

Letters

Invited Commentary

Outcomes of Cardiopulmonary Resuscitation in Patients With COVID-19—

Limited Data, but Further Reason for Action

Cardiopulmonary resuscitation (CPR) for in-hospital cardiac arrest (IHCA) in patients with coronavirus disease 2019 (COVID-19) presents unique challenges. Cardiopulmonary resuscitation may be delayed because of isolation procedures,



Related article

and advanced life support resources may be limited. Additionally, CPR for patients with COVID-19 exposes health care workers to increased risk of viral transmission. Improving our understanding of the likelihood of successful outcomes after CPR is crucial to informing goals-of-care discussions, determining the appropriateness of resuscitative efforts, and guiding policy. To date, to our knowledge, there is limited evidence on outcomes for IHCA among patients with COVID-19. A single-center study of 136 patients with IHCA in Wuhan, China, reported poor outcomes but was limited by cardiac arrests occurring during shortages of advanced life support resources.¹ Nonetheless, this study found only 18 patients (13%) achieved return of spontaneous circulation, 4 (3%) survived to 30 days, and only 1 (<1%) achieved a favorable neurological outcome by 30 days. In this issue of *JAMA Internal Medicine*, Thapa et al² report what to our knowledge are the first US data on outcomes for IHCA among patients with COVID-19. In their case series of 54 patients, 52 (96%) had a nonshockable initial rhythm, 29 (54%) achieved return of spontaneous circulation, and 0 survived to hospital discharge (95% CI, 0%-6.6%). This very low hospital survival is likely driven by several factors, including critical illness in most patients at the time of arrest and the many patients with nonshockable initial rhythms. Additionally, presumed respiratory etiology of arrest for most patients, lack of therapies to effectively treat the underlying disease, and potential delays in response time for donning of personal protective equipment may have contributed to poor outcomes.

These small case series reporting hospital survival after IHCA among patients with COVID-19 must be interpreted with caution, as only 1 or 2 additional survivors would make important differences in the observed estimates. Outcomes in the setting of COVID-19 may not actually differ from pre-COVID-19 outcomes of IHCA for patients with nonshockable rhythms, for whom hospital survival is often less than 15%.³ Nonetheless, this article² represents important early evidence suggesting outcomes for IHCA in patients with COVID-19 pneumonia are likely poor, particularly among patients with respiratory failure. Improving outcomes for patients with severe illness with COVID-19 and IHCA will be challenging, as few of the likely drivers of poor outcomes (eg, nonshockable rhythms, respiratory etiologies of arrest, and underlying critical illness) are modifiable. While these early results should not warrant universal do-not-attempt-resuscitation (DNAR)

orders for patients with COVID-19, they highlight the importance of conducting goals-of-care discussions early during the course of COVID-19 and revisiting those discussions with changes in clinical status (worsening or improvement). Moreover, the existing data may warrant clinician recommendations for DNAR, particularly in patients with severe respiratory failure who are at high risk of IHCA. An informed assent approach, in which the patient or family is invited to allow the clinician to assume responsibility for the DNAR decision, may be appropriate in select patients to help alleviate the psychological burden of decision-making on patients and families during this stressful time.⁴ Like traditional informed consent, this approach places substantial responsibility on clinicians to have open, respectful, and thoughtful communication with patients and families.

Although this study was not designed to examine racial disparities, it is notable that two-thirds of the patients were Black.² Previous studies have reported that a larger minority of Black patients request CPR in the context of poor prognoses.⁵ Black patients also have lower rates of advance care planning documentation and report poorer quality communication during serious illness and greater mistrust in the health system that are associated with long-standing and ongoing disparities in health care.⁵ Finding ways to respect differences in preferences and eliminate disparities in high-quality communication during serious illness is critically important. Building trust with patients is crucial to effective communication, and clinician recommendations made without trust have potential for harm. In the context of COVID-19, Black persons and persons of color are more likely to contract COVID-19 or develop serious illness requiring hospitalization; this association is most likely because of disparities.⁶ As such, the urgency of eliminating racial disparities in health care has never been clearer.

The long-standing need to improve the conduct and timeliness of high-quality goals-of-care discussions for patients with serious illness has become even more important in the time of COVID-19. Promotion of early goals-of-care discussions should be a priority for patients, families, clinicians, health systems, and policy makers. Such a shared focus offers substantial opportunity for health system and public health interventions. Established programs, such as The Conversation Project (Institute for Healthcare Improvement; <http://www.theconversationproject.org>) and PREPARE For Your Care (The Regents of the University of California; <http://www.prepareforyourcare.org>), both of which offer new COVID-19-specific guidance, are important resources to help prepare patients and their families for in-the-moment decision-making should they be hospitalized with COVID-19. For selected patients with chronic life-limiting illness and preferences for limitations on life-sustaining treatments, completing the Physician Orders for Life-Sustaining Treatment may reduce unwanted high-intensity care near the end of life.⁷ Although

there are important limitations on current data regarding outcomes of IHCA for patients with COVID-19, we have enough data to conclude that it is important to implement programs to promote conversations about values and goals in the community and early goals-of-care discussions for patients hospitalized with COVID-19.

Matthew E. Modes, MD, MPP, MS

Robert Y. Lee, MD, MS

J. Randall Curtis, MD, MPH

Author Affiliations: Division of Pulmonary, Critical Care and Sleep Medicine, University of Washington, Seattle (Modes, Lee, Curtis); Cambia Palliative Care Center of Excellence, University of Washington, Seattle (Modes, Lee, Curtis).

Corresponding Author: J. Randall Curtis, MD, MPH, Division of Pulmonary, Critical Care, and Sleep Medicine, Box 359762, Harborview Medical Center, University of Washington, Seattle, WA 98104 (jrc@u.washington.edu).

Published Online: September 28, 2020. doi:[10.1001/jamainternmed.2020.4779](https://doi.org/10.1001/jamainternmed.2020.4779)

Conflict of Interest Disclosures: Dr Modes reported grants from the National Institutes of Health (T32 # HL 125195; University of Washington Palliative Care T32) during the conduct of the study. Dr Lee reported grants from the National

Institutes of Health during the conduct of the study. Dr Curtis reported grants from the National Institutes of Health, Cambia Health Foundation, and National Palliative Care Research Center outside the submitted work.

1. Shao F, Xu S, Ma X, et al. In-hospital cardiac arrest outcomes among patients with COVID-19 pneumonia in Wuhan, China. *Resuscitation*. 2020;151:18-23.
2. Thapa SB, Kakar TS, Mayer C, Khanal D. Clinical outcomes of in-hospital cardiac arrest in COVID-19. *JAMA Intern Med*. Published online September 28, 2020. doi:[10.1001/jamainternmed.2020.4796](https://doi.org/10.1001/jamainternmed.2020.4796)
3. Thompson LE, Chan PS, Tang F, et al; American Heart Association's Get With the Guidelines-Resuscitation Investigators. Long-term survival trends of Medicare patients after in-hospital cardiac arrest: insights from Get With The Guidelines-Resuscitation. *Resuscitation*. 2018;123:58-64.
4. Curtis JR, Kross EK, Stapleton RD. The importance of addressing advance care planning and decisions about do-not-resuscitate orders during novel coronavirus 2019 (COVID-19). *JAMA*. 2020.
5. Boucher NA, Raghavan M, Smith A, Arnold R, Johnson KS. Palliative care in the African American community #204. *J Palliat Med*. 2016;19(2):228-230.
6. Price-Haywood EG, Burton J, Fort D, Seoane L. Hospitalization and mortality among Black patients and White patients with Covid-19. *N Engl J Med*. 2020; 382(26):2534-2543.
7. Lee RY, Brumback LC, Sathitratanaheewin S, et al. Association of physician orders for life-sustaining treatment with ICU admission among patients hospitalized near the end of life. *JAMA*. 2020;323:950-960.