

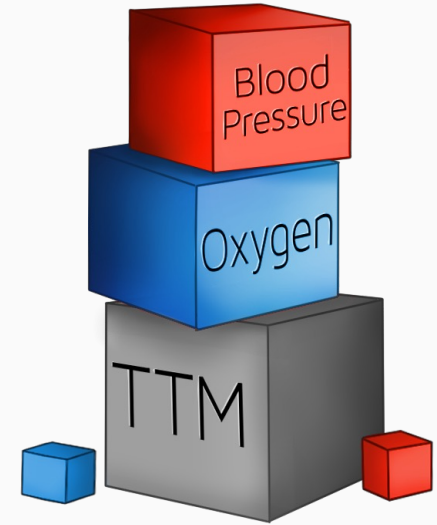
Oxygen Targets in Post-Cardiac Arrest Survivors

BOX trial

A randomized, two center intervention trial on two oxygen targets in comatose adult out of hospital cardiac arrest patients

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Box-trial

Declaration of interest

- Research contracts : Research grant from Abiomed outside this work

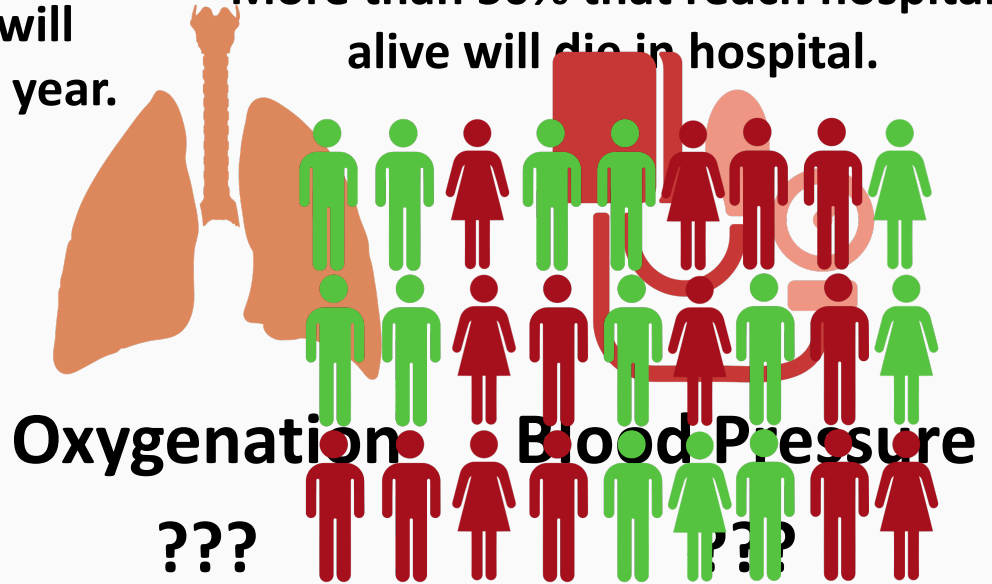
Why is this important?

In Europe 100,000 individuals resuscitated after cardiac arrest will survive to hospital admission each year.



Temperature Control

More than 50% that reach hospital alive will die in hospital.

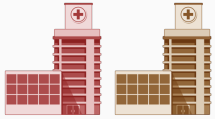


How did we investigate this?



- **Population**

Adult cardiac arrest
Presumed cardiac cause



- **Two Academic Centers in Denmark**

Catchment area 3.9 Mio Inhabitants



- **2-by-2 design**



- **Primary endpoint**

All cause mortality or coma/severe disability at discharge

789 OHCA
presumed
cardiac cause



**Restrictive
Oxygen**

Pao₂ 9-10 kPa



High BP
Low BP



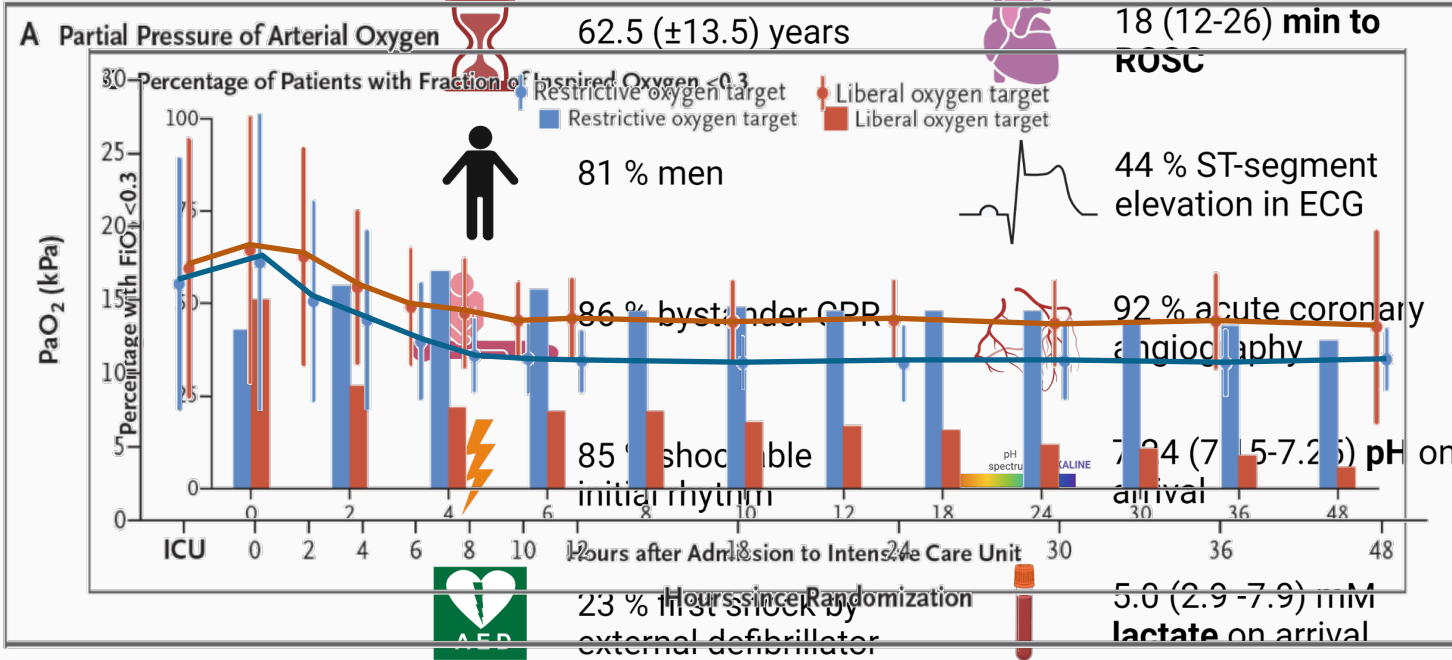
**Liberal
Oxygen**

Pao₂ 13-14 kPa



High BP
Low BP

Results – 789 patients



62.5 (±13.5) years



18 (12-26) min to ROSC



81 % men



44 % ST-segment elevation in ECG



23 % first shock by external defibrillator



62.5 (±13.5) years



81 % men



86 % bystander CPR



85 % shockable initial rhythm



23 % first shock by external defibrillator



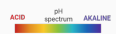
18 (12-26) min to ROSC



44 % ST-segment elevation in ECG



92 % acute coronary angiography

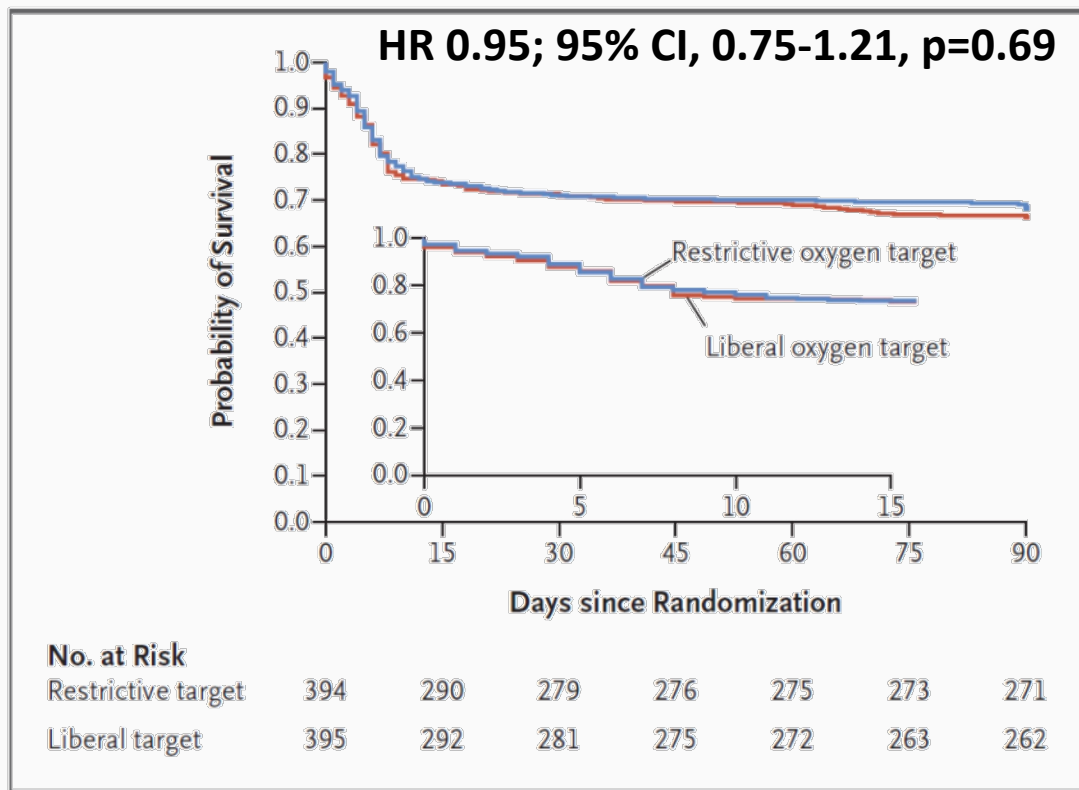


7.24 (7.15-7.25) pH on arrival

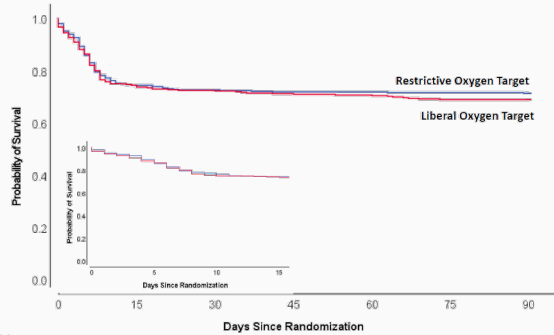


5.0 (2.9 -7.9) mM lactate on arrival

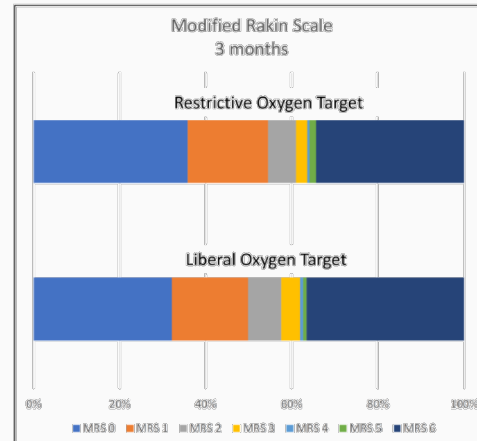
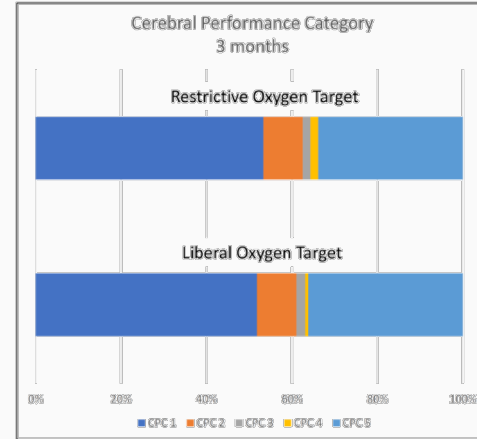
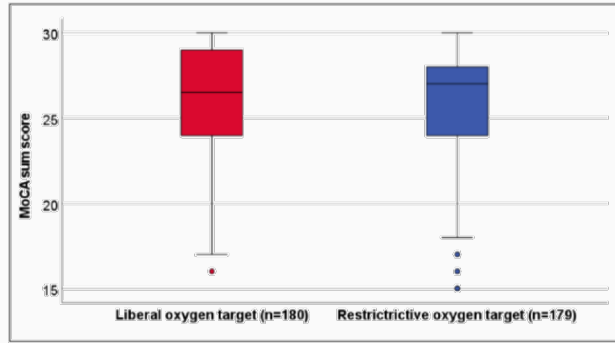
Results – All Cause Mortality or Coma/Vegetative State



Results – Secondary Endpoints



No. At Risk	0	15	30	45	60	75	90
Restrictive	394	293	286	283	283	282	281
Liberal	395	294	286	281	279	272	272



Conclusion

- **A restrictive oxygenation (PaO₂ of 9 – 10 kPa) or a liberal oxygenation (PaO₂ of 13 – 14) target in comatose patients resuscitated for OHCA did not result in different rates of death or severe disability / coma.**

ORIGINAL ARTICLE

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of Cardiac Arrest

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H. Schmidt, J. Kjaergaard, C. Hassager, S. Mølstrøm, J. Grand, B. Borregaard, L.E. Roelsgaard Obling, S. Venø, L. Sarkisian, D. Mamaev, L.O. Jensen, B. Nyholm, D.E. Høfsten, J. Josiassen, J.H. Thomsen, J.J. Thune, M.G. Lindholm, M.A. Stengaard Meyer, M. Winther-Jensen, M. Sørensen, M. Frydland, R.P. Beske, R. Frikke-Schmidt, S. Wiberg, S. Boesgaard, V. Lind Jørgensen, and J.E. Møller