**Clinical question.**

In morbidly obese adult patients with cardiac arrest (prehospital or in-hospital) (P), does use of any specific interventions (I) as opposed to standard care (according to treatment algorithm) (C), improve outcome (O) (eg. ROSC, survival)?

**Is this question addressing an intervention/therapy, prognosis or diagnosis?**  Intervention/Therapy

**State if this is a proposed new topic or revision of existing worksheet:** New topic

**Conflict of interest specific to this question**

Do any of the authors listed above have conflict of interest disclosures relevant to this worksheet? None

**Search strategy (including electronic databases searched).**

Search as on 22\textsuperscript{nd} November 2009. Bold and underlined are the numbers of citations.

**PubMed:**

- #2 Search ‘Obesity’ (Mesh) 94705
- #4 Search ‘Body Mass Index’ (Mesh) 47185
- #6 Search ‘Heart Arrest’ (Mesh) 25783
- #8 Search ‘Death, Sudden, Cardiac’ (Mesh) 7792
- #11 Search ‘Electric Countershock’ (Mesh) 10748
- #13 Search ‘Cardiopulmonary Resuscitation’ (Mesh) 8700
- #14 Search (#2 or #4) and (#6 or #8) 115
- #15 Search (#2 or #4) and #13 17
- #16 Search (#2 or #14) and #11 26

**Cochrane:**

- #1 Mesh descriptor ‘Obesity’ explode all trees 4791
- #2 Mesh descriptor ‘Body Mass Index’ explode all trees 3528
- #3 Mesh descriptor ‘Heart Arrest’ explode all trees 369
- #4 Mesh descriptor ‘Death, Sudden, Cardiac’ explode all trees 397
- #5 Mesh descriptor ‘Cardiopulmonary Resuscitation’ explode all trees 654
- #7 (#1 or #2) and (#3 or #4) 2
- #8 (#1 or #20 and #5 9
- #9 (#1 or #2) and #6 5

AHA Endnote Master Library, Central Register of Controlled Trials, Review of references from the related articles

• **State inclusion and exclusion criteria**

All studies which looked into the outcomes of resuscitation based on body weight (human and animal).

Excluded

1. Studies that did not mention the management of cardiac arrest and looked into the outcomes of cardiac arrest in overweight subjects.
2. Studies on advanced airway maneuvers in overweight subjects during cardiac arrest.

• **Number of articles/sources meeting criteria for further review:**

5 articles met the criteria (1 single patient case report, 1 animal study) which were further reviewed
## Summary of evidence

### Evidence Supporting Clinical Question

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<th>Level of evidence</th>
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A = Return of spontaneous circulation  
B = Survival of event  
C = Survival to hospital discharge  
D = Intact neurological survival  
E = Other endpoint  
*Italics = Animal studies*
### Evidence Neutral to Clinical question

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**Evidence Neutral to Clinical question**

- **Good**
  - DeSilva RA et al, 1978 AB
- **Fair**
  - Bunch TJ et al, 2008 ABC
  - White RD et al, 2005 AB
- **Poor**
  - Tacker WA et al, 1975

**Level of evidence**

- A = Return of spontaneous circulation
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- C = Survival to hospital discharge
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### Evidence Opposing Clinical Question

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**Level of evidence**

- A = Return of spontaneous circulation
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*Italicics* = Animal studies
REVIEWER’S FINAL COMMENTS AND ASSESSMENT OF BENEFIT / RISK:

Despite extensive search only few studies met the criteria.

Bunch TJ et al, 2008, 51 concluded that there was no apparent weight-based influence on resuscitation survival after ventricular fibrillation in out-of-hospital cardiac arrest. White RD 2004 S387 retrospectively looked into the cardiac arrest data of 62 patients and concluded that overweight patients were defibrillated by the biphasic waveform at high rates, with a fixed energy of 150 J, and without energy escalation. White RD 2005 631 reported high impedance patients were defibrillated by the biphasic waveform at higher rates with a fixed energy of 150 J and without energy escalation. Rapid defibrillation rather than differences in patient impedance accounts for resuscitation success. Tacker WA et al, 1975 suggested increase in energy levels with increase in body weight for effective defibrillation not supported by other retrospective human studies.

Acknowledgements:
Dr Jerry Nolan, Consultant Anaesthetist, Royal United Hospital who helped me to prepare this transcript.

Citation List


LOE 2, Fair (not randomized), Neutral


LOE 4, Poor (single case report), Neutral


LOE 5, Poor, Against conventional management


LOE2, Fair, Neutral


LOE5, Fair, Neutral