

# Prehospital continuous positive airway pressure for acute respiratory failure: the ACUTE feasibility RCT

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**Declared competing interests of authors:** Steve Goodacre is Deputy Director of the National Institute for Health Research (NIHR) Health Technology Assessment (HTA) programme (2016–present), chairperson of the NIHR HTA Commissioning Board (2016–present) and a member of the NIHR HTA Funding Strategy Group (2016–present). Esther Herbert reports grants from NIHR during the conduct of the study, outside the submitted work. Gavin Perkins is a NIHR Senior Investigator and a member of the Programme Grants for Applied Research board (2016–present). Cindy Cooper is a member of the NIHR Clinical Trials Unit Standing Advisory Committee (2016–present) and of the UK Clinical Research Collaboration Registered Clinical Trials Unit Network Executive Group (2016–present).

**Disclaimer:** This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published February 2021

DOI: 10.3310/hta25070

## Plain English summary

### The ACUTE feasibility RCT

Health Technology Assessment 2021; Vol. 25: No. 7

DOI: 10.3310/hta25070

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## Plain English summary

**A**cute respiratory failure is a life-threatening medical emergency. It occurs when heart or lung disease suddenly develops, or deteriorates, and leads to the patient being unable to maintain oxygen levels in their blood. Continuous positive airway pressure is a potentially useful treatment that could be used by paramedics. It involves delivering oxygen under increased pressure through a tight-fitting face mask. However, it is uncertain whether or not it could work effectively in NHS ambulance services, or if it represents value for money.

The Ambulance continuous positive airway pressure (CPAP): Use, Treatment Effect and economics (ACUTE) trial investigated whether or not it is possible and worthwhile to undertake a full-scale study comparing continuous positive airway pressure with normal paramedic treatment. Paramedics identified adults with acute respiratory failure when attending 999 emergency calls. Half were randomly assigned to receive continuous positive airway pressure, whereas the other half were treated normally. Patients were then followed up to see what happened to them.

Fewer patients than expected were entered into the trial, but paramedics were able to provide treatment with continuous positive airway pressure, and most patients were successfully followed up. It therefore seems possible to do a full-scale trial. A cost-effectiveness model also showed that it is uncertain whether or not continuous positive airway pressure represents value for money for the NHS, so further research might be worthwhile, if continuous positive airway pressure is thought to be effective.

However, examination of patients recruited to the trial uncovered important doubts about whether or not continuous positive airway pressure would help them. One-quarter of patients were not able to tolerate the tight continuous positive airway pressure mask. Some of the patients had conditions that are not usually treated by continuous positive airway pressure, or had severe underlying disease that could not be helped by this treatment. Others had collapsed lungs that could have been made worse by continuous positive airway pressure. This means that, although a full-scale trial may be possible, it is difficult to see how continuous positive airway pressure could save enough lives to make a trial worthwhile.



ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.370

*Health Technology Assessment* is indexed in MEDLINE, CINAHL, EMBASE, the Cochrane Library and Clarivate Analytics Science Citation Index.

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## This report

The research reported in this issue of the journal was funded by the HTA programme as project number 15/08/40. The contractual start date was in July 2016. The draft report began editorial review in April 2019 and was accepted for publication in October 2019. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care.

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