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Pre-hospital Outcomes for Evidence-Based Evaluation (PhOEBE) – A Systematic Review

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Policy background

- Limited evidence about effectiveness of pre-hospital care provided to 6m patients per year in England.
- Ambulance service performance traditionally measured by response times.
- Need to find better ways of measuring the impact and quality of care

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The PhOEBE programme

- Five-year study funded by the National Institute of Health Research (NIHR).

- Collaboration between Universities of Lincoln (CaHRU), Sheffield (ScHARR), & Swansea, East Midlands Ambulance Service (EMAS), Yorkshire Ambulance Service (YAS) & NHS Information Centre.

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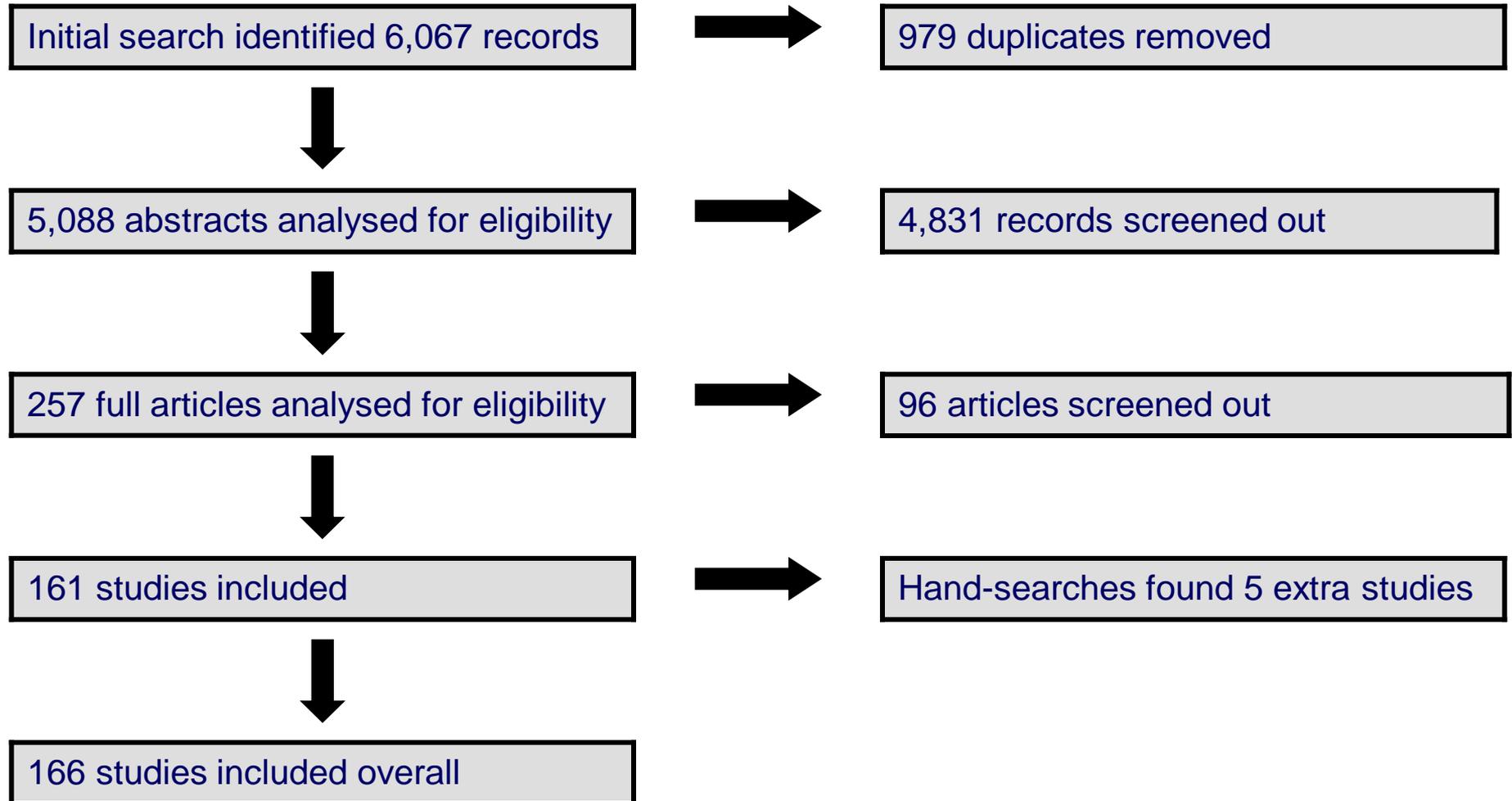LINCOLN

Aims & objectives

- To develop new ways of measuring ambulance care to support quality improvement through monitoring, audit and evaluation.
- Review & synthesise literature on pre-hospital care outcome measures.
- Use consensus methods and qualitative data to identify measures relevant to the NHS and patients that have potential for further development.
- Link routine pre-hospital, hospital and mortality data.
- Build risk-adjustment models that predict mortality and non-mortality outcomes using the linked routine data.
- Explore the practical use of the risk adjustment models to measure effectiveness and quality of ambulance service care.

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The systematic review

- One strand of the overall PhOEBE programme.

- Followed on from analysis of documents from the practitioners' perspective.

- Focus on pre-hospital care outcome measures.

- Search terms from Medline, Embase & Web of Science

- Data extraction tool

  – Enabled capture of broad range of outcomes.

  – Inclusion & exclusion criteria.

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Data extraction process

Initial search identified 6,067 records	→ 979 duplicates removed
↓	
5,088 abstracts analysed for eligibility	→ 4,831 records screened out
↓	
257 full articles analysed for eligibility	→ 96 articles screened out
↓	
161 studies included	→ Hand-searches found 5 extra studies
↓	
166 studies included overall	

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Results (1)

- Full data extractions on 141 of the 173 full-text articles so far; 410 outcomes.

- Seven categories of outcomes:

  – Time-related;

  – Survival-related;

  – Length of stay;

  – Outcome;

  – Errors & complications;

  – Service; and

  – Procedures / interventions.

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Results (2)

- 143 survival-related outcomes.

  – 27% survival to discharge.

  – 25% survival to other.

  – 13% survival until up to 30 days.

- 128 time-related outcomes

  – 66 generic; 62 condition-specific.

- Only 38 (9%) reported patient outcomes, e.g. satisfaction, quality of life, pain, etc.

Discussion

- Data extraction tool enabled us to capture a wide range of outcome measures and tools.
- Not condition-specific like other studies.
- Only 15-20% of pre-hospital population (first hour quintet) where fast response can significantly improve survival outcomes (Heightman and McCallion, 2011).
- For the 80-85% of pre-hospital patients with non-critical conditions, patient perspective and quality of life are more relevant than survival-related outcomes.

Future implications

- Different outcome measures needed for pre-hospital patients with critical and non-critical conditions.

- Nature of demand for pre-hospital care raises issues for future role of the ambulance service.

- While the identified outcome measures & tools are useful in research, they cannot readily be transferable to routine procedures.

Conclusion

- By identifying a wide range of outcome measures, the review will inform further research into the feasibility of using a wider range of outcome measures and developing new outcome measures in pre-hospital research and quality improvement.

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Thank you

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