COVID-19: Guidance for Cardiac Electrophysiology

Video Interview
Recorded April 2, 2020
Guidance for Cardiac Electrophysiology During the Coronavirus (COVID-19) Pandemic

- Heart Rhythm Society COVID-19 Task Force
- American College of Cardiology Electrophysiology Section
- American Heart Association Electrocardiography and Arrhythmias Committee of the Council on Clinical Cardiology
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Disclosures:
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Disclosures: Royalty Income: UpToDate, Elsevier; Associate Editor: American Heart Association, Circulation Arrhythmia & Electrophysiology; Research: American Heart Association, National Institutes of Health; Membership on Advisory Committees or Review Panels: Amarin, American College of Cardiology, American Heart Association, BIOTRONIK; Honoraria/Speaking/Consulting: ABIM

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OBJECTIVES

Upon completion of this activity, learners will be able to:

1. Describe how to triage EP procedures to minimize peri-procedural COVID-19 exposure
2. Employ PPE for EP procedures to minimize peri-procedural COVID-19 exposure and avoid unnecessary use
3. Minimize COVID-19 exposure for inpatient consultations
4. Minimize COVID-19 exposure for outpatient visits

TARGET AUDIENCE

Intended for professionals providing heart rhythm care during COVID-19 pandemic
Guiding Values

Reducing contact between health care personnel and COVID-19 patients will limit spread of the disease and help to preserve health care resources, including personal protective equipment (PPE), ICU beds, ventilators, blood supply.

- While non-urgent or elective procedures should be delayed, other procedures may be necessary.
- Semi-urgent, urgent, or emergent procedures include those in which there is:
  - Threat to the patient's life if the procedure is not performed urgently
  - Threat of permanent dysfunction of an extremity or organ system
  - Risk of rapidly worsening to severe symptoms
Triaging to Minimize Peri-Procedural COVID-19 Exposure

- Postpone all elective procedures
- Perform procedures that substantially decrease risk of clinical decompensation or risk of death
- Consider same-day discharge

### Urgent/Non-Elective Procedures

- **Catheter ablation**
  - VT ablation for medically refractory electrical storm
  - AF, AFL, or AV nodal ablation if hemodynamically significant, severely symptomatic, drug and/or cardioversion refractory
  - WPW syndrome or preexcited AF with syncope or cardiac arrest
- **CIED procedures**
  - Lead revision for malfunction in a PM-dependent patient or ICD patient receiving inappropriate therapy
  - Generator change in a PM-dependent patient at ERI or EOS; PM or ICD with minimal battery remaining
  - Secondary prevention ICD
  - PM for symptomatic CHB, Mobitz II AVB, high-grade AVB, severely symptomatic SND with long pauses
  - Lead/device extraction for infection, including bacteremia, endocarditis, or pocket infection
  - CRT for severe refractory HF
  - Cardioversion for highly symptomatic atrial arrhythmias or uncontrollable RVR
  - TEE for urgent cardioversion

### Semi-Urgent Procedures

- **Catheter ablation**
  - VT ablation for medically refractory recurrent VT
  - SVT, medically refractory resulting in ED visits
- **CIED procedures**
  - Generator replacement for ERI battery status
  - Primary prevention ICD in patient at high risk of life-threatening ventricular arrhythmia

### Non-Urgent/Elective Procedures

- **Catheter ablation and EP testing**
  - PVC ablation in a stable patient
  - SVT ablation for a stable patient
  - AF/AFL ablation in a stable patient
  - EP testing to evaluate stable tachyarrhythmias or bradycardia
- **CIED procedures**
  - Primary prevention ICD
  - CRT in stable patients
  - CIED upgrade
  - PM for SND, Mobitz I AVB, stable non–high-degree AVB, or tachy-brady syndrome in mildly symptomatic patient
  - PM or ICD generator replacements with >6 weeks of battery remaining
  - Extraction of non-infected leads/device unless device function is dependent on lead extraction and re-implantation
  - Cardioversion of stable arrhythmias with well-tolerated symptoms
  - LAA closure in patients who can be on oral anticoagulation
  - TEE for routine assessment of valves or LAA closure devices and cardioversion that can be done after appropriate period of anticoagulation
  - Implantable loop recorder placement
  - Tilt-table testing
PPE to Minimize Peri-Procedural COVID-19 Exposure

• Screen all EP procedure patients for fever, COVID-19 symptoms, and high-risk exposures
• Coordination with anesthesia and ICU team is essential for procedure planning for COVID-19 positive patients

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<tr>
<th>COVID-19 Positive or PUI Patient</th>
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<tr>
<td><strong>Airborne Precautions</strong></td>
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<tr>
<td>• PAPR or N95 mask</td>
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<td>• Surgical gown and gloves</td>
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<td>• Protective eyewear (goggles or face shield)</td>
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If needing intubation prior to procedure, consider performing in a negative pressure room (in EP lab or inpatient ICU room before bringing to EP lab)

In locations with community spread and/or limited testing availability, it may be prudent to consider at least droplet precautions for all EP procedures
## Inpatient Consultation to Minimize COVID-19 Exposure

- Maintain high level of clinical suspicion for undiagnosed COVID-19 infection
- Minimize elective consultations and CIED interrogations

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<tr>
<th>COVID-19 Positive or PUI</th>
<th>Non-COVID-19</th>
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<tr>
<td>• Consider chart review and team discussion only consultation</td>
<td>• Consider postponing non-urgent consultations</td>
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<td>• Consider televisit using video or phone assistance</td>
<td>• Consider surgical mask PPE</td>
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<td>• N95 or PAPR PPE, or according to CDC and hospital guidelines</td>
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<td>• Coordinate visit carefully to decrease entering/exiting room</td>
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<td>• Consider minimizing fellow/trainee involvement in consultation or case</td>
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## Outpatient Consultation to Minimize COVID-19 Exposure

- Screen for risk symptoms and fever prior to arrival
- Consider surgical mask for all in-person visits
- Encourage telehealth or telephone as clinically appropriate and where permitted

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<tr>
<th>CIED Clinic</th>
<th>Telehealth/E-Visits</th>
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<td>• When possible, convert stable outpatient follow-up to remote CIED visit</td>
<td>• Avoid direct patient contact in clinic unless deemed absolutely necessary</td>
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| • Consider in-office device interrogation for:  
  • CIED abnormality noted on remote, telemetry, or ambulatory monitoring  
  • ICD shocks, presyncope or syncope concerning for an arrhythmic event, where programming changes are expected  
  • Symptoms secondary to device/lead malfunction in patient without remote monitoring  
  • Suspected device infection  
  • Incessant arrhythmias associated with significant symptoms; if leading to multiple shocks, may consider re-directing for admission or to ED  
  • Identified need for CIED reprogramming  
  • Close monitoring of remote transmissions for actionable alerts | • Convert all visits possible to telehealth visits (Internet, phone, video) including for new patients  
• Consider utilizing digital wearables to obtain vital signs and ECG tracings  
• CIED site inspection can be done virtually (video call or have a patient sent a picture of the site to the physician through a secure portal) |
PANEL DISCUSSION
RESOURCES

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

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https://www.heartrhythmjournal.com/article/S1547-5271(20)30289-7/fulltext

COVID-19 Challenges & Solutions Resources
https://www.hrsonline.org/COVID19-Challenges-Solutions
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