



Non-legislative interventions for the promotion of cycle helmet wearing by children: update of a systematic review

Rachel Owen, Denise Kendrick, Tim Coleman, Caroline Mulvaney,
Simon Royal





Overview

- Background
- Objectives of Cochrane review
- Search Methods
- Results
- Conclusions
- Unanswered questions
- Implications for research and practice



● ● ● | Background

- Cycling accidents are common
- Helmets reduce bicycle-related head and facial injuries in all ages & types of crash
- Helmets are not compulsory
- Are helmet programmes evidence based?
- Children special group



Objectives of the review

- To:
 - assess effectiveness of non-legislative interventions in increasing bicycle helmet use among children
 - identify possible reasons for differences in effectiveness of interventions
 - identify adverse consequences



● ● ● | Methods – inclusion criteria

- **Studies** – RCTs, non-RCTs, CBAs
- **Participants** – aged 0 and 18 years.
- **Interventions** – cycle helmet promotion not requiring the enactment of legislation
- **Outcomes** – Observed helmet wearing, *self-reported helmet ownership, self-reported helmet wearing*



● ● ● | Methods – searches

- **Bibliographic databases** - Cochrane Injuries Group Trials Register; CENTRAL; DARE; MEDLINE; EMBASE; TRL; CINAHL; ERIC; PsycINFO; TRIS; BEI
- **Websites** – Helmet Resource Library; National Bicycle Safety Network; Bicycle Helmet Initiative Trust.
- **Hand searching** - Abstracts (1st – 9th World conferences), *Injury Prevention*, reference lists

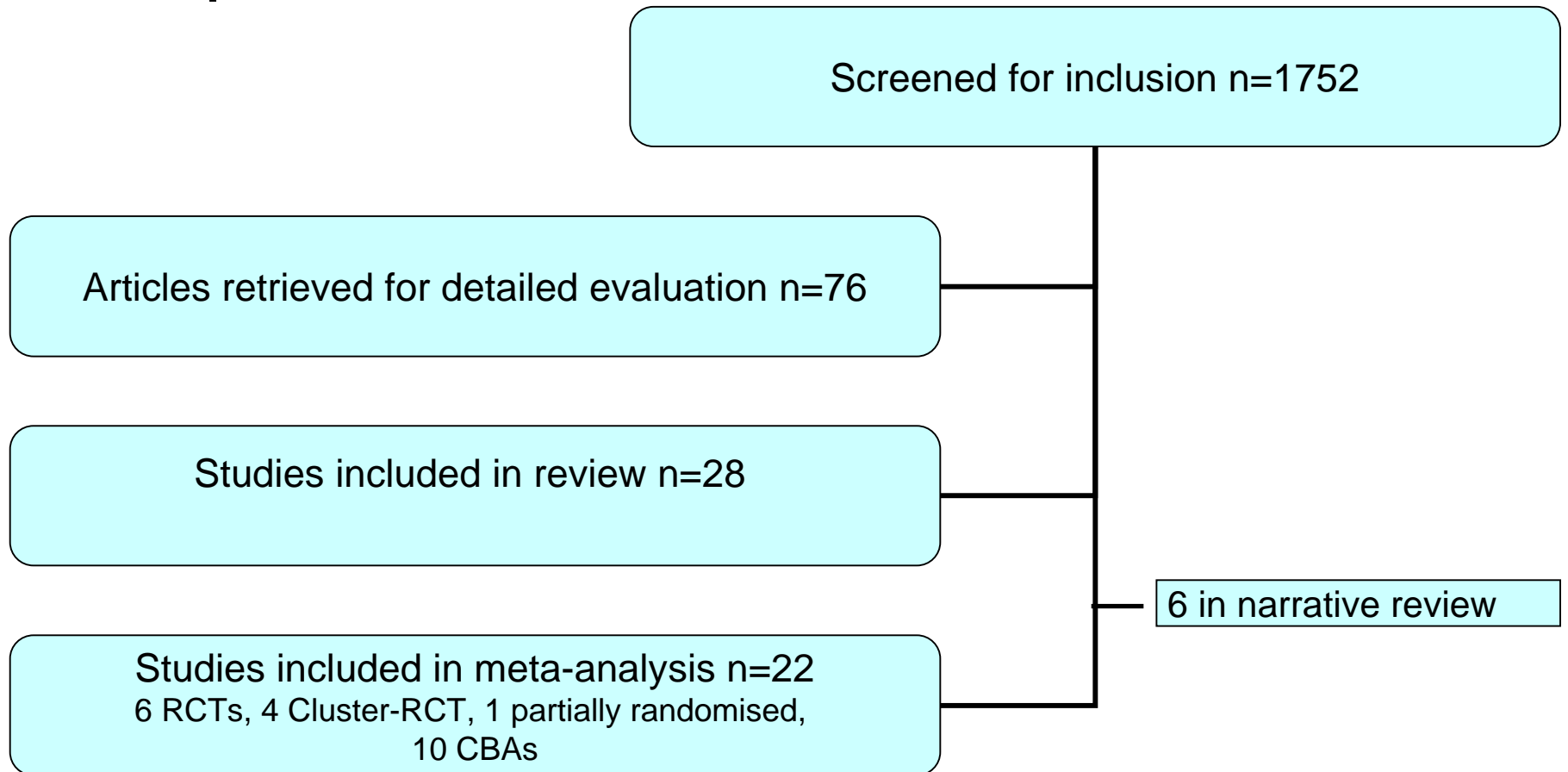


Methods – data management & analysis

- Two reviewers assessed inclusion criteria, reviewed articles, extracted data & assessed quality
- Random effects models, estimated OR (95% CIs)
- Clustering accounted for using an ICC of 0.02
- Heterogeneity explored using forest plots and χ^2 tests



Results





Included studies

Countries

17 (61%) USA
6 (21%) Canada
2 (7%) Australia & New Zealand
3 (11%) England

Participants

11 (39%) Primary age
8 (29%) Secondary age
9 (32%) Both

Settings

7 (25%) Health Care
18 (64%) School
3 (11%) Community

Interventions

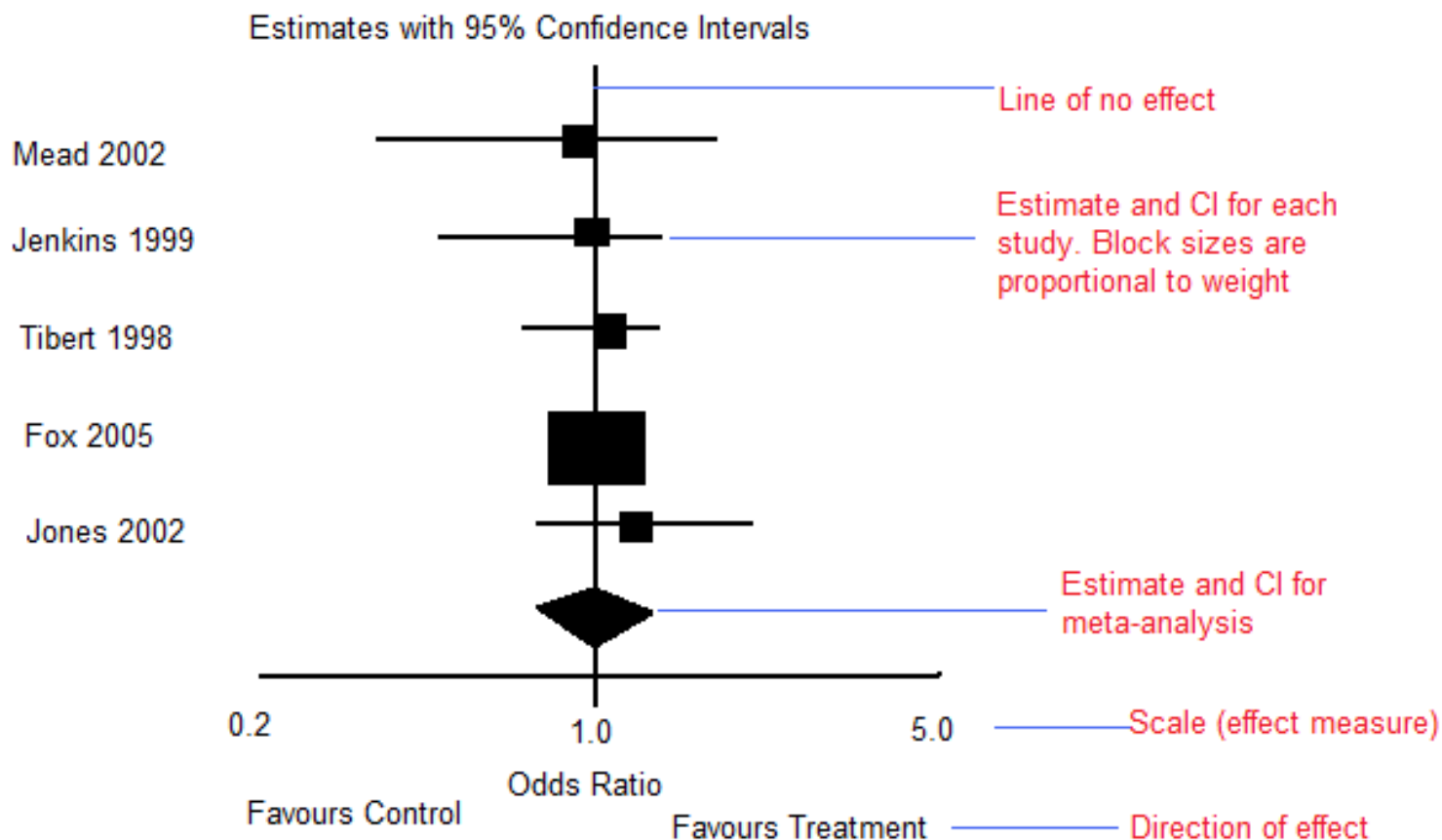
8 (29%) Free Helmets
12 (43%) Subsidised Helmets
2 (7%) Media
28 (100%) Education

Outcomes

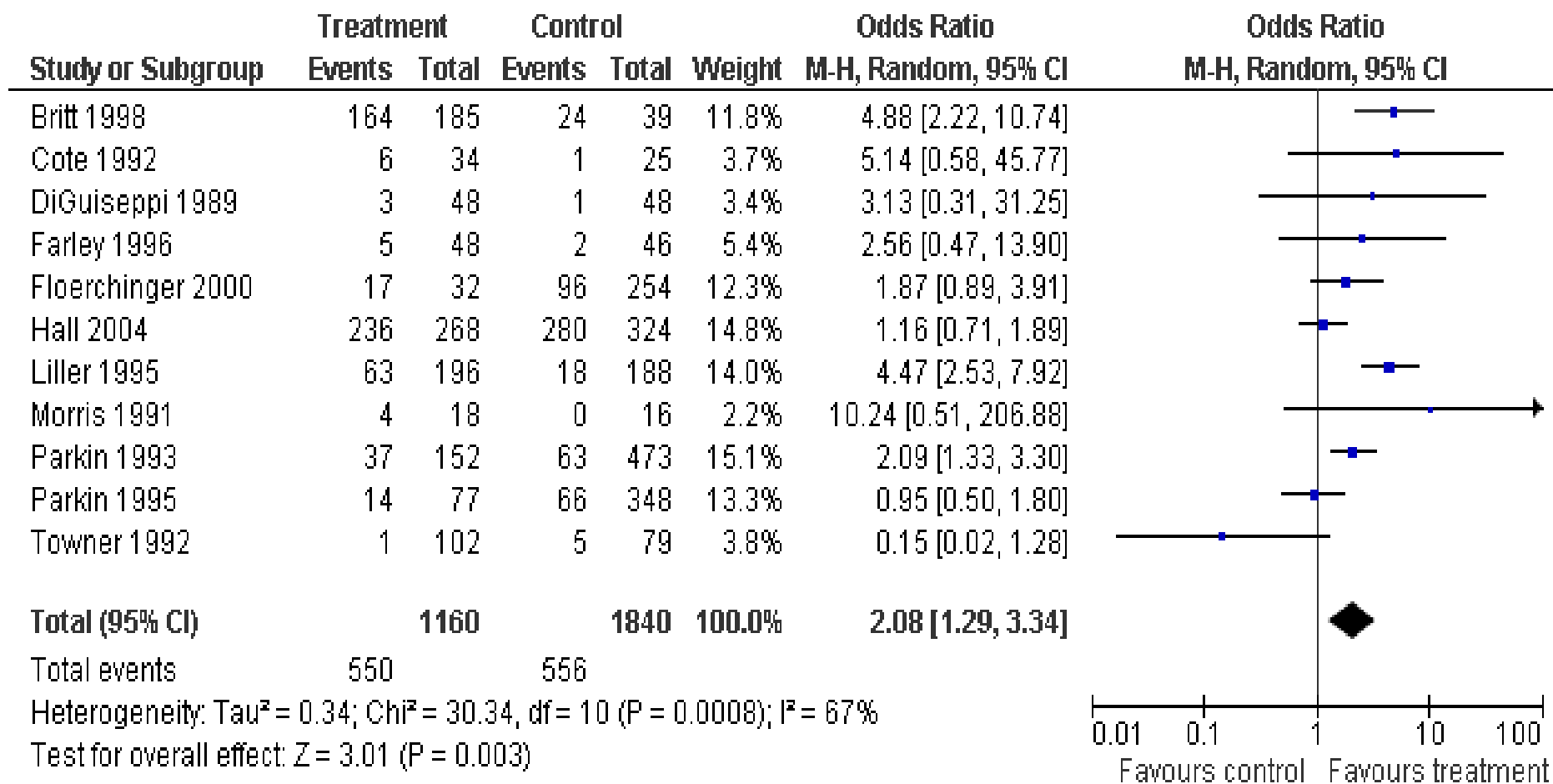
14 (50%) Observation
15 (54%) Self-reported wearing
12 (43%) Self-reported ownership



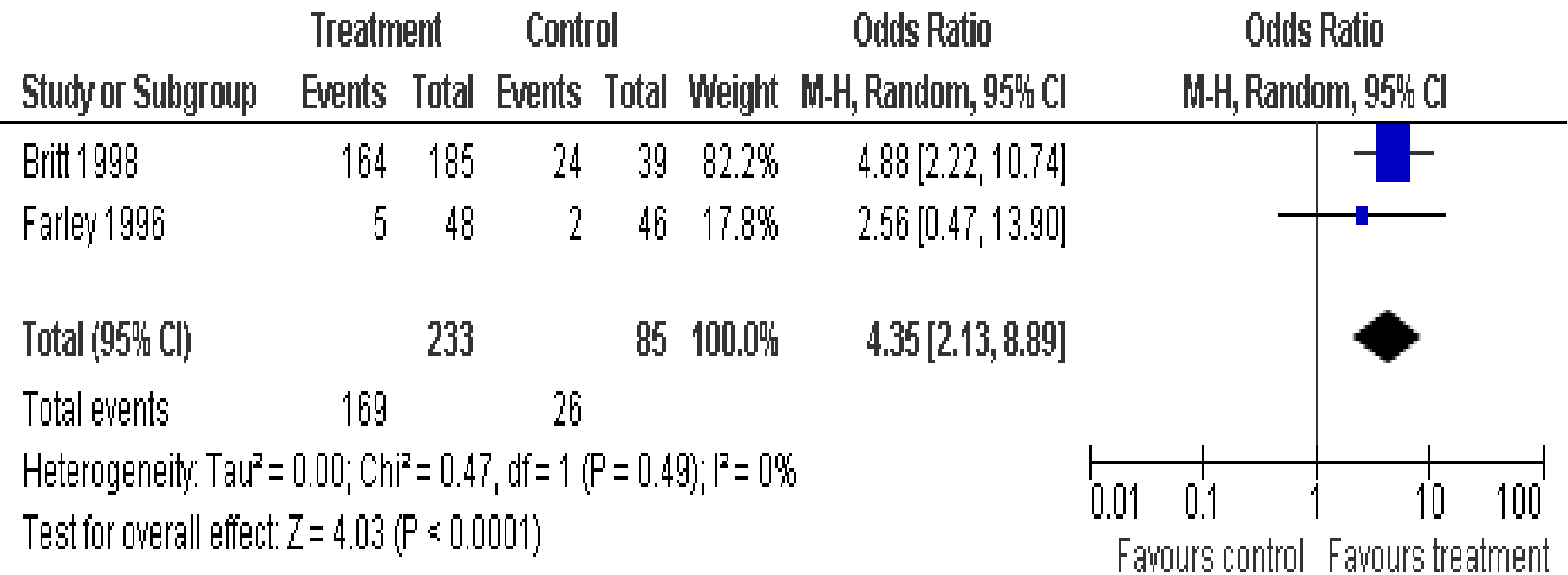
Forest Plots



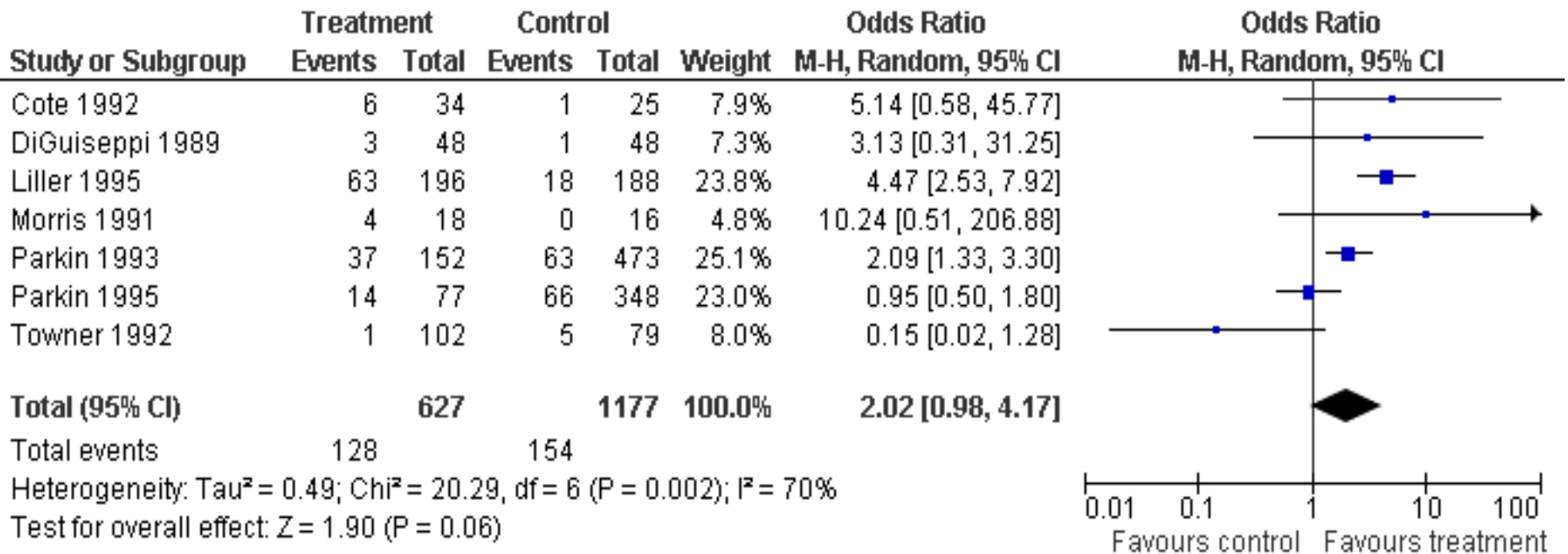
Observed helmet wearing – any intervention vs. no intervention



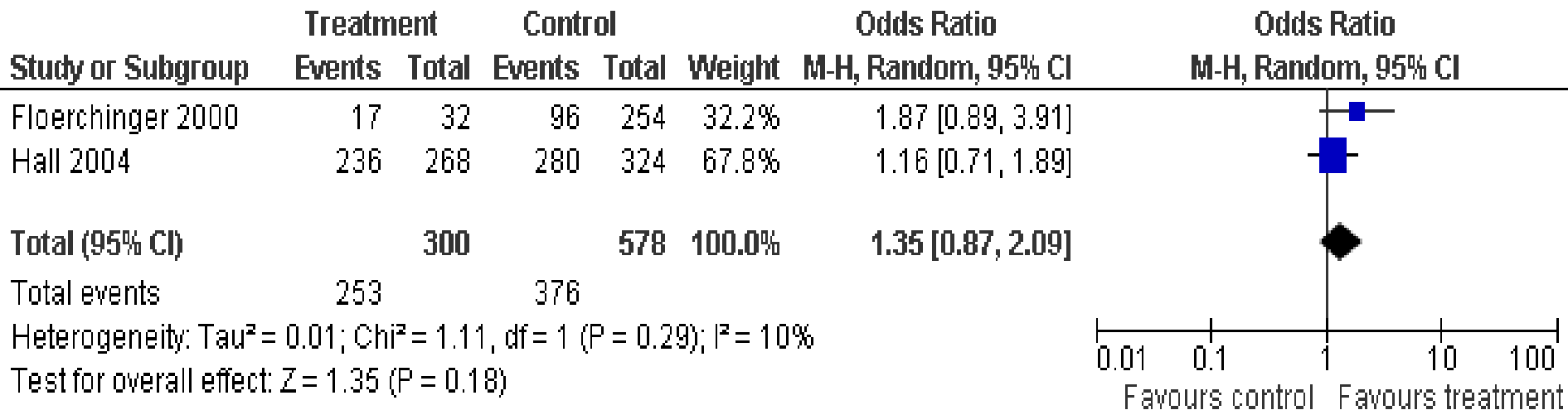
Observed helmet wearing – free helmet vs. no intervention



Observed helmet wearing - subsidised helmet vs. no intervention

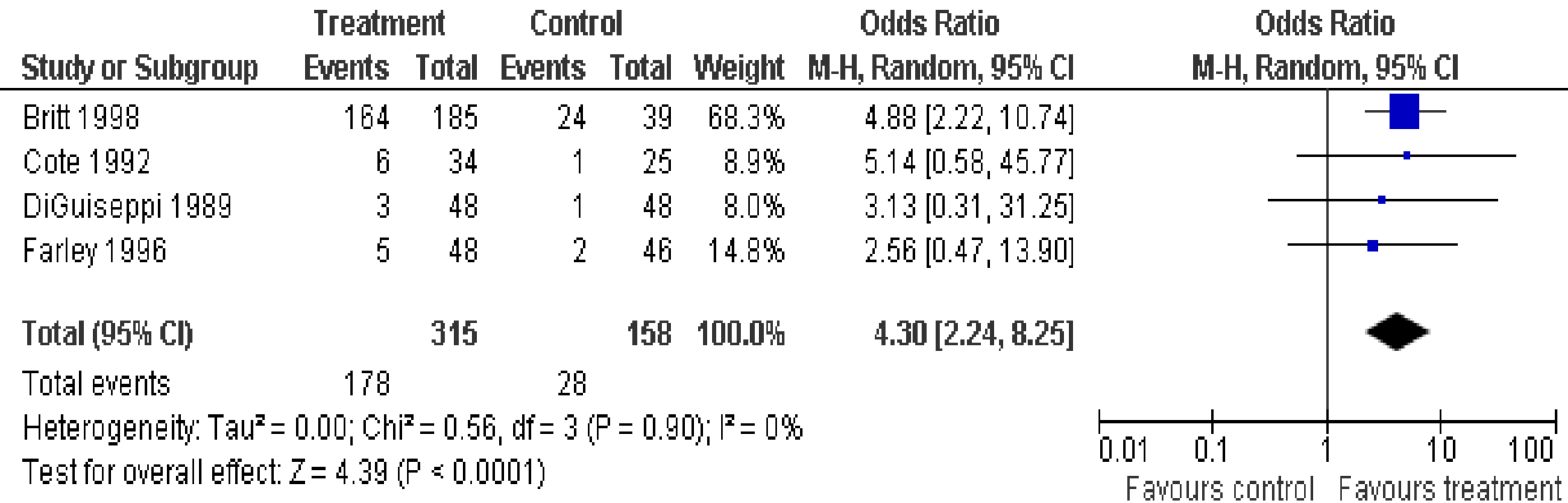


Observed helmet wearing – education vs. no intervention

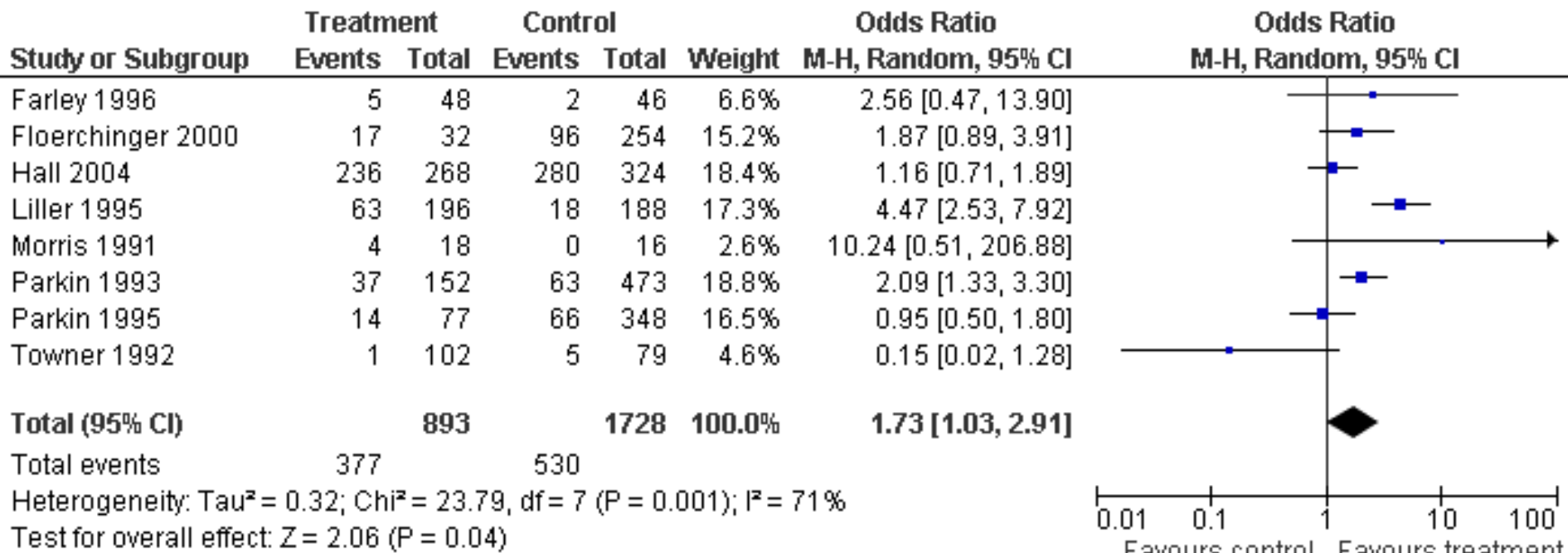


Community

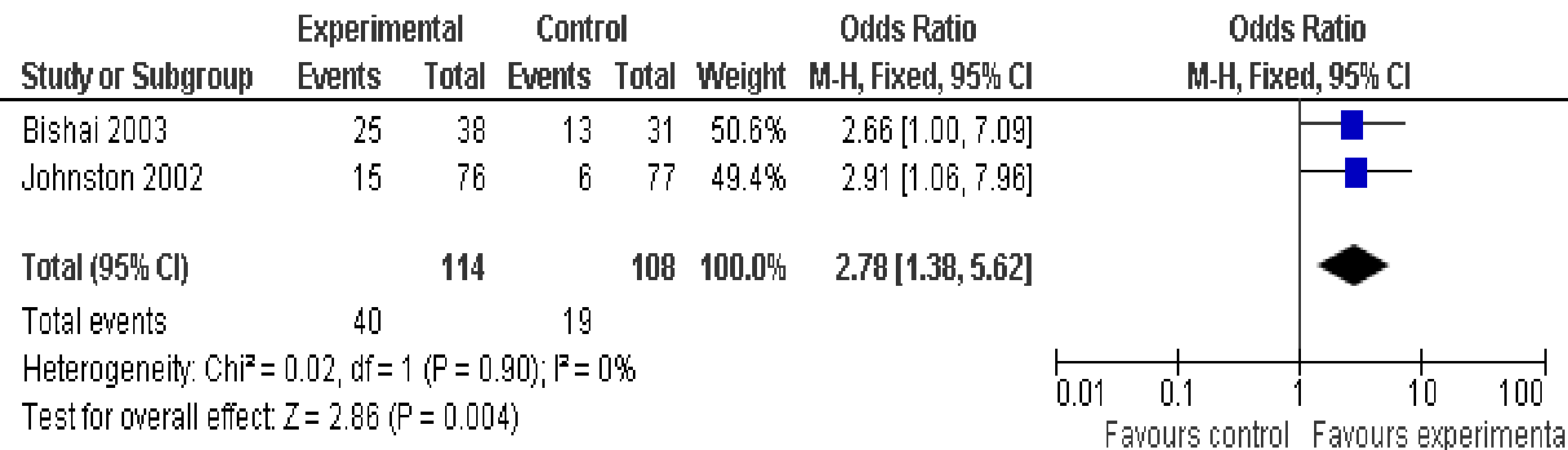
Based Studies - Observed Helmet Wearing



School Based Interventions - Observed Helmet Wearing



Self Reported Helmet Wearing- Health Care Setting





Conclusions

- Interventions increase observed helmet wearing
- The effect is statistically significant for free helmets, but not subsidised helmets or education only
- Interventions in community, schools and health settings all increase helmet wearing
- The effect size is larger for self reported compared to observed helmet wearing
- Significant heterogeneity between study results in most analyses
- No studies measured impact on cycling or adverse events



● ● ● | Important questions remain

- Is the heterogeneity explained by:
 - site of intervention
 - child age
 - person delivering intervention
- Do interventions improve correct helmet wearing?
- Do interventions discourage children from cycling?
- To legislate or not to legislate?



● ● ● | Implications for research & practice

○ Research:

- RCTs, especially subsidised helmets
- Explore importance of setting, child age, delivery of intervention
- Transferability to low or middle income countries
- Negative implications such as reducing the number of child cyclists

○ Practice:

- For schools, emergency departments to consider implementing interventions esp free helmets



Summary

- Cochrane review of non-legislative interventions for promotion of helmet use in children
- Interventions increase observed helmet wearing
- In all settings interventions are beneficial
- Many questions remain requiring further research



Any Questions?





Publication details:

Non-legislative interventions for the promotion of cycle helmet wearing by children

Cochrane review

Contact details:

rachel.owen@doctors.org.uk

