

# The safety of low-dose aspirin in pregnancy for prevention of pre-eclampsia in low-income countries – a systematic review and meta-analysis.



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## Introduction

- Pre-eclampsia is a hypertensive disorder of pregnancy affecting 2-8% pregnancies worldwide. Delivery remains the only cure.<sup>1</sup>
- Its incidence and mortality are greatest in developing countries.<sup>2</sup>
- Clinical trial meta-analyses<sup>3</sup> have shown prophylactic aspirin can reduce risk of pre-eclampsia, leading to its incorporation into antenatal guidelines.<sup>4</sup>
- However, aspirin may increase risks of bleeding-related pregnancy complications, particularly in low-income settings, where 99% maternal deaths occur (Figure 1), haemorrhage the leading cause (Figure 2).

## Results

- 26 trials with 32180 women were included (Figure 1). 18 out of 26 trials from high income countries. Risk of bias was low in 21 trials, unclear in 3, and high in 2.
- Aspirin in pregnancy was not associated with a statistically significant increased risk of PPH (RR = 1.08, 95% CI 0.97 to 1.21), PA (RR = 1.17, 95% CI 0.85 to 1.61) or FIH (RR = 1.03, 95% CI 0.60 to 1.79) (Figures 5-7).
- No substantial heterogeneity ( $I^2$  statistics <50%) or publication bias.
- Subgroup analyses by risk of pre-eclampsia (average vs high), income level (high vs middle) and access to health care showed no statistical difference for PPH, PA or FIH ( $p > 0.10$ ).

## Discussion & conclusions

- No increase in bleeding-related pregnancy complications (PPH, PA and FIH) associated with prophylactic aspirin in pregnancy. These findings are consistent with a previous review which only included studies conducted in countries with indices of very high human development.<sup>1</sup>
- However, effect estimates were in the direction of harm and wide ranges of uncertainty around estimates suggest incomplete knowledge. We cannot exclude risks (e.g. of up to 21% for PPH).
- Also, data from middle income countries were scarce and poorer quality.

## Aim & Objectives

- **Aim:** to assess risks of postpartum haemorrhage (PPH), placental abruption (PA) and fetal intracranial haemorrhage (FIH) associated with aspirin with a focus on low-income settings.
- **Objectives:**
  1. To estimate the risks of PPH, PA and FIH associated with aspirin in pregnancy.
  2. To assess the applicability of evidence in low-income, low-resource settings.

## Methods

- Study design: systematic review and meta-analysis (Figure 3).
- Study quality: Cochrane tool used to grade risk of bias.
- Meta-analysis: Relative risk (RR) and 95% confidence interval (CI) estimated using a random-effects model.
- Subgroup analyses: performed for pre-eclampsia risk level, countries' income-level<sup>6</sup> and access to health care<sup>7</sup> (Figure 4).

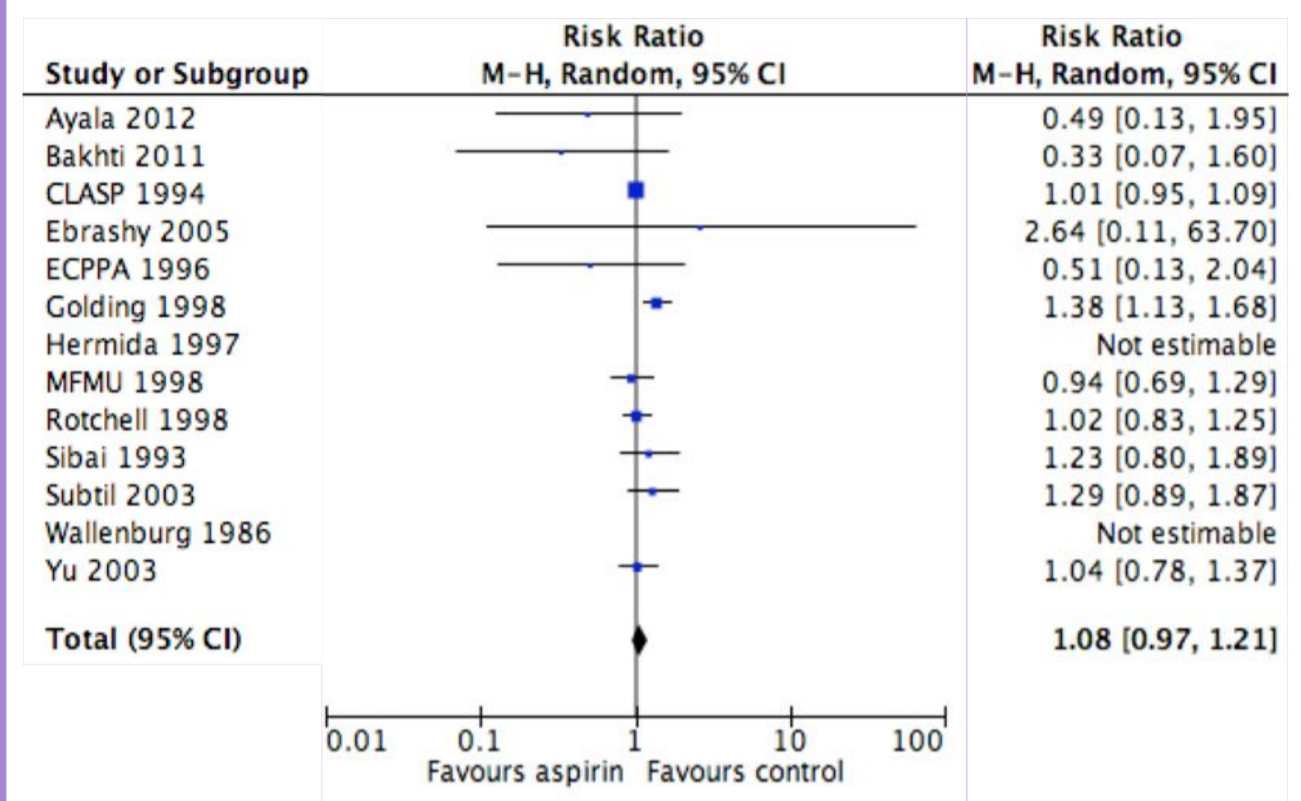
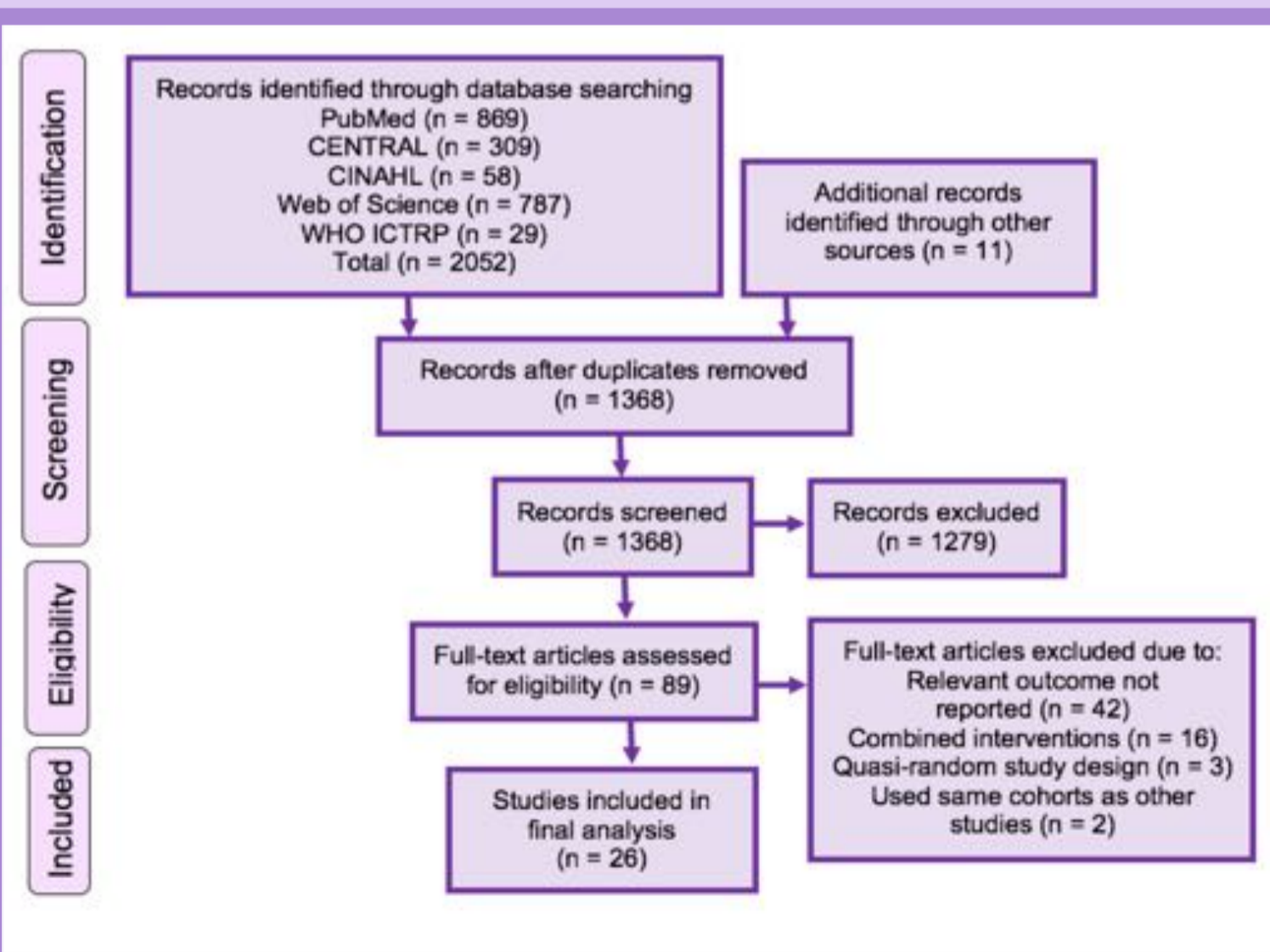


Figure 5. Forest plot of aspirin vs placebo, outcome: postpartum haemorrhage

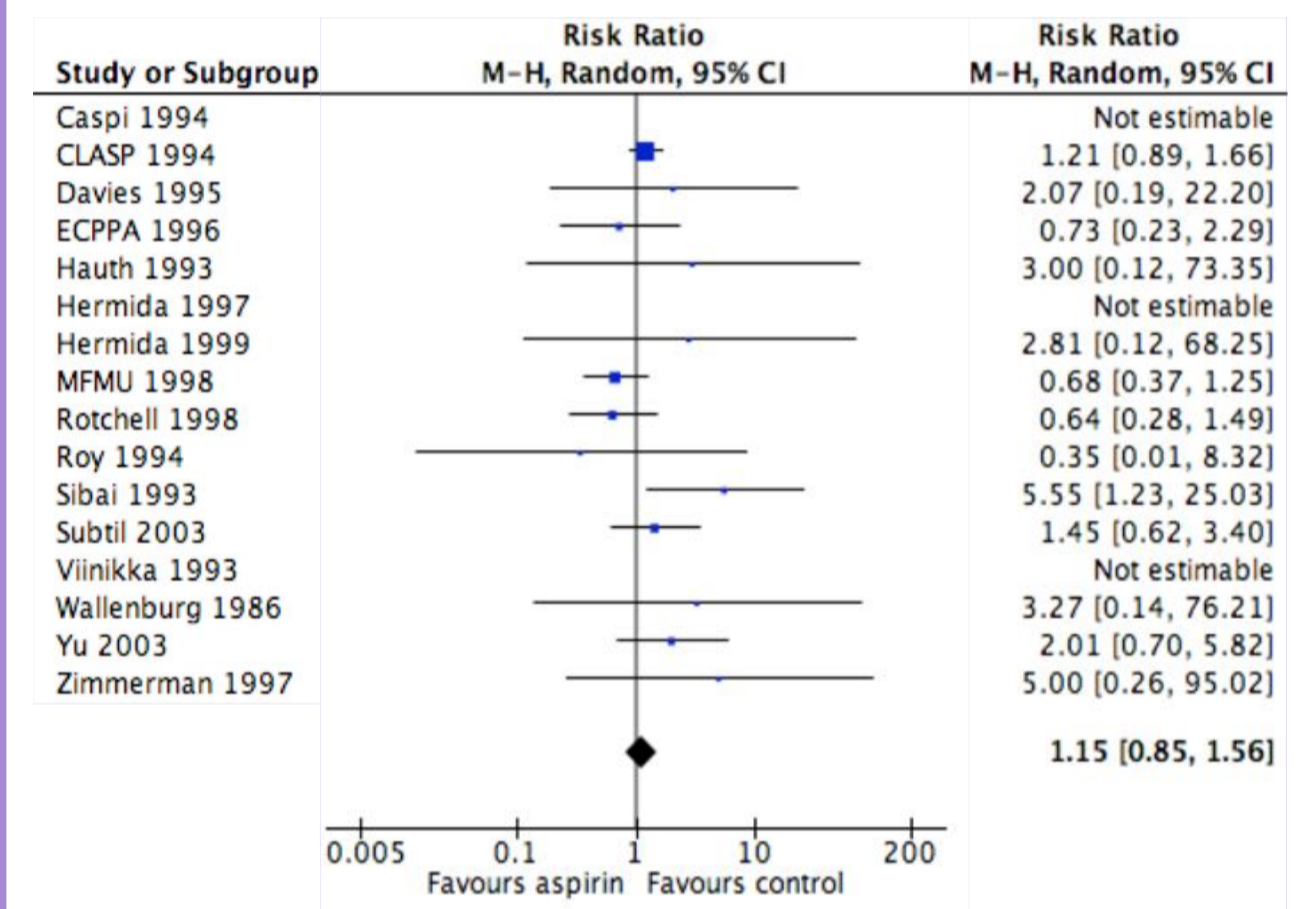


Figure 6. Forest plot of aspirin vs placebo, outcome: placental abruption

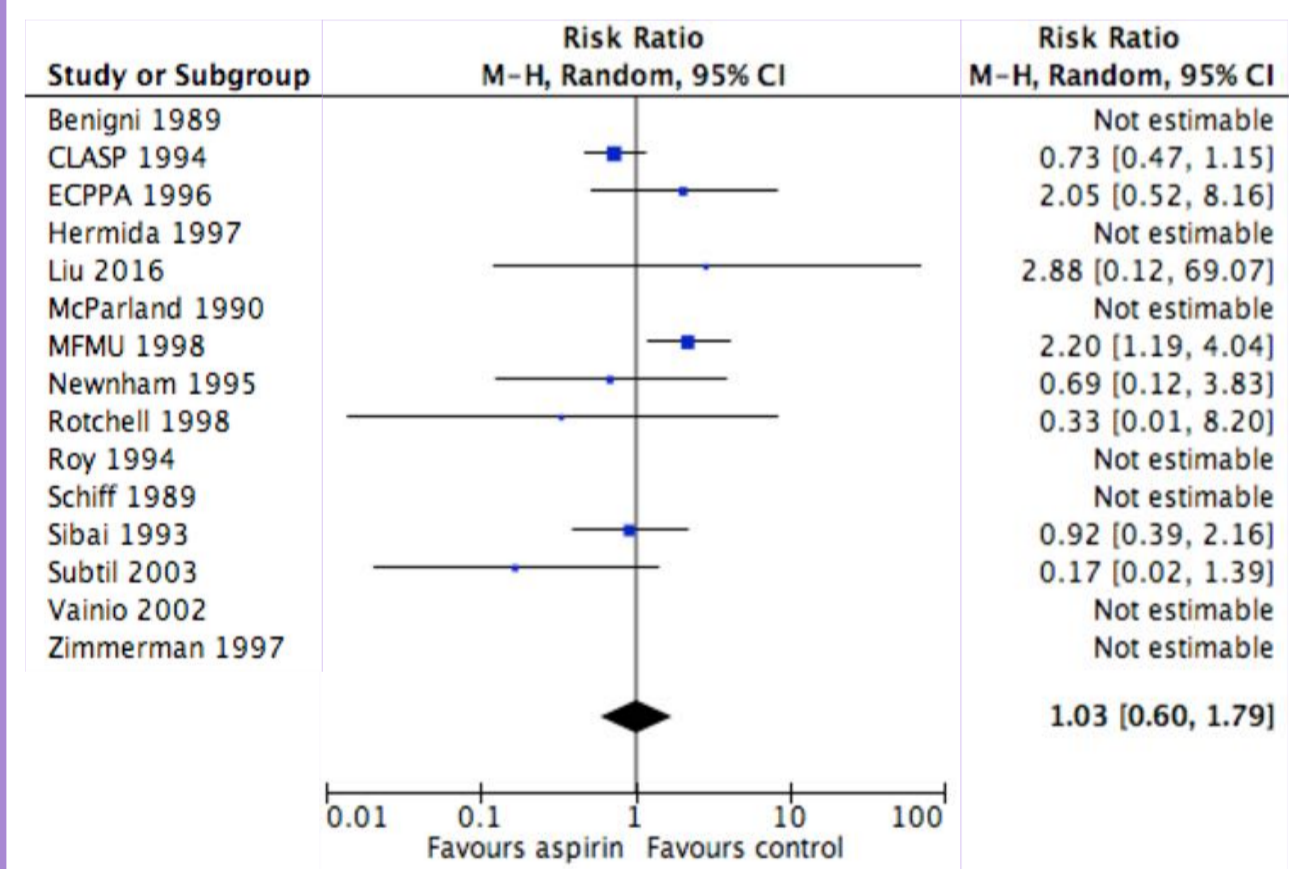


Figure 7. Forest plot of aspirin vs placebo, outcome: fetal intracranial haemorrhage



## References

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