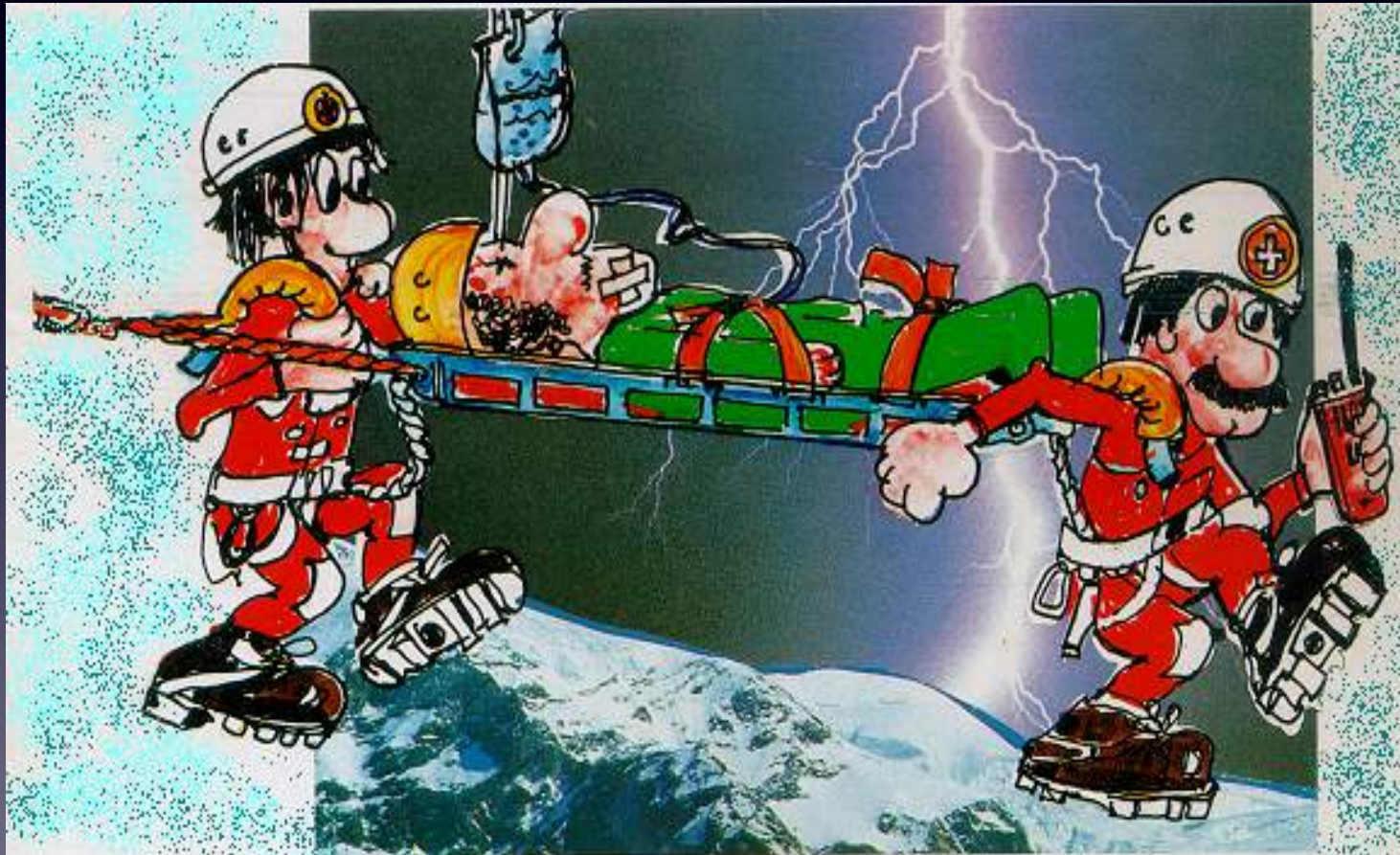




# Alghero - Maggio 2015





# Quando un morto è morto?

Sul concetto di utilità e futilità dell'atto medico  
nella rianimazione cardiopolmonare extraospedaliera

Dr Mario Milani

Direttore

Scuola Nazionale Medici per l'Emergenza ad alto rischio in ambiente alpino -  
CNSAS

CNSAS MedCom, CISA/IKAR MedCom

# Young Frankenstein



Corpo Nazionale di Soccorso Alpino e  
Speleologico CNSAS

# Definire la morte

- Death may be defined as the **irreversible** cessation of vital functions, including absence of heartbeat, spontaneous breathing, and brain activity
- La diagnosi di morte è una **diagnosi medica** (constatazione, dichiarazione di morte, accertamento, denuncia di causa di morte, riscontro diagnostico/autopsia)

## MINISTERO DELLA SALUTE

### DECRETO 11 aprile 2008

Aggiornamento del decreto 22 agosto 1994, n. 582 relativo al:  
«Regolamento recante le modalita' per l'accertamento e la  
certificazione di morte» (G.U. n. 136 del 12 giugno 2008).

IL MINISTRO DELLA SALUTE

#### Art. 1.

##### Accertamento della morte e arresto cardiaco

1. In conformita' all'art. 2, comma 1, della legge 29 dicembre 1993, n. 578, l'accertamento della morte per arresto cardiaco puo' essere effettuato da un medico con il rilievo continuo dell'elettrocardiogramma protratto per non meno di 20 minuti primi, registrato su supporto cartaceo o digitale.

ORIGINAL ARTICLE

N Engl J Med 2006;355:478-87.

## Validation of a Rule for Termination of Resuscitation in Out-of-Hospital Cardiac Arrest

Laurie J. Morrison, M.D., Laura M. Visentin, B.Sc., Alex Kiss, Ph.D., Rob Theriault, Don Eby, M.D., Marian Vermeulen, B.Sc.N., M.H.Sc., Jonathan Sherbino, M.D., and P. Richard Verbeek, M.D., for the TOR Investigators\*

Resuscitation 80 (2009) 324–328



Contents lists available at ScienceDirect

### Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



Clinical paper

## Validation of a universal prehospital termination of resuscitation clinical prediction rule for advanced and basic life support providers<sup>☆</sup>

Laurie J. Morrison<sup>a,b,d,\*</sup>, P. Richard Verbeek<sup>b,c</sup>, Cathy Zhan<sup>a</sup>, Alex Kiss<sup>e</sup>, Katherine S. Allan<sup>a,f</sup>



**Evidence-Based  
Medicine**

## CLINICAL DECISION RULES FOR TERMINATION OF RESUSCITATION IN OUT-OF-HOSPITAL CARDIAC ARREST

Jonathan Sherbino, MD, MED, FRCPC,\* Samuel M. Keim, MD, MS,† Daniel P. Davis, MD,‡ and the Best Evidence In Emergency Medicine (BEEM) Group\*

Resuscitation xxx (2010) xxx–xxx



Contents lists available at ScienceDirect

Resuscitation

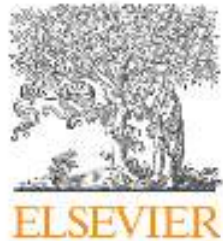
journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



Clinical paper

Comparison of Helsinki and European Resuscitation Council “do not attempt to resuscitate” guidelines, and a termination of resuscitation clinical prediction rule for out-of-hospital cardiac arrest patients found in asystole or pulseless electrical activity<sup>☆</sup>

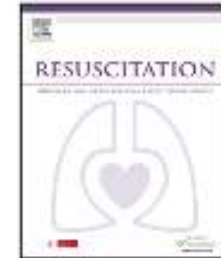
M.B. Skrifvars<sup>a,\*</sup>, T. Vayrynen<sup>b</sup>, M. Kuisma<sup>b</sup>, M. Castren<sup>c</sup>, M.J. Parr<sup>a</sup>, J. Silfverstople<sup>d</sup>,  
L. Svensson<sup>e</sup>, L. Jonsson<sup>e</sup>, J. Herlitz<sup>f</sup>



Contents lists available at [ScienceDirect](#)

## Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



Clinical paper

### Implementation trial of the basic life support termination of resuscitation rule: Reducing the transport of futile out-of-hospital cardiac arrests<sup>☆</sup>



Laurie J. Morrison<sup>a,b,c,\*</sup>, Don Eby<sup>d,e</sup>, Precilla V. Veigas<sup>a</sup>, Cathy Zhan<sup>a</sup>, Alex Kiss<sup>c,f</sup>, Vince Arcieri<sup>g</sup>, Paul Hoogeveen<sup>h</sup>, Chris Loreto<sup>i</sup>, Michelle Welsford<sup>i,k</sup>, Tim Dodd<sup>j</sup>, Elma Mooney<sup>l</sup>, Marty Pilkington<sup>i</sup>, Cathy Prowd<sup>d</sup>, Erica Reichl<sup>m</sup>, Jim Scott<sup>l</sup>, Jeanette M. Verdon<sup>m</sup>, Tim Waite<sup>n</sup>, Jason E. Buick<sup>a,c</sup>, P. Richard Verbeek<sup>a,b,h</sup>





STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

June 7, 2010

The Following Will Be Policy For Emergency Medical Service Care Providers:

**GUIDELINES FOR EMR, EMT, AEMT, and Paramedic**

**DETERMINATION OF DEATH/DISCONTINUATION OF  
PRE-HOSPITAL RESUSCITATION  
FOR ADULTS AGE 18 AND OVER**

**NON-MASS CASUALTY SITUATIONS**

IMPERIAL COUNTY EMERGENCY MEDICAL SERVICES AGENCY  
POLICY/PROCEDURE/PROTOCOL MANUAL

DATE: 01/01/03

EMS SYSTEM OPERATIONS

**Determination of Death in the Field**

**POLICY #4140**

1. Emergency Medical Services (EMS) responding personnel (public safety personnel, fire department first responders, and emergency ambulance personnel) should use this policy to determine when to institute resuscitation, and when to stop resuscitative efforts.



**Recognition of death and termination of cardiac resuscitation attempts by UK ambulance personnel**

A S Lockey

*Emerg. Med. J.* 2002;19:345-347  
doi:10.1136/emj.19.4.345

# Criteria

- Criteria per **terminare** una CPR
- Arresto cardiaco non testimoniato o senza CPR da parte degli astanti
  - Ritmo non 'shockabile'
  - Assenza di ROSC dopo 20' di BLS/ALS
    - Paziente adulto normotermico

**Devono essere presenti TUTTE le condizioni**

# Patch Sheet

Service/Location:

Medic Name/Number/Level:

Run #:

Patient Age/Gender:

**I AM CALLING FOR A TERMINATION OF RESUSCITATION  
ORDER FOR A MEDICAL/TRAUMA PATIENT**

Incident Hx/Mechanism of Injury:  
Physical Assessment:

## Medical TOR

- Pt  $\geq$  18 with no palpable pulses
- Arrest unwitnessed, No ROSC,  
No Shocks delivered

## Trauma TOR

- Pt  $\geq$  16 with no palpable pulses
- No defibrillation delivered
- Pt asystolic, **OR** HR > 0 &  
Transport > 30min

BH Physician Name:

Time of Death:

Patch Sheet #

(Advanced Life Support Patient Care  
Standards., 2011)

Absence of signs of circulation and/or considered for resuscitation

**Resuscitation not attempted**

Resuscitation attempted

Initial monitored rhythm

Shockable rhythm

Unshockable rhythm

>99% predictor of very poor outcome.

Witnessed arrest by bystanders

Unwitnessed arrest by bystanders

Prehospital ROSC

No prehospital ROSC

Consider an advanced life support

**Consider a termination of resuscitation**

Goto et al. *Critical Care* 2013, 17:R235  
<http://ccforum.com/content/17/5/R235>



RESEARCH

Open Access

Termination-of-resuscitation rule for emergency department physicians treating out-of-hospital cardiac arrest patients: an observational cohort study

Yoshikazu Goto<sup>1\*</sup>, Tetsuo Maeda<sup>1</sup> and Yumiko Nakatsu Goto<sup>2</sup>

# Futile:

incapable of producing any result;  
ineffective;  
useless;  
not successful

## Medical futility

?

interventions that are unlikely to produce  
any significant benefit for the patient

*NS Jecker - ethics in medicine*

- NS Jecker:  
<https://depts.washington.edu/bioethx/topics/futil.html>
- LJ Schneiderman:  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3106156/>
- *ED Pellegrino*:  
<http://www.uffl.org/vol10/pellegrino10.pdf>

**Linee guida European Resuscitation Council per la rianimazione 2010.**

**Sezione 10. Etica della rianimazione e decisioni  
riguardanti il termine della vita.**

**Freddy K. Lippert<sup>a,\*</sup>, Violetta Raffay<sup>b</sup>, Marios Georgiou<sup>c</sup>, Petter A. Steen<sup>d</sup>, Leo Bossaert<sup>e</sup>**

- Physiological futility
- Quantitative futility
- Qualitative futility

HIGH ALTITUDE MEDICINE & BIOLOGY  
Volume 13, Number 3, 2012  
© Mary Ann Liebert, Inc.  
DOI: 10.1089/ham.2011.1096

# Termination of Cardiopulmonary Resuscitation in Mountain Rescue

Peter Paal,<sup>1,2</sup> Mario Milani,<sup>2,3</sup> Douglas Brown,<sup>2,4</sup> Jeff Boyd,<sup>2,5,7</sup> and John Ellerton<sup>2,6</sup>



# Decidere

- In montagna la decisione di non iniziare o terminare una rianimazione BLS/ALS può non essere semplice per la presenza comune delle 'circostanze speciali' ILCOR 2010: ipotermia, trauma, fulminazione, valanga ...

# Criteri

## Criteri per **non iniziare** una CPR

- Condizioni di pericolo per i soccorritori o trasporto o CPR non possibile o non in sicurezza
  - Decapitazione etc
- Sepolto valanga >35' con vie aeree ostruite
- Ipotermico con torace non comprimibile (frozen body)

**È sufficiente UNA condizione**

In a patient without vital signs perform CPR

Do ANY of these criteria apply:

- Unacceptable risk for rescuer, rescuer exhausted or extreme environment where CPR is not possible
- Transportation not possible or not safe
- Valid, signed, dated advance "Do not attempt CPR" directive
- Decapitation, truncal transection, whole body incinerated or decomposed
- Whole body frozen solid
- Avalanche victim in asystole, with obstructed airway, burial time >35min

Yes to ANY

May withhold or terminate CPR

No to ALL

Cardiac arrest due to special circumstances where extended CPR may be warranted\*

No

Do ALL these criteria apply:

- Un-witnessed cardiac arrest
- No return of spontaneous circulation during 20min CPR
- No shock advised at any time by AED OR only asystole observed on ECG

Yes to ALL

May terminate CPR‡

No to ANY

Continue CPR and transport to nearest appropriate hospital†‡

Yes

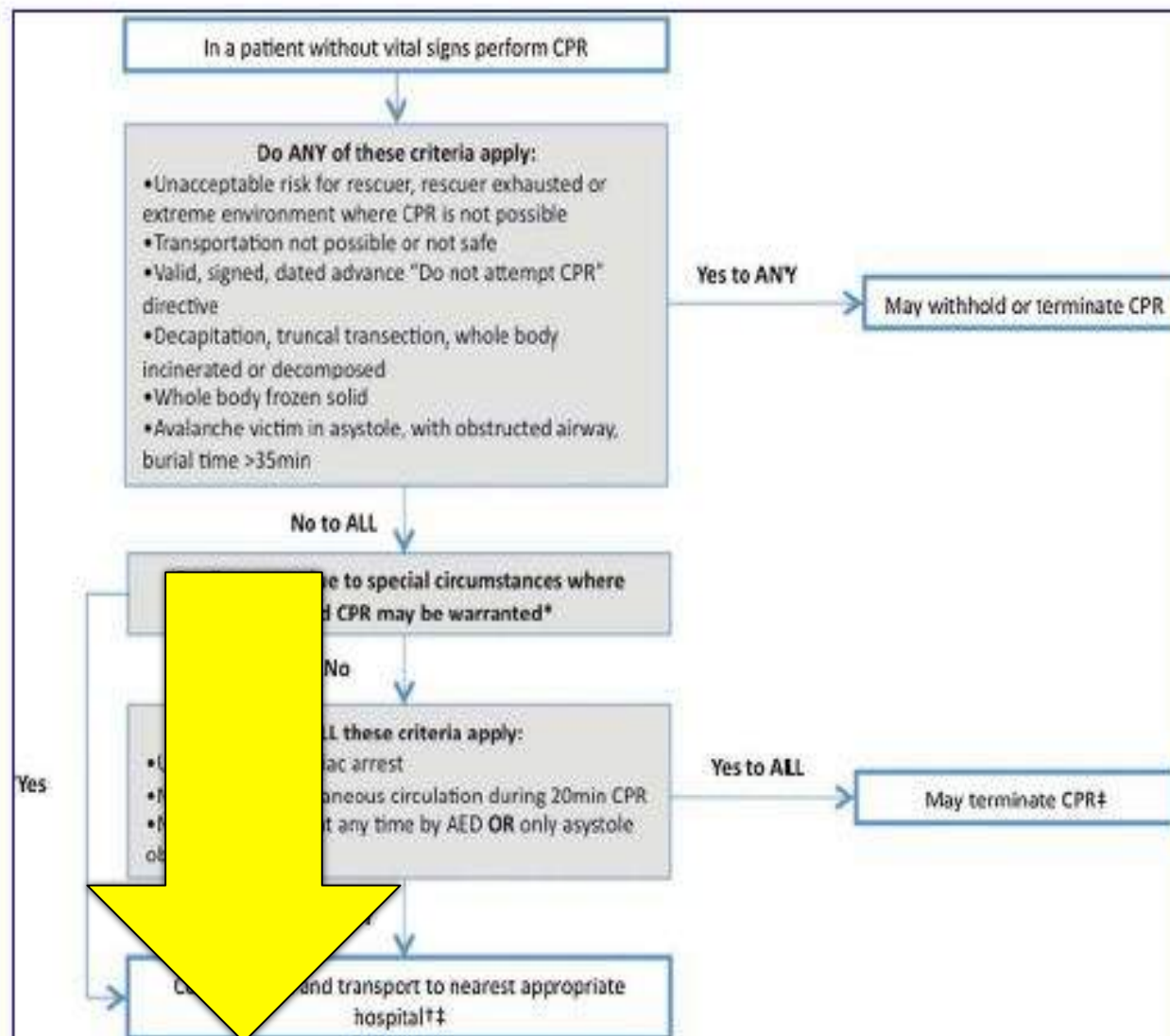


FIG. 1. Algorithm for termination of CPR in mountain rescue.

\*Other special circumstances include for instance drowning, lightning, and poisoning. In cardiac arrest due to special circumstances, such as these conditions, prolonged CPR may be associated with a good neurological outcome (see text for details) (Gilbert et al., 2000; Ibsen et al., 2002; Moser et al., 2005; Oberhammer et al., 2008). †When transport delays are excessive and special circumstances do not apply, it may be reasonable to terminate CPR after a 20 min period without ROSC provided that there has been no shock advised by AED or only asystole on ECG during the 20 min (this may apply to both witnessed and unwitnessed arrests without special circumstances). In special circumstances, where extended CPR is warranted, if transport to hospital is not possible then the rescuer will ideally mitigate the special circumstance prior to terminating CPR. In situations where transport is not possible, mitigation of special circumstances is not possible and further resuscitation is futile, CPR should be terminated.

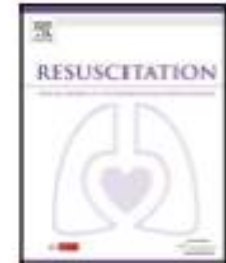
‡Non-physicians should contact a suitably qualified physician if available.



Contents lists available at SciVerse ScienceDirect

## Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)

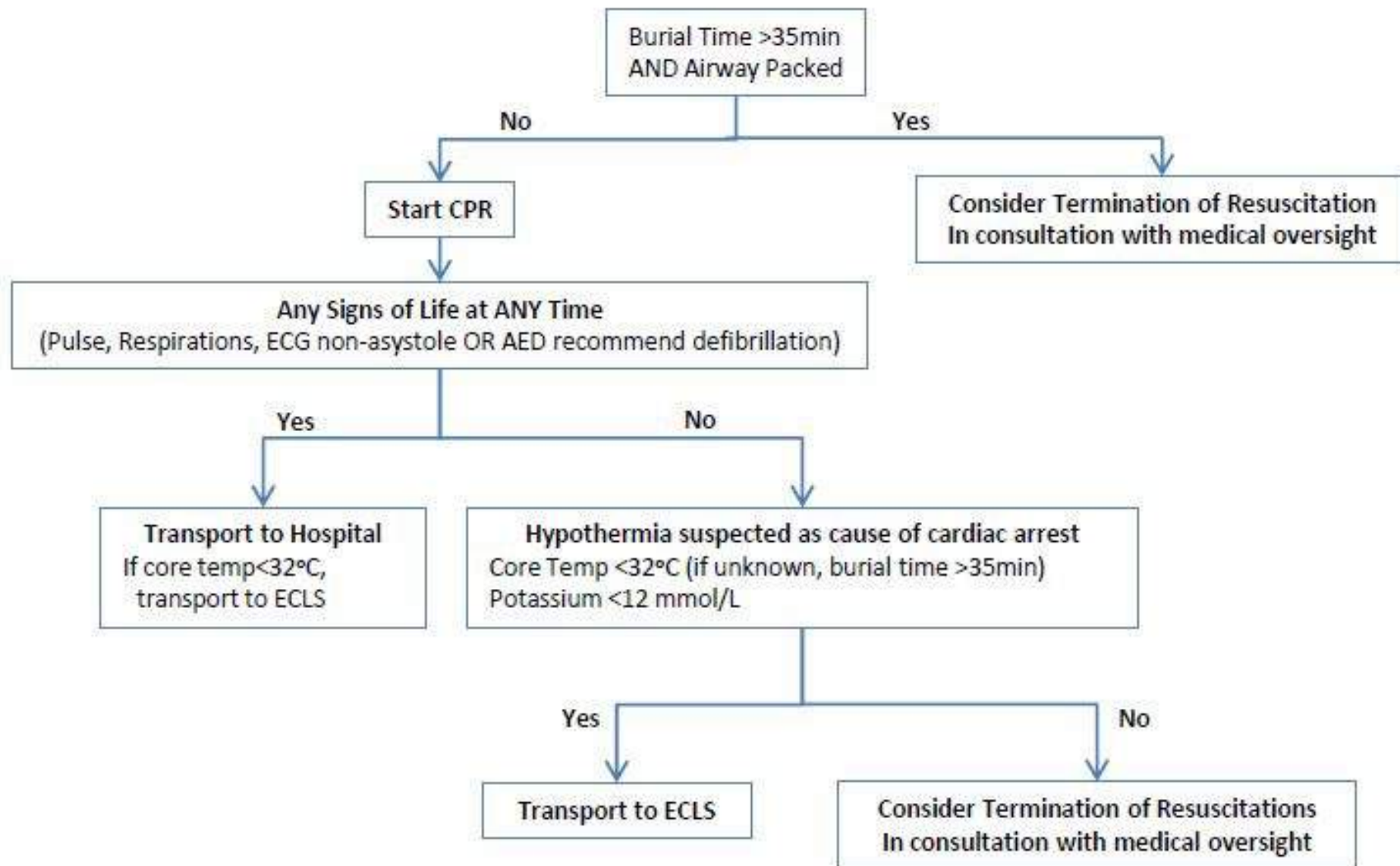


Resuscitation great

Resuscitation of avalanche victims: Evidence-based guidelines of the international commission for mountain emergency medicine (ICAR MEDCOM)  
Intended for physicians and other advanced life support personnel<sup>☆</sup>

Hermann Brugger<sup>a,\*</sup>, Bruno Durrer<sup>b</sup>, Fidel Elsensohn<sup>c</sup>, Peter Paal<sup>d</sup>, Giacomo Strapazzon<sup>a</sup>,  
Eveline Winterberger<sup>e</sup>, Ken Zafren<sup>f</sup>, Jeff Boyd<sup>g</sup>

# Management of Complete Avalanche Burial With Absent Vital Signs



# RESOURCE DOCUMENTS TO THE NAEMSP POSITION STATEMENTS

## TERMINATION OF RESUSCITATION OF **NONTRAUMATIC** CARDIOPULMONARY ARREST: RESOURCE DOCUMENT FOR THE NATIONAL ASSOCIATION OF EMS PHYSICIANS POSITION STATEMENT

Michael G. Millin, MD, MPH, Samiur R. Khandker, MD, Alisa Malki, BA

### ABSTRACT

In the development of an emergency medical services (EMS) system, medical directors should consider the implementa-

tion of a protocol for the termination of resuscitation of cardiopulmonary arrest. **Key words:** termination; resuscitation; cardiopulmonary arrest; EMS.

PREHOSPITAL EMERGENCY CARE 2011;15:547-554

2013

# NAEMSP POSITION STATEMENT

**WITHHOLDING OF RESUSCITATION FOR ADULT TRAUMATIC  
CARDIOPULMONARY ARREST**

National Association of EMS Physicians and American College  
of Surgeons Committee on Trauma



- Resuscitative efforts may be withheld for a blunt trauma patient who, on the arrival of emergency medical services (EMS) personnel, is found to be apneic, pulseless, and without organized electrocardiographic activity.

Resuscitative efforts may be withheld for a penetrating trauma patient who, on the arrival of EMS personnel, is found to be pulseless and apneic and there are no other signs of life, including spontaneous movement, electrocardiographic activity, and pupillary response.

- When the mechanism of injury does not correlate with the clinical condition, suggesting a nontraumatic cause of cardiac arrest, standard resuscitative measures should be followed.

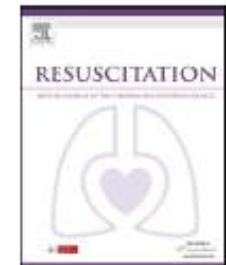


ELSEVIER

Contents lists available at SciVerse ScienceDirect

## Resuscitation

journal homepage: [www.elsevier.com/locate/resuscitation](http://www.elsevier.com/locate/resuscitation)



Commentary and concepts

### Development of a simple algorithm to guide the effective management of traumatic cardiac arrest<sup>☆</sup>

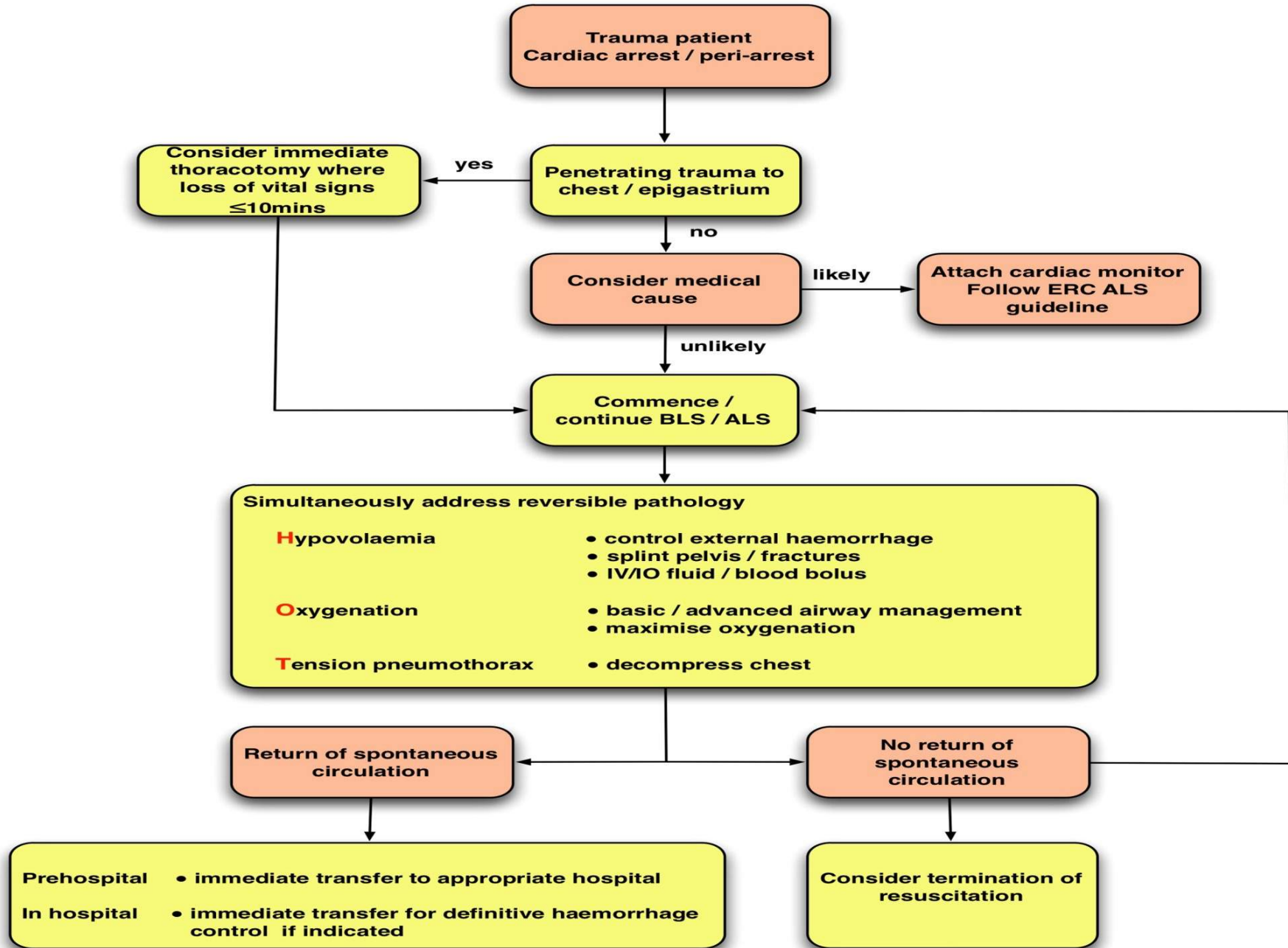
David J. Lockey<sup>a,\*</sup>, Richard M. Lyon<sup>b</sup>, Gareth E. Davies<sup>c</sup>

<sup>a</sup> Pre-hospital Care, London's Air Ambulance, Royal London Hospital, London E1 1BB & School of Clinical Sciences, University of Bristol, United Kingdom

<sup>b</sup> Pre-hospital Care, London's Air Ambulance, Royal London Hospital, London E1 1BB, United Kingdom

<sup>c</sup> Pre-hospital Care, & Emergency Medicine, London's Air Ambulance, Royal London Hospital, London E1 1BB, United Kingdom

## Traumatic cardiac arrest treatment algorithm



BLS: basic life support, ALS: advanced life support, ERC: European Resuscitation Council,  
IV: intravenous, IO: intraosseous

# Withholding or Termination of Resuscitation in Pediatric Out-of-Hospital Traumatic Cardiopulmonary Arrest

AMERICAN COLLEGE OF SURGEONS  
Committee on Trauma

AMERICAN COLLEGE OF EMERGENCY PHYSICIANS  
Pediatric Emergency Medicine Committee

NATIONAL ASSOCIATION OF EMS PHYSICIANS

AMERICAN ACADEMY OF PEDIATRICS  
Committee on Pediatric Emergency Medicine

[Ann Emerg Med. 2014;63:504-515.]

Indicators of potential for successful outcomes in pediatric out-of-hospital arrest include a witnessed arrest, the occurrence of early bystander CPR, an initial shockable rhythm, and return of spontaneous circulation within 20 minutes.<sup>84</sup> In the absence of these characteristics, a good outcome is extraordinarily unlikely.

organ damage. As noted previously, the mean resuscitation time in most pediatric studies was an average of 30 minutes. Most children with out-of-hospital traumatic cardiopulmonary arrest who received this duration of resuscitation and survived were irreversibly neurologically devastated.<sup>2,41,44-46,53,64,66,68</sup> Two of

