

# One hundred percent oxygen versus titrated oxygen following the return of a heartbeat after out of hospital cardiac arrest: a feasibility study

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<b>Registration date</b> 24/11/2016	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 29/01/2019	<b>Condition category</b> Circulatory System	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

A cardiac arrest occurs when the heartbeat and breathing stop suddenly. It is one of the most extreme medical emergencies. Health outcomes are poor; less than 1 in 10 patients survive to be discharged from hospital. This study will be focusing on the stage when a patient regains a return of spontaneous circulation (ROSC), this is when the heart has started beating again after CPR by the ambulance service. Even when successfully resuscitated and admitted to the intensive care unit (ICU), only about 30% of patients survive to leave hospital. Changing the use of oxygen following the return of a heartbeat after cardiac arrest has the potential to increase survival. Previously, the maximum possible amount of oxygen has been given to patients after cardiac arrest, but it is possible that using less oxygen would improve the survival rate. Expert opinion is divided, and there is currently no research about how much oxygen should be given to patients immediately after a cardiac arrest. Traditionally, patients who have suffered cardiac arrest have been given unrestricted, 100% oxygen however some research suggests that varying the oxygen level given according to the patient's measured oxygen levels may be more effective. The aim of this study is to conduct a small study looking at the use of these two methods in order to find out if it is possible to recruit participants to a larger study.

### Who can participate?

Paramedics employed full-time by South Western Ambulance Service NHS Foundation Trust (SWAST) on front-line operational duties, and who are based in Bristol or Bath and patients who have had a cardiac arrest.

### What does the study involve?

Paramedics who consent to take part in the study are randomly allocated to one of the two groups. Those in the first group are asked to administer 100 percent oxygen to patients. Those in the second group are asked to administer a variable level of oxygen according to the patient's measured oxygen levels. In both groups this is maintained for one hour following the achievement of sustained ROSC. Where applicable it is continued by doctors in the Emergency

Department. Patients that survive and agree to active follow up are asked to complete questionnaires on their health related quality of life and cognitive function (mental processing) at hospital discharge and 90 days after their cardiac arrest. At the end of the study the costs of each treatment are also compared.

What are the possible benefits and risks of participating?

Paramedics will benefit from additional training in resuscitation and evidence based practice during the study. It is generally recognised that patients enrolled in research studies tend to have better outcomes than those not enrolled. It is possible that one study arm will prove to be superior to the other, but this is currently unknown. There are no notable risks involved with participating.

Where is the study run from?

1. South Western Ambulance Service NHS Foundation Trust (UK)
2. Bristol Royal Infirmary (UK)
3. Royal United Hospital Bath (UK)
4. Southmead Hospital (UK)

When is the study starting and how long is it expected to run for?  
September 2014 to October 2015

Who is funding the study?

National Institute for Health Research (UK)

Who is the main contact?

Dr Sarah Voss

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## Contact information

### Type(s)

Scientific

### Contact name

Dr Sarah Voss

### ORCID ID

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# Additional identifiers

## Protocol serial number

17764

# Study information

## Scientific Title

Cluster randomised comparison of the effectiveness of 100% oxygen versus titrated oxygen in patients with a sustained return of spontaneous circulation following out of hospital cardiac arrest: a feasibility study

## Acronym

CAIRO WPC: PROXY

## Study objectives

The aim of this study is to determine the feasibility of completing a cluster-randomised clinical trial to determine if titrated oxygen therapy (target SpO<sub>2</sub> 94-98%) for one hour after return of spontaneous circulation (ROSC) improves outcome (including survival and quality of life at hospital discharge and 90 days following out of hospital cardiac arrest) compared with the use of 100% oxygen in out of hospital cardiac arrest (OHCA).

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

NRES Committee South Central - Oxford C, 23/12/2014, ref: 14/SC/1269

## Study design

Randomised; Interventional; Design type: Treatment, Other

## Primary study design

Interventional

## Study type(s)

Treatment

## Health condition(s) or problem(s) studied

Specialty: Injuries and emergencies, Primary sub-specialty: Injuries and emergencies

## Interventions

Paramedics employed full-time by South Western Ambulance Service NHS Foundation Trust (SWAST) on front-line operational duties, and who are based in Bristol or Bath, will be invited to participate in the study through a process of informed consent. All out of hospital cardiac arrest patients attended by a PROXY paramedic are automatically enrolled in the study. Paramedics who consent to take part in the study will be randomly allocated, to one of the two study arms.

Arm 1: Paramedics will be asked to administer either 100 percent oxygen in patients with a sustained (greater than 2 minutes) ROSC following OHCA.

Arm 2: Paramedics will be asked to administer a variable level of oxygen according to the patient's measured oxygen levels, in patients with a sustained (greater than 2 minutes) ROSC following OHCA.

The intervention will be maintained for one hour following the achievement of sustained ROSC. Where applicable the intervention will be continued by doctors in the Emergency Department. Patients that survive and agree to active follow up will be asked to complete questionnaires on their health related quality of life and cognitive function at hospital discharge and 90 days after their OHCA. At the end of the study we will compare treatment costs.

### **Intervention Type**

Other

### **Primary outcome(s)**

Recruitment rate is measured as the proportion of eligible paramedics attending training and consenting to take part at the end of the recruitment period.

### **Key secondary outcome(s)**

1. Proportion of surviving participants providing quality of life data at discharge and 90 days is measured by the number of patients completing the modified Rankin Scale, EuroQol EQ-5D-5L and the SF-36 instruments at discharge and 90 days following OHCA
2. Survival to discharge and 90-days is measured by reviewing patient notes at hospital discharge and 90 days following OHCA

### **Completion date**

31/10/2015

## **Eligibility**

### **Key inclusion criteria**

1. Sustained a cardiac arrest in the pre-hospital setting believed to be of a non-traumatic cause. Cardiac arrest will be defined according to the Utstein Definition as "the cessation of cardiac mechanical activity as confirmed by the absence of signs of circulation. If an EMS provider or physician did not witness the cardiac arrest, he/she may be uncertain as to whether a cardiac arrest actually occurred." For the purposes of this study, patients will be eligible for inclusion if they are attended by ambulance staff and are believed by those staff to have suffered a cardiac arrest.
2. ROSC (indicated by signs of circulation: usually a palpable central or peripheral pulse) for greater than 2 minutes (sustained ROSC) has been achieved
3. Attended by a paramedic participating in the trial
4. Known, or believed to be, 18 years of age, or older

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Less than 18 years old
2. Cardiac arrest believed to have been caused by trauma (including hanging and drowning)
3. Entered into the study previously
4. Detained by Her Majesty's Prison Service

**Date of first enrolment**

13/01/2015

**Date of final enrolment**

12/07/2015

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre**

**South Western Ambulance Service NHS Foundation Trust**

Abbey Court

Eagle Way

Exeter

United Kingdom

EX2 7HY

**Study participating centre**

**Bristol Royal Infirmary**

Upper Maudlin Street

Bristol

United Kingdom

BS2 8HW

**Study participating centre**

**Royal United Hospital Bath**

Combe Park

Avon  
United Kingdom  
BA1 3NG

**Study participating centre**  
**Southmead Hospital**  
Dorian Way  
Westbury-on-Trym  
Bristol  
United Kingdom  
BS10 5NB

## Sponsor information

**Organisation**  
University Hospitals Bristol NHS Foundation Trust

**ROR**  
<https://ror.org/04nm1cv11>

## Funder(s)

**Funder type**  
Government

**Funder Name**  
National Institute for Health Research

**Alternative Name(s)**  
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

**Funding Body Type**  
Government organisation

**Funding Body Subtype**  
National government

**Location**  
United Kingdom

# Results and Publications

## Individual participant data (IPD) sharing plan

The current data sharing plans for the current study are unknown and will be made available at a later date.

## IPD sharing plan summary

Data sharing statement to be made available at a later date

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	25/01/2019		Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No