

WORKSHEET for Evidence-Based Review of Science for Emergency Cardiac Care**Worksheet author(s)**Mary Ann Peberdy
Maaret Castren**Date Submitted for review:**
Oct 2, 2009**Clinical question.**

In patients with ROSC after cardiac arrest (prehospital or in-hospital) (P), does the use of comprehensive treatment protocol (I) as opposed to standard care (C), improve outcome (O)(eg. survival)?

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

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? No

Search strategy (including electronic databases searched).

Cochrane, PubMed and Embase:

"Cardiopulmonary Resuscitation"[Mesh] AND "Heart Arrest"[Mesh] N=3183 and protocol N=79, postresuscitation N=598, "Outcome Assessment (Health Care)"[Mesh] N=377121, CA and outcome and postresusc together N=42 (only 4 ok), and + protocol N=4.

Three studies included

• State inclusion and exclusion criteria**Inclusion:**

- prospective and retrospective studies involving adult and /or pediatric patients successfully resuscitated from CA, prehospital or in-hospital
- patients have been treated with a comprehensive post-resuscitation care protocol
- an outcome has been stated

Exclusion:

- non-human studies, editorials
- studies where only one part of the post-resuscitation care has been implemented as a protocol (ie- hypothermia alone)

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

Three articles, one LOE 2, two LOE 3

Summary of evidence

Evidence Supporting Clinical Question

Good			Sunde K 2007, 29 D		
Fair		Kirves H 2007, 75 E	Gaieski DF 2009, 48 D		
Poor					
	1	2	3	4	5
Level of evidence					

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

Good					
Fair					
Poor					
	1	2	3	4	5
Level of evidence					

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 Opposing Clinical Question

Good					
Fair					
Poor					
	1	2	3	4	5
Level of evidence					

A = Return of spontaneous circulation
 B = Survival of event

C = Survival to hospital discharge
 D = Intact neurological survival

E = Other endpoint
Italics = Animal studies

REVIEWER'S FINAL COMMENTS AND ASSESSMENT OF BENEFIT / RISK:

Only 3 articles were found that described a comprehensive protocol for post arrest care. Two studies described in-hospital protocols and one described an out of hospital protocol. Some of the evaluated studies introduced hypothermia along with a comprehensive strategy so it is uncertain if the outcomes were affected by hypothermia alone or by the entire protocol.

The evaluation of a complete protocol (vs no complete protocol) is extremely difficult to assess scientifically and no LOE 1 studies were found.

Acknowledgements:*Citation List*Included in the final analysis:

Gaieski DF, Band RA, Abella BS, Neumar RW, Fuchs BD, Kolansky DM, Merchant RM, Carr BG, Becker LB, Maguire C, Klair A, Hylton J, Goyal M. Early goal-directed hemodynamic optimization combined with therapeutic hypothermia in comatose survivors of out-of-hospital cardiac arrest. Resuscitation. 2009 Apr;80(4):418-24. Epub 2009 Feb 12.

COMMENTS: Post arrest protocol implemented for care of OOH-CA patients. Historical controls. The use of a protocol in addition to hypothermia reduced the mortality by 28%.

The result was not statistically significant because of the small amount of patients.
LOE 3, FAIR; POSITIVE.

Kirves, H., M. B. Skrifvars, et al. (2007). "Adherence to resuscitation guidelines during prehospital care of cardiac arrest patients." Eur J Emerg Med **14**(2): 75-81.

COMMENTS: Retrospective study involving only OHH-CA patients in a prehospital postresuscitation care intervention bundle. Patient outcomes were evaluated as compared between fully using or not using the protocol. Using the protocol fully was associated with a stronger association with survival.

. LOE 2, FAIR, POSITIVE.

Sunde, K., M. Pytte, et al. (2007). "Implementation of a standardised treatment protocol for post resuscitation care after out-of-hospital cardiac arrest." Resuscitation **73**(1): 29-39.

COMMENTS: Comprehensive post resuscitation care strategy for in-hospital care of OOH-CA patients. Survival increased from 31% to 56% with the use of a standardized protocol.
LOE 3, GOOD, POSITIVE.

Excluded from the final analysis since these studies only reported on one aspect of post resuscitation care and not a comprehensive protocol:

Doherty, D. R., C. S. Parshuram, et al. (2009). "Hypothermia therapy after pediatric cardiac arrest." Circulation **119**(11): 1492-500.

Hammer, L., F. Vitrat, et al. (2009). "Immediate prehospital hypothermia protocol in comatose survivors of out-of-hospital cardiac arrest." Am J Emerg Med **27**(5): 570-3.

Koran, Z. (2009). "Therapeutic hypothermia in the postresuscitation patient: the development and implementation of an evidence-based protocol for the emergency department." J Trauma Nurs **16**(1): 48-57; quiz 58-9.

Kupchik, N. L. (2009). "Development and implementation of a therapeutic hypothermia protocol." Crit Care Med **37**(7 Suppl): S279-84.

Sagalyn, E., R. A. Band, et al. (2009). "Therapeutic hypothermia after cardiac arrest in clinical practice: review and compilation of recent experiences." Crit Care Med **37**(7 Suppl): S223-6.