What constitutes good evidence?

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Good Evidence for what?

to help us spend our resources (time, energy, money) on getting (more) effective health care (interventions) to meet important health/ health care needs.

Standard approaches to evaluating and adopting new health care interventions

efficacy trials

⬇

effectiveness trials

⬇

dissemination research

Olds et al ,Flay et al efficacy trials

Rationale

- Health care interventions can be harmful

- There is harm from spending limited resources on health care interventions that don't bring benefits

- RCT are the gold standard for evaluating interventions and the only study design with potential to reliably demonstrate that the effects are caused by the intervention

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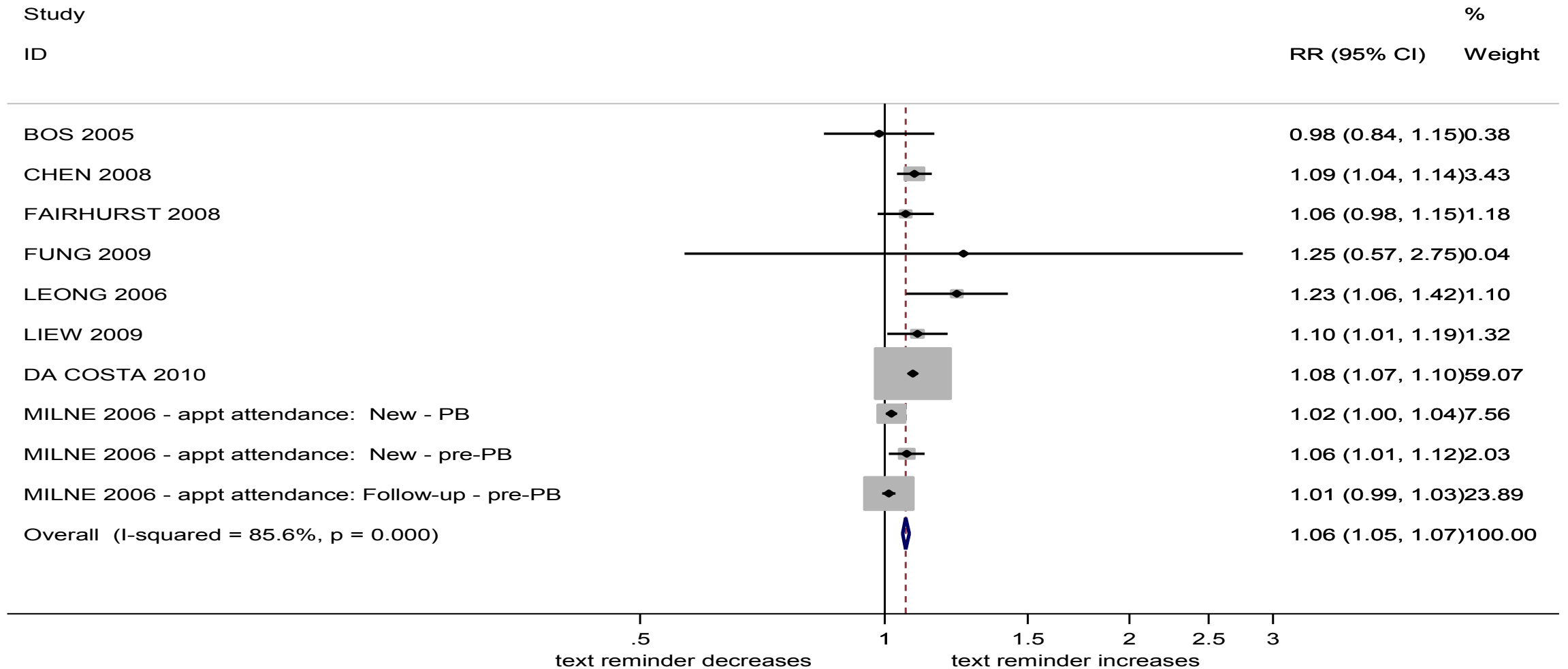# Best evidence for evaluating effectiveness new interventions
- Randomised controlled trials

Participants

Randomisation

Intervention

Control

Follow up

Follow up
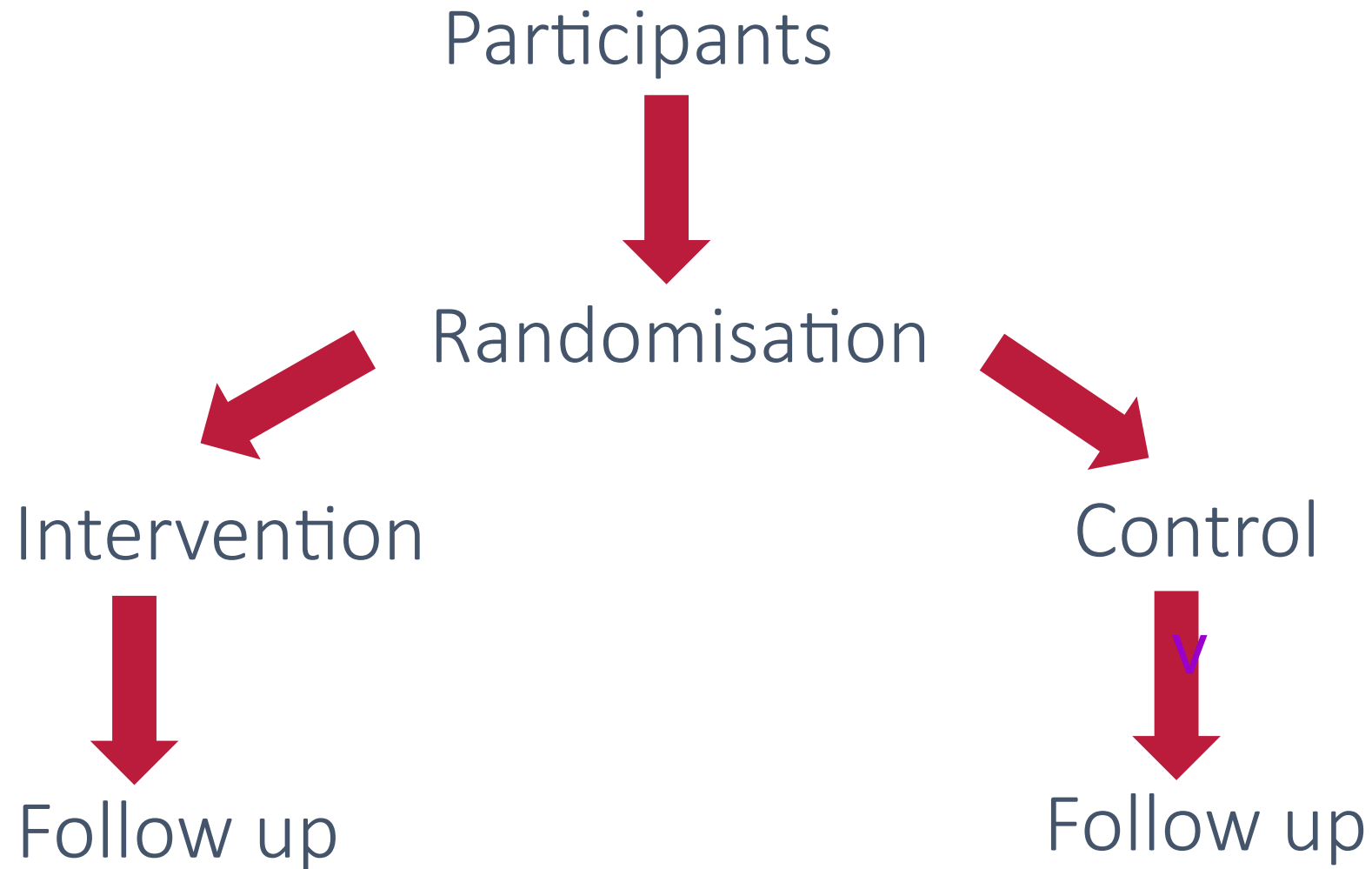
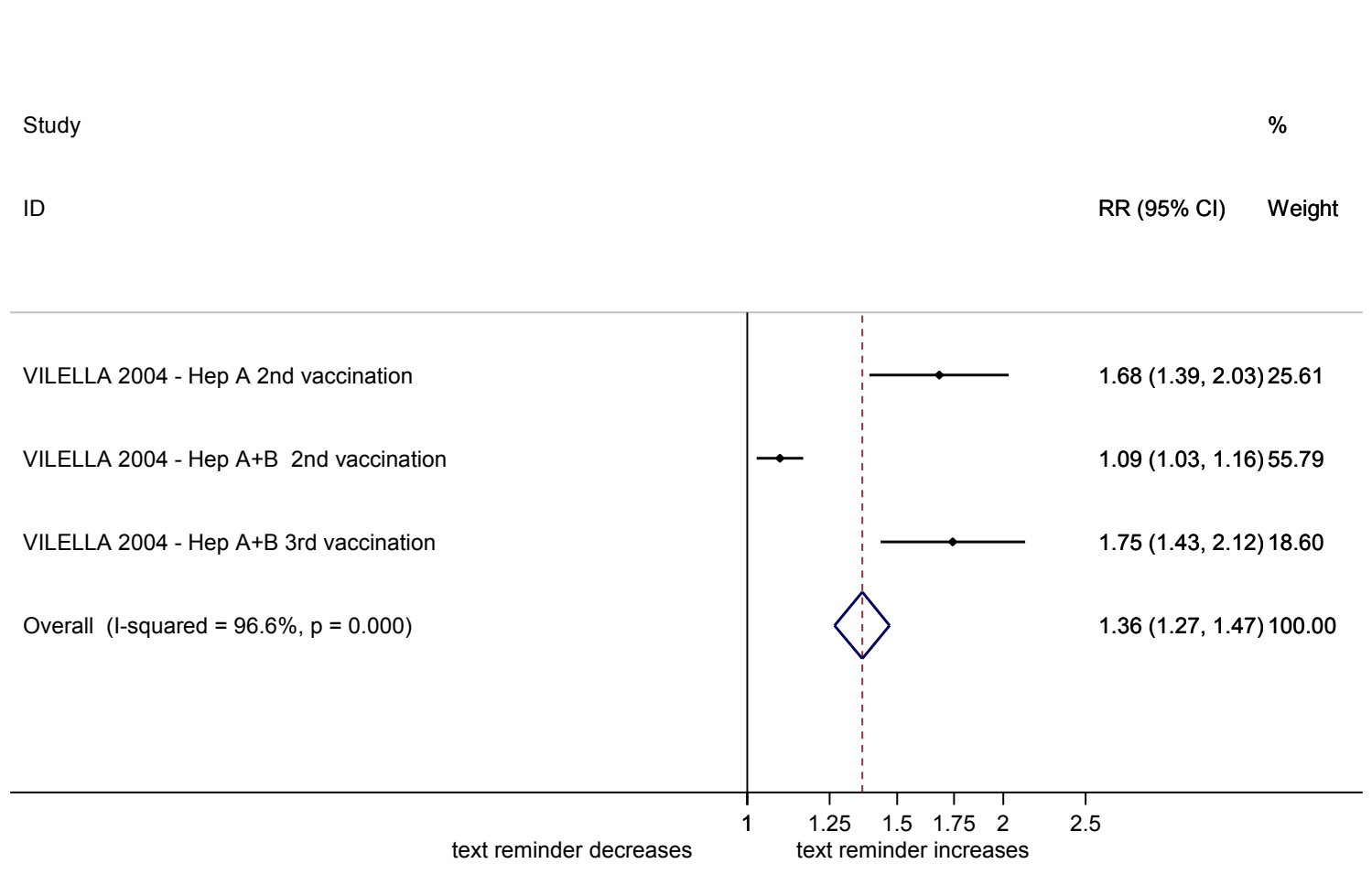# Randomised controlled trials and cost analysis

Policy makers and governments will look for this type of evidence (with cost analysis)
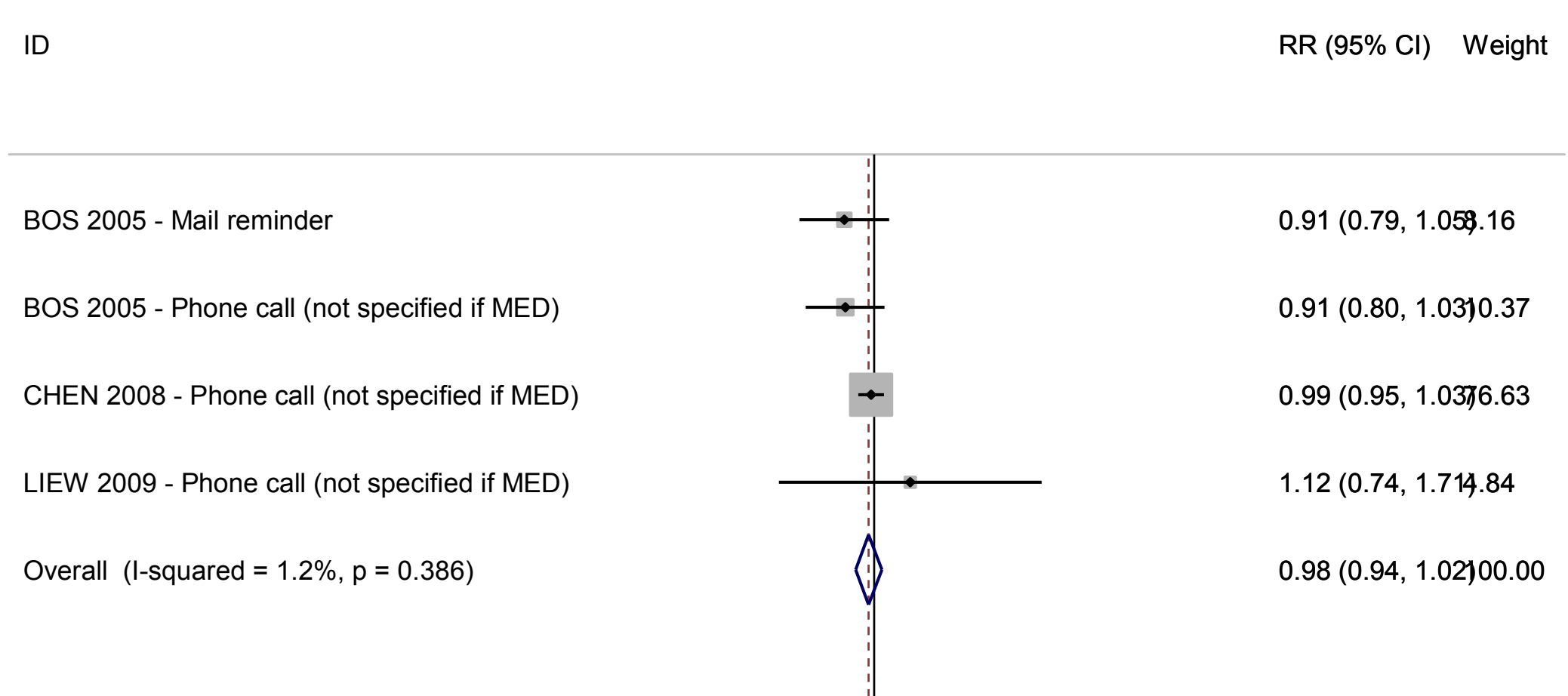
SMS appointment reminders vs no reminder

SMS vaccine reminders vs no reminder

Text reminders vs other reminders

ID	RR (95% CI)	Weight
BOS 2005 - Mail reminder	0.91 (0.79, 1.05)	8.16
BOS 2005 - Phone call (not specified if MED)	0.91 (0.80, 1.03)	10.37
CHEN 2008 - Phone call (not specified if MED)	0.99 (0.95, 1.03)	76.63
LIEW 2009 - Phone call (not specified if MED)	1.12 (0.74, 1.71)	4.84
Overall (I-squared = 1.2%, p = 0.386)	0.98 (0.94, 1.02)	100.00

Reminders for medication adherence
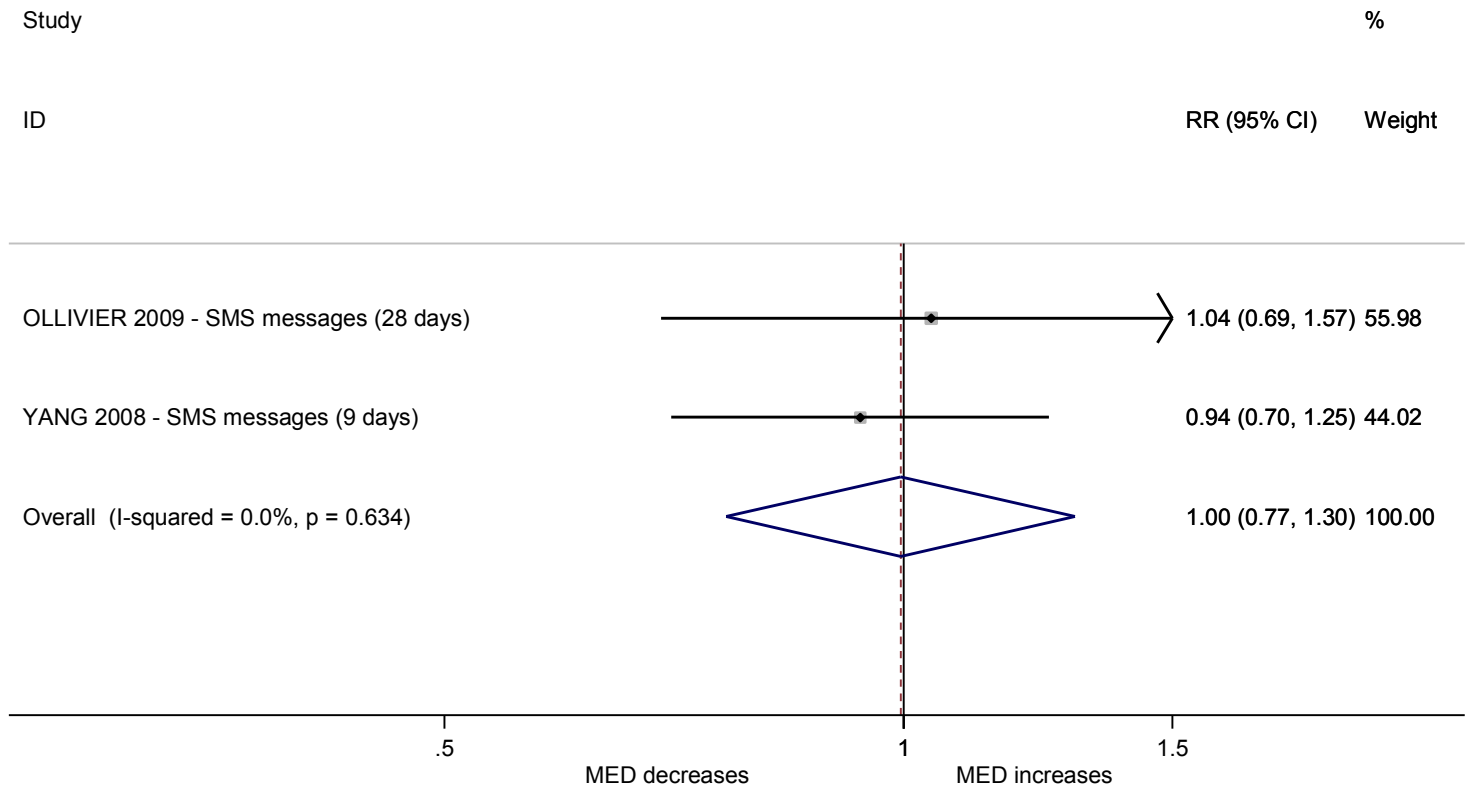
Broader interventions for adherence.

Lester trial HIV- sms message +HCP call

     viral load <400 copies RR 0.85 (95%CI 0.72-0.99)

     non adherence RR 0.8 (95%CI 0.69-94)

Castano 2012 COCP- Reminders and educational messages RR 1.44 (95%CI 1.44-2.00)

Best evidence for evaluating effectiveness of new health (care) interventions

randomised controlled trial.

- Its easy to randomise (e.g. random number generator available free internet)

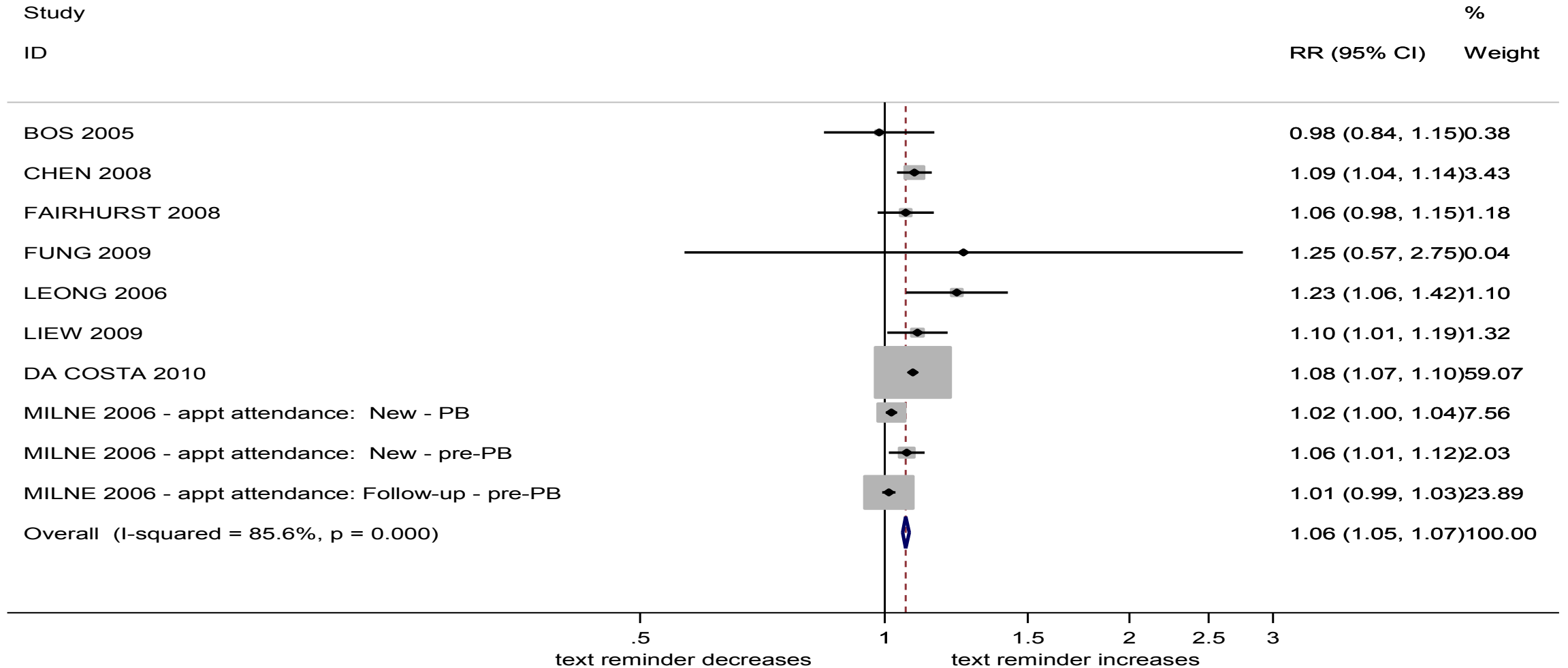- Doesn't have to slow down implementation

Best evidence for evaluating effectiveness of new health (care) interventions

randomised controlled trial.

- Its easy to randomise (e.g. random number generator available free internet)
- Use objective outcomes (service use/quality, data collected by MT, biomarkers, health)
- Make sure you can't tell which group someone will end up in before hand e.g. text s/o remote for the allocation (allocation concealment)
- Decide on your outcomes and report them all (no selective outcome reporting),
- blind outcome assessor (if possible),
- Try hard to get data at follow up

(Consort guidance)

Why collect important health outcomes too?

Study ID	RR (95% CI)	% Weight
BOS 2005	0.98 (0.84, 1.15)	0.38
CHEN 2008	1.09 (1.04, 1.14)	3.43
FAIRHURST 2008	1.06 (0.98, 1.15)	1.18
FUNG 2009	1.25 (0.57, 2.75)	0.04
LEONG 2006	1.23 (1.06, 1.42)	1.10
LIEW 2009	1.10 (1.01, 1.19)	1.32
DA COSTA 2010	1.08 (1.07, 1.10)	59.07
MILNE 2006 - appt attendance: New - PB	1.02 (1.00, 1.04)	7.56
MILNE 2006 - appt attendance: New - pre-PB	1.06 (1.01, 1.12)	2.03
MILNE 2006 - appt attendance: Follow-up - pre-PB	1.01 (0.99, 1.03)	23.89
Overall (I-squared = 85.6%, p = 0.000)	1.06 (1.05, 1.07)	100.00

.5   1   1.5   2   2.5   3

text reminder decreases   text reminder increases

Other types of evaluation methodology for new health (care) interventions

- Other controlled trials- e.g. non randomised step wedge, before and after evaluations, systematic allocation, other controls (think about randomising)
- Observational studies- cohort, case controls, before and after evaluations,
- Evaluations using service data
- Qualitative evaluations
- Mixed methods

Reliability and other types of evaluation methodology

Reliability/scientific rigor

- Objective measures (service outcomes quality/use, intervention data, biomarkers, health)
- Participant selection (include everyone)
- Consider and adjust for confounders
- Bias often overestimates effects

- For qualitative research- sampling, interviewer- technique,

- triangulation

(strobe guidance)

Best evidence for implementation evaluation

- Uptake (acceptability, feasibility, fit)
- Fidelity of delivery
- Observational studies
- Data

Evaluation when it is not a new health care intervention.

- A new test (comparison with current gold standard)
- A social change in communication capability that enables people to access health services/information they were unable to reach.
- Increasing access to services/information of proven benefit (but with some reconfiguring to allow access in new ways ? RCT, observational research.)

Principals to guide evaluation methods

Consider

Non- maleficence: Potential for harm

Beneficence:

- Potential for harm caused by diverting scare resources to interventions of no benefit

- Benefit can include same health outcome/ standard of care at lower costs

- Benefits of randomisation includes more reliable evidence for service providers, also benefits in publication increasing awareness, pace/ reach of adoption of interventions.

- Randomisation doesn't have to slow implementation e.g. step wedge designs

Motif study/service Cambodia

Smith C, Vannak U, Sokey L, Ngo T, Gold J, Wallach S, Cockcroft M, Khuk K, Flamming A, Edwards P, Free C.

Marie Stopes International and London School Hygiene and Tropical Medicine

- problem- high unmet need for family planning (especially post abortion) most people don't return to services
- Marie Stopes committed to pilot project
- Intervention – automated calls linked to counsellor advice
- Development- qual, service data, systematic reviews, national statistics
- Evaluation- RCT, qualitative research
- Cost-analysis. cost per additional CYP
- If effective high potential for implementation at scale
- If implemented potential for implementation evaluation

Re-configuring services for the digital era- SH24-UK. Baraitser P, Free C, Wilson E, Field N, Menon-Johannsen A, Holdsworth G

- problem- socioeconomically and ethnically diverse urban population, high unmet need for sexual and reproductive health services.

- Service context – frequent overload,

- Intervention – Web based services for STI testing, telephone consultations, repeat contraception provision (POP, COCP)

- Hypotheses- web based provision could reduce clinic waits, meet unmet need, deal with 'less complex' problems in convenient way (24 hour provision, less time) and enable HCP focus on complex cases,

- Development- feedback, qual, systematic reviews, national statistics

- Evaluation- RCTs and qualitative

- Cost-analysis. cost per additional CYP

- Evaluation of implementation – national data and service data.

Summary of Good Evidence

- to help us spend our resources (time, energy, money) on getting (more) effective health care (interventions) to meet important health/ health care needs.

- consider randomising

- Use objective measures

- For quantitative - evaluate everyone (don't select out people)

- academics and service innovators can work together to generate good evidence, and implement in timely way.