

# Electrophysiology and COVID-19: An era of new potential



Marye J. Gleva, MD, FHRS

*From the Washington University School of Medicine, St. Louis, Missouri.*

During the COVID-19 pandemic and with worldwide medical colleagues, the electrophysiology (EP) community has encountered challenges that are unique in our collective consciousness. Just a few short weeks ago, we focused on accessory pathway potentials, or local abnormal ventricular activation, or pulmonary vein potentials, and/or those from the His bundle. Now, our expanded focus on “potentials” includes arenas outside the EP laboratory as we expand our partnership with procedure centers, hospitals, regions, nations, and the world.

In the enduring spirit of established multi-society guidelines, there is now a novel document designed to help better integrate the multiple types of clinical electrophysiological encounters into these greater communities. Dr Lakkireddy and his coauthors have constructed a thoughtful, detailed, and comprehensive approach to guide us in this endeavor. “Guidance for Cardiac Electrophysiology During the Coronavirus (COVID-19) Pandemic from the Heart Rhythm Society COVID-19 Task Force; Electrophysiology Section of the American College of Cardiology; and the Electrocardiography and Arrhythmias Committee of the Council on Clinical Cardiology, American Heart Association” is available in *Heart Rhythm*.<sup>1</sup> This compendium includes a cogent summary of the cardiovascular and arrhythmia implications of COVID-19 infection and then addresses the complete spectrum of EP medical care situations, from the outpatient clinic to inpatient visits at both teaching and non-teaching facilities, as well as in acute cardiovascular situations requiring resuscitation. There are also recommendations on staffing and facility utilization. Colleagues in other disciplines have similar guideline statements.<sup>2</sup>

This document has many strengths. One of the most impressive is its section 5, detailing strategies to manage invasive and noninvasive EP procedures, clinic visits, and cardiac implantable electronic device interrogations.

For the first time, electrophysiologists now must factor in a type of triage, a concept more familiar to our emergency room, trauma, surgical, and anesthesiology colleagues.<sup>3</sup> The

first 2 figures in the section provide a framework for assessing the typical but complex EP patient, incorporating the clinician’s detailed knowledge of an individual patient as well as the potential benefit from an EP procedure. The figures are visual summaries that can be shared with all team members. In addition, this is an opportunity to ensure that patients are truly optimized on guideline-directed medical therapy and applicable therapeutic lifestyle changes. When restrictions are lifted and the phases of procedural scheduling resume, these categories will again be useful. It is important to note that this reintegration of procedural scheduling upon reopening must also include compliance with local, state, regional, and national policies, including those of the Centers for Medicare and Medicaid Services.<sup>4</sup> Because of geographic variations in disease incidence and prevalence and in mathematical modeling, the actual implementation of resuming procedural scheduling may differ for different practices and proceed along different timelines. Depending on the results of expanded testing for the novel coronavirus, it is also feasible to consider that universal precautions may evolve to include N-95 masks. Whether or not antibody testing or status will be integrated into new procedure scheduling is unknown at this time.

Personnel utilization and facilities also are affected by this pandemic. Staffing for procedures may increase, and more staff may be required for transport of these patients.

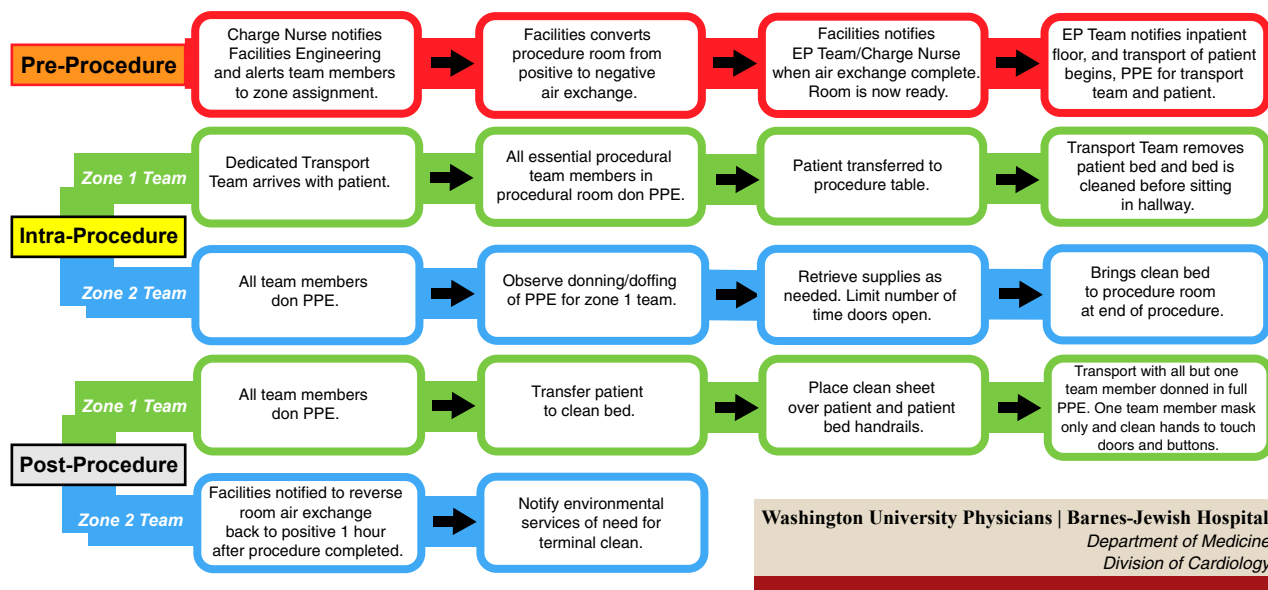
Airborne pathogens also pose crucial issues for hospital facilities, in particular procedural rooms and operating rooms, and also most intensive care units whose rooms are also in airflow relationship to the corridors of each intensive care unit suite. Negative-pressure airflow is not the standard in these rooms. Different facilities may have different processes and time requirements for implementing negative-pressure airflow, air exchanges, and the subsequent reversal of airflow from a positive state. It is worthwhile for electrophysiologists to understand those requirements in their individual practice environments. An example of our approach to both personnel and facility management is shown in [Figure 1](#).

Another strength of Lakkireddy and colleagues’ multi-society document is the links to online sources such as the Centers for Disease Control and Prevention. Other cardiovascular COVID-19 scientific sites that are frequently updated are:

**Address reprint requests and correspondence:** Dr Marye J. Gleva, Division of Cardiology, School of Medicine, Washington University in St. Louis, Campus Box 8086, 660 South Euclid, Saint Louis, MO 63110. E-mail address: [mgleva@wustl.edu](mailto:mgleva@wustl.edu).

## Barnes-Jewish Hospital Electrophysiology Procedures in COVID19+ or PUI

*Communicate Case Request with EP Lab Team, Charge Nurse, and Anesthesiology Service.*



**Figure 1** Example of an approach for personnel and facility management for electrophysiology (EP) procedures in patients who have confirmed or suspected COVID19. PPE = personal protective equipment; PUI = patient under investigation.

- <https://www.acc.org/latest-in-cardiology/features/accs-coronavirus-disease-2019-covid-19-hub#sort=%40fcommonsortdate90022%20descending>
- <https://www.hrsonline.org/COVID19-Challenges-Solutions>
- <https://www.heart.org/en/coronavirus/coronavirus-covid-19-resources>
- <https://www.escardio.org/Education/COVID-19-and-Cardiology>

The rapid evolution of new data and technology is further illustrated by the U.S. Food and Drug Administration's approval of a handheld device with a mobile phone application for QT interval monitoring that occurred after publication of this Lakkireddy manuscript.<sup>5</sup>

Finally, the importance of shared decision-making and the therapeutic benefit of empathetic communication with and respect for patients, families, colleagues, and coworkers is evident throughout the document (as illustrated in Figure 3), strengthening our EP global citizenship and our shared mission.

## Acknowledgments

The author gratefully acknowledges Samantha Miller, MSN, RN, and Kathleen Schlafly, MSN, RN, CCRN, for assistance with creating Figure 1; the artistic assistance of Kory Zide in designing Figure 1; and Matthew Frisella, Remote Opera-

tions Center Management at Barnes Jewish Hospital, for his insight into facilities and airflow management.

## Funding Sources

The author has no funding sources to disclose.

## Disclosures

The author has no conflicts of interest to disclose.

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