R³ Report | Requirement, Rationale, Reference

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Resuscitation Standards for Critical Access Hospitals

Effective January 1, 2022, new and revised requirements related to resuscitation care will be applicable to Joint Commission-accredited hospitals and critical access hospitals (CAHs). The requirements aim to strengthen resuscitation and post-resuscitation care processes in hospitals and CAHs by bringing the standards in closer alignment with contemporary guidelines and evidence.

Despite improvements in resuscitation outcomes nationally over the past two decades, survival after in-hospital cardiac arrest varies widely across and within hospitals. The revised standards on resuscitation care address several interlinked factors that have been cited as critical to resuscitation performance; namely, the quality of hospital personnel training, adherence to evidence-based protocols, collection of data, and the implementation of internal quality control and case review mechanisms. Overall, the revised standards are intended to reduce unnecessary variations in practice and encourage hospitals to adopt a more proactive and responsive approach to resuscitation and post-resuscitation care to maximize patient survival with the best possible neurological outcomes.

Engagement with stakeholders, customers, and experts

The Joint Commission obtained guidance from the following groups:

- Technical Advisory Panel (TAP) of resuscitation experts from various health care and academic organizations, professional associations, and leading institutions.
- Standards Review Panel (SRP) of clinicians and administrators who provided a “boots on the ground” point of view and insights into the practical application of the proposed standards.
- American Heart Association (AHA) staff
- Stakeholders from accredited critical access hospitals, government/regulatory agencies, and professional organizations during two public comment periods or “field reviews” in 2020-2021.

The prepublication version of the resuscitation requirements will be available online until the end of December 2021. After January 1, 2022, please access the new requirement in the E-dition or standards manual.

Provision of Care, Treatment, and Services

Standard PC.02.01.11: Resuscitative services are available throughout the critical access hospital.

Requirement (existing)	EP 1: Resuscitative services are provided to the patient according to the critical access hospital's policies, procedures, or protocols.
Requirement (existing)	EP 2: Resuscitation equipment is available for use based on the needs of the population served. Note: For example, if the critical access hospital has a pediatric population, pediatric resuscitation equipment should be available. (See also EC.02.04.03, EP 2)
Requirement (revised)	EP 4: The critical access hospital provides education and training to staff involved in the provision of resuscitative services. The critical access hospital determines which staff complete this education and training based upon their job responsibilities and critical access hospital policies and procedures. The education and training are provided at the following intervals: - At orientation - A periodic basis thereafter, as determined by the critical access hospital - When staff responsibilities change Note 1: Topics may cover resuscitation procedures or protocols; use of cardiopulmonary resuscitation techniques, devices, or equipment; and the roles and responsibilities during resuscitation events. Note 2: The format and content of education and training are determined by the critical access hospital (for example, a skills day, a mock code). (See also HR.01.01.01, EP 1; HR.01.05.03, EP 1)
Rationale	Efficient and high–quality cardiopulmonary resuscitation is critical for survival during cardiac arrest. However, performance remains suboptimal in some hospitals, even though trained personnel and patient monitoring processes are available. Adequate training in resuscitation, or lack thereof, is a frequently cited factor in hospital resuscitation performance. Because cardiac arrest events are relatively infrequent yet require the highest level of skill and coordination to manage, staff preparedness for cardiac arrest events must be reinforced through education and training. A one-size-fits-all approach to resuscitation education and training may be impractical. As such, consideration should be given to the expected roles and responsibilities of the staff and the anticipated frequency of their exposure to cardiac arrest events.
Reference*	Bircher, N. G., Chan, P. S., Xu, Y., & American Heart Association. (2019). Delays in cardiopulmonary resuscitation, defibrillation, and epinephrine administration all decrease survival in in-hospital cardiac arrest. Anesthesiology, 130(3), 414-422. Chan, P. S., Krein, S. L., Tang, F., Iwashyna, T. J., Harrod, M., Kennedy, M., ... & Nallamothu, B. K. (2016). Resuscitation practices associated with survival after in-hospital cardiac arrest: a nationwide survey. JAMA cardiology, 1(2), 189-197 Cheng, A., Magid, D. J., Auerbach, M., Bhanji, F., Bigham, B. L., Blewer, A. L., ... & Mahgoub, M. (2020). Part 6: Resuscitation Education Science: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation, 142(16_Suppl_2), S551-S579. Edelson, D. P., Yuen, T. C., Mancini, M. E., Davis, D. P., Hunt, E. A., Miller, J. A., & Abella, B. S. (2014). Hospital cardiac arrest resuscitation practice in the United States: a nationally representative survey. Journal of hospital medicine, 9(6), 353-357.

Requirement (existing)	EP 5: For rehabilitation and psychiatric distinct part units in critical access hospitals: At a minimum, operating room suites have the following equipment available: - Call-in system (process to communicate with or summon staff outside of the operating room when needed) - Cardiac monitor - Resuscitator (hand-held or mechanical device that provides positive airway pressure) - Defibrillator - Aspirator (hand-held or mechanical device used to suction out fluids or secretions) - Tracheotomy set

Standard PC.02.01.20: The critical access hospital implements processes for post-resuscitation care.

Requirement (new)	EP 1: The critical access hospital develops and follows policies, procedures, or protocols based on current scientific literature for interdisciplinary post–cardiac arrest care. Note 1: Post–cardiac arrest care is aimed at identifying, treating, and mitigating acute pathophysiological processes after cardiac arrest and includes evaluation for targeted temperature management and other aspects of critical care management. Note 2: This requirement does not apply to critical access hospitals that do not provide post–cardiac arrest care.
Rationale	Comprehensive post–cardiac arrest care is necessary to address the systemic effects of the ischemia-reperfusion injury following cardiac arrest. Growing evidence suggests that it is critical for both patient survival and optimal neurological outcome. Yet, significant variations in implementation have been observed across hospitals. Because clinical sequalae following cardiac arrest are many and complex, The Joint Commission technical advisory panel on resuscitation and the 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care strongly recommended the implementation of comprehensive, structured, and multidisciplinary protocols of care to optimize survival and neurological outcome.
Reference*	Berg, K. M., Soar, J., Andersen, L. W., Böttiger, B. W., Cacciola, S., Callaway, C. W., ... & Nolan, J. P. (2020). Adult advanced life support: 2020 international consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Circulation, 142(16_suppl_1), S92-S139. Berger, D. A., Chen, N. W., Miller, J. B., Welch, R. D., Reynolds, J. C., Pribble, J. M., ... & CARES Surveillance Group. (2021). Substantial variation exists in post-cardiac arrest outcomes across Michigan hospitals. Resuscitation, 159, 97-104. Carr, C. T., Mills, M. R., Sutchu, S. S., Becker, T. K., Cohen, S. A., Maciel, C. B., ... & Florida Cardiac Arrest Research Team. (2020). Physician perception of targeted temperature management after cardiac arrest: An underappreciated barrier?. Resuscitation, 157, 174-175. Girotra, S., Nallamothu, B. K., Tang, Y., & Chan, P. S. (2020). Association of hospital-level acute resuscitation and postresuscitation survival with overall risk-standardized survival to discharge for in-hospital cardiac arrest. JAMA network open, 3(7), e2010403-e2010403. Panchal, A. R., Bartos, J. A., Cabañas, J. G., Donnino, M. W., Drennan, I. R., Hirsch, K. G., ... & O'Neil, B. J. (2020). Part 3: Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation, 142(16_Suppl_2), S366-S468.

Requirement (new)	EP 2: The critical access hospital develops and follows policies, procedures, or protocols based on current scientific literature to determine the neurological prognosis for patients who remain comatose after cardiac arrest. Note 1: Because any single method of neuroprognostication has an intrinsic error rate, current guidelines recommend that multiple testing modalities be incorporated into organizations' routine procedures and protocols to improve decision-making accuracy. Note 2: This requirement does not apply to critical access hospitals that do not provide post–cardiac arrest care.
Rationale	Accurate neurological prognosis is crucial in decisions to continue or withhold life-sustaining treatment in comatose cardiac arrest survivors. Because no single method of neuroprognostication is error-free and all may be subject to confounding by medication effects or a transiently poor examination in the early postinjury period, data from multiple examinations and tests should be deployed over time to improve decision-making accuracy. For the latest evidence and recommendations, refer to the Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care and the Adult Advanced Life Support: 2020 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations.
Reference*	Berg, K. M., Soar, J., Andersen, L. W., Böttiger, B. W., Cacciola, S., Callaway, C. W., ... & Nolan, J. P. (2020). Adult advanced life support: 2020 international consensus on cardiopulmonary resuscitation and emergency cardiovascular care science with treatment recommendations. Circulation, 142(16_suppl_1), S92-S139. Panchal, A. R., Bartos, J. A., Cabañas, J. G., Donnino, M. W., Drennan, I. R., Hirsch, K. G., ... & O'Neil, B. J. (2020). Part 3: Adult Basic and Advanced Life Support: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation, 142(16_Suppl_2), S366-S468
Requirement (new)	EP 3: The critical access hospital follows written criteria or a protocol for inter-facility transfers of patients for post–cardiac arrest care, when indicated.
Rationale	Availability of comprehensive post–resuscitation care is a prominent factor positively affecting outcomes after cardiac arrest. Initial evidence on the impact of local and statewide implementation of cardiac resuscitation systems of care suggests that directing appropriate patients to specialty centers is associated with increased survival. To reduce the risk of harm for survivors, hospitals should be prepared to facilitate efficient transfer of patients to a higher level of care when indicated.
Reference*	Elmer, J., Callaway, C. W., Chang, C. C. H., Madaras, J., Martin-Gill, C., Nawrocki, P., ... & Guyette, F. X. (2019). Long-term outcomes of out-of-hospital cardiac arrest care at regionalized centers. Annals of emergency medicine, 73(1), 29-39. McCarthy, J. J., Carr, B., Sasson, C., Bobrow, B. J., Callaway, C. W., Neumar, R. W., ... & American Heart Association Emergency Cardiovascular Care Committee; Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation; and the Mission: Lifeline Resuscitation Subcommittee. (2018). Out-of-hospital cardiac arrest resuscitation systems of care: a scientific statement from the American Heart Association. Circulation, 137(21), e645-e660.

Performance Improvement

Standard PI.01.01.01: The critical access hospital collects data to monitor its performance.

Requirement (revised)	EP 10: The critical access hospital collects data on the following: - The number and location of cardiac arrests (for example, ambulatory area, telemetry unit, critical care unit) - The outcomes of resuscitation (for example, return of spontaneous circulation (ROSC), survival to discharge) Note: Return of spontaneous circulation (ROSC) is defined as return of spontaneous and sustained circulation for at least 20 consecutive minutes following resuscitation efforts. - Transfer to a higher level of care (See also LD.03.07.01, EP 2; PI.03.01.01, EP 22)
Rationale	There are many barriers to reliable data collection on resuscitation, such as the inadequacy of current diagnostic coding systems to reliably track the incidence of cardiac arrests. However, critical access hospitals, at a minimum, must conduct regular surveillance of all cardiac arrest events and track data on cardiac arrest survival outcomes for the purposes of planning, training, and evaluation of current practices. Survival rates often vary depending upon where cardiac arrests occur in the hospital, and it is important to have site-level data to target improvement interventions. Measuring survival after acute resuscitation (measured as ROSC) provides information on the quality of intra-arrest resuscitative efforts. The metric of survival to discharge is inclusive of the quality of post-resuscitation care and, too, is essential for internal quality measurement, if the critical access hospital provides post-resuscitation care.
Reference*	Edelson, D. P., Litzinger, B., Arora, V., Walsh, D., Kim, S., Lauderdale, D. S., ... & Abella, B. S. (2008). Improving in-hospital cardiac arrest process and outcomes with performance debriefing. Archives of internal medicine, 168(10), 1063-1069. Graham, R., McCoy, M. A., & Schultz, A. M. (Eds.). (2015). Strategies to improve cardiac arrest survival: a time to act. Washington, DC: National Academies Press. Nolan, J. P., Berg, R. A., Andersen, L. W., Bhanji, F., Chan, P. S., Donnino, M. W., ... & Perkins, G. D. (2019). Cardiac arrest and cardiopulmonary resuscitation outcome reports: update of the Utstein resuscitation registry template for in-hospital cardiac arrest: a consensus report from a task force of the international Liaison committee on resuscitation (American heart association, European resuscitation Council, Australian and New Zealand Council on resuscitation, heart and stroke foundation of Canada, InterAmerican heart foundation, resuscitation Council of Southern Africa, resuscitation Council of Asia). Circulation, 140(18), e746-e757. Perman, S. M., Stanton, E., Soar, J., Berg, R. A., Donnino, M. W., Mikkelsen, M. E., ... & American Heart Association's Get With the Guidelines®—Resuscitation (formerly the National Registry of Cardiopulmonary Resuscitation) Investigators. (2016). Location of In-Hospital Cardiac Arrest in the United States—Variability in Event Rate and Outcomes. Journal of the American Heart Association, 5(10), e003638.

Standard PI.03.01.01: The critical access hospital compiles and analyzes data.

Requirement (new)	EP 22: An interdisciplinary committee reviews cases and data to identify and suggest practice and system improvements in resuscitation performance. Note 1: Examples of the review could include: - How often early warning signs of clinical deterioration were present prior to in-hospital cardiac arrest in patients in non-monitored or non-critical care units - Timeliness of staff's response to a cardiac arrest - The quality of cardiopulmonary resuscitation (CPR) - Post–cardiac arrest care processes - Outcomes following cardiac arrest Note 2: The review functions may be designated to an existing interdisciplinary committee. (See also PC.02.01.19, EPs 1 and 2; PC.02.01.20, EPs 1–3; PI.01.01.01, EP 10)
Rationale	Clinical and operational factors that determine survival after cardiac arrest are complex and include patient characteristics, staffing levels, staff competence levels, timing of cardiac arrest recognition and response, deployment of comprehensive post-cardiac arrest care among others. Although the evidence is limited which resuscitation practices are most strongly associated with higher survival for in-hospital cardiac arrest, available evidence from the Get With The Guidelines (GWTG)-Resuscitation registry suggests that hospitals that regularly review their cardiac arrest cases have significantly greater odds of being in a higher cardiac arrest survival quintile category than hospitals that do so infrequently (less than once quarterly). Moreover, among participating hospitals, risk standardized survival rates were positively correlated with the use of best resuscitation practices (for example, practices related to prevention of cardiac arrest or ensuring high quality of cardiopulmonary resuscitation). Recognizing the current knowledge limitations, The Joint Commission leaves the determination of analysis priorities to an interdisciplinary committee. Local resuscitation leaders, with the knowledge of local capabilities and hospitalwide cardiac arrest data, are best positioned to identify performance gaps and lead improvement efforts.
Reference*	Berg, K. M., Cheng, A., Panchal, A. R., Topjian, A. A., Aziz, K., Bhanji, F., ... & Levy, A. (2020). Part 7: Systems of Care: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation, 142(16_Suppl_2), S580-S604. Chan, P. S., Krein, S. L., Tang, F., Iwashyna, T. J., Harrod, M., Kennedy, M., ... & Nallamothu, B. K. (2016). Resuscitation practices associated with survival after in-hospital cardiac arrest: a nationwide survey. JAMA cardiology, 1(2), 189-197. Girotra, S., Nallamothu, B. K., Tang, Y., & Chan, P. S. (2020). Association of hospital-level acute resuscitation and postresuscitation survival with overall risk-standardized survival to discharge for in-hospital cardiac arrest. JAMA network open, 3(7), e2010403-e2010403. Graham, R., McCoy, M. A., & Schultz, A. M. (Eds.). (2015). Strategies to improve cardiac arrest survival: a time to act. Washington, DC: National Academies Press.

*Not a complete literature review.

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