

# Caesarean sections and private insurance

## Systematic review and meta-analysis

Wennberg International Collaborative

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Research

# BMJ Open Caesarean sections and private insurance: systematic review and meta-analysis

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# Content of this presentation

Background

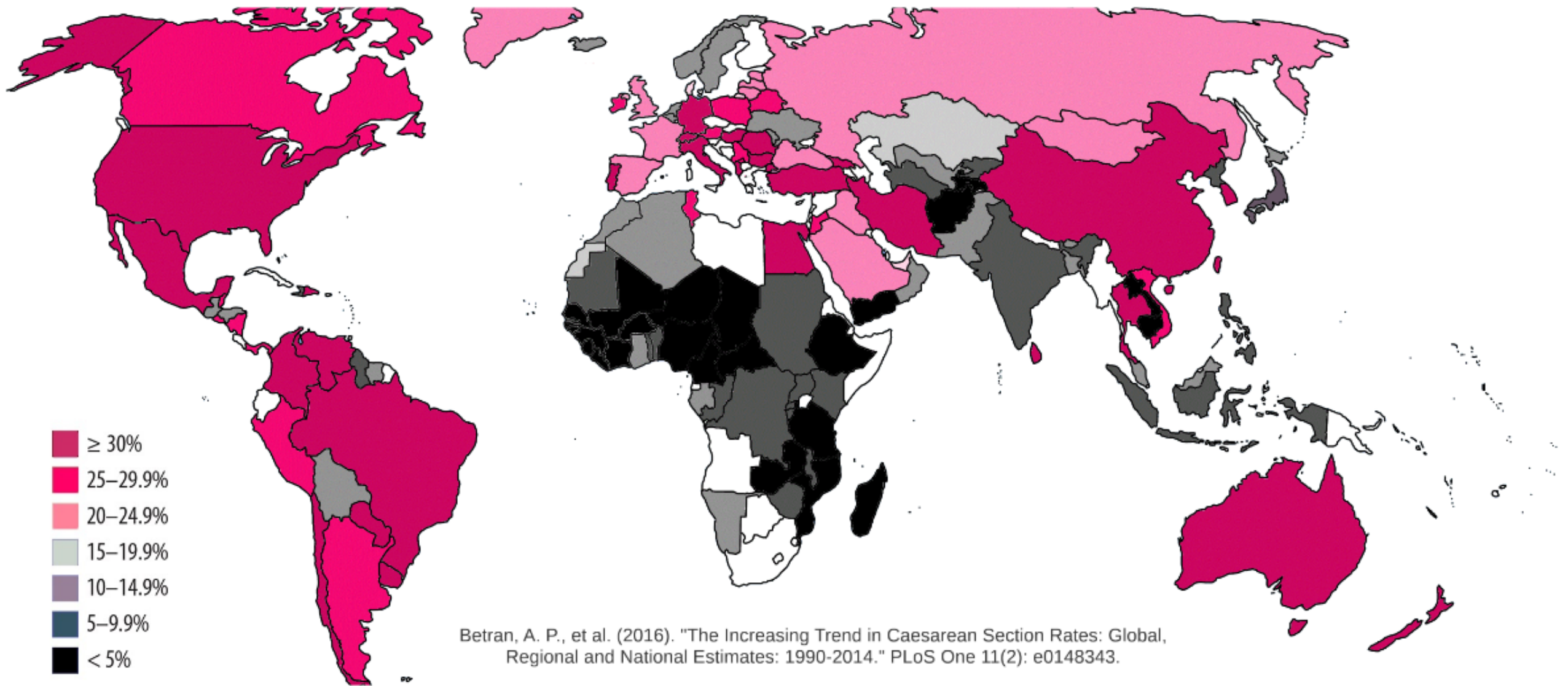
Aims and objectives of this study

Methods

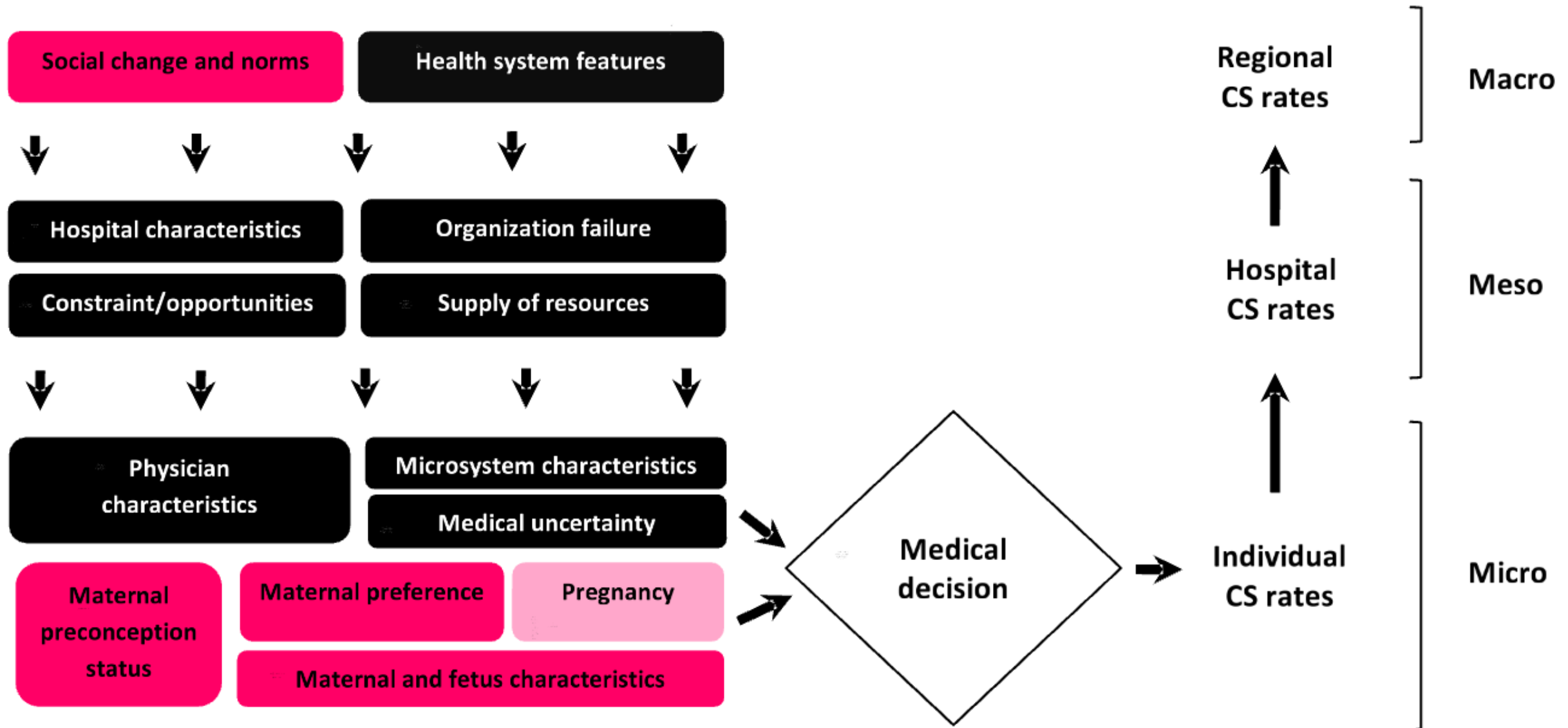
Results

Discussion and conclusion

## Caesarean section rates worldwide (% of total births)



## Conceptual framework on determinants of **caesarean section** variation



# Health system features

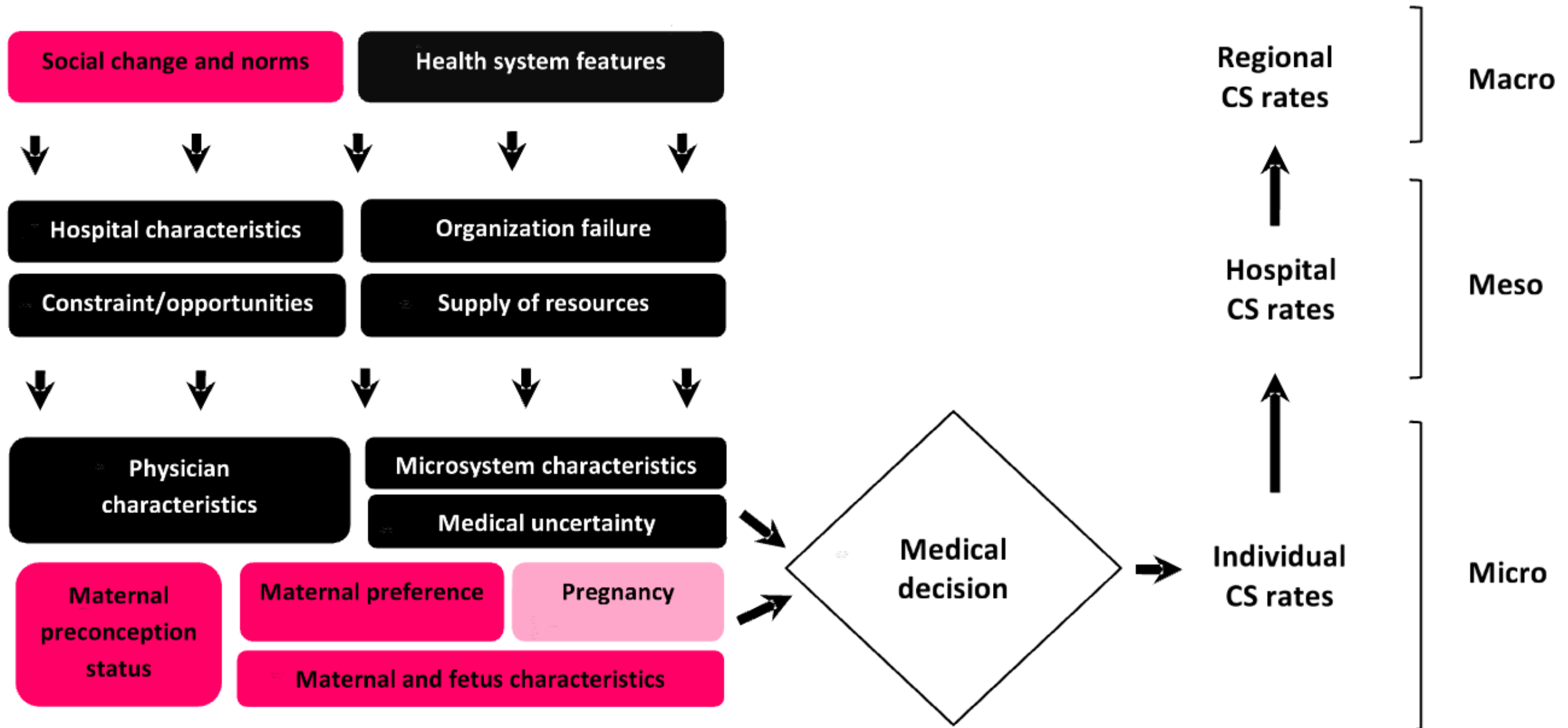
## ***Regulative***

(i.e. insurance plans structure,  
payment systems)

## ***Normative***

(i.e. protocols and standards)  
(de Jong 2008)

## Conceptual framework on determinants of **caesarean section** variation



## **Hospital characteristics**

Type and size of hospital;  
Private vs public; level of  
care (primary, secondary or  
tertiary).



Financial incentives associated with private insurance may encourage health care providers to perform more caesarean sections.

We therefore sought to determine the association of private insurance and odds of caesarean section.

Design - Systematic review and meta-analysis.

Data sources - MEDLINE, Embase, and The Cochrane Library from the first year of records through August 2016.

Eligibility criteria – We included studies that reported data to allow the calculation of odds ratios of caesarean section of privately insured as compared to publicly insured women.

Outcomes - The pre-specified primary outcome was the adjusted odds ratio of births delivered by caesarean section of women covered with private insurance as compared with women covered with public insurance. The pre-specified secondary outcome was the crude odds ratio of births delivered by caesarean section of women covered with private insurance as compared with women covered with public insurance.

We used standard inverse-variance random effects meta-analysis.

An OR above one indicates that CS are more frequently performed in women with private insurance than in women with public insurance.

$\tau^2$  was used as a measure of heterogeneity between studies. We pre-specified a  $\tau^2$  of 0.04 to represent low heterogeneity, 0.16 to represent moderate, and 0.36 to represent high heterogeneity between studies.

We conducted analyses stratified by study design, period of data collection, country, type of CS analysed, parity, inclusion of women with previous CS, and pregnancy risk of included women.

Chi-square tests to calculate p-values for interaction, or tests for linear trend in case of more than two ordered strata.

# Quality assessment

Quality In Prognostic Studies (QUIPS) tool

QUIPS is used to assess risk of bias in prognostic studies across six domains including:

selection bias

attrition bias

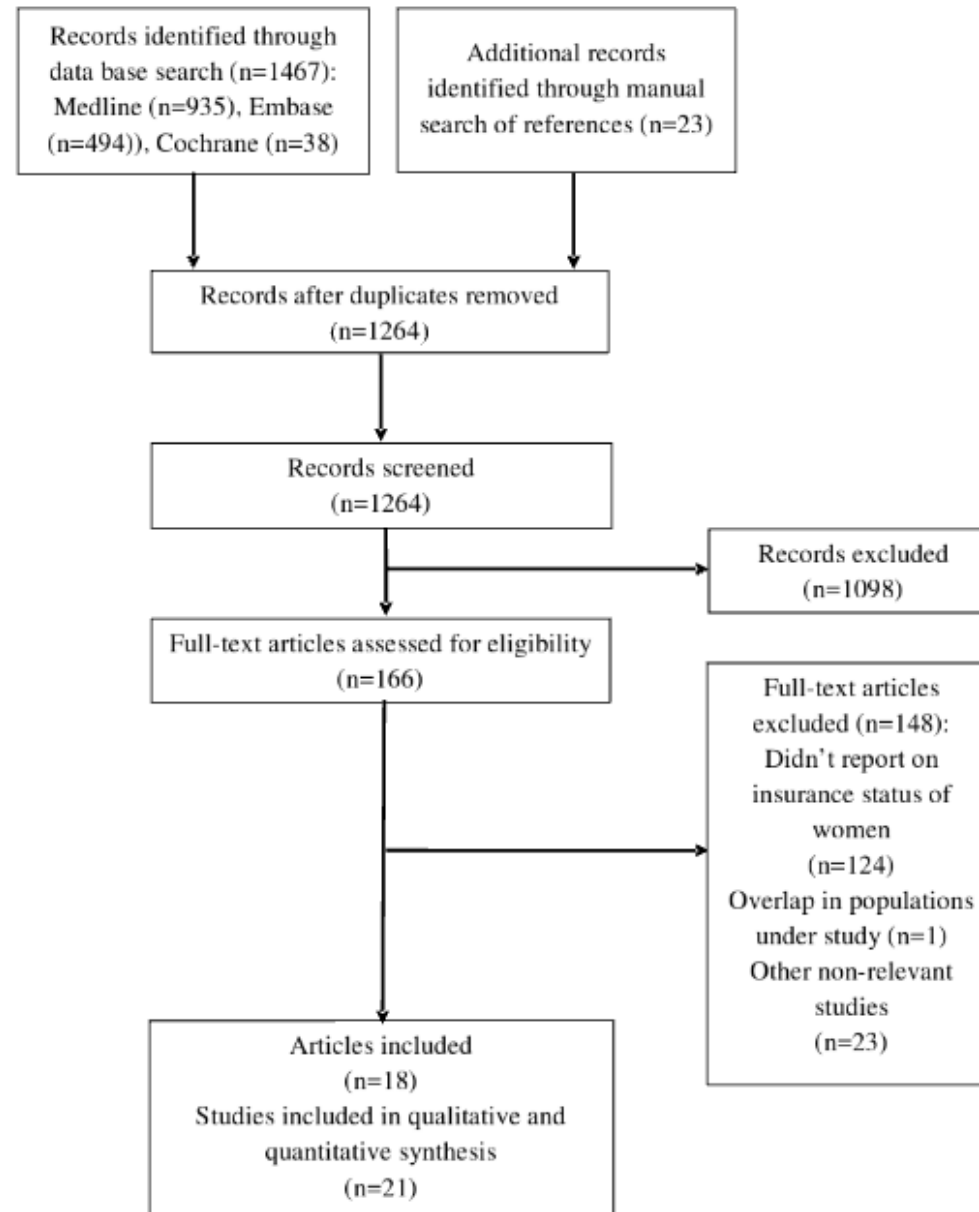
measurement bias of prognostic factor

measurement bias of outcome

confounding

bias related to the statistical analysis and presentation of results

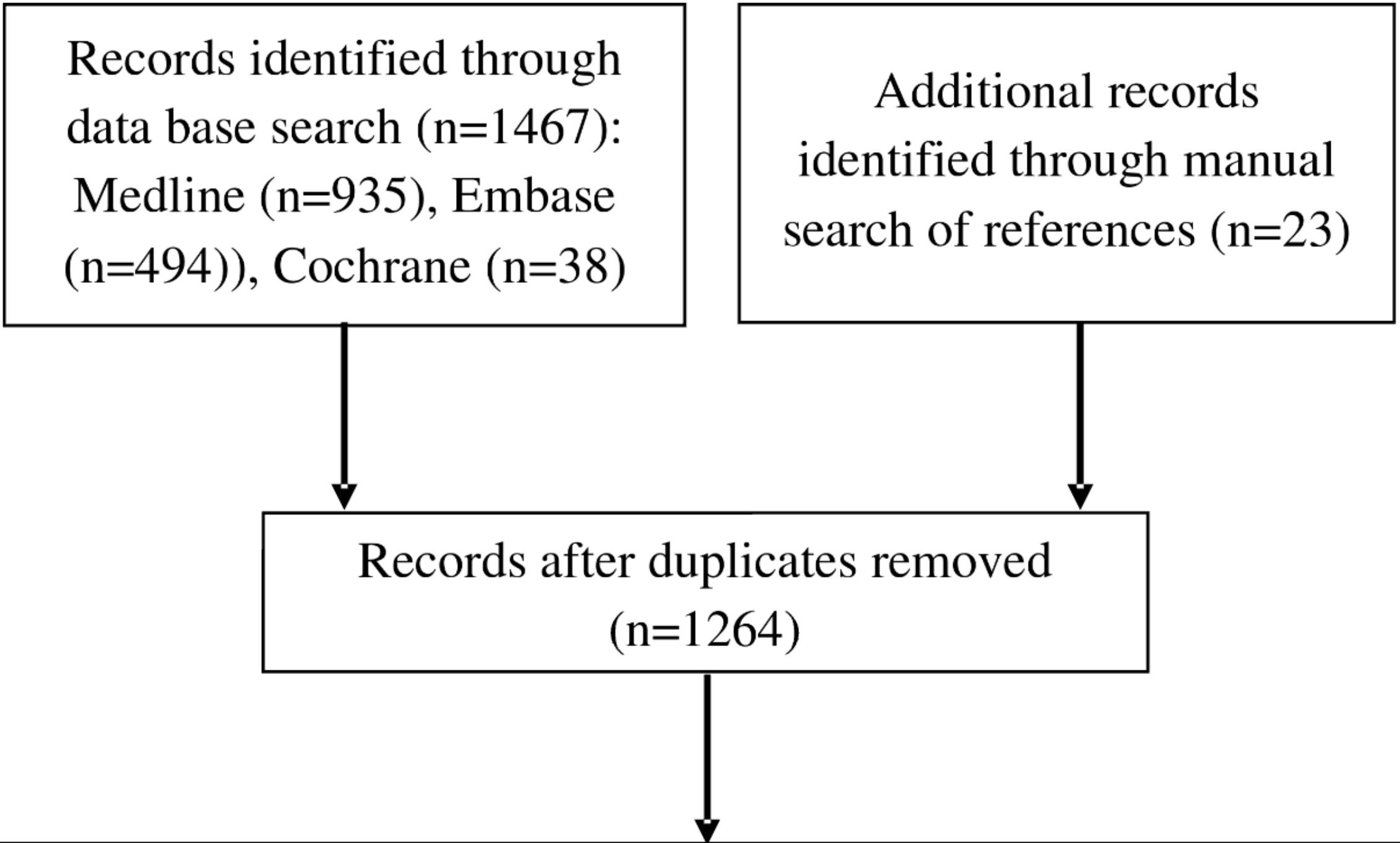
### The flow diagram of review



Records identified through  
data base search (n=1467):  
Medline (n=935), Embase  
(n=494), Cochrane (n=38)

Additional records  
identified through manual  
search of references (n=23)

Records after duplicates removed  
(n=1264)



Records after duplicates removed  
(n=1264)



Records screened  
(n=1264)

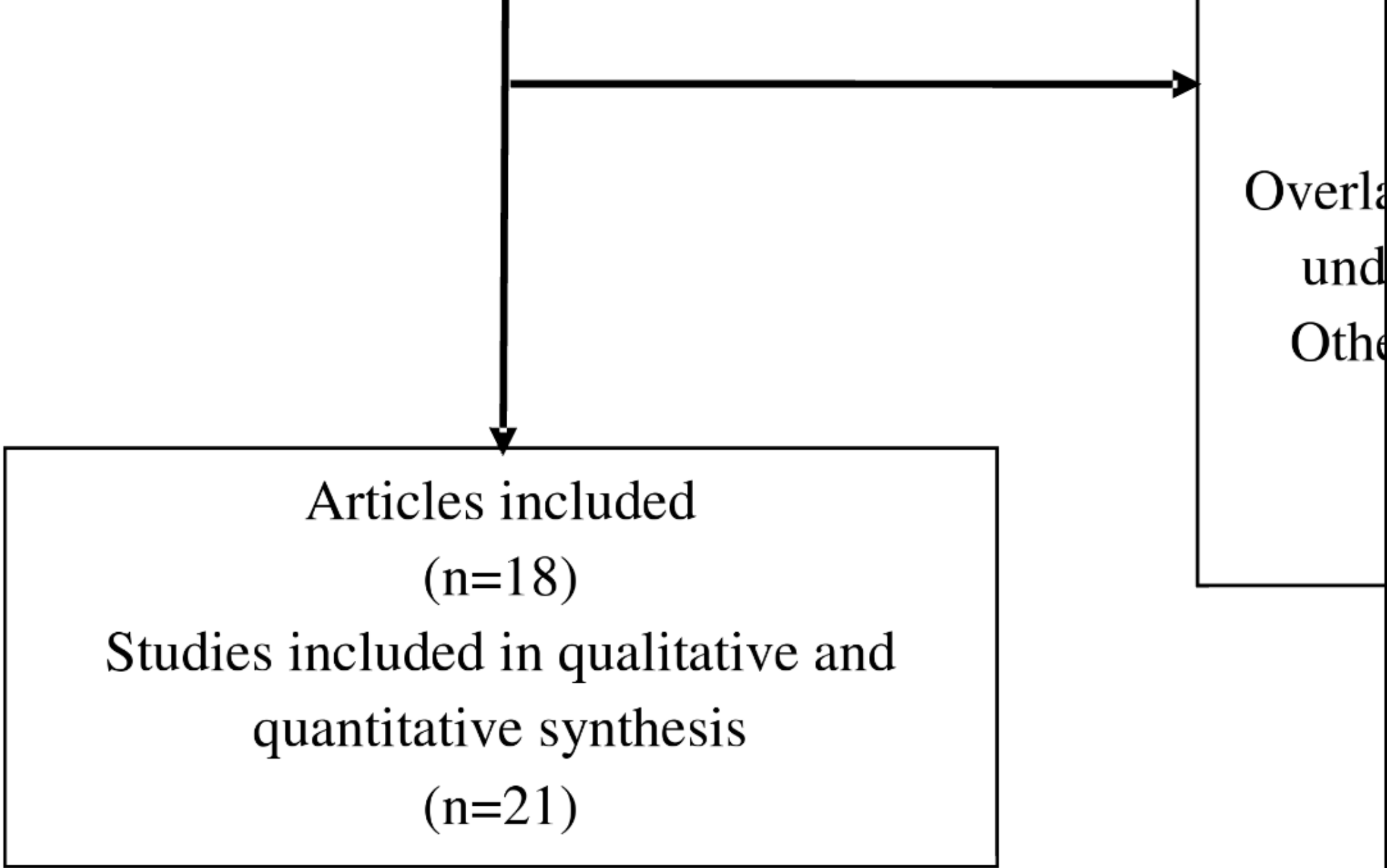


Full-text articles assessed for eligibility  
(n=166)



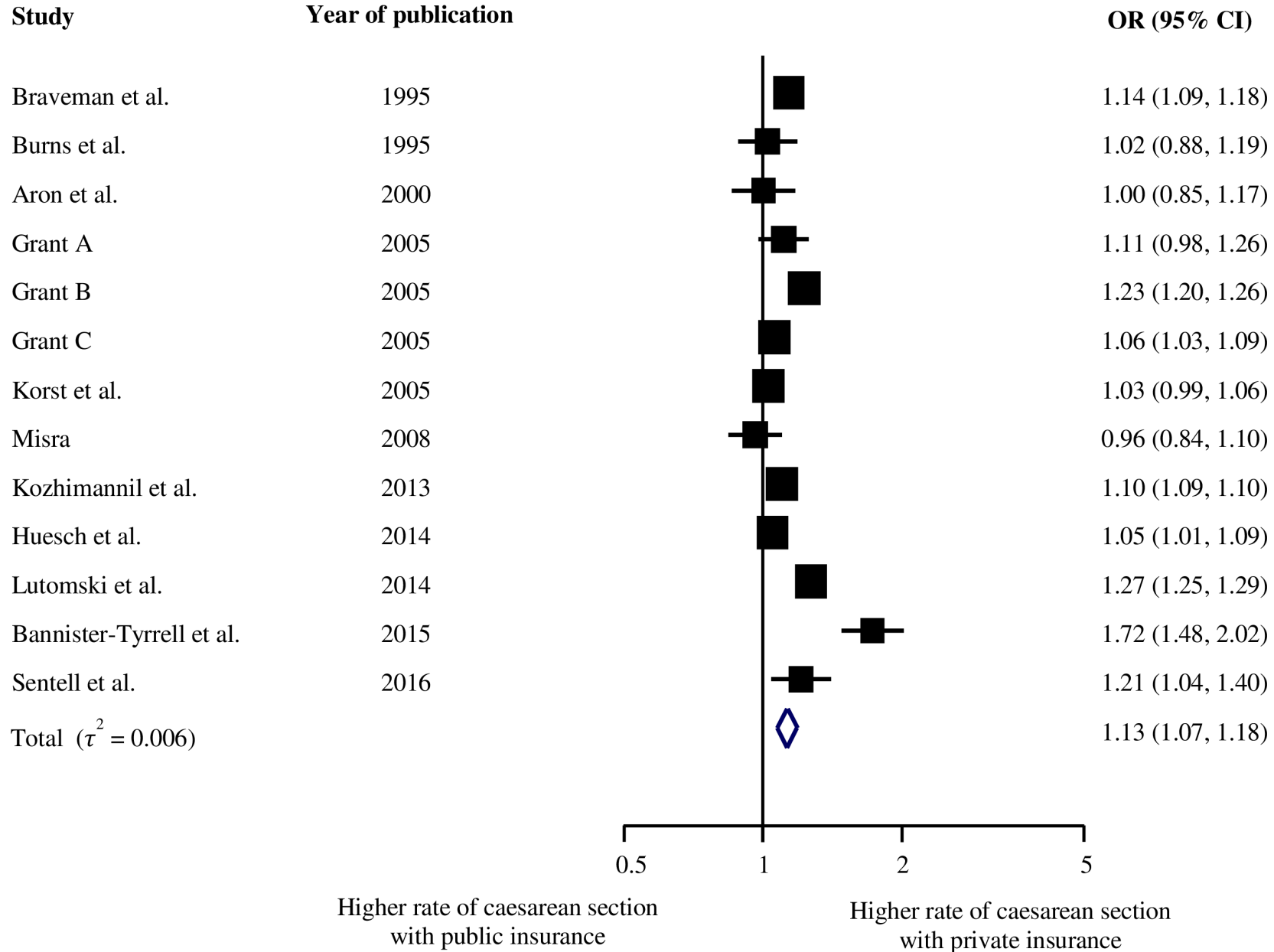
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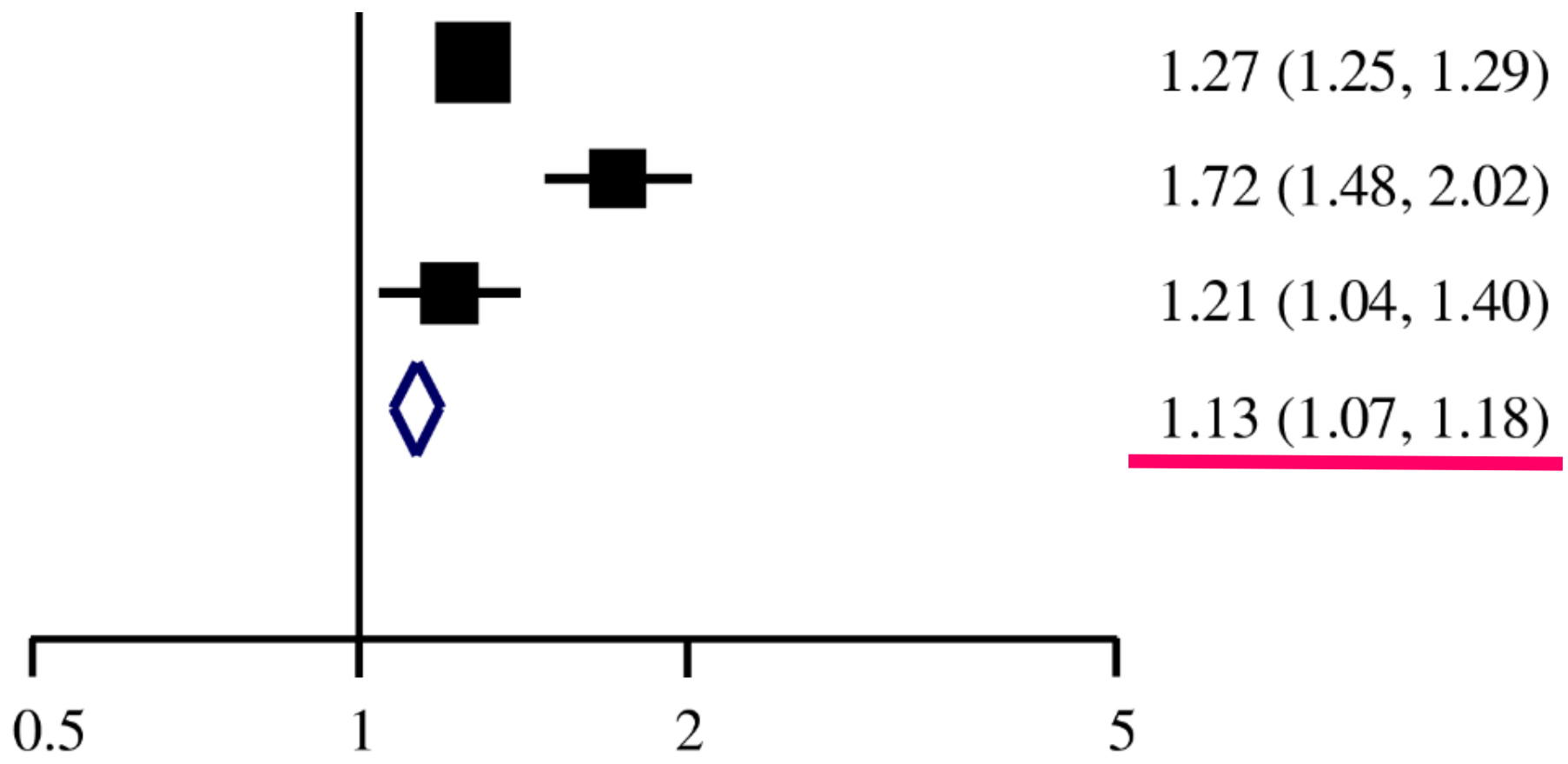
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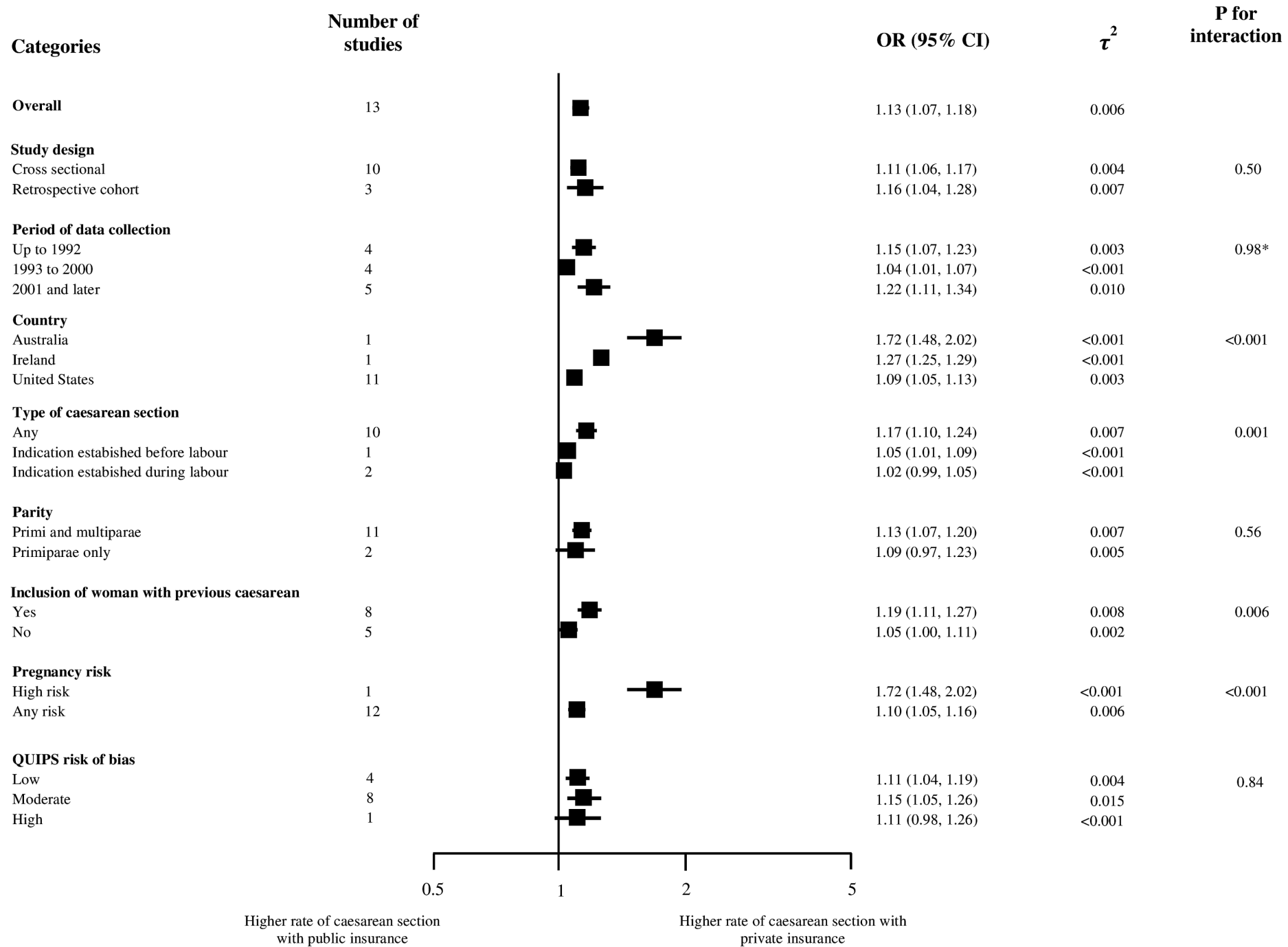
# Adjusted OR of caesarean section



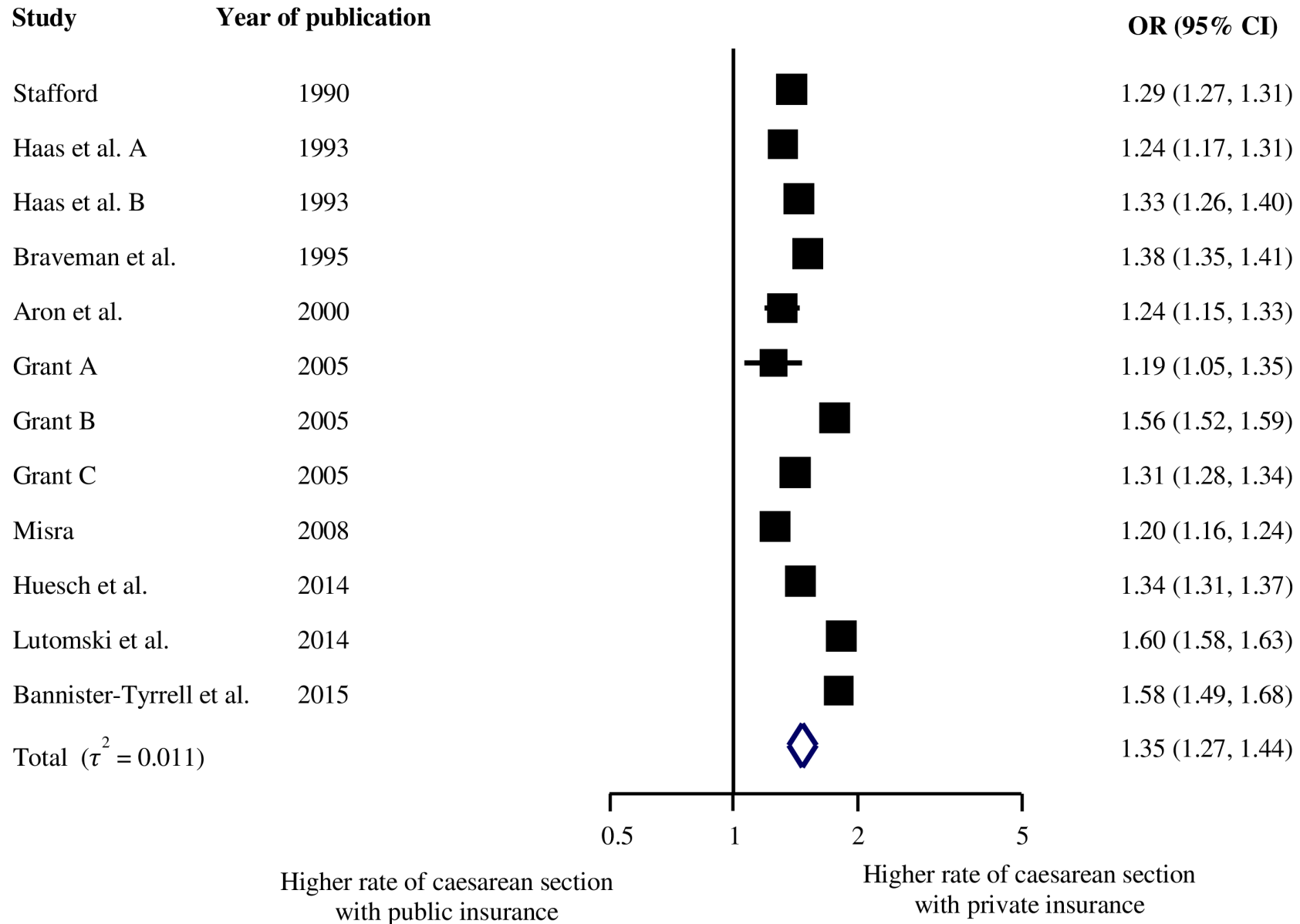


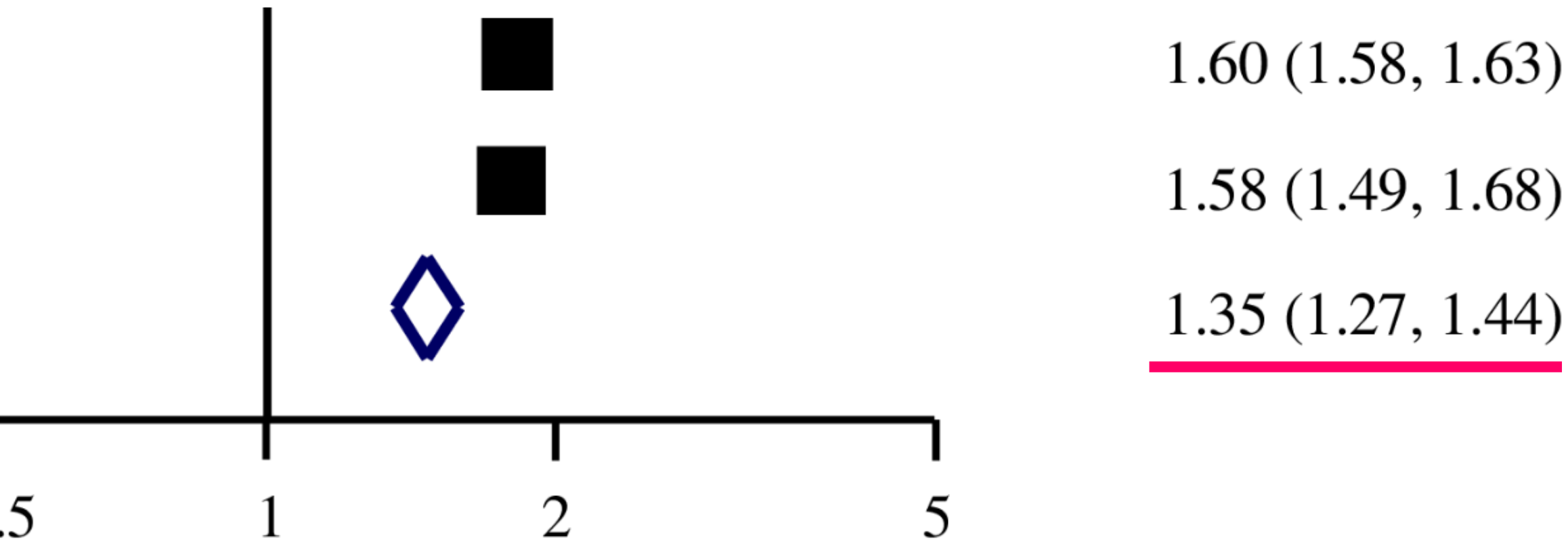
of caesarean section  
public insurance

Higher rate of caesarean section  
with private insurance



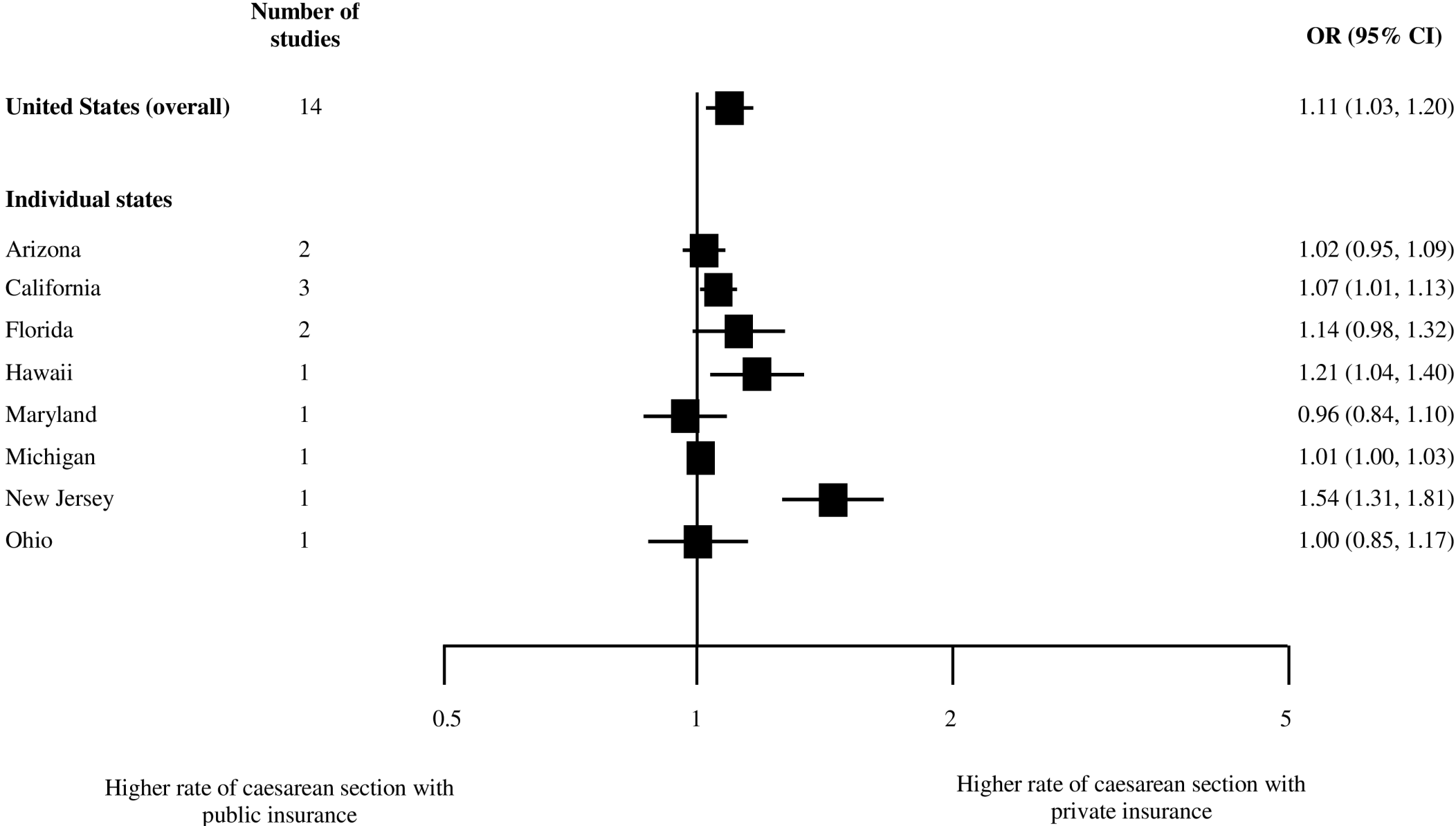
## Crude OR of caesarean section





Higher rate of caesarean section  
with private insurance

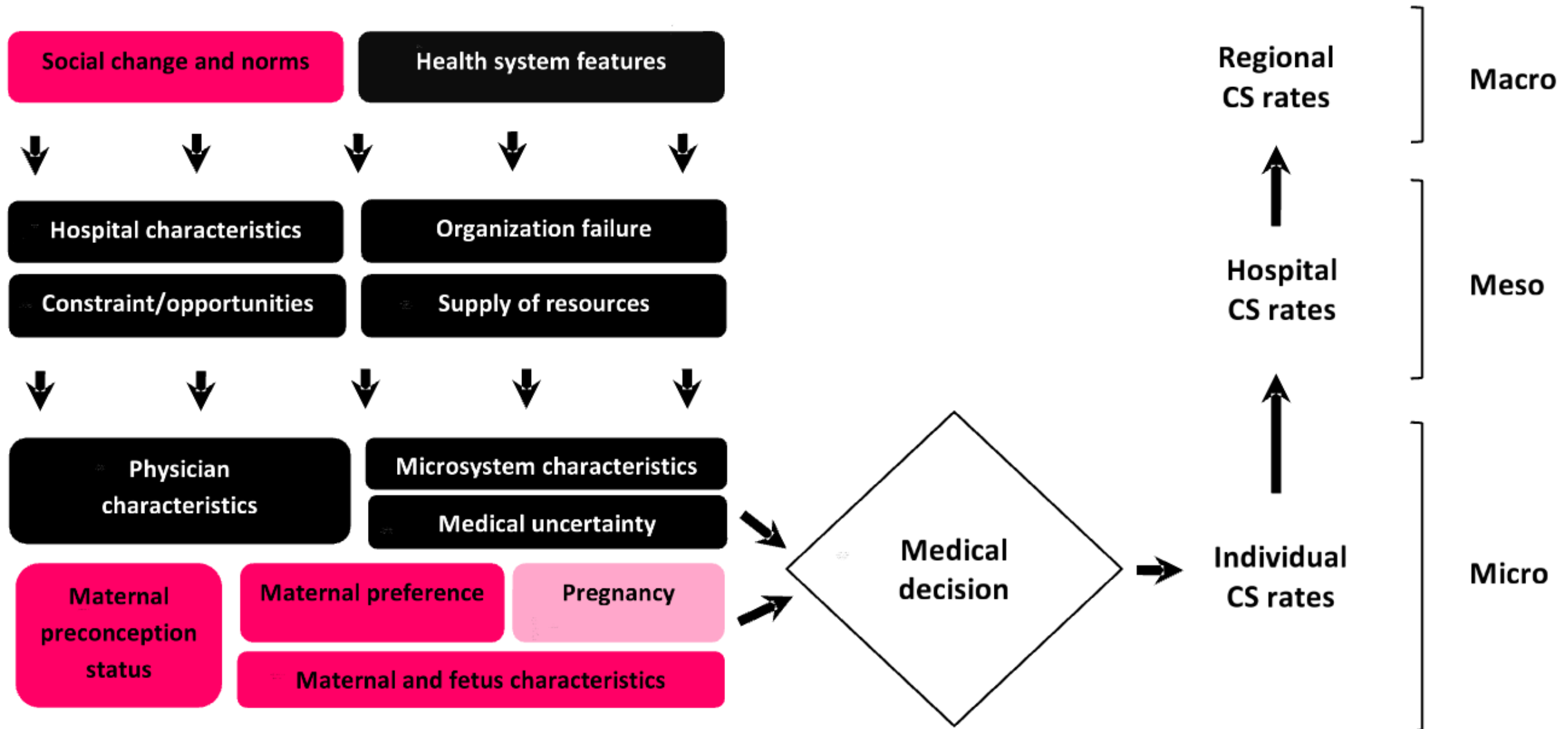
# Adjusted OR of caesarean section in the United States



## **Strengths and limitations of this study**

- Broad literature search, screening and data extraction performed in duplicate and an exploration of study characteristics as a potential source of variation between studies.
- Sensitivity analyses was performed involving studies that required exclusion in main analysis due to overlapping populations.
- Unadjusted estimates of associations were larger, which suggests the presence of confounding.

# Conceptual framework on determinants of **caesarean section** variation





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