

Beyond the Algorithm: The ERC Guidelines 2025 and the Maturity of Resuscitation Medicine

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The European Resuscitation Council Guidelines 2025, officially launched as the Guidelines on Cardiopulmonary Resuscitation 2025 on 22 October 2025 in Rotterdam and published in *Resuscitation* (1) as a thematic collection of guideline papers, represent far more than a scheduled update of resuscitation algorithms. That reading would be too narrow. The ERC Guidelines 2025 are better understood as a portrait of a discipline that has entered a new phase in its understanding of the continuum of resuscitation care. In these guidelines, resuscitation medicine is not reduced to the dramatic moment of cardiac arrest. It is presented as a continuum of knowledge, decision-making, technical skill, system organization, ethical responsibility, and long-term outcome. The algorithm retains its grammar, but not the whole language of care.

This is what makes the 2025 guidelines important. They document the transformation of resuscitation from an acute technical intervention into a mature clinical

discipline situated at the intersection of time, pathophysiology, teamwork, system design, and value-based decision-making. Resuscitation remains inseparable from urgency, but contemporary resuscitation medicine shows that speed without structure, technical correctness without a functioning system, and intensity of treatment without an ethical frame are not enough. Saving life in a critical moment requires not only hands capable of performing the correct intervention, but also an environment in which that intervention can be delivered early, reliably, in the appropriate clinical context, and with a clear pathway to subsequent care.

This shift from algorithm to system is visible throughout the guidelines. Resuscitation is no longer merely a question of what happens in the minutes after collapse. It is shaped by how the system works before cardiac arrest, during cardiac arrest, and after return of spontaneous circulation. Recognition of deterioration, activation of help,

first aid, basic life support, automated external defibrillation, dispatcher assistance, emergency medical service organization, in-hospital rapid response systems, advanced life support, post-resuscitation care, registries, and audit all form a single clinical and organizational continuum. The chain of survival is therefore not only an educational metaphor. It is an operational responsibility. Survival after cardiac arrest is not the property of an isolated intervention; it is a property of the system.

The concept of systems saving lives is consequently one of the central messages of the ERC Guidelines 2025. There is no isolated hero in resuscitation detached from the system. Citizens, dispatchers, first responders, ambulance crews, emergency departments, catheterization laboratories, intensive care units, rehabilitation professionals, and registries are all part of the same trajectory of care. Each enters at a different point, with different competencies, but in relation to the same outcome. Where one link is absent or weak, even an otherwise excellent intervention loses part of its effect. In resuscitation, a system weakness rapidly becomes a biological loss.

The technical core of resuscitation has not lost its importance. Quite the opposite. High-quality chest compressions, early defibrillation, adequate ventilation, treatment of reversible causes, and well-conducted advanced life support remain decisive interventions. Their strength lies in simplicity, reproducibility, and clarity. This is precisely why algorithms are indispensable: under cognitive overload, time pressure, and complex team dynamics, they reduce chaos, create a common language, and give rhythm to decision-making. Yet the ERC Guidelines 2025 also remind us that a correct algorithm does not absolve clinicians from thinking. Special circumstances of cardiac arrest demonstrate that standardization and individualization are not opposites. Cardiac arrest is not a diagnosis, but the final common pathway of many pathophysiological processes. Successful resuscitation must therefore be more than a response to the rhythm on the monitor; it must be a response to the cause, the context, and the possibility of meaningful causal intervention.

The integration of ethics into the core of resuscitation medicine is another sign of maturity. Decisions to start, continue, or terminate resuscitation are not merely technical judgments about the probability of return of spontaneous circulation. They are clinical decisions framed by patient values, goals of care, proportionality, and previously expressed preferences. Advance care planning, DNACPR decisions, family presence, termination of futile resuscitation, and organ donation are not peripheral subjects that appear after medicine has done its work. They are part of medicine itself. A discipline capable of rapid and aggressive action must be equally capable of determining when such action is meaningful, proportionate, and aligned with what good care would mean for this particular patient.

The significance of the ERC Guidelines 2025 also depends on epidemiology, registries, and outcome measurement. Resuscitation medicine must know itself. It must know how many cardiac arrests occur out of hospital and in hospital, who initiates resuscitation, how often an AED is used, how rapidly the system responds, how many patients survive, and in what neurological condition.

Without data, quality becomes impression. Registries, audit, and standardized reporting are not administrative ornaments attached to clinical work; they are prerequisites for responsible improvement. Only a measured system can identify its weaknesses, compare itself with others, and move from conviction to quality.

Between scientific recommendation and patient survival lies another decisive space: education and implementation. Guidelines do not become a clinical reality because they are published. They become clinical reality when they are translated into teaching, simulation, team training, feedback, debriefing, local protocols, and the everyday culture of practice. In resuscitation, knowledge without rehearsal quickly becomes uncertainty, and rehearsal without measurement becomes ritual. Simulation is not merely an imitation of reality for educational purposes; it is a safe space in which clinical reality can be processed before it occurs in a real patient. Team culture does not arise at the moment of cardiac arrest. It must be built before it.

The breadth of the ERC Guidelines 2025 further reminds us that resuscitation medicine is not one physiological world. Newborns at the threshold between intrauterine and extrauterine life, children threatened by hypoxia or shock, adults with cardiac arrest in the community, frail in-hospital patients with previously expressed treatment limitations, and survivors after return of spontaneous circulation all require different forms of reasoning. A unifying principle exists, but its clinical expression changes with age, cause, setting, prognosis, and available resources.

One of the key shifts reinforced by the ERC Guidelines 2025 is that return of spontaneous circulation is not the end of resuscitation. It is a threshold event after which another, often more complex, phase of care begins. Diagnosis of the cause of arrest, oxygenation, ventilation, haemodynamic stability, coronary reperfusion, seizure control, temperature management, neurological prognostication, rehabilitation, psychological consequences, and quality of life determine whether biological survival becomes a return to life. Survival to intensive care admission, survival to hospital discharge, and long-term neurological outcome are not interchangeable endpoints. Post-resuscitation care is therefore not an epilogue. It is an integral part of resuscitation, where the true value of acute success is determined.

The ERC Guidelines 2025 are therefore not simply a document on how to resuscitate. They are a document on how resuscitation care should be conceived, organized, taught, measured, and ethically grounded. Their greatest challenge begins not at publication, but at implementation. Their significance will be defined by what hospitals, emergency medical services, educators, professional societies, registries, and clinical teams are able to make of them. The value of guidelines is ultimately measured not by their publication but by the people, teams, and systems that transform them into timely, competent, ethical, and measurable care.

REFERENCES

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