



SUBJECT: **TARGETED TEMPERATURE  
MANAGEMENT GUIDELINE**

REFERENCE NO. 320.1

AUTHORITY: California Code of Regulations, Title 22, Division 9, Chapter 7.1

PRINCIPLES:

1. Targeted temperature management (TTM) preserves cerebral function in patients resuscitated after cardiac arrest. This occurs through decreasing cellular metabolism and oxygen demand, reducing production of excitatory neurotransmitters, minimizing disruption of ion homeostasis, and reducing free radicals.
2. Previously referred to as "therapeutic hypothermia", the term TTM has been adopted to refer to either induced hypothermia or strict temperature control at a target core temperature at or below normothermia (32-37.5°C) for at least 24 hours.
3. Current guidelines recommend that all comatose adult patients with return of spontaneous circulation (ROSC) after cardiac arrest have TTM for both shockable and non-shockable rhythms.
4. While there are no data demonstrating a benefit of therapeutic hypothermia in children who remain comatose after out-of-hospital cardiac arrest, these children with ROSC may benefit from TTM with target temperatures between 36 and 37.5°C.
5. Initiating hypothermia in the prehospital setting has **not** improved survival or neurologic outcomes. Currently there is no role for prehospital cooling.
6. Fever in the post-cardiac arrest patient is associated with poor outcome.
7. TTM is the only intervention demonstrated to improve neurological recovery after cardiac arrest. TTM should not affect the decision to perform percutaneous coronary intervention (PCI). Concurrent PCI and TTM are reported to be feasibly safe.

GUIDELINES:

1. Fever should be avoided in all comatose post-cardiac arrest pediatric and adult patients.
2. Comatose adult (greater than 14 years of age) patients with ROSC after cardiac arrest should receive TTM.
3. There are no absolute contraindications for TTM; however, it is reasonable to withhold TTM in the following scenarios:
  - a. Known wishes for limitations in resuscitation and/or a Do Not Resuscitate (DNR) order

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APPROVED:   
Director, EMS Agency

  
Medical Director, EMS Agency

- b. Known comorbid disease making 180 days survival unlikely
  - c. Preceding poor neurologic function (Pre-arrest Cerebral Performance Category of 3 or 4)
  - d. Temperature on admission <30°C
4. A temperature between 32°C and 37.5°C should be selected and maintained for **at least 24 hours** once target temperature is achieved. Core temperature should be monitored. Axillary or oral temperatures are inadequate for measurement of core temperature.
5. Targets below 36°C should typically be avoided for the following conditions:
- a. Pregnancy
  - b. Known intrinsic bleeding diathesis (e.g. Hemophilia or Von Willebrand)
  - c. Acute intracranial bleeding and/or major head trauma
  - d. Active significant bleeding
  - e. Suspected or confirmed acute stroke
  - f. Systolic blood pressure <80 mm Hg despite fluid resuscitation, vasopressor(s) and possibly including inotropic medication and/or intra-aortic balloon pump
  - g. Delays longer than 6 hours from ROSC to cooling
6. TTM may be achieved and maintained using:
- a. Intravenous Normal Saline 4°C
  - b. Ice packs (axillae, groin, neck)
  - c. Cooling blankets
  - d. Cooling vests
  - e. Intravascular devices (including extracorporeal membrane oxygenation)

CROSS REFERENCE:

2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care