exclusion
Atherton 2010	[Excluded in the original review] Comparison of Internet vs. postal questionnaires not randomised.
Aysola 2018	Not nested in an RCT
Barry 1996	[Excluded in the original review] Retention trial compared distribution of scores for participants completing different questionnaire versions. Author confirmed retention/questionnaire return was not an outcome measure.
Bednarek 2008	[Excluded in the original review] Retention trial outcome is continuation of treatment.
Bisla 2019	Not nested in an RCT
Bowen 2000	[Included in the original review, excluded in the update]. Study looking at reducing the number of people who stop taking the study drug, not evaluating retention in the trial.
Bromley 2019	Not a randomised/quasi-randomised retention trial
Chaffin 2009	Not evaluating retention in a clinical trial
Chee 2019	Not nested in an RCT
Cheung 2019	Not nested in an RCT
Cox 2003	[Excluded in the original review] Retention trial outcome treatment compliance
Cox 2006	Not evaluating retention
Cox 2008	Not evaluating retention
Day 1998	[Excluded in the original review] Retention trial measured adherence to treatment. Authors do not have retention data.
Diaz 2001	Not evaluating retention
Eaker 2004	[Excluded in the original review] Retention trial embedded in a cohort.
Edelstein 2005	[Excluded in the original review] Retention study is not a randomised trial. Incentives not randomised. Author confirmed these were not instituted to help with retention but with adherence to pill taking and life style modification requirements.
Edwards 2013	Not evaluating retention
Farabee 2016	RCT not embedded in a host trial
Ford 2006	Measuring adaherence not retention
Galaragga 2017	It is not an embedded trial of a retention intervention
Gaurino 2006	Not targeting at trial retention
Grabowski 1995	[Excluded in the original review] Substudy aim is retention in treatment comparing different follow-up schedules for addiction treatment trial.
Haines 2019	Not a randomised/quasi-randomised retention trial

Study	Reason for exclusion
Hall 1975	[Excluded in the original review] Not a randomised/quasi-randomised retention trial
Hall 1978	[Excluded in the original review] Not a randomised/quasi-randomised retention trial
Henderson 2019	Not a randomised/quasi-randomised retention trial
Hoang 2014	Not nested in an RCT
Hoffman 1998	[Excluded in the original review] Retention trial embedded in a blood bank cohort
Hopkins 1983	[Excluded in the original review] Retention trial embedded in a survey
Hughes 1989	[Included in the original review, excluded in the update] Not a randomised/quasi-randomised retention trial.
Hunter 2018	Not evaluating retention
Iglesias 2000	[Excluded in the original review] Retention trial embedded in a cohort of general practitioner practice participants.
Iglesias 2001	[Excluded in the original review] Retention trial embedded in the recruitment phase of the host trial.
Johnson 2004	[Excluded in the original review] Retention study not embedded in a randomised trial.
Juraskova 2014	Not targeting at trial retention
Karras-Jean Gilles 2019	Not nested in an RCT
Katz 2001	[Excluded in the original review] Retention study is not a randomised trial. Authors confirmed the effectiveness of gift incentives was not evaluated in a substudy for the Pride in Parenting trial.
Kim 2020	Not nested in an RCT
Kiwanuka 2018	Not nested in an RCT
Krammer 1986	Not nested in an RCT
Kuhlmann 2017	Not a randomised/quasi-randomised retention trial
Lannin 2013	Not evaluating retention
Leidy 2000	[Excluded in the original review] Retention study appears to be a randomised trial but no response from authors to establish if retention was an outcome. For the substudy, trial sites randomised to 1 of 2 orders of administration of quality of life questionnaires. Response rates not reported. Missing data, internal consistency reliability, mean score values, relationship between the 2 measures evaluated.
Leigh Brown 1997	[Included in the original review, excluded in the update] Authors confirmed that this is not a randomised/quasi-randomised retention trial.
Leighton 2018	Not nested in an RCT
Litchfield 2005	Not evaluating retention

Study	Reason for exclusion
Malden 2019	Not nested in an RCT
McAuley 1994	[Excluded in the original review] Retention study is not a randomised trial. There is a single randomisation stratified by classes in the morning and early evening. No response from authors regarding randomisation to class times.
McBee 2009	[Excluded in the original review] Retention study not a randomised trial. Authors confirm strategies to improve retention were not evaluated in an Age-Related Eye Disease Study 2 (AREDS2) substudy.
Munoz 2017	Not nested in an RCT
Murray 2019	Not nested in an RCT
Murray 2020	Not nested in an RCT
Nicholas 2013	Not a randomised/quasi-randomised retention trial
Nielson 2018	Not nested in an RCT
Novak 2019	Not a randomised/quasi-randomised retention trial
Nuzzolese 2020	Review paper
Parker 2019	Review paper
Paul 2011	Not evaluating retention
Phiri 2019	Not nested in an RCT
Pieper 2018	Not evaluating retention
Poling 2006	[Excluded in the original review] Substudy aim is about diagnostic compliance. 4-arm trial comparing contingency management with or without active bupropion and voucher control with or without active bupropion. Here contingency management and voucher control are aimed at getting information on the disease condition/response to treatment for the primary outcome of the host trial i.e. negative urine sample for cocaine and opioids. Contingency management and voucher control are not related to retention in the host trial but related to diagnostic compliance.
Price 2019	Not a randomised/quasi-randomised retention trial
Puffer 2004	[Excluded in the original review] Retention RCT was embedded in a survey. Authors confirmed that the 2 x 2 factorial study testing four different questionnaire designs was embedded in a survey.
Rhoades 1998	[Excluded in the original review] Substudy retention in treatment. 2 x 2 trial of dose and visit frequency of attending a clinic either 2 or 5 days per week. Primary outcome was retention in treatment for all randomizations. Similar to Grabowski 1995 trial.
Roberts 2000	[Excluded in the original review] Retention trial embedded in a survey about menopause services.
Rodgers 2019a	Not evaluating retention
Rodgers 2019b	Not evaluating retention
Rolfson 2011	Not nested in an RCT
Sano 2013	Not nested in an RCT

Study	Reason for exclusion
Schmitz 2005	[Excluded in the original review] Substudy about compliance to treatment and pill taking behaviour rather than trial retention.
Shulman 2019	Not nested in an RCT
Smeeth 2001ab	[Excluded in the original review] Substudy about response to baseline assessment.
Smith 2015	Not evaluating retention
Stoner 1998	[Excluded in the original review] Retention study was not a randomised trial. Host study was a cluster-randomised trial. Effectiveness of vouchers not evaluated in a substudy.
Svoboda 2001	[Included in the original review, excluded in the update] Unclear if nested in an RCT. Authors contacted, and no reponse was received.
Tariq 2019	Not nested in an RCT
Tassopoulos 2007	[Excluded in the original review] Not a retention randomised trial.
Trevena 2006	Not targeting at trial retention
von Allmen 2019	Not a randomised/quasi-randomised retention trial
Wagstaff 2019	Not a randomised/quasi-randomised retention trial
Wensing 2005	[Included in the original review, excluded in the update] Unclear if nested in an RCT. Authors contacted, and were not able to confirm that the parent study is a cluster-RCT.
Weston 2017	Not nested in an RCT
Wood 2015	Not nested in an RCT
Wood 2017	Not nested in an RCT
Wu 1997	[Excluded in the original review] Substudy designed to evaluate whether scores are different using 3 modes of questionnaire administration, rather than retention.

RCT: randomised controlled trial.

Characteristics of studies awaiting classification *[ordered by study ID]*

Letley 2000

Methods	RCT, individuals randomised
Data	UK, primary care setting. Unclear from the abstract who was included in each arm of the embedded trial. Total n = 181; Mean age 74.0 (SD 6.5) years; 59.5% female.
Comparisons	*Intervention group* received a 23-page self-complete questionnaire and SF-36 *Control group* questionnaires in a reverse order
Outcomes	Questionnaire return

Letley 2000 *(Continued)*

Notes	Retention period: 4 months

Sutherland 1996

Methods	To be confirmed - reports a feasibility evaluation for a breast cancer prevention trial but it has not been possible to confirm whether the feasibility phase was also randomised.
Data	Canada Total n = 226; Mean age 44 years; 100% female.
Comparisons	*Intervention group* used the Total Design Method to inform provision of follow-up questionnaire (included white envelope with hospital logo and commemorative stamp, hand-typed, hand-signed letter, etc). *Control group* used standard method used in follow-up (included brown envelope with return address, computer-printed label, no signature, etc).
Outcomes	Questionnaire return
Notes	Retention period: 70 days

RCT: randomised controlled trial; **SD:** standard deviation; **SF-36:** Short Form 36.

Characteristics of ongoing studies *[ordered by study ID]*

SWAT #100

Study name	Patient and family co-developed participant information to improve recruitment rates, retention, and patient understanding of a randomised trial
Methods	To examine if participant information co-developed by patients and their families can lead to greater recruitment rates, retention, and participant understanding of the study in comparison to standard participation information leaflets in the Rehabilitation Strategies following Oesophagogastric and Hepatopancreaticobiliary Cancer (ReStOre II) trial.
Data	
Comparisons	Intervention 1: Patient and family co-developed participant information; Intervention 2: Standard participant information
Outcomes	Primary: Recruitment rate; Secondary: Retention rate; Trial Understanding (Decision Making Questionnaire)
Starting date	
Contact information	oneilll8@tcd.ie
Notes	

SWAT #105

Study name	Effects of a patient-designed-and-informed participant information sheet versus a standard, researcher-designed information sheet on recruitment to a randomised trial
Methods	To examine the effects of a (patient) PPI-designed-and-informed participant information sheet (PIS) in comparison with a standard, researcher-designed information sheet on recruitment to the trial, rate of consent and relationship with participant retention, and understanding regarding the two PIS.
Data	
Comparisons	Intervention 1: standard, researcher-designed PIS intervention; 2: PPI-designed-and-informed PIS
Outcomes	Primary: recruitment. Secondary: understanding, retention and likeability
Starting date	
Contact information	sinead.hynes@nuigalway.ie
Notes	

SWAT #107

Study name	Effects of a multi-trial programmable animation platform on the efficiency and success of pre-screening and subsequent recruitment to a randomised trial.
Methods	To use a mixed-methods sequential explanatory design to develop and test a novel approach of using a programmable multimedia animation to improve the success of pre-screening and enhance recruitment to randomised trial.
Data	
Comparisons	Intervention 1: audiovisual programmable animation. Intervention 2: control
Outcomes	Primary: 1. Host trial recruitment: Proportion of screened participants who meet the eligibility criteria who consent to participate in the host trial. 2. Self-reported visual analogue scale (VAS) of participants' confidence in their ability to make the right decision regarding trial participation independently of the clinician's recommendation (assessed following the consent process for the host trial). Secondary: 1. Pre-screening success. Proportion of pre-screened participants who agree to proceed at that point. 2. Self-reported assessment on VAS of adequacy of understanding regarding clinical trials (after the consent process for the host trial). 3. Effectiveness of the animation as measured using visualization effectiveness scales proposed by Few et al[5] and measured on the post-consent questionnaire. 4. Proportion of participants recruited to the host trial who are retained in that trial (assessable to the end of the funding for the SWAT).
Starting date	
Contact information	f.shiely@ucc.ie
Notes	

SWAT #109

Study name	The effectiveness of a text message reminder which participants can respond to, compared with a 'no reply' text message on questionnaire response rates
Methods	To evaluate the effectiveness on completion of follow-up postal questionnaires of sending a two-way text message reminder compared with a standard one-way text message with no option to reply.
Data	
Comparisons	Intervention 1: "Two way" text messages sent at the same time as host trial participants are expected to receive their postal follow-up questionnaire. The text message will encourage them to text back if they have any queries. Intervention 2: "One way" text message sent at the same time as host trial participants are expected to receive their postal follow-up questionnaire. Participants will not be able to reply to this message.
Outcomes	Primary: proportion of questionnaires completed at the 3-month follow-up. Secondary: ~ Time to questionnaire return (number of days between the questionnaire being mailed to participants and it being recorded as returned). ~ Proportion of patients requiring at least one return reminder notice (a letter at 2 and 4 weeks and a telephone call at 6 weeks if the questionnaire is not returned). ~ If possible, qualitative methods will be used to interrogate the text message responses sent by participants to explore topics and reasons for contacting the trial team. ~ If possible, a descriptive exploration will be done of whether text message topics sent by participants were associated with response rates to questionnaires.
Starting date	
Contact information	adwoa.parker@york.ac.uk; prometheus-group@york.ac.uk
Notes	

SWAT#110

Study name	Printing the primary outcomE on Pink PapER versus standard paper to increase participant engagement to postal questionnaires (PEPPER)
Methods	To evaluate the effects of printing the primary outcome measure on pink paper versus on white paper in a questionnaire collecting the primary outcome measure in a randomised trial.
Data	
Comparisons	Intervention 1: Primary Outcome PROM printed on pink paper in the 6-month follow-up questionnaire Intervention 2: Primary Outcome PROM printed on white paper in the 6-month follow-up questionnaire
Outcomes	Primary: proportion of participants in each group who complete the host trial's primary outcome measure. Secondary: proportion of participants reminded to fill in the questionnaire; proportion of other questions in the questionnaire completed; overall return rate of the questionnaire.
Starting date	
Contact information	alexander.ooms@ndorms.ox.ac.uk
Notes	

SWAT#112

Study name	Effects on recruitment of a personalised compared with a standard study invitation letter
Methods	To evaluate the effects of a personalised letter including the parent's name and address compared with a standard, non-personalised letter on recruitment to a prospective study.
Data	
Comparisons	Intervention 1: personalised invitation letter, including the parent's name and address. The wording of this invitation letter has been designed in consultation with the parent research partners' group for the host trial. Intervention 2: standard invitation letter, not including the parent's name and address.
Outcomes	Primary: proportion of participants agreeing to join the host trial in each SWAT intervention group. Secondary: proportion of parents in each group who express an interest in participating; proportion of parents in each group who opt out; proportion of parents in each group who complete the reasons for non-participation questionnaire; proportion of parents in each group who complete the eligibility interview; proportion of parents in each group who complete the baseline assessment; proportion of parents in each group retained at (a) 12-weeks and (b) 6-months follow-up; proportion of parents in each group who require a telephone reminder at (a) recruitment; (b) post-treatment (12 weeks); and (c) 6-months follow-up.
Starting date	
Contact information	louise-von.essen@kbh.uu.se
Notes	

SWAT #119

Study name	Effects on retention of giving trial participants a thank you card following each study visit
Methods	To evaluate the effects of giving trial participants a thank you card following each study visit, compared with not giving them a thank you card.
Data	
Comparisons	Intervention 1: a thank you card is sent to trial participants at 4.5 and 9 months after randomisation. The host trial includes routine weekly clinical follow-up assessments (if the participant's wound is yet to heal) and participants in this SWAT group will also be sent questionnaires for the next outcome assessment time point (at months 6 and 12) when due. Intervention 2: Standard practice for the host trial (i.e.no thank you card). The host trial includes routine weekly clinical follow-up assessments (if the participant's wound is yet to heal) and participants in this SWAT group will receive no further contact until the next outcome assessment time point (at months 6 and 12).
Outcomes	Primary: questionnaire response rate, defined as the proportion of participants in each group who complete and return the questionnaire at the 6-month follow-up visit. Secondary: 1) Completeness of response (percentage of questions completed) at 6 months. 2) Whether a reminder notice is required (number of participants requiring a reminder mailing divided by the number of participants who were sent a questionnaire) at 6 months. 3) Cost of SWAT intervention per participant retained at 6 months. 4) Completeness of response, whether a reminder notice is required, and cost per participant retained at 12 months.
Starting date	

SWAT #119 *(Continued)*

Contact information	catherine.arundel@york.ac.uk
Notes	

SWAT #121

Study name	What are the effects on retention and follow-up of courtesy telephone calls versus postcards to trial participants following enrolment?
Methods	To evaluate the effect on response rates to subsequent follow-up questionnaires of making a courtesy introductory telephone call to newly recruited participants in a randomised trial compared with a written card with equivalent information.
Data	
Comparisons	Intervention 1: a courtesy introductory telephone call [within two weeks] of being randomised into ARTISAN. This telephone call will include the following content: a) thanks for taking part in the ARTISAN trial; b) reminder about how valuable their contribution is; c) reminder that they will be contacted by post at six weeks, and then at 3, 6 and 12 months post randomisation, and that these contacts are just as important as their first visit; d) information about when the trial results are expected; e) reminder that they can contact the ARTISAN team if they have any queries. Intervention 2: a postcard-sized written card, with similar content as above, signed by the Chief Investigator and Trial Manager posted in an envelope to participants' homes within one week of being randomised.
Outcomes	Primary: the primary outcome is the questionnaire response rate at six months. This is defined as the proportion of participants who return the questionnaire by post at the 6-month time point within the response window. Secondary: 1. Time to response to the questionnaires at all time points, i.e. 6 weeks, 3, 6 and 12 months (date of first posting to date of questionnaire received by study team) 2. Response rates at 6 weeks, and then at 3 and 12 months (as for primary outcome) 3. Response rates at 6 weeks, 3 months, 6 months and 12 months (return of questionnaire data at any point, including via telephone) 4. Completeness of responses. This will be counted as the number of missing items in the PROMS (OSIS, QuickDASH and EQ5D) and the complications section. 5. Number of reminder notices required. 6. Cost of intervention (phone call or postcard) per participant.
Starting date	
Contact information	gurmit.dhanjal@warwick.ac.uk
Notes	

SWAT #51

Study name	Promoting group identity to improve questionnaire return rate
Methods	To assess the effect on questionnaire return rate of an intervention to promote group identity in trial participants.
Data	
Comparisons	Intervention 1: active promotion of a group identity or membership using trial promotional material, such as wristbands, and participant-friendly newsletters. Intervention 2: no promotional material or newsletters.

SWAT #51 *(Continued)*

Outcomes	Primary: Questionnaire return rate Secondary: Measure of group identification
Starting date	
Contact information	ashley.agus@nictu.hscni.net
Notes	

SWAT #54

Study name	Giving trial participants a thank you note or card after each study visit
Methods	To examine whether giving a thank you note or card to enrolled participants after each study-related visit improves their retention in the trial.
Data	
Comparisons	Intervention 1: generic thank you card or note Intervention 2: pPersonalised thank you card or note Intervention 3: no thank you card or note
Outcomes	Primary: proportion of participants who remain in the study. Secondary: time that participants remain in the study before they withdraw
Starting date	
Contact information	ranand01@qub.ac.uk
Notes	

SWAT #63

Study name	Does local radio and social media advertisement increase recruitment?
Methods	To assess the effects on recruitment of local media (radio) or social media (Facebook) advertisement.
Data	
Comparisons	Intervention 1: Local radio (R) advertisements, lasting two weeks (avoiding school holiday periods) Intervention 2: Facebook (F) advertisements targeted to parents with children aged 6-12 years in the recruitment city and within a 15-mile radius (avoiding school holiday periods) Intervention 3: No advertisement (Ø) for 1-2 months (avoiding school holiday periods)
Outcomes	Primary: change in recruitment after each type of advertisement. This change will be assessed as the number of participants recruited during the one month before the start of the advertising intervention and during the one month after it ends. Secondary: changes in recruitment three months before and after the advertisement; retention of participants in the trial; and changes in the number of potentially eligible participants who are assessed or approached for the trial.
Starting date	
Contact information	a.azuara-blanco@qub.ac.uk

SWAT #63 *(Continued)*

Notes	

SWAT #79

Study name	Effect of birthday cards with or without nudge on retention and data completion rates in trials involving children
Methods	To determine whether sending a birthday card with or without a nudge improves retention and completion rates in trials involving children
Data	
Comparisons	Intervention 1: Birthday card. Our PPI (patient and public involvement) group felt that the birthday cards should be as personal as possible but not have anything on the front that could be offensive. The front will therefore have the participant's age and a gender neutral image linked to the trial. The message on the inside should be from someone they know, such as the treating clinician, or research nurse at their local site and the trial team. Intervention 2: Birthday card (as in intervention 1), but informed by nudge theory to encourage completion of questionnaires Intervention 3: No birthday card
Outcomes	Primary: response rate to the participant follow-up questionnaire at the first time point following receipt of the birthday card. Secondary: 1) Response rate to the participant follow-up questionnaire at the 12-month follow-up: 2) Time to response (number of days from date due to date returned) 3) Completeness of primary outcome measure (defined as providing sufficient data to produce a valid summary score) 4) Need for a postal reminder 5) Cost per participant retained
Starting date	
Contact information	mike.backhouse@york.ac.uk, adwoa.parker@york.ac.uk
Notes	

SWAT #81

Study name	A telephone reminder to enhance adherence to interventions in randomised trials
Methods	To evaluate the effects of a telephone reminder to enhance the adherence of participants to interventions in randomised trials.
Data	
Comparisons	Intervention 1: Telephone reminder (maximum three attempts with no messages left on voicemail to protect privacy) the day before their appointment to attend the intervention programme. The telephone reminder will be a scripted text to remind the participant is reminded of their study visit date and time and asking them to confirm their attendance the next day. Intervention 2: No telephone reminder.
Outcomes	Primary: Adherence to trial intervention (defined as 100% attendance) Secondary: Number of dropouts, and time to drop out from the host trial.
Starting date	
Contact information	fionnuala.jordan@nuigalway.ie

SWAT #81 *(Continued)*

Notes	

SWAT #82

Study name	To evaluate the effect on retention of sending Christmas cards to trial participants.
Methods	To evaluate the effect on retention of sending Christmas cards to trial participants.
Data	
Comparisons	Intervention 1: Christmas card to the trial participant. Intervention 2: no Christmas card.
Outcomes	Primary: number of participants retained. Secondary: cost per participant retained.
Starting date	
Contact information	streweek@mac.com
Notes	

SWAT #86

Study name	Advance notification of trial participants before outcome data collection to improve retention
Methods	To evaluate the effects of a pre-notification letter or email on completion and return of outcome questionnaires.
Data	
Comparisons	Intervention 1. Pre-notification communication in advance of follow-up questionnaire. Participants who elect to complete follow-up questionnaires online will be sent a personalised pre-notification in an email two weeks prior to the mailing of this. Participants who elect to complete follow-up questionnaires in hard copy form and return by post will be sent a personalised pre-notification letter. Similar wording and layout will be used in the email and letter. Intervention 2. No pre-notification communication.
Outcomes	Primary: valid response for WORKWELL trial primary outcome (yes/no) (i.e. usable outcome data for the primary outcome measure (WLQ-25 total score[10]) obtained by any means, no more than 56 days after the scheduled 6-month follow-up time-point. Secondary: 1. Valid response for WORKWELL trial primary outcome (yes/no) without reminder; 2. Number of reminders sent; 3. Time to response [or ceasing follow-up] (days); 4. Costs per participant retained.
Starting date	
Contact information	Chris.J.Sutton@manchester.ac.uk
Notes	

SWAT #87

Study name	Do participants complete the original or the reminder postal follow up questionnaire?
Methods	To determine, in people who are sent a reminder postal follow-up questionnaire, whether they complete the original postal questionnaire or the reminder questionnaire.
Data	
Comparisons	Intervention 1: 'Original' questionnaires will be identified by a green sticker on the front page and a red sticker will be used for 'reminder' questionnaires. When the questionnaires are received by the trials office, the date and questionnaire type will be logged using the Trial Central Management system.
Outcomes	Primary: proportion of questionnaires returned by people sent a reminder that were the 'Reminder' or the 'Original' questionnaire. Secondary: time to response, defined as the number of days between the 'Reminder' questionnaire being mailed out and a completed questionnaire being received by the trial team.
Starting date	
Contact information	lucy.cureton@ndorms.ox.ac.uk
Notes	

SWAT #89

Study name	Including a theoretically informed leaflet in a participant take-home pack of questionnaires to increase response rate
Methods	The joint aims of this study are: (a) To design a leaflet using a theory based behaviour change framework (anticipating the Theoretical Domains Framework) with the aim of maximising participant questionnaire response rates (achieved) (b) To further test this specific approach in a pragmatic setting to provide evidence of its applicability and effectiveness in respect of participant behaviour and adherence
Data	
Comparisons	Intervention 1. Theoretically informed leaflet in the participant pack Intervention 2: Generic compliments slip in the participant pack
Outcomes	Primary: Participant response rates at one, two and twelve weeks post-intervention
Starting date	
Contact information	k.starr@abdn.ac.uk
Notes	

SWAT #92

Study name	Pen incentive to enhance retention in a randomised trial
Methods	To evaluate the effects on retention of providing a pen with the 3-month follow-up questionnaire.

SWAT #92 *(Continued)*

Data	
Comparisons	Intervention 1. Pen printed with the trial logo sent along with the 3-month follow-up questionnaire. Intervention 2. No pen.
Outcomes	Primary: proportion of participants who return the 3-month questionnaire. Secondary: time to response (length of time taken to return the questionnaire), completeness of response (number of questions completed) and whether a reminder notice is required (number of participants requiring a reminder mailing divided by the number of participants who were sent a questionnaire).
Starting date	
Contact information	garry.tew@northumbria.ac.uk
Notes	

SWAT #97

Study name	TRECA (TRials Engagement in Children and Adolescents)
Methods	To evaluate multimedia information resources (MMIs) in a series of paediatric trials in the UK, testing their effects on recruitment and retention and decision-making by comparing the effect of providing standard written participant information with provision of the MMI either in addition to the standard written participant information or the provision of the MMI alone.
Data	
Comparisons	Intervention 1: MMI only (participants receive information about the trial by viewing a multimedia website) Intervention 2: PIS only (participants receive information about the trial by PIS) Intervention 3: Both MMI and PIS (participants receive information about the trial by both MMI and PIS)
Outcomes	Primary: Recruitment rate Secondary: Retention rate; quality of decision making
Starting date	
Contact information	peter.knapp@york.ac.uk
Notes	

PIS: participant information sheet; **PPI:** patient and public involvement.

DATA AND ANALYSES

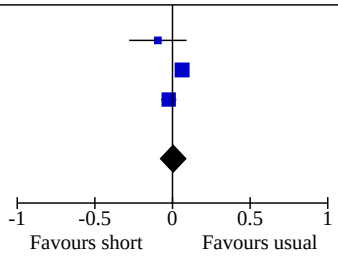
Comparison 1. A - Questionnaire Design: Short vs usual questionnaire

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1.1 Retention	3	3252	Risk Difference (M-H, Random, 95% CI)	0.00 [-0.08, 0.08]

Analysis 1.1. Comparison 1: A - Questionnaire Design: Short vs usual questionnaire, Outcome 1: Retention

Study or Subgroup	Short Events	Short Total	Usual Events	Usual Total	Weight	Risk Difference M-H, Random, 95% CI
Edwards 2004	31	50	35	49	13.8%	-0.09 [-0.28 , 0.09]
Dorman 1997	747	1125	679	1128	44.3%	0.06 [0.02 , 0.10]
Subar 2001	367	450	378	450	41.9%	-0.02 [-0.07 , 0.02]
Total (95% CI)		**1625**		**1627**	**100.0%**	**0.00 [-0.08 , 0.08]**
Total events:	1145		1092			

Heterogeneity: Tau² = 0.00; Chi² = 9.12, df = 2 (P = 0.01); I² = 78%
Test for overall effect: Z = 0.10 (P = 0.92)
Test for subgroup differences: Not applicable



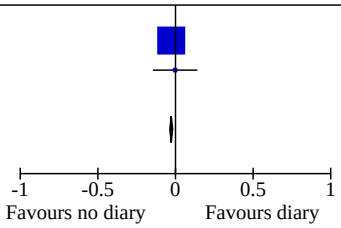
Comparison 2. A - Questionnaire Design: Addition of diary to usual follow up vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
2.1 Retention	2	9906	Risk Difference (M-H, Random, 95% CI)	-0.03 [-0.04, -0.02]

Analysis 2.1. Comparison 2: A - Questionnaire Design: Addition of diary to usual follow up vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Diary Events	Diary Total	No diary Events	No diary Total	Weight	Risk Difference M-H, Random, 95% CI
Griffin 2019	3086	3273	6354	6548	99.6%	-0.03 [-0.04 , -0.02]
Marques 2013	40	46	34	39	0.4%	-0.00 [-0.15 , 0.14]
Total (95% CI)		**3319**		**6587**	**100.0%**	**-0.03 [-0.04 , -0.02]**
Total events:	3126		6388			

Heterogeneity: Tau² = 0.00; Chi² = 0.12, df = 1 (P = 0.73); I² = 0%
Test for overall effect: Z = 6.01 (P < 0.00001)
Test for subgroup differences: Not applicable



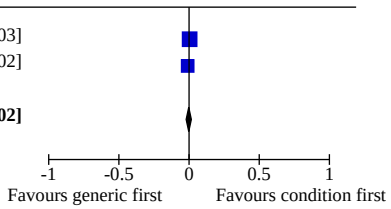
Comparison 3. A - Questionnaire Design: Question order, condition first vs generic first questions

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
3.1 Retention	2	9435	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.02, 0.02]

Analysis 3.1. Comparison 3: A - Questionnaire Design: Question order, condition first vs generic first questions, Outcome 1: Retention

Study or Subgroup	Condition specific first Events	Total	Generic first Events	Total	Weight	Risk Difference M-H, Random, 95% CI
McColl 2003 - Trial 1	1779	2363	1738	2321	54.7%	0.00 [-0.02 , 0.03]
McColl 2003 - Trial 2	1522	2382	1537	2369	45.3%	-0.01 [-0.04 , 0.02]
Total (95% CI)		**4745**		**4690**	**100.0%**	**-0.00 [-0.02 , 0.02]**
Total events:	3301		3275			

Heterogeneity: Tau² = 0.00; Chi² = 0.55, df = 1 (P = 0.46); I² = 0%
Test for overall effect: Z = 0.24 (P = 0.81)
Test for subgroup differences: Not applicable



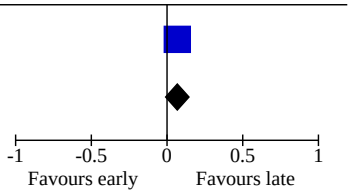
Comparison 4. A - Data Collection Frequency and Timing: Timing of questionnaire delivery

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
4.1 Retention	1	479	Risk Difference (M-H, Fixed, 95% CI)	0.07 [-0.01, 0.14]

Analysis 4.1. Comparison 4: A - Data Collection Frequency and Timing: Timing of questionnaire delivery, Outcome 1: Retention

Study or Subgroup	Sent at last follow up Events	Total	Sent at close out Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Renfroe 2002	189	240	172	239	100.0%	0.07 [-0.01 , 0.14]
Total (95% CI)		**240**		**239**	**100.0%**	**0.07 [-0.01 , 0.14]**
Total events:	189		172			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.73 (P = 0.08)
Test for subgroup differences: Not applicable



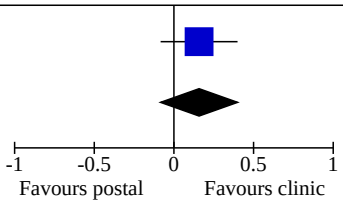
Comparison 5. A - Data Collection Location and Method: Postal follow-up vs clinic follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
5.1 Retention	1	60	Risk Difference (M-H, Fixed, 95% CI)	0.16 [-0.08, 0.40]

Analysis 5.1. Comparison 5: A - Data Collection Location and Method: Postal follow-up vs clinic follow-up, Outcome 1: Retention

Study or Subgroup	Clinic Events	Clinic Total	Postal Events	Postal Total	Weight	Risk Difference M-H, Fixed, 95% CI
Greig 2017	13	29	9	31	100.0%	0.16 [-0.08 , 0.40]
Total (95% CI)		**29**		**31**	**100.0%**	**0.16 [-0.08 , 0.40]**
Total events:	13		9			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.28 (P = 0.20)
Test for subgroup differences: Not applicable



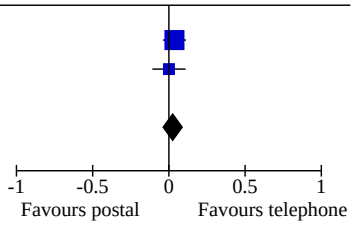
Comparison 6. A - Data Collection Location and Method: Telephone follow-up vs postal questionnaire

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
6.1 Retention	2	1006	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.04, 0.09]
6.2 Retention - sensitivity analysis removing quasi-RCTs	1	672	Risk Difference (M-H, Fixed, 95% CI)	0.04 [-0.04, 0.11]

Analysis 6.1. Comparison 6: A - Data Collection Location and Method: Telephone follow-up vs postal questionnaire, Outcome 1: Retention

Study or Subgroup	Telephone Events	Telephone Total	Postal Events	Postal Total	Weight	Risk Difference M-H, Random, 95% CI
Couper 2007	170	290	210	382	67.5%	0.04 [-0.04 , 0.11]
Marsh 1999	74	130	116	204	32.5%	0.00 [-0.11 , 0.11]
Total (95% CI)		**420**		**586**	**100.0%**	**0.02 [-0.04 , 0.09]**
Total events:	244		326			

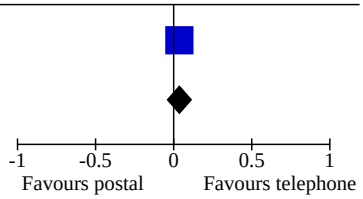
Heterogeneity: Tau² = 0.00; Chi² = 0.28, df = 1 (P = 0.60); I² = 0%
Test for overall effect: Z = 0.78 (P = 0.43)
Test for subgroup differences: Not applicable



Analysis 6.2. Comparison 6: A - Data Collection Location and Method: Telephone follow-up vs postal questionnaire, Outcome 2: Retention - sensitivity analysis removing quasi-RCTs

Study or Subgroup	Telephone Events	Telephone Total	Postal Events	Postal Total	Weight	Risk Difference M-H, Fixed, 95% CI
Couper 2007	170	290	210	382	100.0%	0.04 [-0.04 , 0.11]
Total (95% CI)		**290**		**382**	**100.0%**	**0.04 [-0.04 , 0.11]**
Total events:	170		210			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.95 (P = 0.34)
Test for subgroup differences: Not applicable



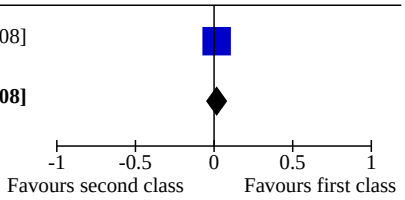
Comparison 7. A - Data Collection Location and Method: First class vs second class outward mailing

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
7.1 Retention	1	930	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.04, 0.08]

Analysis 7.1. Comparison 7: A - Data Collection Location and Method: First class vs second class outward mailing, Outcome 1: Retention

Study or Subgroup	First class Events	First class Total	Second class Events	Second class Total	Weight	Risk Difference M-H, Fixed, 95% CI
Sharp 2006	305	463	300	467	100.0%	0.02 [-0.04 , 0.08]
Total (95% CI)		**463**		**467**	**100.0%**	**0.02 [-0.04 , 0.08]**
Total events:	305		300			

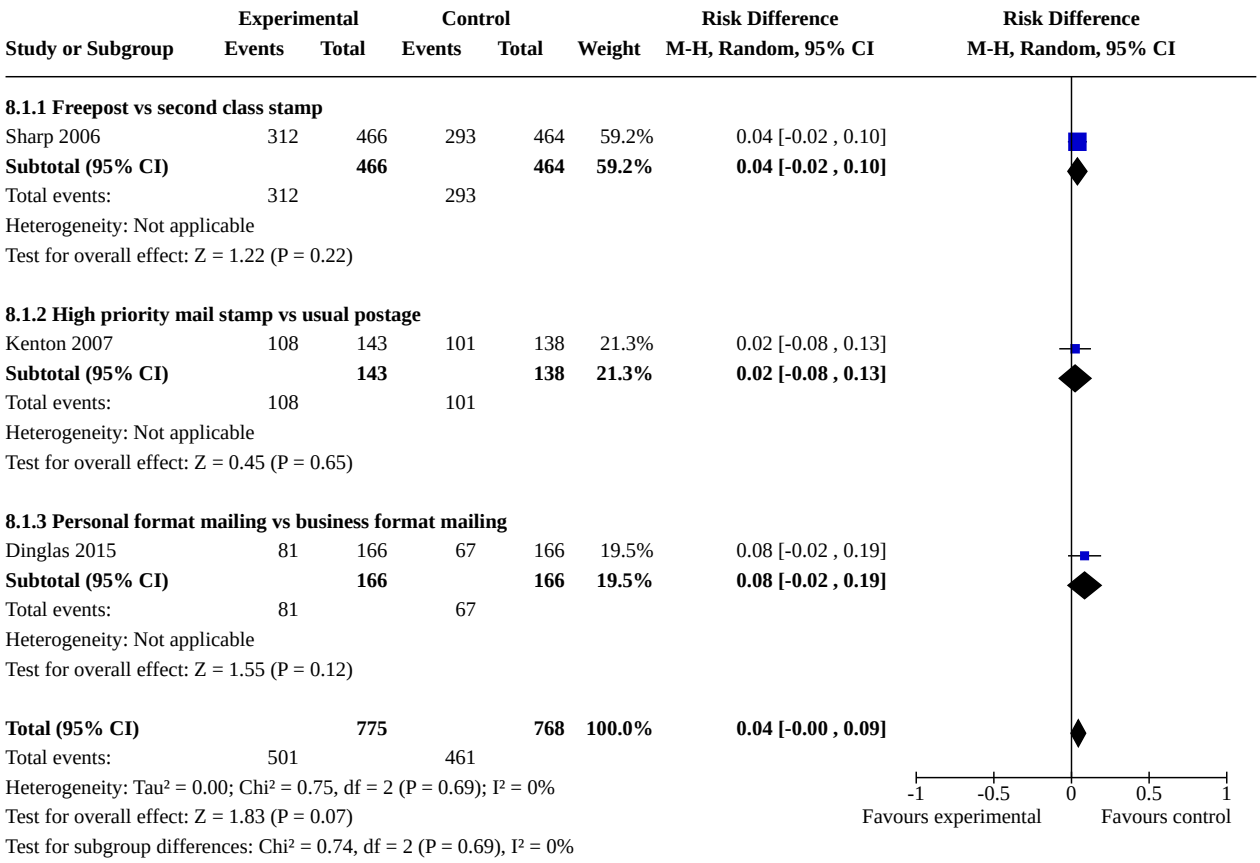
Heterogeneity: Not applicable
Test for overall effect: Z = 0.52 (P = 0.60)
Test for subgroup differences: Not applicable



Comparison 8. A - Data Collection Location and Method: Return postage

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
8.1 Retention	3	1543	Risk Difference (M-H, Random, 95% CI)	0.04 [-0.00, 0.09]
8.1.1 Freepost vs second class stamp	1	930	Risk Difference (M-H, Random, 95% CI)	0.04 [-0.02, 0.10]
8.1.2 High priority mail stamp vs usual postage	1	281	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.08, 0.13]
8.1.3 Personal format mailing vs business format mailing	1	332	Risk Difference (M-H, Random, 95% CI)	0.08 [-0.02, 0.19]

Analysis 8.1. Comparison 8: A - Data Collection Location and Method: Return postage, Outcome 1: Retention

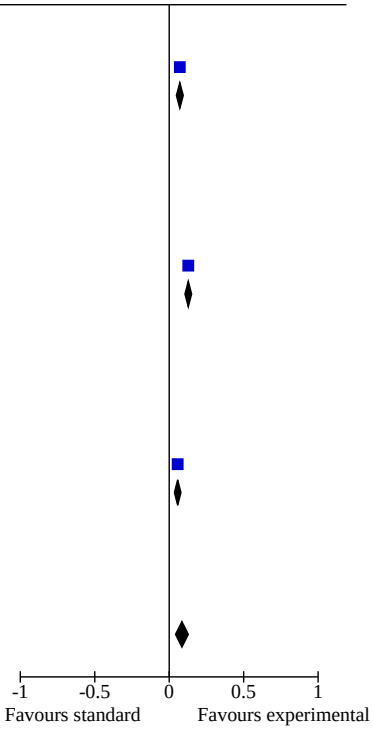


Comparison 9. A - Data Collection Location and Method: Use of self-sampling kits

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
9.1 Retention	1	19582	Risk Difference (M-H, Random, 95% CI)	0.09 [0.04, 0.13]
9.1.1 Directly mailed self-sampling kit vs invitation to order salf-sampling kit	1	6529	Risk Difference (M-H, Random, 95% CI)	0.07 [0.05, 0.09]
9.1.2 Directly mailed self-sampling kit vs usual follow up	1	6527	Risk Difference (M-H, Random, 95% CI)	0.13 [0.11, 0.15]
9.1.3 Invitation to order self-sampling vs usual follow up	1	6526	Risk Difference (M-H, Random, 95% CI)	0.06 [0.04, 0.08]

Analysis 9.1. Comparison 9: A - Data Collection Location and Method: Use of self-sampling kits, Outcome 1: Retention

Study or Subgroup	Experimental Events	Experimental Total	Standard Events	Standard Total	Weight	Risk Difference M-H, Random, 95% CI
9.1.1 Directly mailed self-sampling kit vs invitation to order salf-sampling kit						
Tranberg 2018	1242	3265	1009	3264	33.2%	0.07 [0.05 , 0.09]
Subtotal (95% CI)		**3265**		**3264**	**33.2%**	**0.07 [0.05 , 0.09]**
Total events:	1242		1009			
Heterogeneity: Not applicable						
Test for overall effect: Z = 6.08 (P < 0.00001)						
9.1.2 Directly mailed self-sampling kit vs usual follow up						
Tranberg 2018	1242	3265	823	3262	33.3%	0.13 [0.11 , 0.15]
Subtotal (95% CI)		**3265**		**3262**	**33.3%**	**0.13 [0.11 , 0.15]**
Total events:	1242		823			
Heterogeneity: Not applicable						
Test for overall effect: Z = 11.23 (P < 0.00001)						
9.1.3 Invitation to order self-sampling vs usual follow up						
Tranberg 2018	1009	3264	823	3262	33.5%	0.06 [0.04 , 0.08]
Subtotal (95% CI)		**3264**		**3262**	**33.5%**	**0.06 [0.04 , 0.08]**
Total events:	1009		823			
Heterogeneity: Not applicable						
Test for overall effect: Z = 5.12 (P < 0.00001)						
Total (95% CI)		**9794**		**9788**	**100.0%**	**0.09 [0.04 , 0.13]**
Total events:	3493		2655			
Heterogeneity: Tau² = 0.00; Chi² = 22.10, df = 2 (P < 0.0001); I² = 91%						
Test for overall effect: Z = 3.90 (P < 0.0001)						
Test for subgroup differences: Chi² = 22.09, df = 2 (P < 0.0001), I² = 90.9%						

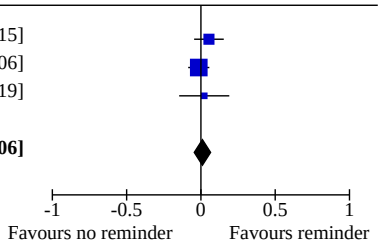


Comparison 10. B - Reminders: Electronic reminder vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
10.1 Retention	3	790	Risk Difference (M-H, Random, 95% CI)	0.01 [-0.04, 0.06]

Analysis 10.1. Comparison 10: B - Reminders: Electronic reminder vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Electronic reminder Events	Electronic reminder Total	No reminder Events	No reminder Total	Weight	Risk Difference M-H, Random, 95% CI
Ashby 2011	68	74	64	74	30.2%	0.05 [-0.05 , 0.15]
Keding 2016	202	262	205	261	59.2%	-0.01 [-0.09 , 0.06]
Starr 2015	41	60	39	59	10.6%	0.02 [-0.15 , 0.19]
Total (95% CI)		**396**		**394**	**100.0%**	**0.01 [-0.04 , 0.06]**
Total events:	311		308			
Heterogeneity: Tau² = 0.00; Chi² = 1.27, df = 2 (P = 0.53); I² = 0%						
Test for overall effect: Z = 0.36 (P = 0.72)						
Test for subgroup differences: Not applicable						



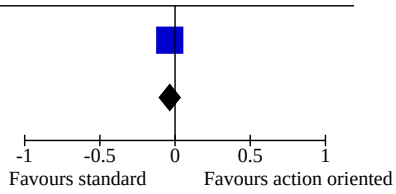
Comparison 11. B - Reminders: Action oriented electronic reminder vs standard electronic reminder

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
11.1 Retention	1	231	Risk Difference (M-H, Fixed, 95% CI)	-0.04 [-0.10, 0.03]

Analysis 11.1. Comparison 11: B - Reminders: Action oriented electronic reminder vs standard electronic reminder, Outcome 1: Retention

Study or Subgroup	Action oriented Events	Action oriented Total	Standard Events	Standard Total	Weight	Risk Difference M-H, Fixed, 95% CI
Edwards 2016	104	115	109	116	100.0%	-0.04 [-0.10 , 0.03]
Total (95% CI)		**115**		**116**	**100.0%**	**-0.04 [-0.10 , 0.03]**
Total events:	104		109			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.00 (P = 0.32)
Test for subgroup differences: Not applicable



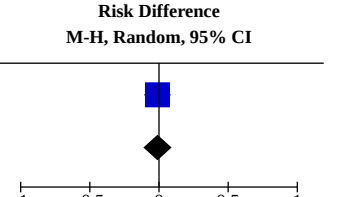
Comparison 12. B - Reminders: Personalised reminder vs non-personalised reminder

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
12.1 Retention	1	298	Risk Difference (M-H, Random, 95% CI)	-0.01 [-0.11, 0.08]

Analysis 12.1. Comparison 12: B - Reminders: Personalised reminder vs non-personalised reminder, Outcome 1: Retention

Study or Subgroup	Personalised reminder Events	Personalised reminder Total	Standard reminder Events	Standard reminder Total	Weight	Risk Difference M-H, Random, 95% CI
Nakash 2007	117	152	114	146	100.0%	-0.01 [-0.11 , 0.08]
Total (95% CI)		**152**		**146**	**100.0%**	**-0.01 [-0.11 , 0.08]**
Total events:	117		114			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.23 (P = 0.82)
Test for subgroup differences: Not applicable



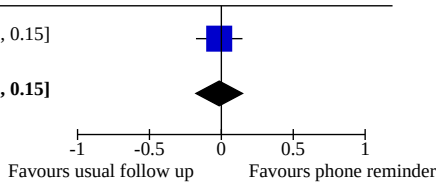
Comparison 13. B - Reminders: Telephone reminder vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
13.1 Retention	1	127	Risk Difference (M-H, Fixed, 95% CI)	-0.01 [-0.18, 0.15]

Analysis 13.1. Comparison 13: B - Reminders: Telephone reminder vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Telephone reminder Events	Total	Usual follow up Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Severi 2011	20	65	20	62	100.0%	-0.01 [-0.18 , 0.15]
Total (95% CI)		**65**		**62**	**100.0%**	**-0.01 [-0.18 , 0.15]**
Total events:	20		20			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.18 (P = 0.86)
Test for subgroup differences: Not applicable



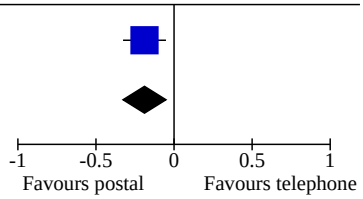
Comparison 14. B - Reminders: Telephone reminder vs postal reminder

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
14.1 Retention	1	148	Risk Difference (M-H, Fixed, 95% CI)	-0.19 [-0.33, -0.05]

Analysis 14.1. Comparison 14: B - Reminders: Telephone reminder vs postal reminder, Outcome 1: Retention

Study or Subgroup	Telephone Events	Total	Postal Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Tai 1997	12	74	26	74	100.0%	-0.19 [-0.33 , -0.05]
Total (95% CI)		**74**		**74**	**100.0%**	**-0.19 [-0.33 , -0.05]**
Total events:	12		26			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.70 (P = 0.007)
Test for subgroup differences: Not applicable



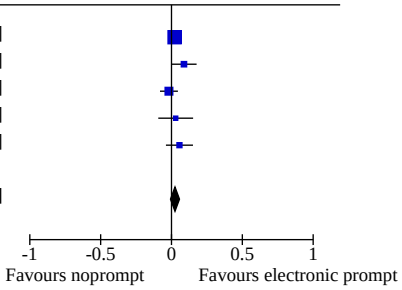
Comparison 15. B - Prompts: Electronic prompt vs no prompt

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
15.1 Retention	5	2897	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.01, 0.06]

Analysis 15.1. Comparison 15: B - Prompts: Electronic prompt vs no prompt, Outcome 1: Retention

Study or Subgroup	Electronic prompt Events	Total	no prompt Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Bradshaw 2020	565	692	558	702	47.9%	0.02 [-0.02 , 0.06]
Clark 2015	157	226	128	211	12.1%	0.09 [-0.00 , 0.18]
Keding 2016	233	281	205	242	23.0%	-0.02 [-0.08 , 0.05]
Man 2011	54	62	53	63	6.5%	0.03 [-0.09 , 0.15]
Starr 2015	121	212	106	206	10.6%	0.06 [-0.04 , 0.15]
Total (95% CI)		**1473**		**1424**	**100.0%**	**0.02 [-0.01 , 0.06]**
Total events:	1130		1050			

Heterogeneity: Tau² = 0.00; Chi² = 4.28, df = 4 (P = 0.37); I² = 7%
Test for overall effect: Z = 1.53 (P = 0.13)
Test for subgroup differences: Not applicable



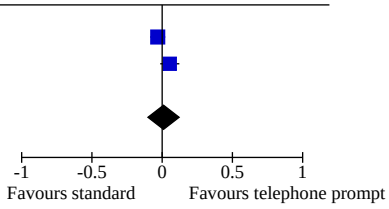
Comparison 16. B - Prompts: Telephone prompt vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
16.1 Retention	2	943	Risk Difference (M-H, Random, 95% CI)	0.01 [-0.10, 0.12]

Analysis 16.1. Comparison 16: B - Prompts: Telephone prompt vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Telephone prompt Events	Total	Standard Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Edwards 2016	90	95	93	95	51.8%	-0.03 [-0.08 , 0.02]
MacLennan 2014	265	390	227	363	48.2%	0.05 [-0.01 , 0.12]
Total (95% CI)		**485**		**458**	**100.0%**	**0.01 [-0.10 , 0.12]**
Total events:	355		320			

Heterogeneity: Tau² = 0.01; Chi² = 6.56, df = 1 (P = 0.01); I² = 85%
Test for overall effect: Z = 0.17 (P = 0.86)
Test for subgroup differences: Not applicable



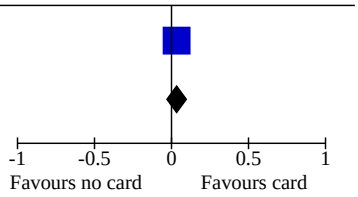
Comparison 17. B - Prompts: Prenotification card vs no card

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
17.1 Retention	1	558	Risk Difference (M-H, Fixed, 95% CI)	0.03 [-0.03, 0.10]

Analysis 17.1. Comparison 17: B - Prompts: Prenotification card vs no card, Outcome 1: Retention

Study or Subgroup	Prenotificaiton card Events	Total	No card Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Treweek 2020a	231	274	230	284	100.0%	0.03 [-0.03 , 0.10]
Total (95% CI)		**274**		**284**	**100.0%**	**0.03 [-0.03 , 0.10]**
Total events:	231		230			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.04 (P = 0.30)
Test for subgroup differences: Not applicable



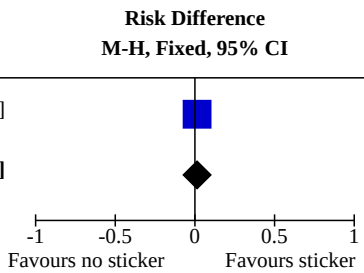
Comparison 18. B - Prompts: Sticker vs no sticker

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
18.1 Retention	1	517	Risk Difference (M-H, Fixed, 95% CI)	0.01 [-0.07, 0.10]

Analysis 18.1. Comparison 18: B - Prompts: Sticker vs no sticker, Outcome 1: Retention

Study or Subgroup	Sticker Events	Total	No sticker Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Goulao 2020	134	258	131	259	100.0%	0.01 [-0.07 , 0.10]
Total (95% CI)		**258**		**259**	**100.0%**	**0.01 [-0.07 , 0.10]**
Total events:	134		131			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.31 (P = 0.76)
Test for subgroup differences: Not applicable



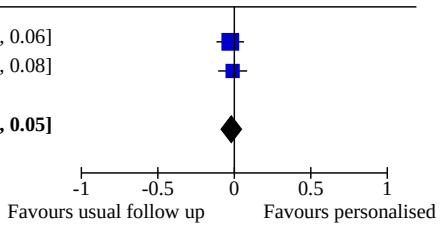
Comparison 19. B - Prompts: Personalised prompt vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
19.1 Retention	2	701	Risk Difference (M-H, Fixed, 95% CI)	-0.02 [-0.09, 0.05]

Analysis 19.1. Comparison 19: B - Prompts: Personalised prompt vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Personalised Events	Total	Usual follow up Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Cochrane 2020	136	201	142	202	57.5%	-0.03 [-0.12 , 0.06]
Nakash 2007	117	152	114	146	42.5%	-0.01 [-0.11 , 0.08]
Total (95% CI)		**353**		**348**	**100.0%**	**-0.02 [-0.09 , 0.05]**
Total events:	253		256			

Heterogeneity: Chi² = 0.05, df = 1 (P = 0.82); I² = 0%
Test for overall effect: Z = 0.59 (P = 0.55)
Test for subgroup differences: Not applicable



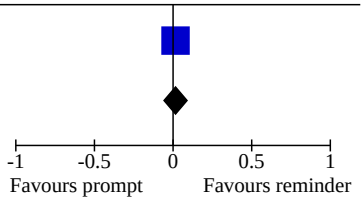
Comparison 20. B - Prompts: Electronic prompts vs electronic reminders

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
20.1 Retention	1	269	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.06, 0.09]

Analysis 20.1. Comparison 20: B - Prompts: Electronic prompts vs electronic reminders, Outcome 1: Retention

Study or Subgroup	Prompt Events	Total	Reminder Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Sarathy 2020	122	135	119	134	100.0%	0.02 [-0.06 , 0.09]
Total (95% CI)		**135**		**134**	**100.0%**	**0.02 [-0.06 , 0.09]**
Total events:	122		119			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.42 (P = 0.67)
Test for subgroup differences: Not applicable



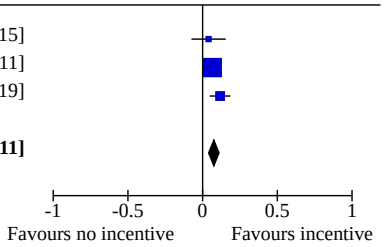
Comparison 21. B - Monetary incentives: Addition of monetary incentives vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
21.1 Retention	3	3166	Risk Difference (M-H, Random, 95% CI)	0.07 [0.04, 0.11]
21.2 Retention- sensitivity anlysis removing quasi-RCTs	2	1022	Risk Difference (M-H, Random, 95% CI)	0.09 [0.02, 0.16]

Analysis 21.1. Comparison 21: B - Monetary incentives: Addition of monetary incentives vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Monetary incentive Events	Total	No incentive Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Bauer 2004	76	200	34	100	9.0%	0.04 [-0.07 , 0.15]
Gates 2009	560	1070	493	1074	66.5%	0.06 [0.02 , 0.11]
Kenyon 2005	156	369	108	353	24.5%	0.12 [0.05 , 0.19]
Total (95% CI)		**1639**		**1527**	**100.0%**	**0.07 [0.04 , 0.11]**
Total events:	792		635			

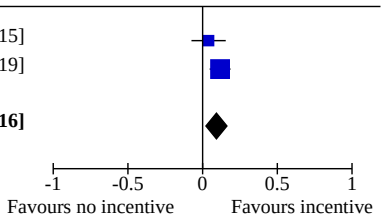
Heterogeneity: Tau² = 0.00; Chi² = 1.99, df = 2 (P = 0.37); I² = 0%
Test for overall effect: Z = 4.27 (P < 0.0001)
Test for subgroup differences: Not applicable



Analysis 21.2. Comparison 21: B - Monetary incentives: Addition of monetary incentives vs usual follow-up, Outcome 2: Retention- sensitivity anlysis removing quasi-RCTs

Study or Subgroup	Monetary incentive Events	Total	No incentive Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Bauer 2004	76	200	34	100	31.7%	0.04 [-0.07 , 0.15]
Kenyon 2005	156	369	108	353	68.3%	0.12 [0.05 , 0.19]
Total (95% CI)		**569**		**453**	**100.0%**	**0.09 [0.02 , 0.16]**
Total events:	232		142			

Heterogeneity: Tau² = 0.00; Chi² = 1.26, df = 1 (P = 0.26); I² = 21%
Test for overall effect: Z = 2.59 (P = 0.010)
Test for subgroup differences: Not applicable



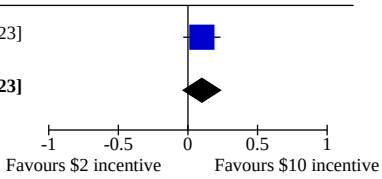
Comparison 22. B - Monetary incentives: Addition of monetary incentives to all trial arms

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
22.1 Retention	1	200	Risk Difference (M-H, Fixed, 95% CI)	0.10 [-0.03, 0.23]

Analysis 22.1. Comparison 22: B - Monetary incentives: Addition of monetary incentives to all trial arms, Outcome 1: Retention

Study or Subgroup	Higher value incentive Events	Total	Lower value incentive Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Bauer 2004	43	100	33	100	100.0%	0.10 [-0.03 , 0.23]
Total (95% CI)		**100**		**100**	**100.0%**	**0.10 [-0.03 , 0.23]**
Total events:	43		33			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.46 (P = 0.14)
Test for subgroup differences: Not applicable



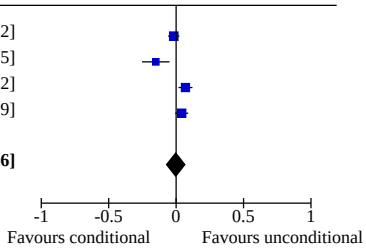
Comparison 23. B - Monetary incentives: Addition of monetary incentives vs addition of monetary reward

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
23.1 Retention	4	3765	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.07, 0.06]

Analysis 23.1. Comparison 23: B - Monetary incentives: Addition of monetary incentives vs addition of monetary reward, Outcome 1: Retention

Study or Subgroup	Unconditional incentive Events	Total	Conditional incentive Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Bradshaw 2020	557	699	566	695	28.1%	-0.02 [-0.06 , 0.02]
Cook 2020	127	220	91	125	18.4%	-0.15 [-0.25 , -0.05]
Dorling 2020	381	459	353	464	26.5%	0.07 [0.02 , 0.12]
Young 2020	444	551	422	552	27.0%	0.04 [-0.01 , 0.09]
Total (95% CI)		**1929**		**1836**	**100.0%**	**-0.00 [-0.07 , 0.06]**
Total events:	1509		1432			

Heterogeneity: Tau² = 0.00; Chi² = 17.92, df = 3 (P = 0.0005); I² = 83%
Test for overall effect: Z = 0.09 (P = 0.93)
Test for subgroup differences: Not applicable

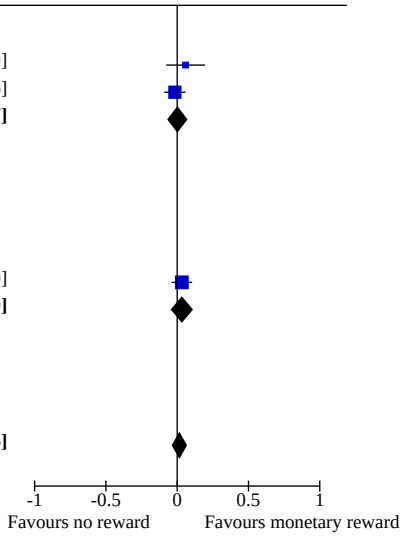


Comparison 24. B- Monetary incentives: Addition of monetary reward vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
24.1 Retention	3	1159	Risk Difference (M-H, Random, 95% CI)	0.02 [-0.03, 0.06]
24.1.1 Return of postal questionnaires	2	725	Risk Difference (M-H, Random, 95% CI)	0.00 [-0.06, 0.07]
24.1.2 Attendance at follow up visits	1	434	Risk Difference (M-H, Random, 95% CI)	0.03 [-0.04, 0.10]
24.2 Retention - sensitivity analysis removing quasi-RCTs	2	955	Risk Difference (M-H, Random, 95% CI)	0.01 [-0.04, 0.06]
24.2.1 Return of postal questionnaires	1	521	Risk Difference (M-H, Random, 95% CI)	-0.02 [-0.09, 0.06]
24.2.2 Attendance at follow up visits	1	434	Risk Difference (M-H, Random, 95% CI)	0.03 [-0.04, 0.10]

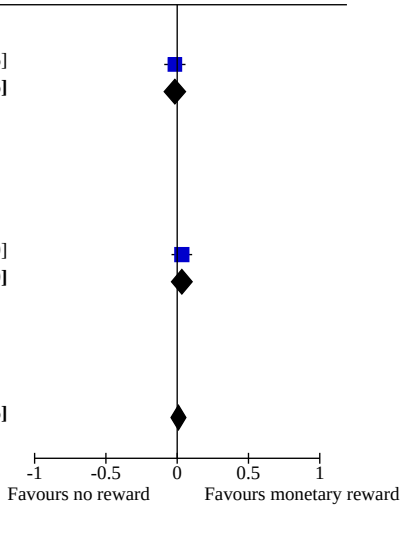
Analysis 24.1. Comparison 24: B- Monetary incentives: Addition of monetary reward vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Monetary reward Events	Total	No reward Events	Total	Weight	Risk Difference M-H, Random, 95% CI
24.1.1 Return of postal questionnaires						
Marsh 1999	61	102	55	102	12.8%	0.06 [-0.08 , 0.19]
Watson 2017	197	266	193	255	42.3%	-0.02 [-0.09 , 0.06]
Subtotal (95% CI)		**368**		**357**	**55.1%**	**0.00 [-0.06 , 0.07]**
Total events:	258		248			
Heterogeneity: Tau² = 0.00; Chi² = 0.92, df = 1 (P = 0.34); I² = 0%						
Test for overall effect: Z = 0.03 (P = 0.97)						
24.1.2 Attendance at follow up visits						
Arundel 2019	247	286	123	148	44.9%	0.03 [-0.04 , 0.10]
Subtotal (95% CI)		**286**		**148**	**44.9%**	**0.03 [-0.04 , 0.10]**
Total events:	247		123			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.88 (P = 0.38)						
Total (95% CI)		**654**		**505**	**100.0%**	**0.02 [-0.03 , 0.06]**
Total events:	505		371			
Heterogeneity: Tau² = 0.00; Chi² = 1.30, df = 2 (P = 0.52); I² = 0%						
Test for overall effect: Z = 0.62 (P = 0.54)						
Test for subgroup differences: Chi² = 0.40, df = 1 (P = 0.53), I² = 0%						



Analysis 24.2. Comparison 24: B- Monetary incentives: Addition of monetary reward vs usual follow-up, Outcome 2: Retention - sensitivity analysis removing quasi-RCTs

Study or Subgroup	Monetary reward Events	Total	No reward Events	Total	Weight	Risk Difference M-H, Random, 95% CI
24.2.1 Return of postal questionnaires						
Watson 2017	197	266	193	255	48.5%	-0.02 [-0.09 , 0.06]
Subtotal (95% CI)		**266**		**255**	**48.5%**	**-0.02 [-0.09 , 0.06]**
Total events:	197		193			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.43 (P = 0.67)						
24.2.2 Attendance at follow up visits						
Arundel 2019	247	286	123	148	51.5%	0.03 [-0.04 , 0.10]
Subtotal (95% CI)		**286**		**148**	**51.5%**	**0.03 [-0.04 , 0.10]**
Total events:	247		123			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.88 (P = 0.38)						
Total (95% CI)		**552**		**403**	**100.0%**	**0.01 [-0.04 , 0.06]**
Total events:	444		316			
Heterogeneity: Tau² = 0.00; Chi² = 0.88, df = 1 (P = 0.35); I² = 0%						
Test for overall effect: Z = 0.34 (P = 0.74)						
Test for subgroup differences: Chi² = 0.85, df = 1 (P = 0.36), I² = 0%						



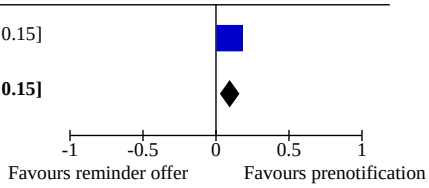
Comparison 25. B - Monetary incentives: Addition of monetary rewards to all trial arms

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
25.1 Retention	1	1018	Risk Difference (M-H, Fixed, 95% CI)	0.09 [0.03, 0.15]

Analysis 25.1. Comparison 25: B - Monetary incentives: Addition of monetary rewards to all trial arms, Outcome 1: Retention

Study or Subgroup	Prenotification offer Events	Total	Reminder offer Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Hardy 2016	259	503	217	515	100.0%	0.09 [0.03 , 0.15]
Total (95% CI)		**503**		**515**	**100.0%**	**0.09 [0.03 , 0.15]**
Total events:	259		217			

Heterogeneity: Not applicable
Test for overall effect: Z = 3.00 (P = 0.003)
Test for subgroup differences: Not applicable



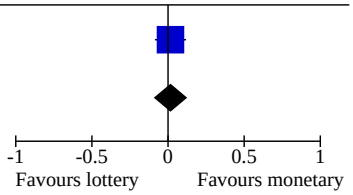
Comparison 26. B - Monetary incentives: Addition of monetary incentives vs lottery

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
26.1 Retention	1	281	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.09, 0.12]

Analysis 26.1. Comparison 26: B - Monetary incentives: Addition of monetary incentives vs lottery, Outcome 1: Retention

Study or Subgroup	Monetary incentive Events	Total	Lottery Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Kenton 2007	106	141	103	140	100.0%	0.02 [-0.09 , 0.12]
Total (95% CI)		**141**		**140**	**100.0%**	**0.02 [-0.09 , 0.12]**
Total events:	106		103			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.31 (P = 0.76)
Test for subgroup differences: Not applicable



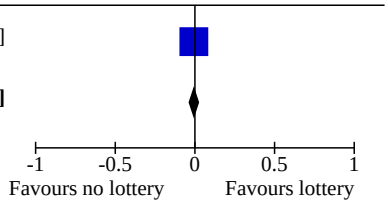
Comparison 27. B - Monetary incentives: Lottery vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
27.1 Retention	1	4206	Risk Difference (M-H, Fixed, 95% CI)	-0.01 [-0.03, 0.02]

Analysis 27.1. Comparison 27: B - Monetary incentives: Lottery vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Lottery Events	Lottery Total	No lottery Events	No lottery Total	Weight	Risk Difference M-H, Fixed, 95% CI
Henderson 2010	732	2758	394	1448	100.0%	-0.01 [-0.03 , 0.02]
Total (95% CI)		**2758**		**1448**	**100.0%**	**-0.01 [-0.03 , 0.02]**
Total events:	732		394			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.46 (P = 0.64)
Test for subgroup differences: Not applicable



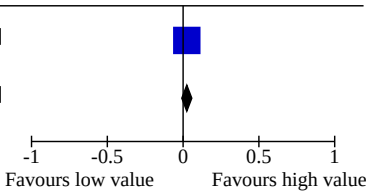
Comparison 28. B - Monetary incentives: Addition of lottery to both trial arms

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
28.1 Retention	1	2758	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.01, 0.06]

Analysis 28.1. Comparison 28: B - Monetary incentives: Addition of lottery to both trial arms, Outcome 1: Retention

Study or Subgroup	High value lottery Events	High value lottery Total	Low value lottery Events	Low value lottery Total	Weight	Risk Difference M-H, Fixed, 95% CI
Henderson 2010	407	1491	315	1267	100.0%	0.02 [-0.01 , 0.06]
Total (95% CI)		**1491**		**1267**	**100.0%**	**0.02 [-0.01 , 0.06]**
Total events:	407		315			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.45 (P = 0.15)
Test for subgroup differences: Not applicable



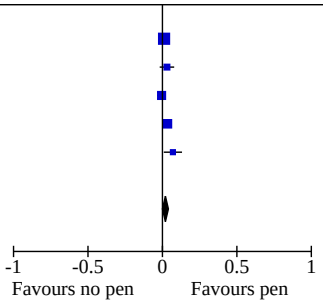
Comparison 29. B - Non-monetary incentives: Addition of pen vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
29.1 Retention	5	13013	Risk Difference (M-H, Random, 95% CI)	0.02 [0.00, 0.04]

Analysis 29.1. Comparison 29: B - Non-monetary incentives: Addition of pen vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Pen Events	Pen Total	No pen Events	No pen Total	Weight	Risk Difference M-H, Random, 95% CI
Bell 2016	3500	3789	3462	3793	35.1%	0.01 [-0.00 , 0.02]
Cunningham-Burley 2020	493	728	469	725	11.9%	0.03 [-0.02 , 0.08]
James 2020	358	376	363	379	21.4%	-0.01 [-0.04 , 0.02]
Mitchell 2020a	1020	1146	982	1147	23.1%	0.03 [0.01 , 0.06]
Sharp 2006	326	476	279	454	8.4%	0.07 [0.01 , 0.13]
Total (95% CI)		**6515**		**6498**	**100.0%**	**0.02 [0.00 , 0.04]**
Total events:	5697		5555			

Heterogeneity: Tau² = 0.00; Chi² = 8.90, df = 4 (P = 0.06); I² = 55%
Test for overall effect: Z = 1.97 (P = 0.05)
Test for subgroup differences: Not applicable



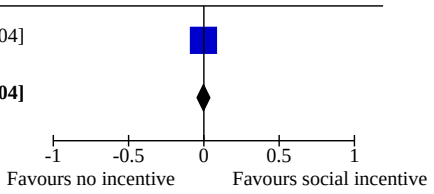
Comparison 30. B - Non-monetary incentives: Addition of societal benefit message vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
30.1 Retention	1	1950	Risk Difference (M-H, Fixed, 95% CI)	-0.00 [-0.04, 0.04]

Analysis 30.1. Comparison 30: B - Non-monetary incentives: Addition of societal benefit message vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Social incentive Events	Social incentive Total	No incentive Events	No incentive Total	Weight	Risk Difference M-H, Fixed, 95% CI
Severi 2011	327	976	329	974	100.0%	-0.00 [-0.04 , 0.04]
Total (95% CI)		**976**		**974**	**100.0%**	**-0.00 [-0.04 , 0.04]**
Total events:	327		329			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.13 (P = 0.90)
Test for subgroup differences: Not applicable



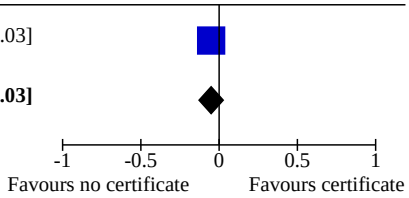
Comparison 31. B - Non-monetary incentives: Certificate of appreciation vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
31.1 Retention	1	479	Risk Difference (M-H, Fixed, 95% CI)	-0.05 [-0.13, 0.03]

Analysis 31.1. Comparison 31: B - Non-monetary incentives: Certificate of appreciation vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Certificate Events	Certificate Total	No certificate Events	No certificate Total	Weight	Risk Difference M-H, Fixed, 95% CI
Renfroe 2002	171	235	190	244	100.0%	-0.05 [-0.13 , 0.03]
Total (95% CI)		**235**		**244**	**100.0%**	**-0.05 [-0.13 , 0.03]**
Total events:	171		190			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.30 (P = 0.19)
Test for subgroup differences: Not applicable



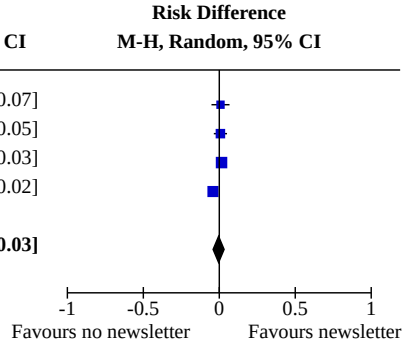
Comparison 32. B - Maintaining participant engagement: Newsletter vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
32.1 Retention	4	5622	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.04, 0.03]

Analysis 32.1. Comparison 32: B - Maintaining participant engagement: Newsletter vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Newsletter Events	Newsletter Total	No newsletter Events	No newsletter Total	Weight	Risk Difference M-H, Random, 95% CI
Goulao 2020	274	558	257	532	17.4%	0.01 [-0.05 , 0.07]
MamMOTH 2020	430	500	428	502	22.3%	0.01 [-0.04 , 0.05]
Mitchell 2012	1291	1352	1271	1352	30.9%	0.01 [-0.00 , 0.03]
Rodgers 2019	390	410	413	416	29.3%	-0.04 [-0.06 , -0.02]
Total (95% CI)		**2820**		**2802**	**100.0%**	**-0.00 [-0.04 , 0.03]**
Total events:	2385		2369			

Heterogeneity: Tau² = 0.00; Chi² = 17.50, df = 3 (P = 0.0006); I² = 83%
Test for overall effect: Z = 0.25 (P = 0.80)
Test for subgroup differences: Not applicable



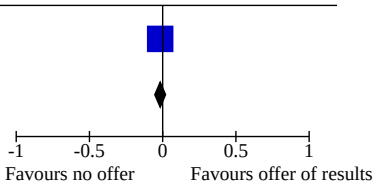
Comparison 33. B - Maintaining participant engagement: Offer of receiving trial results vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
33.1 Retention	1	1038	Risk Difference (M-H, Fixed, 95% CI)	-0.02 [-0.05, 0.02]

Analysis 33.1. Comparison 33: B - Maintaining participant engagement: Offer of receiving trial results vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Offer of trial results Events	Total	No offer Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Cockayne 2005	721	788	233	250	100.0%	-0.02 [-0.05 , 0.02]
Total (95% CI)		**788**		**250**	**100.0%**	**-0.02 [-0.05 , 0.02]**
Total events:	721		233			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.36)
Test for subgroup differences: Not applicable



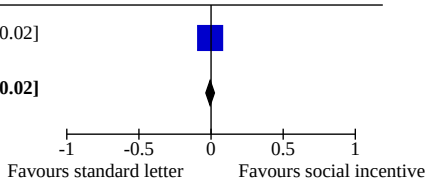
Comparison 34. B- Maintaining Participant Engagement: Cover letter including a social incentive vs standard cover letter

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
34.1 Retention	1	755	Risk Difference (M-H, Fixed, 95% CI)	-0.01 [-0.04, 0.02]

Analysis 34.1. Comparison 34: B- Maintaining Participant Engagement: Cover letter including a social incentive vs standard cover letter, Outcome 1: Retention

Study or Subgroup	Social incentive letter Events	Total	Standard letter Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
James 2020	355	373	366	382	100.0%	-0.01 [-0.04 , 0.02]
Total (95% CI)		**373**		**382**	**100.0%**	**-0.01 [-0.04 , 0.02]**
Total events:	355		366			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.42 (P = 0.67)
Test for subgroup differences: Not applicable



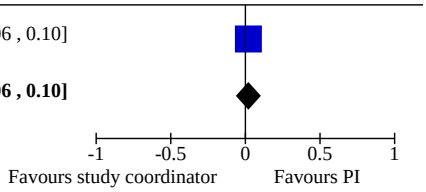
Comparison 35. B - Maintaining participant engagement: Varying signatory on cover letter

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
35.1 Retention	1	479	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.06, 0.10]

Analysis 35.1. Comparison 35: B - Maintaining participant engagement: Varying signatory on cover letter, Outcome 1: Retention

Study or Subgroup	Principal Investigator Events	Total	Study Coordinator Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Renfroe 2002	181	237	180	242	100.0%	0.02 [-0.06 , 0.10]
Total (95% CI)		**237**		**242**	**100.0%**	**0.02 [-0.06 , 0.10]**
Total events:	181		180			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.51 (P = 0.61)
Test for subgroup differences: Not applicable



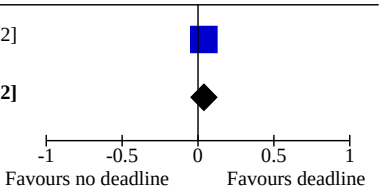
Comparison 36. B - Maintaining participant engagement: Addition of a deadline vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
36.1 Retention	1	246	Risk Difference (M-H, Fixed, 95% CI)	0.04 [-0.05, 0.12]

Analysis 36.1. Comparison 36: B - Maintaining participant engagement: Addition of a deadline vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Inclusion of deadline Events	Total	No deadline Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Gattellari 2004	112	126	102	120	100.0%	0.04 [-0.05 , 0.12]
Total (95% CI)		**126**		**120**	**100.0%**	**0.04 [-0.05 , 0.12]**
Total events:	112		102			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.37)
Test for subgroup differences: Not applicable



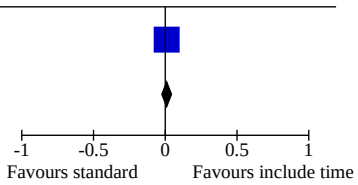
Comparison 37. B - Maintaining participant engagement: Addition of an estimate of time to complete vs no addition

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
37.1 Retention	1	1815	Risk Difference (M-H, Fixed, 95% CI)	0.01 [-0.02, 0.04]

Analysis 37.1. Comparison 37: B - Maintaining participant engagement: Addition of an estimate of time to complete vs no addition, Outcome 1: Retention

Study or Subgroup	Include time to complete Events	Total	Standard Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Marson 2007	756	891	775	924	100.0%	0.01 [-0.02 , 0.04]
Total (95% CI)		**891**		**924**	**100.0%**	**0.01 [-0.02 , 0.04]**
Total events:	756		775			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.57 (P = 0.57)
Test for subgroup differences: Not applicable



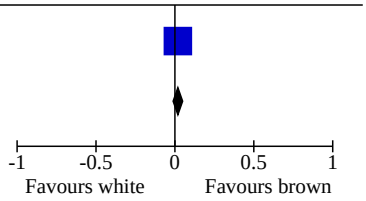
Comparison 38. B. Maintaining participant engagement: Brown vs white envelope

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
38.1 Retention	1	1119	Risk Difference (M-H, Fixed, 95% CI)	0.02 [-0.01, 0.05]

Analysis 38.1. Comparison 38: B. Maintaining participant engagement: Brown vs white envelope, Outcome 1: Retention

Study or Subgroup	Brown envelope Events	Total	White envelope Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Mitchell 2011	502	535	537	584	100.0%	0.02 [-0.01 , 0.05]
Total (95% CI)		**535**		**584**	**100.0%**	**0.02 [-0.01 , 0.05]**
Total events:	502		537			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.23 (P = 0.22)
Test for subgroup differences: Not applicable



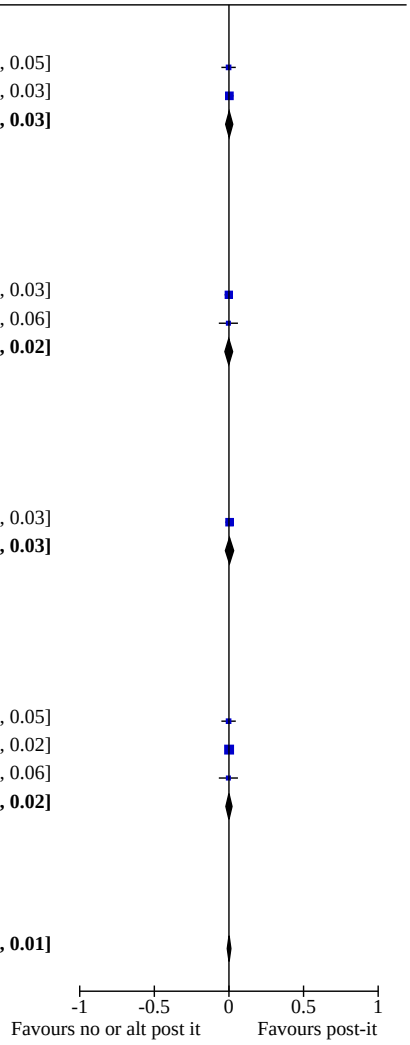
Comparison 39. B - Maintaining participant engagement: Post-it note vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
39.1 Retention	3	4698	Risk Difference (M-H, Random, 95% CI)	0.00 [-0.01, 0.01]
39.1.1 Printed post-it note vs no post-it note	2	1165	Risk Difference (M-H, Random, 95% CI)	0.00 [-0.02, 0.03]
39.1.2 Handwritten post-it note vs no post-it note	2	1051	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.03, 0.02]
39.1.3 Printed post-it note vs handwritten post-it note	1	546	Risk Difference (M-H, Random, 95% CI)	0.00 [-0.02, 0.03]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
39.1.4 Post-it note vs no post-it note	3	1936	Risk Difference (M-H, Random, 95% CI)	-0.00 [-0.02, 0.02]

Analysis 39.1. Comparison 39: B - Maintaining participant engagement: Post-it note vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Post-it note Events	Post-it note Total	No or alt post-it note Events	No or alt post-it note Total	Weight	Risk Difference M-H, Random, 95% CI
39.1.1 Printed post-it note vs no post-it note						
Lewis 2017	266	297	282	314	6.1%	-0.00 [-0.05 , 0.05]
Rodgers 2019	267	274	272	280	19.4%	0.00 [-0.02 , 0.03]
Subtotal (95% CI)		**571**		**594**	**25.4%**	**0.00 [-0.02 , 0.03]**
Total events:	533		554			
Heterogeneity: Tau² = 0.00; Chi² = 0.05, df = 1 (P = 0.81); I² = 0%						
Test for overall effect: Z = 0.14 (P = 0.89)						
39.1.2 Handwritten post-it note vs no post-it note						
Rodgers 2019	264	272	272	280	18.0%	-0.00 [-0.03 , 0.03]
Tilbrook 2015	215	256	205	243	3.4%	-0.00 [-0.07 , 0.06]
Subtotal (95% CI)		**528**		**523**	**21.5%**	**-0.00 [-0.03 , 0.02]**
Total events:	479		477			
Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 1 (P = 0.91); I² = 0%						
Test for overall effect: Z = 0.10 (P = 0.92)						
39.1.3 Printed post-it note vs handwritten post-it note						
Rodgers 2019	267	274	264	272	18.8%	0.00 [-0.02 , 0.03]
Subtotal (95% CI)		**274**		**272**	**18.8%**	**0.00 [-0.02 , 0.03]**
Total events:	267		264			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.28 (P = 0.78)						
39.1.4 Post-it note vs no post-it note						
Lewis 2017	266	297	282	314	6.1%	-0.00 [-0.05 , 0.05]
Rodgers 2019	531	546	272	280	24.8%	0.00 [-0.02 , 0.02]
Tilbrook 2015	215	256	205	243	3.4%	-0.00 [-0.07 , 0.06]
Subtotal (95% CI)		**1099**		**837**	**34.3%**	**-0.00 [-0.02 , 0.02]**
Total events:	1012		759			
Heterogeneity: Tau² = 0.00; Chi² = 0.05, df = 2 (P = 0.98); I² = 0%						
Test for overall effect: Z = 0.00 (P = 1.00)						
Total (95% CI)		**2472**		**2226**	**100.0%**	**0.00 [-0.01 , 0.01]**
Total events:	2291		2054			
Heterogeneity: Tau² = 0.00; Chi² = 0.22, df = 7 (P = 1.00); I² = 0%						
Test for overall effect: Z = 0.14 (P = 0.89)						
Test for subgroup differences: Chi² = 0.09, df = 3 (P = 0.99), I² = 0%						



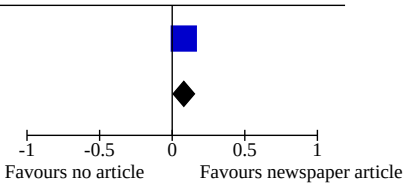
Comparison 40. B - Maintaining participant engagement: Inclusion of trial newspaper article vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
40.1 Retention	1	716	Risk Difference (M-H, Fixed, 95% CI)	0.08 [0.01, 0.15]

Analysis 40.1. Comparison 40: B - Maintaining participant engagement: Inclusion of trial newspaper article vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Addition of article Events	Total	No addition Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Salvesen 1992	214	392	151	324	100.0%	0.08 [0.01 , 0.15]
Total (95% CI)		**392**		**324**	**100.0%**	**0.08 [0.01 , 0.15]**
Total events:	214		151			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.13 (P = 0.03)
Test for subgroup differences: Not applicable



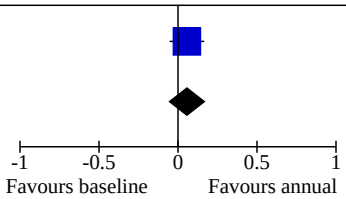
Comparison 41. B. Maintaining participant engagement: Frequency of telephone contact

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
41.1 Retention	1	305	Risk Difference (M-H, Fixed, 95% CI)	0.06 [-0.05, 0.17]

Analysis 41.1. Comparison 41: B. Maintaining participant engagement: Frequency of telephone contact, Outcome 1: Retention

Study or Subgroup	Annual contact Events	Total	Baseline contact Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Glassman 2020	96	152	88	153	100.0%	0.06 [-0.05 , 0.17]
Total (95% CI)		**152**		**153**	**100.0%**	**0.06 [-0.05 , 0.17]**
Total events:	96		88			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.01 (P = 0.31)
Test for subgroup differences: Not applicable

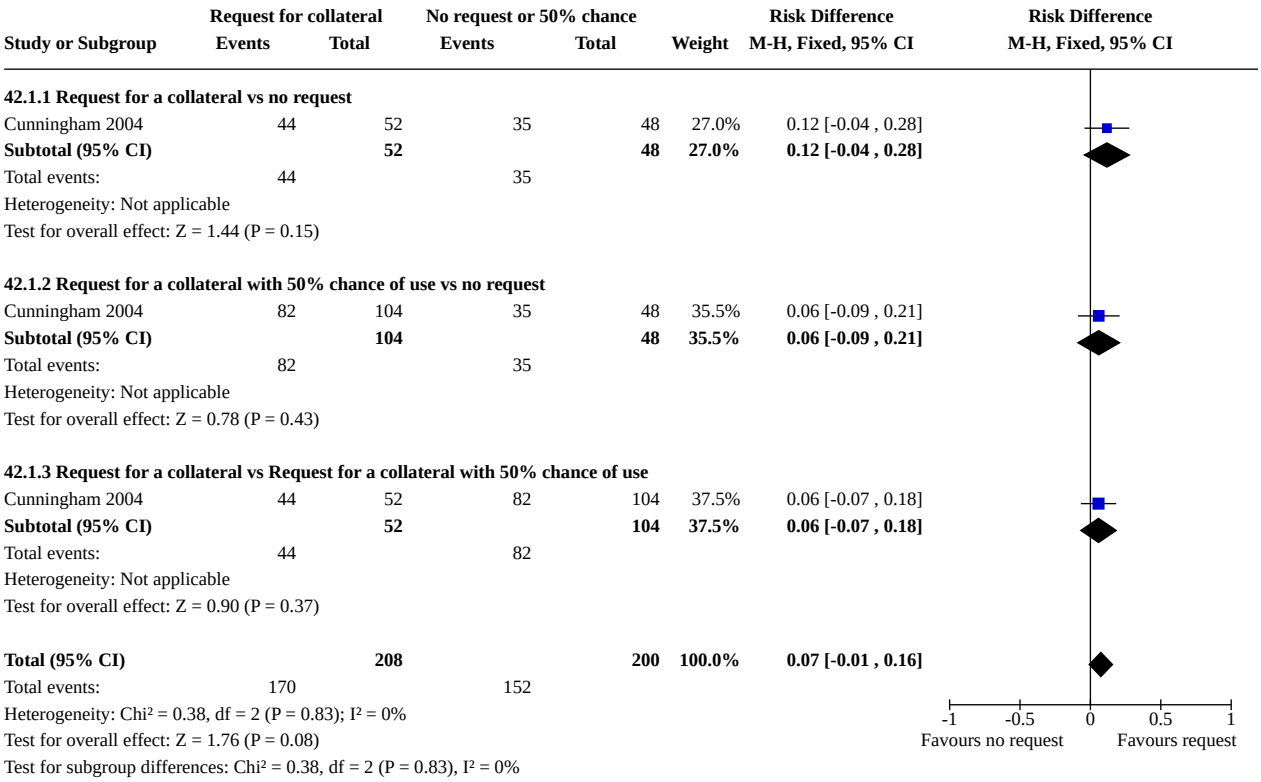


Comparison 42. B - Maintaining participant engagement: Request for collateral (concomitant)

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
42.1 Retention	1	408	Risk Difference (M-H, Fixed, 95% CI)	0.07 [-0.01, 0.16]
42.1.1 Request for a collateral vs no request	1	100	Risk Difference (M-H, Fixed, 95% CI)	0.12 [-0.04, 0.28]
42.1.2 Request for a collateral with 50% chance of use vs no request	1	152	Risk Difference (M-H, Fixed, 95% CI)	0.06 [-0.09, 0.21]

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
42.1.3 Request for a collateral vs Request for a collateral with 50% chance of use	1	156	Risk Difference (M-H, Fixed, 95% CI)	0.06 [-0.07, 0.18]

Analysis 42.1. Comparison 42: B - Maintaining participant engagement: Request for collateral (concomitant), Outcome 1: Retention



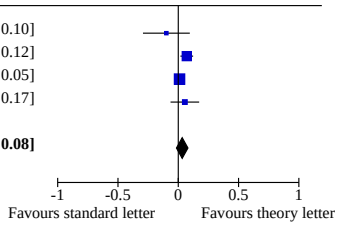
Comparison 43. B - Behavioural interventions: Theory informed cover letter vs usual cover letter

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
43.1 Retention	4	3343	Risk Difference (M-H, Random, 95% CI)	0.03 [-0.02, 0.08]

Analysis 43.1. Comparison 43: B - Behavioural interventions: Theory informed cover letter vs usual cover letter, Outcome 1: Retention

Study or Subgroup	Theory based cover letter Events	Total	Standard cover letter Events	Total	Weight	Risk Difference M-H, Random, 95% CI
AMBER 2020	22	29	30	35	5.5%	-0.10 [-0.29 , 0.10]
Goulao 2020	428	596	386	596	37.3%	0.07 [0.02 , 0.12]
Goulao 2020 (replication of SWAT #2)	641	957	600	910	44.1%	0.01 [-0.03 , 0.05]
OPAL 2020	82	110	76	110	13.1%	0.05 [-0.06 , 0.17]
Total (95% CI)		**1692**		**1651**	**100.0%**	**0.03 [-0.02 , 0.08]**
Total events:	1173		1092			

Heterogeneity: Tau² = 0.00; Chi² = 4.89, df = 3 (P = 0.18); I² = 39%
Test for overall effect: Z = 1.34 (P = 0.18)
Test for subgroup differences: Not applicable



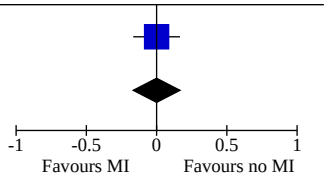
Comparison 44. B - Behavioural interventions: Motivational interviewing vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
44.1 Retention	1	128	Risk Difference (M-H, Fixed, 95% CI)	0.00 [-0.17, 0.17]

Analysis 44.1. Comparison 44: B - Behavioural interventions: Motivational interviewing vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Motivational interview Events	Total	No motivational interview Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Bean 2019	41	64	41	64	100.0%	0.00 [-0.17 , 0.17]
Total (95% CI)		**64**		**64**	**100.0%**	**0.00 [-0.17 , 0.17]**
Total events:	41		41			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)
Test for subgroup differences: Not applicable



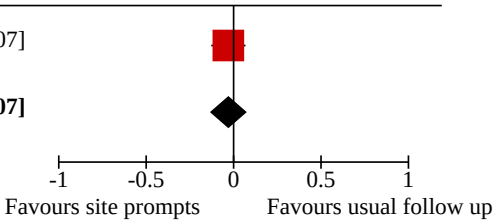
Comparison 45. C - Prompts: Site prompts for upcoming assessments vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
45.1 Retention	1		Risk Difference (IV, Fixed, 95% CI)	-0.03 [-0.13, 0.07]

Analysis 45.1. Comparison 45: C - Prompts: Site prompts for upcoming assessments vs usual follow-up, Outcome 1: Retention

Study or Subgroup	RD	SE	Weight	Risk Difference IV, Fixed, 95% CI
Land 2007	-0.03	0.05	100.0%	-0.03 [-0.13 , 0.07]
Total (95% CI)			**100.0%**	**-0.03 [-0.13 , 0.07]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.60 (P = 0.55)
Test for subgroup differences: Not applicable



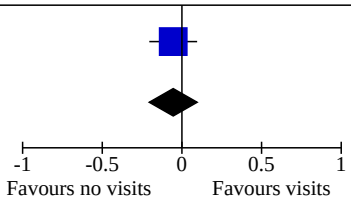
Comparison 46. C - Monitoring visits: On-site monitoring vs no visits

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
46.1 Retention	1	69	Risk Difference (M-H, Fixed, 95% CI)	-0.05 [-0.20, 0.10]

Analysis 46.1. Comparison 46: C - Monitoring visits: On-site monitoring vs no visits, Outcome 1: Retention

Study or Subgroup	On-site visits Events	On-site visits Total	No visits Events	No visits Total	Weight	Risk Difference M-H, Fixed, 95% CI
Lienard 2006	30	35	31	34	100.0%	-0.05 [-0.20 , 0.10]
Total (95% CI)		**35**		**34**	**100.0%**	**-0.05 [-0.20 , 0.10]**
Total events:	30		31			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.71 (P = 0.48)
Test for subgroup differences: Not applicable



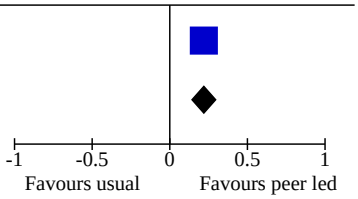
Comparison 47. D - Patient Public Involvement: Peer-led follow-up strategy vs usual follow-up

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
47.1 Retention	1	632	Risk Difference (M-H, Fixed, 95% CI)	0.22 [0.14, 0.30]

Analysis 47.1. Comparison 47: D - Patient Public Involvement: Peer-led follow-up strategy vs usual follow-up, Outcome 1: Retention

Study or Subgroup	Peer led follow up Events	Peer led follow up Total	Usual follow up Events	Usual follow up Total	Weight	Risk Difference M-H, Fixed, 95% CI
Fouad 2014	251	359	131	273	100.0%	0.22 [0.14 , 0.30]
Total (95% CI)		**359**		**273**	**100.0%**	**0.22 [0.14 , 0.30]**
Total events:	251		131			

Heterogeneity: Not applicable
Test for overall effect: Z = 5.66 (P < 0.00001)
Test for subgroup differences: Not applicable



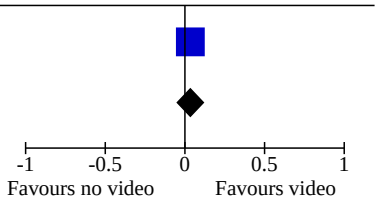
Comparison 48. E - Impact of recruitment: Video-enhanced patient information vs standard information

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
48.1 Retention	1	285	Risk Difference (M-H, Fixed, 95% CI)	0.03 [-0.05, 0.12]

Analysis 48.1. Comparison 48: E - Impact of recruitment: Video-enhanced patient information vs standard information, Outcome 1: Retention

Study or Subgroup	Video Events	Video Total	No video Events	No video Total	Weight	Risk Difference M-H, Fixed, 95% CI
Brubaker 2019	124	142	120	143	100.0%	0.03 [-0.05 , 0.12]
Total (95% CI)		**142**		**143**	**100.0%**	**0.03 [-0.05 , 0.12]**
Total events:	124		120			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.82 (P = 0.41)
Test for subgroup differences: Not applicable



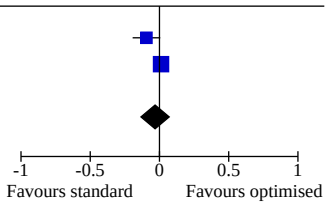
Comparison 49. E - Impact of recruitment: Optimised information vs standard information

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
49.1 Retention	2	1285	Risk Difference (M-H, Random, 95% CI)	-0.03 [-0.13, 0.07]

Analysis 49.1. Comparison 49: E - Impact of recruitment: Optimised information vs standard information, Outcome 1: Retention

Study or Subgroup	Optimised information Events	Total	Standard information Events	Total	Weight	Risk Difference M-H, Random, 95% CI
Cockayne 2017	106	131	56	62	40.8%	-0.09 [-0.19 , 0.01]
Guarino 2006	476	570	430	522	59.2%	0.01 [-0.03 , 0.06]
Total (95% CI)		**701**		**584**	**100.0%**	**-0.03 [-0.13 , 0.07]**
Total events:	582		486			

Heterogeneity: Tau² = 0.00; Chi² = 3.60, df = 1 (P = 0.06); I² = 72%
Test for overall effect: Z = 0.61 (P = 0.54)
Test for subgroup differences: Not applicable



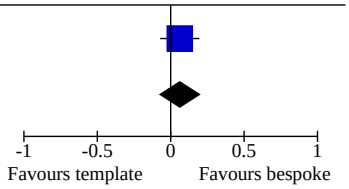
Comparison 50. E - Impact of recruitment: Addition of optimised information to both arms

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
50.1 Retention	1	131	Risk Difference (M-H, Fixed, 95% CI)	0.06 [-0.07, 0.20]

Analysis 50.1. Comparison 50: E - Impact of recruitment: Addition of optimised information to both arms, Outcome 1: Retention

Study or Subgroup	Bespoke user developed Events	Total	Template tested Events	Total	Weight	Risk Difference M-H, Fixed, 95% CI
Cockayne 2017	53	63	53	68	100.0%	0.06 [-0.07 , 0.20]
Total (95% CI)		**63**		**68**	**100.0%**	**0.06 [-0.07 , 0.20]**
Total events:	53		53			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.36)
Test for subgroup differences: Not applicable



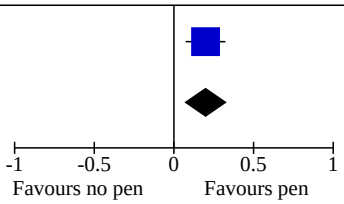
Comparison 51. E - Impact of recruitment: Pen vs no pen

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
51.1 Retention	1	92	Risk Difference (M-H, Fixed, 95% CI)	0.20 [0.07, 0.32]

Analysis 51.1. Comparison 51: E - Impact of recruitment: Pen vs no pen, Outcome 1: Retention

Study or Subgroup	Pen Events	Pen Total	No pen Events	No pen Total	Weight	Risk Difference M-H, Fixed, 95% CI
Whiteside 2019	27	28	49	64	100.0%	0.20 [0.07 , 0.32]
Total (95% CI)		**28**		**64**	**100.0%**	**0.20 [0.07 , 0.32]**
Total events:	27		49			

Heterogeneity: Not applicable
Test for overall effect: Z = 3.13 (P = 0.002)
Test for subgroup differences: Not applicable



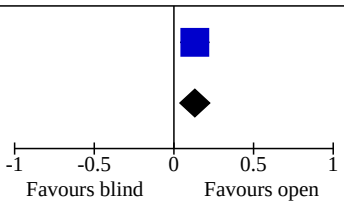
Comparison 52. E - Blinding and treatment preference: Open vs blind trial design

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
52.1 Retention	1	367	Risk Difference (M-H, Fixed, 95% CI)	0.13 [0.04, 0.22]

Analysis 52.1. Comparison 52: E - Blinding and treatment preference: Open vs blind trial design, Outcome 1: Retention

Study or Subgroup	Open Events	Open Total	Blind Events	Blind Total	Weight	Risk Difference M-H, Fixed, 95% CI
Avenell 2004	105	134	152	233	100.0%	0.13 [0.04 , 0.22]
Total (95% CI)		**134**		**233**	**100.0%**	**0.13 [0.04 , 0.22]**
Total events:	105		152			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.77 (P = 0.006)
Test for subgroup differences: Not applicable



ADDITIONAL TABLES

Table 1. Countries where the included studies took place

Country	Number of studies
Australia	1
Canada	2
Denmark	1
France	1
Norway	1
UK	53

Table 1. Countries where the included studies took place *(Continued)*

USA	10
Multinational	2 (one involving UK and Ireland and one involving the USA and Canada).

Table 2. Data collection (Category A)

Sub-domains	Study ID	Intervention	Control
1A. Questionnaire design: Questionnaire length			
	Dorman 1997	New questionnaire (Shorter version)	Standard questionnaire
	Edwards 2004	New questionnaire (Shorter version)	Standard questionnaire
	Subar 2001	New questionnaire (Shorter version)	Standard questionnaire
2A. Questionnaire design: Addition of a diary to usual follow-up			
	Griffin 2019	Diaries follow-up	Postal questionnaires follow-up
	Marques2013	Resource use log to prospectively record their use of health services	No resource use log
3A. Questionnaire design: Question order, condition first vs generic first question			
	McColl 2003	Condition-specific measures of quality of life preceded generic instruments	Questionnaires in a reverse order
4A. Data collection frequency and timing: Timing of questionnaire delivery			
	Renfroe 2002	Timing of postal questionnaire, cover letter signatory, express	Regular mail, non-monetary incentive
5A. Data Collection Location and Method: Postal follow-up vs clinic follow-up			
	Greig 2017	Postal follow-up	Clinic follow-up
6A. Data Collection Location and Method: Telephone follow-up vs postal questionnaire			
	Couper 2007	Telephone follow-up	Postal questionnaire
	Marsh 1999 (Postal trial)	Postal follow-up with an incentive	Postal follow-up without incentive
	Marsh 1999 (Telephone trail)	Telephone follow-up with an incentive	Telephone follow-up without incentive
7A. Data Collection Location and Method: First class vs second class outward mailing			

Table 2. Data collection (Category A) *(Continued)*

	Sharp 2006	First-class post	Second class
8A. Data Collection Location and Method: Return postage			
	Sharp 2006	Preaddressed second class stamped envelope	Business reply envelope
	Kenton 2007	'high priority' stamp to the mailing	Business format mailing
	Dinglas 2015 (Mail trial)	Personalised postal follow-up	Generic postal follow-up
9A. Data Collection Location and Method: Use of self-sampling kits			
	Tranberg 2018	Received a modified second reminder, a leaflet, and a self-sampling kit.	received the same material as those in the directly mailed group but received no kit

Table 3. Participants (Category B)

Sub-domains	Study ID	Intervention	Control
10B. Reminders: electronic reminder vs usual follow-up			
	Ashby 2011	Additional electronic reminder in follow-up	Usual follow-up
	Starr 2015 (Email reminder)	Email reminder	Postal email reminder
	Starr 2015 (SMS text pre-notification)	Prenotification reminder	Usual follow-up
11B. Reminders: action oriented electronic reminder vs standard electronic reminder			
	Edwards 2016 (photo trial)	The personalised photo on the letter	Usual letter
	Edwards 2016 (pre-call trial)	Active reminder	Usual reminder
12B. Reminders: personalised reminder vs non-personalised reminder			
	Nakash2007	Calendar	Usual follow-up
	Bradshaw 2020	Intervention group 1 received an SMS message the day before the email with the link to the questionnaire.	No SMS
13B. Reminders: telephone reminder vs usual follow-up			
	Severi 2011	Telephone call reminder	Usual follow-up
14B. Reminders: telephone reminder vs postal reminder			
	Tai 1997	Telephone reminder	Postal reminder

Table 3. Participants (Category B) *(Continued)*

15B. Prompts: electronic prompt vs no prompt			
	Bradshaw 2020	Intervention group 1 received an SMS message and a further £10 high-street shopping voucher sent by post before the 24 months visit. Intervention group 2 received a further £10 high-street shopping voucher given at the visit.	No voucher
	Clark 2015	Received an SMS or e-mail to return a study questionnaire	Received no electronic prompt to returns a study questionnaire
	Keding 2016	Text message prompt Prompt Reminder	Usual follow-up Reminder Usual follow-up
	Man 2011	Electronic reminder	No reminder
	Starr 2015 (Email reminder)	Email reminder	Postal email reminder
	Starr 2015 (SMS text pre-notification)	Prenotification reminder	Usual follow-up
16B. Prompts: telephone prompt vs usual follow-up			
	Edwards 2016 (Email trial)	Addition of an email as prompt	Usual Follow-up
	MacLennan 2014	Received a telephone call from the trial office ahead of the reminder questionnaire in addition to the usual reminder schedule	Received the usual reminder schedule only
17B. Prompts: Prenotification card vs no card			
	Treweek 2020a	Pre-notification card sent around 1 month before	No pre-notification card
18B. Prompts: sticker vs no sticker			
	Goulao 2020	Received a logo sticker on questionnaire envelopes	Received no sticker
19B. Prompts: personalised prompt vs no prompt			
	Cochrane 2020	Personalised reminder	Non-personalised reminder
	Mitchell 2020	Personalised text message	No personalised text message
	Nakash 2007	Calendar	Usual follow-up
20B. Monetary incentives: addition of monetary incentives vs usual follow-up			
	Bauer 2004	Interventions group 1 received an incentive of US$10	Received no incentive

Table 3. Participants (Category B) *(Continued)*

		Interventions group 2 received an incentive of US$2	
	Gates 2009	£5 gift voucher	Received no gift voucher
	Kenyon 2005	Monetary incentive (£5 voucher)	No incentive
21B. Monetary incentives: addition of monetary incentives to all trial arms			
	Bauer 2004	Interventions group 1 received an incentive of US$10 Interventions group 2 received an incentive of US$2	Received no incentive
	Bradshaw 2020	Intervention group 1 received an SMS message and a further £10 high-street shopping voucher sent by post before the 24-month visit. Intervention group 2 received a further £10 high-street shopping voucher given at the visit.	No voucher
22B. Monetary incentives: addition of monetary incentives vs addition of monetary reward			
	Bradshaw 2020	Intervention group 1 received an SMS message and a further £10 high-street shopping voucher sent by post before the 24 months visit. Intervention group 2 received a further £10 high-street shopping voucher given at the visit.	No voucher
	Cook 2020	£20 gift voucher given to study at the end of the recruitment visit	A conditional offer of monetary incentive
	Dorling 2020	Received the first paper letter to parents included a promise of an incentive (£15 gift voucher redeemable at some shops) after receipt of a completed form.	Received the first paper letter to parents would enclose the incentive (£15 gift voucher redeemable at high-street shops) before the receipt of a completed form
	Young 2020	Addition of monetary incentive (£5 multistore voucher)	An offer of incentive (i.e. Conditional vs unconditional £5 multistore voucher)
23B. Monetary incentives: addition of monetary reward vs usual follow-up			
	Marsh 1999 (Clinic trial)	Clinic visit with an incentive (£2 voucher)	Clinic visit without incentive
	Marsh 1999 (Postal trial)	Postal follow-up with incentive (£2 voucher)	Postal follow-up without incentive
	Marsh 1999 (Telephone trail)	Telephone follow-up with incentive (£2 voucher)	Telephone follow-up without incentive
	Watson 2017	*Intervention group 1* received unconditional (£5 gift voucher) at 12 but not 24 months. *Intervention group 2* received unconditional (£5 gift voucher) at 12 and 24 months.	No voucher

Table 3. Participants (Category B) *(Continued)*

		Intervention group 3 received unconditional (£5 gift voucher) at 24 but not 12 months.	
	Arundel 2019	An offer of conditional monetary incentive (£10 cash reliant on providing in addition to the £10 gift voucher routinely provided)	Usual follow-up (£10 gift voucher routinely provided)
24B. Monetary incentives: addition of monetary rewards to all trial arms			
	Hardy 2016	An offer of conditional monetary incentive (£10 gift voucher)	Later offer of conditional monetary incentive (£10 gift voucher)
25B. Monetary incentives: addition of monetary incentives vs lottery			
	Kenton 2007	Monetary incentive (CAN$2 coin mailed with the questionnaire or draw for a CAN$50 gift certificate upon questionnaire receipt)	Lottery
26B. Monetary incentives: lottery vs usual follow-up			
	No incentive		
27B. Monetary incentives: addition of lottery to both trial arms			
	Henderson 2010	An offer of winning voucher (winning 1 of 25 £20 shopping vouchers or winning one £500 shopping voucher)	No incentive
28B. Non-monetary incentives: addition of pen vs usual follow-up			
	Bell 2016	Addition of a pen	No pen
	Cunningham-Burley 2020	Branded pen with their questionnaire	No pen
	James 2020	Pen with trial invitation pack	No pen
	Mitchell 2020b	Addition of a pen	No pen
	Sharp 2006	Pen	No pen
29B. Non-monetary incentives: addition of societal benefit message vs usual follow-up			
	Severi 2011	Fridge magnet and benefit to society message	Usual follow-up
30B. Non-monetary incentives: certificate of appreciation vs usual follow-up			
	Renfroe 2002	Timing of postal questionnaire, cover letter signatory, express mail	Regular mail and non-monetary incentive.
31B. Maintaining participant engagement: newsletter vs usual follow-up			
	Goulao 2020	Received a tested a theoretically informed newsletter sent before the questionnaire	Received no newsletter
	MARMOTH trial	Newsletter one month before the 24-month paper follow-up questionnaire	No newsletter

Table 3. Participants (Category B) *(Continued)*

	Mitchell 2012	Invitation mailing packs with a white envelope	Invitation mailing packs with a brown envelope
	Rodgers 2019	Newsletter + handwritten posit it notes Newsletter + printed posit it notes Newsletter only Handwritten posit it notes only Printed posit it note only	Usual follow-up
32B. Maintaining participant engagement: offer of receiving trial results vs usual follow-up			
	Cockayne 2005	Offered the result of the trial in a questionnaire	No offer of knowing the results
33B. Maintaining participant engagement: cover letter including a social incentive vs standard cover letter			
	James 2020	*Intervention group 1* received a branded pen and a standard cover letter. *Intervention group 2* received a branded pen and a social incentive cover letter. *Intervention group 3* received no pen and a social incentive cover letter.	*Control group* received no pen, standard cover letter.
34B. Maintaining participant engagement: personalised cover letter vs usual cover letter			
	Edwards 2016 (Email trial)	Addition of an email as prompt	Usual follow-up
	Edwards 2016 (photo trial)	Personalised photo on the letter	Usual letter
	Edwards 2016 (pre-call trial)	Active reminder	Usual reminder
35B. Maintaining participant engagement: varying signatory on cover letter			
	Renfroe 2002	Timing of postal questionnaire, cover letter signatory, express mail	Regular mail and non-monetary incentive.
36B. Maintaining participant engagement: addition of a deadline vs usual follow-up			
	Gatellari 2004	Cover letter advising return within 1-week	Standard cover letter
37B. Maintaining participant engagement: addition of an estimate of time to complete vs no addition			
	Marson 2007	Cover letter though post with the questionnaire that included an estimate of the length of time that it may take to complete	Standard cover letter with no indication of length of time required
38B. Maintaining participant engagement: brown vs white envelope			
	Mitchell 2011	Invitation mailing packs with a white envelope	Invitation mailing packs with a brown envelope

Table 3. Participants (Category B) *(Continued)*

39B. Maintaining participant engagement: post-it notes vs usual follow-up			
	Lewis 2017	Addition of a post-it note	Usual follow-up
	Rodgers 2019	Newsletter + handwritten posit it notes Newsletter + printed posit it notes Newsletter only Handwritten posit it notes only Printed posit it note only	Usual follow-up
	Tilbrook 2015	Addition of a post-it note	Usual follow-up
40B. Maintaining participant engagement: inclusion of trial newspaper article vs usual follow-up			
	Salvesen 1992	Newspaper article	Usual follow-up
41B. Maintaining participant engagement: frequency of telephone contact			
	Glassman 2020	Received telephone calls at baseline, six months, and at annual visits after that (annual contact)	Received a call at baseline only (baseline contact)
42B. Maintaining participant engagement: request for collateral (concomitant)			
	Cunningham 2004	*Intervention group 1* were asked to provide a collateral. *Intervention group 2* asked to provide collateral and told that there was a 50% chance that the collateral would be contacted. All those respondents asked for collateral were told that the collateral would receive a CAN$20 payment for a brief telephone interview.	Not asked to provide a collateral
43B. Behavioural interventions: theory informed cover letter vs usual cover letter			
	AMBER trial	Received a tested a theoretically informed letter sent with the questionnaire	Received a standard letter
	Goulao 2020	Theory informed letter to follow-up	Usual letter follow-up
	Goulao 2020 (replication)	Theory informed letter to follow-up	Usual letter follow-up
	OPAL trial	Received a tested a theoretically informed letter sent with the questionnaire	Received a standard letter
44B. Behavioural interventions: motivational interviewing vs usual follow-up			
	Bean 2018	Theory informed to follow-up	Usual follow-up

Table 4. Sites and site staff (Category C)

Sub-domains	Study ID	Intervention	Control
45C. Prompts: site prompts for upcoming assessments vs usual follow-up			
	Land 2007	Received a monthly reminder to sites listing participants who were due to have a measure in the next three months	Received no reminder
46C. Monitoring visits: on-site monitoring vs no visit			
	Lienard 2006	Centres received a systematic on-site visit (Visited group)	Did not receive a systematic on-site visit (Non-visited group)

Table 5. Central Study Management (Category D)

Sub-domains	Study ID	Intervention	Control
47D. Patient Public Involvement: peer-led follow-up strategy vs usual follow-up			
	Fouad 2014	Peer-led strategy	Usual follow-up

Table 6. Study design (Category E)

Sub-domains	Study ID	Intervention	Control
48E. Impact of recruitment: video-enhanced patient information vs standard information			
	Brubaker 2019	Change to information provided at recruitment	Standard information
49E. Impact of recruitment: optimised information vs standard information			
	Cockayne 2017	Optimised patient information	Standard patient information
	Guarino 2006	Change to information provided at recruitment	Standard information
50E. Impact of recruitment: addition of optimised information to both arms			
	Cockayne 2017	Optimised patient information	Standard patient information
51E. Impact of recruitment: pen vs no pen			
	Whiteside 2019	Non-monetary incentive	Usual practice (at recruitment)
52E. Blinding and treatment preference: open vs blind trial design			
	Avenell 2004	Open design	Blinded design

APPENDICES

Appendix 1. Search Strategy

Medline (Ovid)

1. ((minimi* or prevent* or lessen* or decreas* or reduc*) adj2 (attrition or drop*-out* or dropout* or withdr*w* or missing data)).ab,ti.

2. ((increas* or encourag* or maximi* or promot* or improv*) adj2 (retention or follow-up or followup or completion or data collection or data return)).ab,ti.

3. ((strateg* or intervention* or method* or technique*) adj3 (retention or attrition or drop*-out* or dropout* or follow-up or followup)).ab,ti.

4. Complian* adj2 (follow-up or followup).ab,ti.

5. ((loss or lost) adj2 (follow-up or followup)).ab,ti.

6. ((difficult* or problem* or challeng* or success* or feasibl*) adj3 (retain* or retention)).ab,ti.

7. (retention adj2 rate*).ab,ti.

8. (attrition adj2 rate*).ab,ti.

9. ((Dropout* or Drop-out*) adj2 rate*).ab,ti

10. (Completion adj2 rate*).ab,ti.

11. ((Follow-up or followup) adj2 rate*).ab,ti.

12. (Incomplete adj2 (follow-up or followup)).ab,ti

13. (questionnaire* adj3 (response* adj2 method*)).ab,ti.

14. (questionnaire* adj3 (response adj2 technique*)).ab,ti.

15. (questionnaire response rate*).ab,ti.

16. ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) adj2 (questionnaire* adj3 response*)).ab,ti.

17. ((incentiv* or reminder*) adj3 (retention or retain or respon*e*)).ab,ti.

18. retention adj4 training.ab,ti

19. Trial site adj2 (retention or retain*). ab,ti.

20. Exp "Lost to Follow-Up"/

21. Exp Patient Dropouts/

22. (Patient retention or Dropout* or Drop*-out* or attrition).kw

23. ((survey* or questionnaire*) AND (respon*e* or return* or rate*)).ti

24. OR(1-23)

25. Randomized controlled trial.pt

26. Controlled clinical trial.pt

27. Randomi*ed.tw

28. Placebo.tw

29. Clinical trials as topic.sh

30. Randomly.tw

31. Trial*.tw

32. Or/25-31

33. 24 AND 32

34. Exp animals/not humans.sh

35. 33 not 34

36. Limit to comment, editorial, news and letter

37. 35 not 36

38. limit 37 to (English language and yr="2018 -2019")

Scopus

1. TITLE-ABS-KEY ((minimi* or prevent* or lessen* or decreas* or reduc*) w/2 (attrition or drop*-out* or dropout* or withdr*w* or “missing data”))

2. TITLE-ABS-KEY((increas* or encourag* or maximi* or promot* or improv*) w/2 (retention or follow-up or followup or completion or “data collection” or “data return”))

3. TITLE-ABS-KEY ((strateg* or intervention* or method* or technique*) w/3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))

4. TITLE-ABS-KEY (Complian* w/2 (follow-up or followup))

5. TITLE-ABS-KEY ((loss or lost) w/2 (follow-up or followup))

6. TITLE-ABS-KEY ((difficult* or problem* or challeng* or success* or feasibl*) w/3 (retain* or retention))

7. TITLE-ABS-KEY (retention w/2 rate*)

8. TITLE-ABS-KEY (attrition w/2 rate*)

9. TITLE-ABS-KEY ((Dropout* or Drop-out*) w/2 rate*)

10. TITLE-ABS-KEY (Completion w/2 rate*)

11. TITLE-ABS-KEY ((Follow-up or followup) w/2 rate*)

12. TITLE-ABS-KEY (Incomplete w/2 (follow-up or followup))

13. TITLE-ABS-KEY (questionnaire* w/3 (response* w/2 method*))

14. TITLE-ABS-KEY (questionnaire* w/3 (response *w*/2 technique*))

15. TITLE-ABS-KEY (“questionnaire response rate*”)

16. TITLE-ABS-KEY ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) w/2 (questionnaire* w/3 response*))

17. TITLE-ABS-KEY ((incentiv* or reminder*) w/3 (retention or retain or respon*e*))

18. TITLE-ABS-KEY (retention w/4 training)

19. TITLE-ABS-KEY (“Trial site” w/2 (retention or retain*))

20. KEY (“Patient retention” or Dropout* or Drop*-out* or attrition)

21. TITLE ((survey* or questionnaire*) AND (respon*e* or return* or rate*))

22. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9

23. #22 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15

24. #23 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21

25. TITLE-ABS-KEY((clinic* w/1 trial*) OR (randomi* w/1 control*) OR (randomi* w/2 trial*) OR (random* w/1 assign*) OR (random* w/1 allocat*) OR (control* w/1 clinic*) OR (control* w/1 trial) OR placebo* OR (Quantitat* w/1 Stud*) OR (control* w/1 stud*) OR (randomi* w/1 stud*) OR (singl* w/1 blind*) or (singl* w/1 mask*) OR (doubl* w/1 blind*) OR (doubl* w/1 mask*) OR (tripl* w/1 blind*) OR (tripl* w/1 mask*) OR (trebl* w/1 blind*) OR (trebl* w/1 mask*))

26. #24 AND #25

27. INDEXTERMS (animals OR nonhuman)

28. #26 AND NOT #27

29. LANGUAGE(English)

30. #28 AND #29

31. DOCTYPE (ed OR le OR no OR pr)

32. #30 AND NOT #31

33. PUBYEAR > 2017 AND PUBYEAR < 2020

34. #32 AND #33

Web of Science (CCSSI and SSCI)

1. TS= ((minimi* or prevent* or lessen* or decreas* or reduc*) near/2 (attrition or drop*-out* or dropout* or withdr$w* or “missing data”))

2. TS=((increas* or encourag* or maximi* or promot* or improv*) near/2 (retention or follow-up or followup or completion or “data collection” or “data return”))

3. TS= ((strateg* or intervention* or method* or technique*) near/3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))

4. TS= (Complian* near/2 (follow-up or followup))

5. TS= ((loss or lost) near/2 (follow-up or followup))

6. TS= ((difficult* or problem* or challeng* or success* or feasibl*) near/3 (retain* or retention))

7. TS= (retention near/2 rate*)

8. TS= (attrition near/2 rate*)

9. TS= ((Dropout* or Drop-out*) near/2 rate*)

10. TS= (Completion near/2 rate*)

11. TS= ((Follow-up or followup) near/2 rate*)

12. TS= (Incomplete near/2 (follow-up or followup))

13. TS= (questionnaire* near/3 (response* near/2 method*))

14. TS= (questionnaire* near/3 (response near/2 technique*))

15. TS= (“questionnaire response rate*”)

16. TS= ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) near/2 (questionnaire* near/3 response*))

17. TS= ((incentiv* or reminder*) near/3 (retention or retain or respon$e*))

18. TS= (retention near/4 training)

19. TS= (“Trial site” near/2 (retention or retain*))

20. TS=(“Patient retention” or Dropout* or Drop*-out* or attrition)

21. TI= ((survey* or questionnaire*) AND (respon$e* or return* or rate*))

22. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21

23. TS=((clinic* near/1 trial*) OR (randomi* near/1 control*) OR (randomi* near/2 trial*) OR (random* near/1 assign*) OR (random* near/1 allocat*) OR (control* near/1 clinic*) OR (control* near/1 trial) OR placebo* OR (Quantitat* near/1 Stud*) OR (control* near/1 stud*) OR (randomi* near/1 stud*) OR (singl* near/1 blind*) or (singl* near/1 mask*) OR (doubl* near/1 blind*) OR (doubl* near/1 mask*) OR (tripl* near/1 blind*) OR (tripl* near/1 mask*) OR (trebl* near/1 blind*) OR (trebl* near/1 mask*))

24. #22 and #23

25. Refined by: DOCUMENT TYPES**:** (ARTICLE OR REVIEW)

PsycInfo (Ovid)

1. ((minimi* or prevent* or lessen* or decreas* or reduc*) adj2 (attrition or drop*-out* or dropout* or withdr*w* or missing data)).ab,ti.

2. ((increas* or encourag* or maximi* or promot* or improv*) adj2 (retention or follow-up or followup or completion or data collection or data return)).ab,ti.

3. ((strateg* or intervention* or method* or technique*) adj3 (retention or attrition or drop*-out* or dropout* or follow-up or followup)).ab,ti.

4. (Complian* adj2 (follow-up or followup)).ab,ti.

5. ((loss or lost) adj2 (follow-up or followup)).ab,ti.

6. ((difficult* or problem* or challeng* or success* or feasibl*) adj3 (retain* or retention)).ab,ti.

7. (retention adj2 rate*).ab,ti.

8. (attrition adj2 rate*).ab,ti.

9. ((Dropout* or Drop-out*) adj2 rate*).ab,ti.

10. (Completion adj2 rate*).ab,ti.

11. ((Follow-up or followup) adj2 rate*).ab,ti.

12. (Incomplete adj2 (follow-up or followup)).ab,ti.

13. (questionnaire* adj3 (response* adj2 method*)).ab,ti.

14. (questionnaire* adj3 (response adj2 technique*)).ab,ti.

15. questionnaire response rate*.ab,ti.

16. ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) adj2 (questionnaire* adj3 response*)).ab,ti.

17. ((incentiv* or reminder*) adj3 (retention or retain or respon*e*)).ab,ti.

18. (retention adj4 training).ab,ti.

19. (Trial site adj2 (retention or retain*)).ab,ti.

20. exp Experimental Attrition/

21. exp Dropouts/ or exp Potential Dropouts/

22. ("patient retention" or dropout or drop*-out* or attrition).id.

23. ((survey* or questionnaire*) and (respon*e* or return* or rate*)).ti.

24. or/1-23

25. Double-blind.tw.

26. "random* assigned".tw.

27. control.tw.

28. or/25-27

29. 24 and 28

30. limit 29 to animal

31. 29 not 30

32. limit 31 to (english language and yr="2018 -2019")

CINHAL Plus (EBSCO)

1. TX ((minimi* or prevent* or lessen* or decreas* or reduc*) n2 (attrition or drop*-out* or dropout* or withdr#w* or “missing data”))

2. TX((increas* or encourag* or maximi* or promot* or improv*) n2 (retention or follow-up or followup or completion or “data collection” or “data return”))

3. TX ((strateg* or intervention* or method* or technique*) n3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))

4. TX (Complian* n2 (follow-up or followup))

5. TX ((loss or lost) n2 (follow-up or followup))

6. TX ((difficult* or problem* or challeng* or success* or feasibl*) n3 (retain* or retention))

7. TX (retention n2 rate*)

8. TX (attrition n2 rate*)

9. TX (Dropout* or Drop-out*) n2 rate*

10. TX Completion n2 rate*

11. TX ((Follow-up or followup) n2 rate*)

12. TX (Incomplete n2 (follow-up or followup))

13. TX (questionnaire* n3 (response* n2 method*))

14. TX (questionnaire* n3 (response n2 technique*))

15. TX (“questionnaire response rate*”)

16. TX ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) n2 (questionnaire* n3 response*))

17. TX ((incentiv* or reminder*) n3 (retention or retain or respon#e*))

18. TX (retention n4 training)

19. TX (“Trial site” n2 (retention or retain*))

20. TX (“Patient retention” or Dropout* or Drop*-out* or attrition)

21. TI ((survey* or questionnaire*) AND (respon#e* or return* or rate*))

22. OR(1-21)

23. PT Clinical trial

24. MH “treatment outcomes”

25. TX randomi#ed

26. S23 or S24 or S25

27. S22 and S26 Limiters Published Date: 20180101-20191231

Cochrane library

1. ((minimi* or prevent* or lessen* or decreas* or reduc*) near/2 (attrition or “drop*-out*” or dropout* or withdr*w* or “missing data”)):ab,ti

2. ((increas* or encourag* or maximi* or promot* or improv*) near/2 (retention or “follow-up” or followup or completion or “data collection” or “data return”)):ab,ti

3. ((strateg* or intervention* or method* or technique*) near/3 (retention or attrition or “drop*-out*” or dropout* or “follow-up” or followup)):ab,ti

4. Complian* near/2 (“follow-up” or followup):ab,ti

5. ((loss or lost) near/2 (“follow-up” or followup)):ab,ti

6. ((difficult* or problem* or challeng* or success* or feasibl*) near/3 (retain* or retention)):ab,ti

7. (retention near/2 rate*):ab,ti

8. (attrition near/2 rate*):ab,ti

9. ((Dropout* or “Drop-out*”) near/2 rate*):ab,ti

10. (Completion near/2 rate*):ab,ti

11. ((“Follow-up” or followup) near/2 rate*):ab,ti

12. (Incomplete near/2 (“follow-up” or followup)):ab,ti

13. (questionnaire* near/3 (response* near/2 method*)):ab,ti

14. (questionnaire* near/3 (response near/2 technique*)):ab,ti

15. (“questionnaire response rate*”):ab,ti

16. ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) near/2 (questionnaire* near/3 response*)):ab,ti

17. ((incentiv* or reminder*) near/3 (retention or retain or respon*e*)):ab,ti

18. retention near/4 training:ab,ti

19. “Trial site” near/2 (retention or retain*):ab,ti

20. Exp "Lost to Follow-Up"/

21. Exp Patient Dropouts/

22. (“Patient retention” or Dropout* or “Drop*-out*” or attrition):kw

23. ((survey* or questionnaire*) AND (respon*e* or return* or rate*)):ti

24. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23

25. Randomized controlled trial:pt

26. Controlled clinical trial:pt

27. Randomi*ed:ab,ti,kw

28. Placebo:ab,ti,kw

29. Randomly:ab,ti,kw

30. Trial*:ab,ti,kw

31. #25 OR #26 OR #27 OR #28 OR #29 OR #30

32. #24 AND #31 with Cochrane Library publication date Between Jan 2018 and Dec 2019, in Cochrane Reviews, Trials

Appendix 2. Reference lists of reviews and other publications searched

1. Edwards P, Roberts I, Sandercock P, Frost C. Follow-up by mail in clinical trials: does questionnaire length matter? Control Clinical Trials 2004;25:31-52.
2. Edwards PJ, Roberts IG, Clarke MJ, DiGuiseppi C, Wentz R, Kwan I et al. Methods to increase response rates to postal and electronic questionnaires. Cochrane Database of Systematic Reviews 2009, Issue 3 Art No: MR000008 2009.Edwards 2009

Appendix 3. Characteristics of host trials

STUDY ID	Clinical area main trial	Condition	Host trial	Participants	Overall characteristic
AMBER trial	Treatment	Multiple sclerosis	Abdominal Massage for Bowel Dysfunction Effectiveness Research (AMBER) trial	≥18 years participants, with a diagnosis of multiple sclerosis (in a stable phase, i.e. no multiple sclerosis relapse for 3 months)	Multi-centred patient-randomised superiority trial comparing an experimental strategy of once daily abdominal massage for 6 weeks against a control strategy of no massage in people with multiple sclerosis who have stated that their constipation is troublesome.
Arundel 2019	Smoking Cessation	Smoking	Smoking Cessation Intervention for Severe Mental Ill Health Trial (SCIMITAR+)	≥18 years participants, with a documented diagnosis of bipolar disorder, schizophrenia or schizoaffective disorder who smoke were included in this study.	The intervention group were assigned a mental health professional trained to deliver smoking-cessation interventions who worked with the participant and participant's GP or mental health specialist to provide an individually tailored smoking-cessation service. The control group received usual care (following NICE guidelines for smoking cessation)
Ashby 2011	Treatment	Migraine	No name provided for the host trial.	18-65 years with a self-reported diagnosis of migraine for at least 12 months, with no evidence of any other significant co-existing pathology and experienced two or more migraine-like attacks (or four or more headache days) in the previous 4-week period were included in this study.	The intervention consisted of a diet based on eliminating foods to which participants exhibited IgG antibodies vs eliminating the same number of foods from the diet but not those for which the participant exhibited IgG antibodies.
Avenell 2004	Prevention	Fractures	UK RECORD trial	Participants ≥70 years old that had an osteoporotic fracture within the last ten years identified from the hospital notes and seen either in a fracture clinic or on an orthopaedic ward were included in this study.	Randomised double-blind placebo-controlled, factorial design, evaluation of oral calcium (1g/day) or vitamin D (800 IU/20 Mg) supplementation in the secondary prevention of osteoporotic fractures.

(Continued)

Bailey 2013	Prevention	Sexual health	"Sexunzipped" website	Youth 16-20 years recruited online.	Theory-based website that aims to give young people the tools to make informed decisions about their sexual well-being.
Bauer 2004	Smoking Cessation	Smoking	Community Intervention Trial for Smoking Cessation (COMMIT) study	A cohort of smokers in each community and administered a detailed telephone-based questionnaire about their tobacco use in 1988 and 1993 were included in this study.	The design was a matched pair, randomised, control trial, which involved 11 pairs of small- to medium-sized communities in the USA and Canada. Each pair of communities contained one intervention site and one control site. The study was conducted as a community-level intervention to help smokers achieve and maintain cessation. Within each community, the smoking behaviours and habits of the population were monitored over five years.
Bean 2018	Treatment	Childhood obesity	Nourishing Our Understanding of Role-modelling to Improve Support and Health (NOURISH+) study	Parents/caregivers were eligible if parent age ≥18 years; child age 5–11 years; the child had overweight, or obesity and the child primarily reside in the caregiver's home were included in this study.	The intervention group received a culturally tailored parent-based treatment for parents of children with overweight or obesity issues. Participants received eight sessions of group-based parent-based treatments (6 core group sessions with two adjunctive experiential sessions (a group cooking and an individual dietician visit)). This treatment was targeted at parents as the agent of change of their children with overweight or obesity issues. The control group received an educational control intervention.
Bell 2016	Prevention	Fracture	Women for Prevention of Fracture Trial (SCOOP)	70-85-year old women at risk of fracture were included in this study.	Those in the intervention group received a 10-year fracture risk assessment calculated using a WHO risk algorithm computed from baseline questionnaire data and bone mineral density values measured via a Dual-energy X-ray absorptiometry scan in selected participants. For women in the control group, fracture risk was not calculated, and participants continued to receive usual care.
Bradshaw 2020	Diagnosis	Eczema	Barrier Enhancement for Eczema Prevention (BEEP) randomised trial	Infants at high risk of developing atopic eczema and with no more than 21 days old at the point of randomisation, the mother must be aged at least 16 years, and the consenting adult must be able to understand English	This trial investigated the effect of applying emollient for 12 and 24 months from birth on the development of eczema in high-risk infants. Both groups received standard skincare advice. The intervention group receives additional advice to apply emollient daily for the first year of life and are supplied with emollient free of charge.

(Continued)

				were included in this study.	
Brubaker 2019	Treatment	Urinary incontinence	Extended Operations and Pelvic Muscle Training in the Management of Apical Support Loss (E-OPTIMAL) study	Women undergoing vaginal apical prolapse repair with a mid-urethral sling for stress urinary incontinence were included in this study.	Multi-centre randomised to (1) perioperative behavioural therapy with pelvic floor muscle training vs usual care and (2) surgical intervention or (3) usual care. The extended version was designed to lengthen the follow-up of these women and compare 5- year success and complication rates.
Clark 2015	Smoking Cessation	Smoking in participants with chronic obstructive pulmonary disease	Determining the Optimal approach to identify individuals with Chronic obstructive pulmonary disease (DOC) study	Smokers aged ≥35 years undertaking lung function tests and symptom-based questionnaires were included in this study.	DOC is a case-finding study for chronic obstructive pulmonary disease and a randomised trial of the impact of case-finding on smoking cessation. The intervention group received lung function tests and symptom-based questionnaires. The control group was in a 6-month waitlist for tests and symptom questionnaires.
Cochrane 2020	Prevention	Risk of falling	Occupational Therapist Intervention Study (OTIS)	Participants ≥65 years, community-dwelling, currently able to walk 10 feet (with a walking aid if needed) were included in this study.	Participants were randomised to either home environmental assessment and modification, led by an occupational therapist or usual care from GP or other healthcare professional.
Cockayne 2005	Prevention	Fracture prevention	No name provided for the Host trial	Community-dwelling women aged ≥70 years, living in the York and Cumbria area were included in this study.	The intervention group received daily oral supplementation of 1,000 mg of calcium with 800 IU vitamin D3 with a patient information leaflet on dietary calcium intake and falls prevention. The control group received the patient information leaflet only.
Cockayne 2017	Prevention	Risk of falls	REducing Falls with ORthoses and a Multifaceted podiatry intervention (REFORM) study	Participants ≥65 years from routine podiatry clinics in the UK and Ireland to the REFORM cohort were included in this study. Participants had one fall in the past 12 months: or one fall in the past 24 months requiring hospital attention were included in this study.	Podiatry intervention for the prevention of falls in older people. Participants were randomised to receive routine podiatry care, and a falls prevention leaflet or routine podiatry care, a falls prevention leaflet, and a multifaceted podiatry intervention.
Cook 2020	Treatment	Influenza	Antivirals for influenza-Like Illness, An rCt of Clinical and Cost -effectiveness in	Participants ≥1 year presenting with influenza-like illness, with symptom duration ≤72 hours in primary care over three consecutive periods of confirmed	European multinational, multi-centre, open-labelled, non-industry funded, pragmatic, adaptive-platform, RCT. Control group received the best usual primary care, and the intervention group received the best usual prima-

(Continued)

			primary CarE (ALIC4E) Trial	high influenza incidence were included in this study.	ry care plus treatment with oseltamivir for five days.
Couper 2007	Treatment	Obesity	No name provided for the host trial.	Adult participants with overweight and obesity (BMI 27 to 40 kg/m2) members from four regions of Kaiser Permanente's integrated healthcare delivery system were included in this study.	Participants were randomly assigned to one of two Web-based treatments for weight management: the expert system materials or information-only materials.
Cunningham 2004	Treatment	Alcohol Consumption	No name provided for the host trial.	Participants were recruited through a random digit dialling telephone survey conducted by the Centre for Addiction and Mental Health were included in this study.	Participants were randomly assigned to one of four conditions in a two-by-two factorial design: no-intervention control group, personalised feedback only, self-help book only and both personalised feedback and self-help book.
Cunningham-Burley 2020	Prevention	Risk of falls	The Stopping Slips among Healthcare Workers (SSHeW) trial	NHS staff, aged ≥18 years, who adhere to a dress code policy and work in a clinical, catering, or general hospital environment were included in this study.	This trial evaluated the effectiveness of slip-resistant footwear to reduce slips in NHS staff.
Dinglas 2015	Treatment	Acute lung injury survivors	ARDS Network Long Term Outcomes Study (ALTOS)	Participants with an acute lung injury survivor, recruited from 41 hospital sites at 12 centres across the US were included in this study.	Participants were enrolled in randomised trials of novel interventional therapies initial trophic vs full enteral feeding.
Dorman 1997	Prevention	Stroke	International Stroke Trial	Patients who have a clinical diagnosis of acute ischaemic stroke, with onset within the previous 48 hours and no clear indication for, or clear contraindication to, treatment with aspirin or subcutaneous heparin were included in this study.	This was an international trial involving around 36 countries. The intervention group received early administration of aspirin or heparin or both. The analysis was structured as immediate heparin (low or medium dose) vs avoiding heparin, and immediate aspirin vs avoiding aspirin.
Edwards 2004	Treatment	Head injury	CRASH Trial	All head-injured adults who were observed while in the hospital to have GCS of 14 or less (out of a maximum score of 15), and who were within eight hours of the injury were included in this study.	This was a multi-centre RCT evaluating the efficacy and safety of a high dose of corticosteroid infusion after head injury.

(Continued)

Edwards 2016	Treatment	Depression & cardiovascular health	The Healthlines Study	Participants with depression aged between 40 and 74 years old recruited from 42 general practices in or near Bristol, Sheffield and Southampton were included in this study.	Two linked, parallel RCTs of patients with depression and raised risk of cardiovascular disease who were allocated to a telehealth intervention plus usual care or usual care alone.
Fouad 2014	Diagnosis	Cancer	ASCUS-LSIL Triage Study (ALTS)	Women residing in Jefferson County, Alabama were included in this study.	This was a multi-centre clinical trial to evaluate the optimal clinical management of low-grade cervical cytologic abnormalities. ALTS participants were randomised to three management strategies: 1) immediate colposcopy; 2) human papillomavirus (HPV) DNA testing, which triaged to colposcopy only participants with oncogenic HPV type; and 3) conservative management followed with serial Pap smears and colposcopy if Pap smear progressed to high grade.
Gattellari 2004	Diagnosis	Cancer	No name provided for the host trial.	Men recruited from local general practices, aged 40–70 years, fluent in English and who had not been diagnosed with prostate cancer were included in this study.	Participants were randomised to receive a 32-page evidence-based booklet contained content previously identified by experts as essential to informed screening or conventional information about prostate cancer screening (pamphlet had been published by the Australian government).
Gates 2009	Treatment	Acute whiplash injuries	Managing Injuries of the Neck Trial (MINT) study	Patients presenting with acute whiplash injuries, in which eligible patients were identified in emergency departments were included in this study.	Cluster randomised trial of advice interventions given in emergency departments. Participants were then followed up by postal questionnaires sent from the study office, 4, 8 and 12 months after their injury. The intervention group received advice (psycho-educational intervention, including Whiplash book advice/active management advice) and the control group received usual care advice.
Glassman 2020	Treatment	Diabetic retinopathy	Diabetic Retinopathy Clinical Research Retina Network Protocol S randomised trial	Participants ≥18 years with at least one eye with Proliferative diabetic retinopathy were included in this study.	Participants were randomly assigned to receive either laser treatment or injections of a drug (ranibizumab) into the study eye.
Goulao 2020	Prevention	Bleeding on probing	IQuaD trial & INTERVAL trial	Adults with good oral health who are regular attendees to the United Kingdom's National Health System	Intervention measuring if providing no scale and polish or 12-month was compared with the standard 6-month scale and polish. Personalized (intervention) vs

(Continued)

				primary care dental services were included in this study.	standard oral hygiene advice (control) was also compared.
Greig 2017	Treatment	Nail-bed injury	The Nail bed INJury Analysis (NINJA RCT) study	Participants <16 years with acute nail bed injury within the last 48 hrs and requiring surgery were included in this study.	Children were randomised for the surgeon to either replace or discard the nail plate after nail-bed repair.
Griffin 2009	Prevention	Falls	the Prevention of Falls Injury Trial (Pre-FIT)	Community-dwelling adults aged ≥70 years from 63 practices across England were included in this study.	Cluster-randomised pragmatic design to test alternative falls prevention interventions (to receive one of three fall prevention interventions) of advice, exercise, and multifactorial assessment, on outcomes of falls and fractures.
Guarino 2006	Treatment	War illnesses	No name provided for the Host trial	American Gulf War veterans were included in this study.	2 x 2 factorial randomised clinical trial of exercise and cognitive behavioural therapy for the treatment of Gulf War veterans' illnesses.
Hardy 2016	Treatment	Women in labour	Birth in Upright Maternal Positionvslying down position, in women with a low-dose Epidural, in the Second stage of labour (BUMPES) trial	Women ≥16 years, having their first child, who was admitted to a labour ward, ≥37 weeks gestation and with low dose epidural in situ were included in this study.	This was a multi-centre RCT investigating the effect of maternal position during the late stages of labour in women with an epidural. The intervention group were upright during the second stage of labour. The control group were Laying down during the second stage of labour.
Henderson 2010	Prevention	unsafe sexual behaviours among youth.	The Sexual Health and Relationships: Safe, Happy and Responsible (SHARE) intervention	Young people aged 14 to 20, starting in school and following them into the community were included in this study. Pupils were from 47 non-Catholic state schools within 24 km of the main cities in Tayside and Lothian regions in Scotland, UK.	This was a five-day teacher training programme plus a 20-session pack: 10 sessions in the third year of secondary school (at 13-14 years) and 10 in the fourth year (at 14-15 years). In the 12 control schools, sex education for third and fourth years varied from seven to 12 lessons in total and was primarily devoted to the provision of information and discussion.
James 2020	Prevention	Risk of falling	Occupational Therapist Intervention Study (OTIS)	Participants ≥ 65 years, community-dwelling, currently able to walk 10 feet (with a walking aid if needed) were included in this study.	Participants were randomised to either home environmental assessment and modification, led by an occupational therapist or usual care from GP or other healthcare professional.
Dorling 2020	Treatment	Very preterm or very low-	Speed of Increasing milk	Infants born at <32 weeks' gestation or who had a birth weight	This was a multi-centre, two-arm, parallel-group, RCT in very preterm or very low-birthweight

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		birthweight infants	Feeds Trial (SIFT)	of <1500 g, who were receiving <30 ml/kg/day of milk recruited from 78 UK and Republic of Ireland neonatal units were included in this study.	infants. When advancing feed volumes, participants were randomised to receive daily increments in feed volume of 30 ml/kg or 18 ml/kg.
Keding 2016	Treatment	Depression	Acupuncture and Depression (ACUDep) trial	Patients with depression from Yorkshire and northern England were included in this study.	Participants were randomised to receive either acupuncture, counselling, or usual care.
Kenton 2007	Prevention	Postnatal depression	Postpartum Depression Peer Support Trial.	Women were recruited from seven large health regions and their corresponding public health departments across Ontario, Canada were included in this study.	Study evaluating the effect of telephone-based peer (mother to mother) support on preventing postnatal depression among women identified as high risk within the first two weeks postpartum. Participants support initiated within 48-72 hours of randomisation, provided by a volunteer recruited from the community who had previously experienced and recovered from self-reported postnatal depression and attended a four-hour training session.
Kenyon 2005	Prevention	Neonatal outcomes	The MRC ORACLE Children Study (MOCS)	Participants were seven-year-old children whose mothers joined the MRC ORACLE Trial (Broad-spectrum antibiotics for spontaneous preterm labour)	The original trial evaluated the use of antibiotics to improve neonatal outcome after preterm labour or preterm rupture of the membranes. Women were randomly assigned to one of four possible treatments: 325 mg co-amoxiclav (250 mg amoxicillin and 125 mg clavulanic acid) plus 250 mg erythromycin; co-amoxiclav plus erythromycin placebo; erythromycin plus co-amoxiclav placebo; or co-amoxiclav placebo plus erythromycin placebo.
Khadjesari 2011	Prevention	Alcohol consumption	Down your Drink randomised controlled trial (DYD-RCT)	Participants were people who came across DownYourDrink while browsing the web were included in this study. Eligible participants were people drinking potentially unhealthy levels of alcohol who were also willing to consider changing their behaviour.	A two-arm individually RCT for people with hazardous alcohol consumption. It was conducted in three phases: pilot, main trial and main trial extension. The intervention website was a theoretically informed programme based on brief intervention and psychological treatment principles. The control website used a similar graphical design and style to present simple, text-based information about the harms caused by excess alcohol consumption.

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Land 2007	Treatment	Cancer	The Study of Raloxifene and Tamoxifen (STAR).	Postmenopausal women were included in this study.	This study compared raloxifene vs tamoxifen for the prevention of breast cancer in high-risk postmenopausal women.
Lewis 2017	Treatment	Depression	Collaborative Care in Screen-Positive Elders (CASPER) trials	Participants ≥65 years were included in this study.	This multi-centred RCT was looking at the effectiveness and cost-effectiveness of a form of collaborative care with behavioural activation in patients identified with above-threshold depressive symptoms.
Lienard 2006	Treatment	Cancer	Randomised clinical trial for patients with node positive breast cancer (AERO-B2000)	Women with breast cancer were included in this study.	The trial compared six courses of FEC 100 (5-fluorouracil, epirubicin and cyclophosphamide) with four courses of FEC 100 followed by four courses of Taxol.
MacLennan 2014	Prevention	Fracture	The RECORD trial (Randomised Evaluation of Calcium and/OR vitamin D)	People ≥70 years or who had a previous fracture were included in this study.	Participants were randomly allocated to four equal groups and assigned two tablets with meals daily consisting of 800 IU vitamin D3, 1000 mg calcium (given as carbonate), vitamin D3 (800 IU) combined with calcium (1000 mg), or placebo.
Man 2011	Treatment	Low back pain	Yoga for chronic Low Back Pain RCT	Adults aged 18–65; that presented to their GP with low back pain in the previous 18 months; with a score of 4 or more on the Roland & Morris Disability Questionnaire; physically mobile were included in this study.	Participants randomly allocated to receive yoga or usual care to treat lower back pain.
MAmMOTH 2020	Prevention	Chronic widespread pain	The Maintaining Musculoskeletal Health (MAmMOTH) Study	Participants ≥25 years registered with participating general practices in the study areas (NHS Grampian, NHS Highland, and NHS Greater Glasgow and Clyde) were included in this study.	Patients were randomised to either Cognitive Behavioural Therapy delivered by telephone or usual care. Those receiving telephone CBT received a treatment manual, had an initial assessment with a trained CBT therapist, and six weekly treatment sessions as well as two follow-up sessions 3- and 6-months later.
Marques 2013	Treatment	Joint pain	Arthroplasty Pain Experience Study	Participants needing a total hip replacement and total knee replacement were included in this study.	This trial studied if using local wound infiltration in addition to the standard anaesthetic regimen significantly reduces joint pain at 1 year after total hip replacement and total knee replacement. The

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			(APEX) trial		intervention group received local wound infiltration in addition to the standard anaesthetic regimen, and the control group received a standard anaesthetic regimen.
Marsh 1999	Prevention	Injury	Trial of injury prevention in primary care	Children aged 3-12 months registered with participating practices were included in this study.	Intervention groups received safety advice at child health surveillance consultations, provision of low-cost safety equipment to families receiving means-tested state benefits, home safety checks, and first aid training and the control group received standard care.
Marson 2007	Treatment	Epilepsy	A RCT examining the longer-term outcomes of standard vs new antiepileptic drugs. The SANAD trial	Patients with an adequately documented history of two or more clinically definite unprovoked epileptic seizures within the last year for whom treatment with a single antiepileptic drug represented the optimal therapeutic option were included in this study.	Intervention tested the effect of carbamazepine vs gabapentin vs lamotrigine vs oxcarbazepine vs topiramate or valproate vs lamotriginevstopiramate.
McCambridge 2011	Prevention	Alcohol consumption	Down your Drink randomised controlled trial (DYD-RCT)	Participants were people who came across DownYourDrink while browsing the web were included in this study. Eligible participants were people drinking potentially unhealthy levels of alcohol who were also willing to consider changing their behaviour.	A two-arm individually RCT for people with hazardous alcohol consumption. It was conducted in three phases: pilot, main trial and main trial extension. The intervention website was a theoretically informed programme based on brief intervention and psychological treatment principles. The control website used a similar graphical design and style to present simple, text-based information about the harms caused by excess alcohol consumption.
McColl 2003	Treatment	Asthma or angina	No name provided for the Host trial	Participants ≥18 years with asthma or angina managed in 62 family practices in northeast England were included in this study.	GP practices were participating in a RCT of computerised guidelines for primary care management of asthma or angina.
Mitchell 2011 & Mitchell 2012	Prevention	Osteoporotic fracture	SCreening of Older women for Osteoporotic fracture Prevention (SCOOP)	Women between 70 and 85 years old were included in this study.	The trial was a two-armed pragmatic RCT of screening vs usual care.
Mitchell 2020 & Mitchell 2020b	Treatment	Knee Replacement	Knee Replacement Bandaging Study	Participants needing a knee replacement from hospital NHS trust sites	Evaluated the effectiveness of a two-layer compression bandage compared with a standard wool

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			(KReBS) randomised controlled trial.	were included in this study.	and crepe bandage applied post-operatively on patient-reported outcomes in total knee replacement patients.
Nakash 2007	Treatment	Severe ankle sprains	the Collaborative Ankle Support Trial (CAST)	All people who attended accident and emergency with a grade II or III sprain of the ankle, ≥16 years were included in this study.	Participants were randomised to receive one of four different types of ankle support: Tubigrip or plaster cast or Aircast splint or Bledsoe Boot
OPAL trial	Treatment	Uriinary incontinence	OPAL trial	Adult women newly referred with stress or mixed urinary incontinence.	This study compared the effectiveness and cost-effectiveness of pelvic floor muscle training versus biofeedback-mediated pelvic floor muscle training or women with stress urinary incontinence or mixed urinary incontinence.
Renfroe 2002	Treatment	Cardiac patients	The AntiarrhythmicsvsImplantale Defibrillators (AVID) Trial	Patients with recent ventricular fibrillation, ventricular tachycardia with symptomatic with a left ventricular ejection fraction <40% were included in this study.	This was a multi-centre randomised trial comparing survival in patients with malignant arrhythmias treated with antiarrhythmic drugs to survival in patients receiving implantable cardioverter-defibrillators.
Rodgers 2019	Prevention	Risk of falls	REducing Falls with ORthoses and a Multifaceted podiatry intervention (REFORM) study	Participants ≥65 years from routine podiatry clinics in the UK and Ireland to the REFORM cohort. Participants had one fall in the past 12 months: or one fall in the past 24 months requiring hospital attention were included in this study.	Podiatry intervention for the prevention of falls in older people. Participants were randomised to receive routine podiatry care, and a falls prevention leaflet or routine podiatry care, a falls prevention leaflet, and a multifaceted podiatry intervention.
Salvesen 1992	Prevention	Pregnancy	Two randomised trials of routine ultrasonography in pregnancy	Pregnant women in the Trondheim area (Norway) were included in this study.	Participants were randomly selected for ultrasound examination at the 19th and 32nd weeks of pregnancy in addition to routine antenatal care.
Sarathy 2020	Treatment	frozen shoulder	UK Frozen Shoulder Trial (UK FROST)	Patients aged ≥18 years with the primary frozen shoulder were recruited in hospitals and were included in this study.	Participants were randomised to either early structured physiotherapy including steroid injection, manipulation under anaesthesia, or arthroscopic capsular release with manipulation under anaesthesia.
Severi 2011	Smoking Cessation	Smoking	Txt2stop	Participants ≥16 years who were daily smoker; willing to quit in the next month; owned a mobile phone and resi-	Evaluate the effect of mobile phone-based smoking cessation support on smoking rates at six months after enrolment. Intervention group They received five text

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				dent in the UK were included in this study.	messages a day for the first five weeks and then three a week for the next 26 weeks. Control group participants received fortnightly, simple, short; text messages related to the importance of trial participation.
Sharp 2006	Prevention	Abnormal Cervical smears	Management of Borderline and Other Low-grade Abnormal smears (TOMBOLA) trial.	Women aged 20-59 with low-grade abnormal cervical smear living in Tayside, Grampian or Nottingham were included in this study.	Management policy in the community linked to low grade abnormal cervical smears Participants in the intervention group was randomised to a colposcopy. In contrast, participants in the control group received a six-monthly smear.
Starr 2015	Treatment	ureteric stones	Symptomatic ureteric stones in hospitalised adults (SUSPEND) trial	Participants with ureteric colic aged 18–65 years with one stone of 10 mm or less (at the largest dimension) in either ureter identified on CT KUB were included in this study.	Participants were randomised to receive a self-administered tamsulosin 400 µg OR nifedipine 30 mg or placebo.
Subar 2001	Prevention	Cancer	The Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial	Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer patients. Males and females aged 55-74 years were included in this study.	Trial of screening procedures for prostate, lung, colon, and ovarian cancer. This trial measured whether screening with flexible sigmoidoscopy can reduce mortality from colorectal cancer. Also, it measured if screening with chest X-ray can reduce mortality from lung cancer or, whether screening men with digital rectal examination plus serum prostate-specific antigen can reduce mortality from prostate cancer. In women, it measured whether screening through transvaginal ultrasound can reduce mortality from ovarian cancer.
Tai 1997	Treatment	Asthma and diabetes	No name provided for the Host trial	Patients with asthma and/or diabetes recruited from 6 general practices in London were included in this study.	Participants were randomised to Receive different structured computerised prompts to help the management of asthma and diabetes.
Tilbrook 2015	Treatment	neck pain	Alexander Technique Lessons, Acupuncture Sessions (ATLAS) trial	Patients who have been diagnosed with neck pain in primary care, who have continued to experience neck pain for at least three months were included in this study.	Participants were randomised to Alexander Technique lessons, acupuncture, or usual care alone.

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Tranberg 2018	Diagnosis	Cancer	Cervical HOme-based CancEr screening (CHOiCE) study	Women aged 30-64 years who are living in the Central Denmark Region and who have not participated in cervical cancer screening after an invitation and one reminder were included in this study.	This was a randomised, controlled, effectiveness population-based trial, nested in the Danish organised cervical cancer screening program conducted in the Central Denmark Region. The cervical cytology specimen was mailed to the local department of pathology for analysis. If no cervical cytology is registered, up to two reminders will be sent at 3 and 6 months after the initial invitation.
Treweek 2020A	Prevention	Cancer	ActWELL trial	Women were invited to take part in ActWELL when they attended a routine mammography appointment at one of four Scottish National Health Service Breast Screening.	This trial evaluates whether women who receive two, face-to-face lifestyle change sessions from volunteer coaches followed by up to nine telephone calls over a year, compared to no counselling, improve a range of lifestyle outcomes including weight and physical activity.
Watson 2017	Treatment	haemorrhoids	either Traditional Hemorrhoidectomy or Stapled haemorrhoidopexy for haemorrhoidal disease (eTHoS) Study	Patients aged ≥ 18 years, with haemorrhoids of grades II–IV recruited in 32 UK NHS hospitals. were included in this study.	This study evaluated the clinical effectiveness of stapled haemorrhoidopexy compared to excisional (or traditional) haemorrhoidectomy in the treatment of II–IV-grade haemorrhoids.
Whiteside 2019	Prevention	Risk of falling	Occupational Therapist Intervention Study (OTIS)	Participants ≥65 years, community-dwelling, currently able to walk 10 feet (with a walking aid if needed) were included in this study.	Participants were randomised to either home environmental assessment and modification, led by an occupational therapist or usual care from GP or other healthcare professional.
Young 2019	Prevention	Cancer	Lung cancer screening trial (ECLS)	Participants ≥50 years who were current or former cigarette or tobacco smokers with at least 20 pack-years, or with a history of smoking of fewer than 20 pack-years plus immediate family history (mother, father, sibling, child) of lung cancer and living in Tayside or Greater Glasgow were included in this study.	Participants were randomised to receive a blood test for lung cancer + CT scanning if blood test positive or standard NHS care (i.e. person notices symptoms and attends GP).

WHAT'S NEW

Date	Event	Description
22 January 2021	New citation required and conclusions have changed	Based on the revisions made during this update, the overall findings of the review and its conclusions have changed substantially.
22 January 2021	New search has been performed	Review updated. Significant amendments during update include the following. • Revision of overall scope to focus and restrict to interventions that are designed to maximise data collection from trial participants once they have been recruited and randomised. It does not include interventions that aim to improve adherence to trial interventions. • A new search was run from data base inception to January 2020. • Based on this refinement in scope some studies that were included in the original review have now been excluded (Bowen 2000, Chaffin 2009, Cox 2008, Ford 2004, Hughes 1989, Leigh Brown 1997, Svodoba 2001) and one study that was excluded from the original review has now been included (Marsh 1999). • We used the ORRCA (https://www.orrca.org.uk/) domains to inform categorisation of interventions and comparisons. • The lack of any secondary outcomes is a change from the previous version of the review which stated "Retention of participants at secondary analysis points": as a secondary outcome. Due to these data being rarely reported this outcome has been removed as a secondary outcome. • The review has now applied GRADE to all comparisons that include more than one study

HISTORY

Protocol first published: Issue 2, 2011
Review first published: Issue 12, 2013

CONTRIBUTIONS OF AUTHORS

For this update, PM and AK ran the electronic searches. PM also contributed to screening of titles and abstracts. KG, AK, CK, ST, JH, VB, TC, AH, LM, PC, GR, and MAM contributed to the study design, record screening, full-text review of retrieved records, and data extraction. KG, MAM, JH, and ST analysed the data. KG and MAM drafted the updated review. All authors approved the final version of the review.

DECLARATIONS OF INTEREST

Two of the review authors (ST and GR) are authors on two of the eligible studies (Bailey 2013; Treweek 2020a). There are no other conflicts to declare.

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INDEX TERMS

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Case Management; Correspondence as Topic; Patient Compliance [psychology] [*statistics & numerical data]; Patient Dropouts [statistics & numerical data]; Randomized Controlled Trials as Topic [*statistics & numerical data]; Reward; Surveys and Questionnaires

MeSH check words

Humans