Post-Cardiac Arrest Care and Temperature Control

The ROSC bundle: oxygen, ventilation and MAP targets, 12-lead and cath lab, temperature control, seizures, glucose and when to prognosticate

ICU Basics
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POST-CARDIAC ARREST CARE: THE TARGETS

Post-cardiac arrest care after ROSC aims to stop a second injury to the brain and heart: avoid low and high oxygen, keep CO_2 normal, keep MAP at least 65 mm Hg, get a 12-lead, control temperature in anyone who cannot follow commands, and wait at least 72 hours before judging neurologic outcome.

Singapore 2026 and Korean 2025 guidelines (built on ILCOR 2025, AHA 2025 and ERC-ESICM), ERC-ESICM 2021.

TARGET	GOAL	NOTES
Oxygen	FiO_2 1.0 until SpO_2 or PaO_2 is reliable, then SpO_2 94–98% (PaO_2 75–100)	Avoid hypoxemia and hyperoxemia; follow your unit protocol
Ventilation	$PaCO_2$ 35–45 mm Hg	Check an ABG; $ETCO_2$ can differ widely from $PaCO_2$ after arrest
Tidal volume	6–8 mL/kg ideal body weight	Lung-protective
Blood pressure	MAP at least 65 mm Hg	Higher for chronic hypertension, raised ICP or ongoing hypoperfusion
Temperature	32–37.5 °C, at least 36 h	For patients who do not follow commands; prevent fever
Glucose	About 140–180 mg/dL	Avoid hypoglycemia; no tight control

ROSC BUNDLE: THE FIRST HOUR

1. Airway: intubate if comatose; confirm with waveform capnography.
2. Breathing: full oxygen until a reliable SpO_2 or ABG, then titrate down; normal $PaCO_2$.
3. Circulation: arterial line, fluids and vasopressors to MAP 65 or more; norepinephrine is the usual first choice.
4. 12-lead ECG as soon as possible after ROSC; look for ST elevation.
5. Find the cause: ABG and electrolytes, echo or POCUS, and CT (head, chest, pulmonary angiogram) when no cardiac cause is clear.
6. Temperature: continuous core probe (esophageal or bladder); start temperature control if not following commands.
7. Neuro: exam off sedation when possible, EEG if comatose, short-acting sedation.

SAFETY Do not hyperventilate. Low CO_2 constricts cerebral vessels and can add ischemia to an injured brain.

12-LEAD AND THE CATH LAB DECISION

ECG AFTER ROSC	PLAN
ST elevation	Immediate coronary angiography and PCI, even if comatose
No ST elevation, unstable or likely coronary cause	Early angiography if no non-cardiac cause and there is shock or recurrent arrhythmia
No ST elevation, stable	Not routinely emergent; decide case by case after stabilizing

TEMPERATURE CONTROL AFTER CARDIAC ARREST

Targeted temperature management is now called temperature control. Anyone who does not follow commands after ROSC gets it, whatever the rhythm or location of the arrest: a constant temperature between 32 and 37.5 °C for at least 36 hours, with active fever prevention afterward.

- Use a device with temperature feedback and a continuous core probe (esophageal or bladder).
- Do not actively warm a patient who is mildly hypothermic after ROSC.
- No rapid cold IV fluid boluses in the field.
- If cooled below normal, rewarm slowly and delay rewarming with instability, raised ICP, severe hyperkalemia or ongoing seizures.
- Expect and treat shivering; cooling often slows the heart rate, which is usually fine if perfusion holds.

EXAM TIP Current exam answer: deliberate temperature control at a constant 32–37.5 °C and fever prevention, not routine cooling to 33 °C.

SEIZURES, GLUCOSE AND SEDATION

- EEG for every patient who stays comatose: seizures, including nonconvulsive status, occur in about 10–35%.
- Treat clinical seizures and EEG seizures promptly; no prophylactic antiseizure drugs.
- Myoclonus needs an EEG before treatment: not all of it is epileptic. Shivering can look like seizure activity.
- Glucose about 140–180 mg/dL with an insulin infusion if needed; expect insulin needs to fall during rewarming.
- Short-acting sedation (propofol, remifentanil) so the neuro exam can be done early.

NEUROPROGNOSTICATION: WHEN AND HOW

Do not predict a poor outcome early. Wait at least 72 hours after ROSC (after rewarming if cooled below normal), clear sedatives, paralytics and metabolic confounders, and use several tests together.

For a patient not obeying commands at 72 h with confounders cleared: two or more predictors make a poor outcome likely.

PREDICTOR OF POOR OUTCOME	TIMING
No pupillary and corneal reflexes	72 h or later
Both N20 SSEP responses absent	24 h or later
Highly malignant EEG (suppression, burst-suppression)	24 h or later
NSE above 60 mcg/L	48 and/or 72 h
Status myoclonus (30 min or more)	Within 72 h
Diffuse anoxic injury on CT or MRI	CT any time; MRI 2–7 days

Sources (5) are listed with links at icubasics.com/sheets/post-arrest-care.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. ICU Basics is an independent study aid not affiliated with any certifying body.