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Letter to the Editor

Criteria for the certification of Cardiac Arrest Centers in Germany



To the Editor,

For the certification of Cardiac Arrest Centers (CAC) in Germany quality criteria exist since 2017. These quality criteria from 2017 have recently been updated based on experience with the certification in the first few years and are useful in the current discussion about CAC on an European level.¹

In case of an out-of-hospital cardiac arrest (OHCA), treatment must be provided as quickly as possible and patients must receive interdisciplinary care. It is not uncommon for resuscitated patients to be hemodynamic unstable with complications in the early phase (e.g., cardiogenic shock, sepsis-like conditions, renal failure, ventilation problems, etc.) and decisions must be implemented with a high degree of specialist competence in the further course. The care of patients after OHCA requires extremely high specific qualifications of the individual disciplines involved, which must not only have experience in dealing with resuscitated patients (care of large numbers of cases), but also be characterized by a close interdisciplinary cooperation.¹ It is known that patients after OHCA have increased chances of survival if treated in high volume centers.²

OHCA is the third leading cause of death in industrialized nations and CACs can increase survival. The European Resuscitation Council (ERC) resuscitation guidelines 2021 recommend CACs in the new chapter system saving lives.³

For Germany these criteria were first developed in 2017 by an interdisciplinary team of anesthesiologists, cardiologists, emergency medicine specialists and intensive care physicians in a Delphi process on behalf of the German Resuscitation Council (GRC) and approved by the German Society of Anesthesiology and Intensive Care Medicine (DGAI), the German Society of Cardiology (DGK) and the German Society of Medical Intensive Care and Emergency Medicine (DGIIN). An initial pilot project of the CAC certification started at the end of 2018 and included eight pilot hospitals until mid 2019. Subsequently in August 2019, the CAC certification rollout started across Germany, supported by a committee containing members of GRC and DGK.⁴ Fortunately, in September 2021 81 hospitals in Germany and neighboring German speaking countries have been successfully certified as CACs.

Based on the first experiences, the criteria were adapted and concretized in the course of the project and partly redefined for feasibility in everyday clinical practice. New, adapted quality criteria and structural requirements were published in 2021.¹

In 2020, the European Heart Journal published a position paper of the Association for Acute Cardiovascular Care (ACVC) of the European Society of Cardiology (ESC), European Association of Percutaneous Coronary Interventions (EAPCI), European Heart Rhythm Association (EHRA), European Resuscitation Council (ERC), European Society for Emergency Medicine (EUSEM) and European Society of Intensive Care Medicine (ESICM) with minimum requirements for a CAC, for the structures and expertise.⁵

Since the discussions about the structural as well as qualitative requirements are not only conducted on a European level, but have already been implemented in countries like Germany, we would like to present herewith an abbreviated translation of the German quality criteria and structural requirements for CACs (Table 1).

Conflict of Interest

Nadine Rott works for the German Resuscitation Council. Bernd W. Böttiger is treasurer of the European Resuscitation Council (ERC), Chairman of the German Resuscitation Council (GRC), Member of the Advanced Life Support (ALS) Task Force of the International Liaison Committee on Resuscitation (ILCOR), Member of the Executive Committee of the German Interdisciplinary Association for Intensive Care and Emergency Medicine (DIVI), Founder of the “Deutsche Stiftung Wiederbelebung”, Co-Editor of “Resuscitation”, Editor of the Journal “Notfall + Rettungsmedizin”, Co-Editor of the Brazilian Journal of Anesthesiology. He received fees for lectures from the following companies: Forum für medizinische Fortbildung (FomF), Baxalta Deutschland GmbH, ZOLL Medical Deutschland GmbH, C.R. Bard GmbH, GS Elektromedizinische Geräte G. Stemple GmbH, Novartis Pharma GmbH, Philips GmbH Market DACH, Bioscience Valuation BSV GmbH. Karl Heinrich Scholz: Former board member of the German Resuscitation Council (GRC); initiator and leader of the FITT-OHCA and FITT-STEMI study projects. Hans-Jörg Busch: Member of the Executive Committee of the GRC and co-spokesperson of the Cardiac Arrest Center Freiburg. Norbert Frey, Malte Kelm, and Holger Thiele declare no conflict of interest.

Role of the Funding Source

None.

Table 1 – Quality criteria and structural requirements for Cardiac Arrest Centers (modified according to 1).

General Requirements	Structural quality	Process quality	Quality of results
Preparation of bylaws with definition of the management and responsibility of the Cardiac Arrest Center.	24/7 availability of an appropriate takeover facility (Shock room, resuscitation room, emergency room of an intensive care unit and cardiac catheterization laboratory).	SOP for the take over of emergency patients after prehospital resuscitation.	Systematic and standardized documentation of course of treatment and the outcome until discharge (supra-regional data collection/ supra-regional register, which allows benchmark and also offers the possibility to participate in scientific projects).
Existence of the following disciplines with consecutive range of services: Interventional Cardiology, Anesthesiology, Neurology, specialty-related intensive care and emergency medicine, trauma surgery (in the centers where trauma patients are admitted)	24/7 availability of a defined Cardiac Arrest Receiving Team (CART).	SOP for communication with the rescue service.	
Possibility of performing following procedures: Cardiac catheterization and acute percutaneous coronary interventions (PCI), radiological imaging including the possibility of whole-body computed tomography (CT), temperature management, echocardiography including transesophageal Echocardiography, emergency dialysis.	Cardiac catheterization laboratory with 24/7 PCI availability: <ul style="list-style-type: none"> – 24-h on-call availability for immediate performance of emergency PCI – available within 30 min after alerting the catheter laboratory – Procedural protocols in accordance to the guidelines for STEMI treatment and non-STEMI treatment and the timing of the infarct treatment – possibility of direct transfer of resuscitated STEMI patients by the rescue service in the catheter laboratory (24/7) – min. 4 experienced interventional cardiologists for each CAC (24/7 on call). 	SOP for the CART (Cardiac Arrest Receiving Team)	
Standardized treatment pathways for resuscitated patients with different causes, such as those for patients with ST-segment elevation myocardial infarction and/or trauma patients.	24/7 availability of emergency sonography.	SOP for emergency diagnostics during emergency admission after resuscitation.	
Standardized protocolization of the temporal sequences.	24/7 availability of emergency X-ray and CT.	SOP for intensive care therapy including Temperature management.	
	24/7 availability of an ICU space, including equipment for guideline-based temperature management.	SOP on Structured Outcome Assessment/Therapy Discontinuation.	
	24/7 availability of a specialized neurological service.	SOP on the conversation with relatives.	
	Periodical quality circles for resuscitation care.	SOP on possible organ donation.	
	During the three-year period leading up to the first recertification, a total of 12 physicians must have participated in a European Resuscitation Council (ERC) ALS Provider Course or American Heart Association (AHA) ACLS Course.		
	Binding training concept.		

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