

# Oxygen therapy for acute MI :

## Student EBM presentations

Erika Lam and Luke Austen  
University of Oxford

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A team of paramedics have administered inhaled O<sub>2</sub> therapy in acute MI victims for their entire careers, but one of them heard from a colleague that it might actually do more harm than good. The team want to know if they're doing the right thing for their patients...

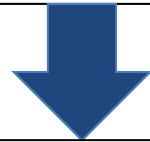
**Is inhaled O<sub>2</sub> therapy harmful for adult patients suffering acute MI?**

## The question

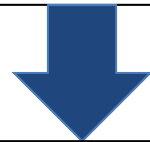
<b>P</b>	Adult patients with acute MI
<b>I</b>	Inhaled oxygen therapy
<b>C</b>	Normal air
<b>O</b>	All-cause mortality, Pain reduction

# The search

PubMed Clinical Queries search:  
systematic[sb] AND ((oxygen AND therapy) AND  
(acute AND myocardial AND infarction))



Restricted results to systematic reviews or meta  
analyses (39 results)



Hand-picked the most up-to-date  
Cochrane systematic review on this topic



# The search

## Oxygen therapy for acute myocardial infarction (Review)

Cabello JB, Burls A, Emparanza JI, Bayliss S, Quinn T



**THE COCHRANE  
COLLABORATION®**



# The study appraisal

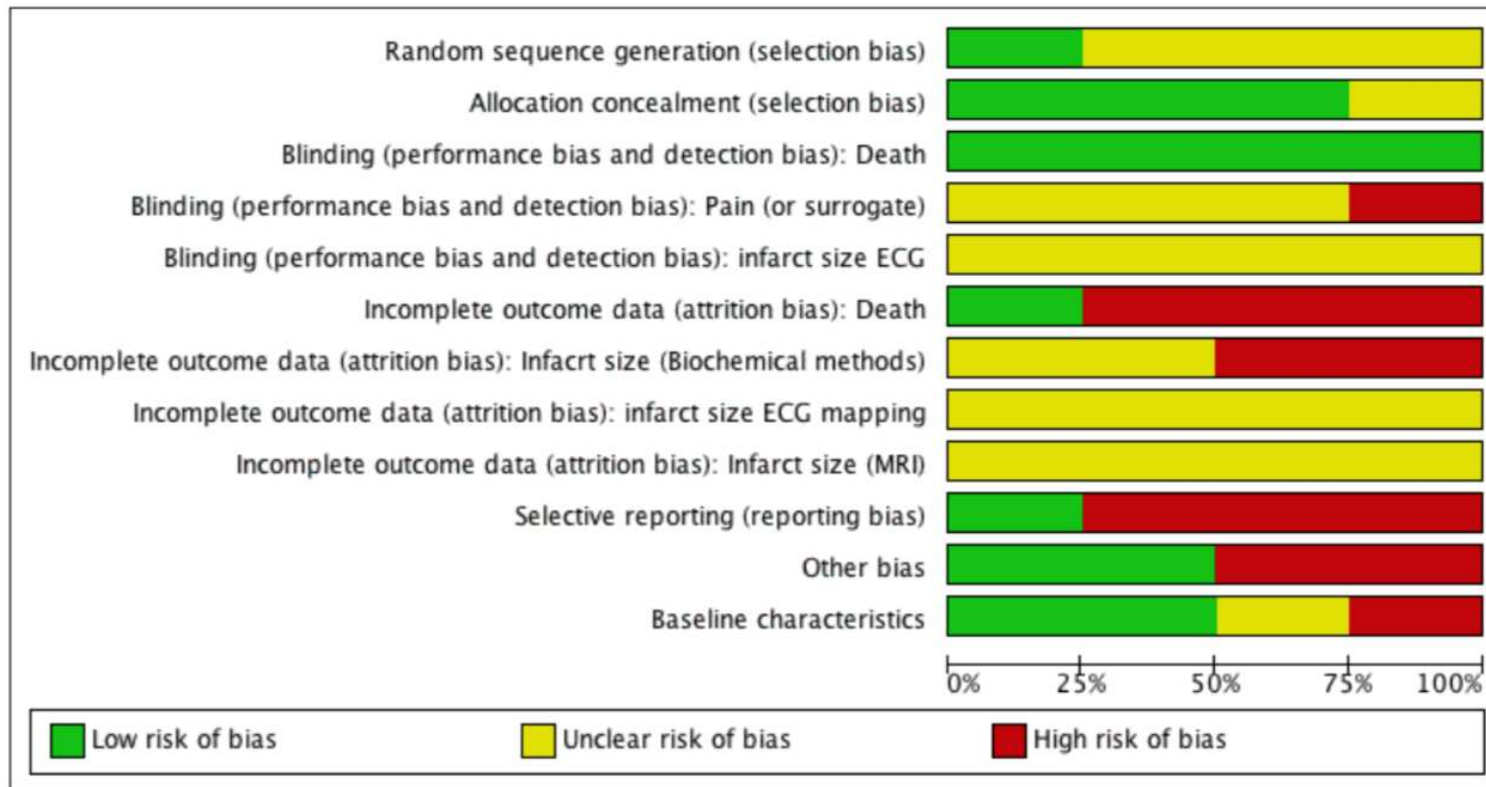
- **Likelihood of relevant and important studies being missed out by the systematic review?**
  - Unlikely – used major bibliographic databases, found alternative relevant studies and consulted experts on relevant literature
  - They did not restrict results to English language publications
  - But – the paper does not state the mesh search terms used, meaning it could be difficult to reproduce this work.
- **Selection criteria appropriate**
  - ? Inclusion of studies with co-therapies ?

# The study appraisal

- **Internal validity of the included studies**
  - Randomisation only described in 1 study
  - Where there was allocation, there were only sealed envelopes and the allocation details were unclear
  - Only one study blinded, and blinding was of questionable efficacy.
  - Study protocols were not available for any of the studies
  - Bias is high for individual studies – reperfusion intervention would be influenced by O<sub>2</sub> therapy, and one study didn't follow intention-to-treat principle, opening possibility of crossover bias.
- **Were the results similar from study to study?**
  - According to chi-squared test, the 4 studies considered showed moderate heterogeneity, with many conflicting results.

# The study appraisal

Figure 2. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



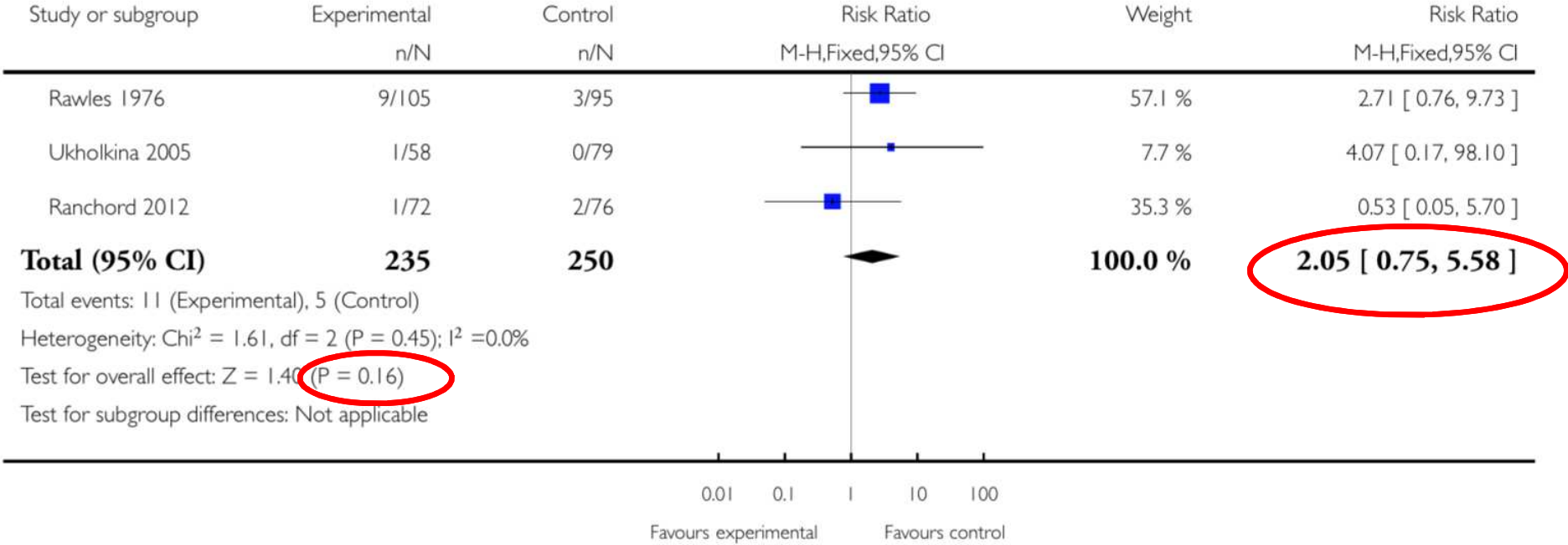
# The Results

**Analysis 1.3. Comparison 1 Oxygen versus air, Outcome 3 Death in hospital for all participants (including those who did not have an AMI).**

Review: Oxygen therapy for acute myocardial infarction

Comparison: 1 Oxygen versus air

Outcome: 3 Death in hospital for all participants (including those who did not have an AMI)





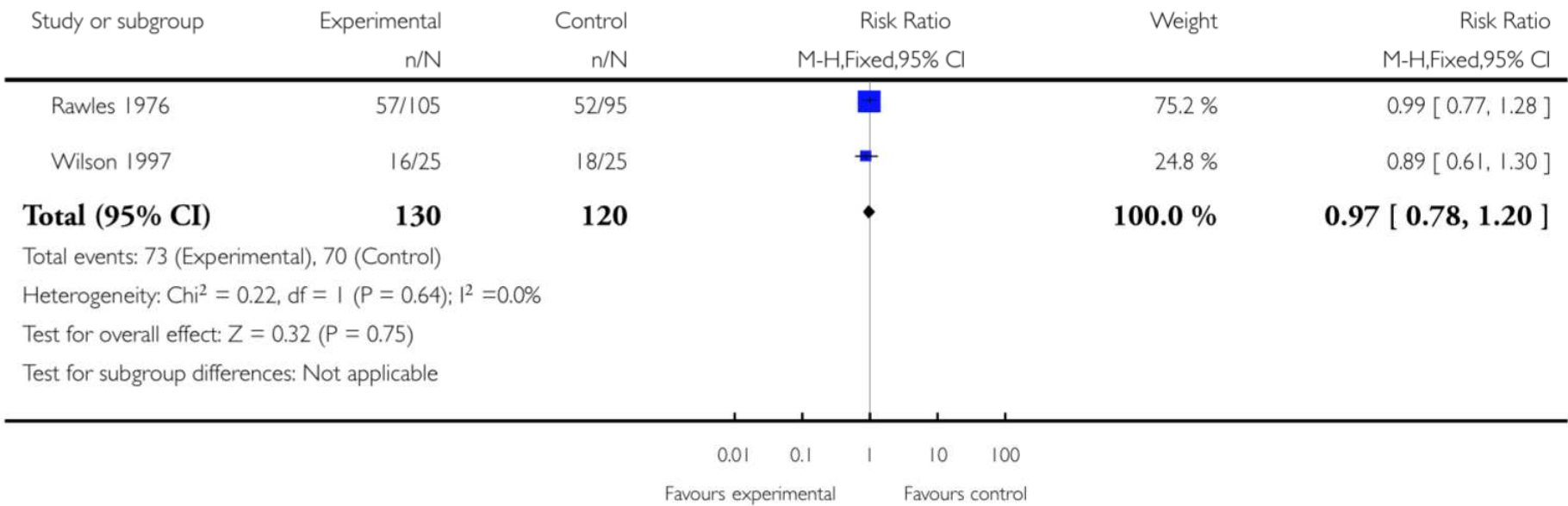
# The Results

**Analysis 1.7. Comparison 1 Oxygen versus air, Outcome 7 Opiate use (as a proxy measure for pain) for all participants on ITT (including those who did not have an AMI).**

Review: Oxygen therapy for acute myocardial infarction

Comparison: 1 Oxygen versus air

Outcome: 7 Opiate use (as a proxy measure for pain) for all participants on ITT (including those who did not have an AMI)



# The Implications

*So, should the paramedics change their procedures?*

- No, they should continue to follow the current guidelines. Available evidence against O<sub>2</sub> therapy in acute MI is not strong enough to justify a policy change, as the observed effect could be due to chance.
- However, the increased mortality in the treatment group provides a clear mandate for further, larger RCTs, in order to provide a definitive answer on this issue.