PARAMEDIC2

The Adrenaline Trial

WARWICK
MEDICAL SCHOOL

NHS
National Institute for Health Research

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30,000

people are treated for cardiac arrest in the community each year in the UK

For every minute that passes without treatment, the chances of survival decrease by 10%

Less than 1 in 10 (10%) patients survive to go home from hospital after a cardiac arrest. This number is even lower for patients where initial treatments do not work.

In a community survey, 95% of survey respondents thought that long-term survival with good brain function was more important than just short-term survival (hours or days).

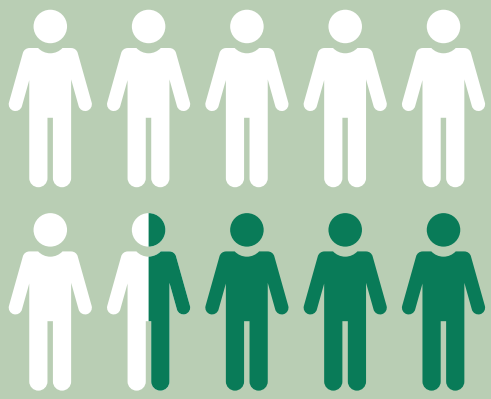
Where initial treatments do not work, adrenaline is sometimes given as a treatment. Adrenaline has been used for over 50 years, but it has never been properly tested to see whether it is beneficial or harmful.

PARAMEDIC2 is the first large scale study to examine whether adrenaline is helpful or harmful as a treatment for cardiac arrest.

The study population

8,016

adult patients treated by NHS paramedics for out of hospital cardiac arrest



65% male

6 out of **10**

people received CPR from bystanders or family members before the ambulance arrived

Average age

69

(years)

75%

had a cardiac arrest at home

1%

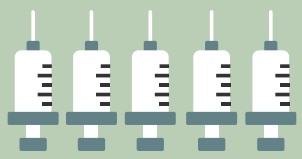
had a cardiac arrest in the workplace

20%

had a cardiac arrest in a public place

4%

had a cardiac arrest in another location

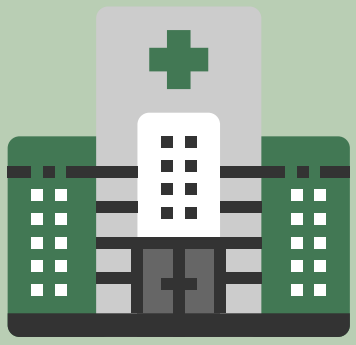


On average, **5** doses of adrenaline were given

Overall

41%

were taken to hospital for further treatment



Overall

2.7%

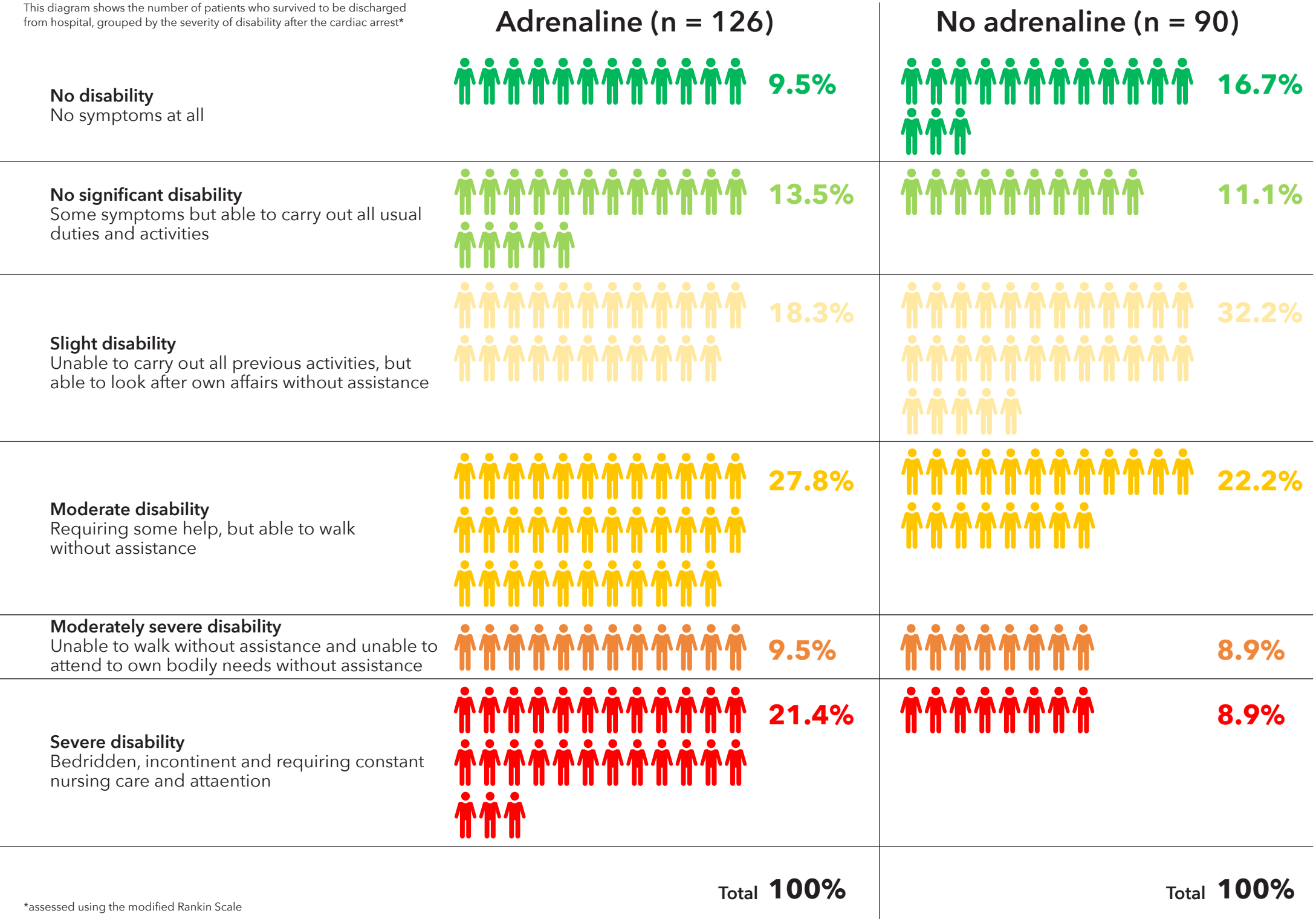
survived to be discharged from hospital

Key findings

Adrenaline can restart the heart but it's no good for the brain

Adrenaline (Epinephrine) 1-10mg N = 4,012		Placebo N = 3,995
3.2% (n = 130/4012)	Survival to 30 days post cardiac arrest favouring adrenaline	**2.4%** (n = 94/3995)
2.2% (n = 87/4007)	No difference in survival to discharge with favourable neurological outcomes	**1.9%** (n = 74/3994)
31.0% (n= 39/126)	Among survivors, those given adrenaline were twice as likely to have severe neurological impairment at discharge (mRS score of 4 or 5)	**17.8%** (n = 16/90)

This diagram shows the number of patients who survived to be discharged from hospital, grouped by the severity of disability after the cardiac arrest*



*assessed using the modified Rankin Scale

Which treatments are the most effective?

The image here compares the effectiveness of adrenaline against other evidence-based treatments for cardiac arrest.

Early recognition of cardiac arrest and call for help is
10 TIMES MORE EFFECTIVE

Cardiopulmonary resuscitation (CPR) is
8 TIMES MORE EFFECTIVE

Defibrillation (electric shock) is
20 TIMES MORE EFFECTIVE

Adrenaline
REFERENCE

Learn how to do CPR

www.life-saver.org.uk
www.bhf.org.uk/how-you-can-help/how-to-save-a-life/how-to-do-cpr

Will adrenaline continue to be used?

The Resuscitation Council (UK) and International Liaison Committee on Resuscitation (ILCOR) produce clinical guidelines which help paramedics decide how to treat patients.

The study provides definitive evidence about the effects of adrenaline in out of hospital cardiac arrest. The results will need to be evaluated by these organisations in the context of all available evidence and the values and preferences of patients and the wider community.

Clinicians and the public should continue to prioritise evidence based treatments – high quality CPR and prompt defibrillation.

The full results of the trial are available in the *New England Journal of Medicine* "A Randomised Trial of Epinephrine in Out-of-Hospital Cardiac Arrest"
www.nejm.org

We would like to thank paramedics, research and hospital teams and our patient and public partners for their help and support throughout the trial.

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