



**Penn Medicine**  
Continuing Medical and  
Interprofessional Education

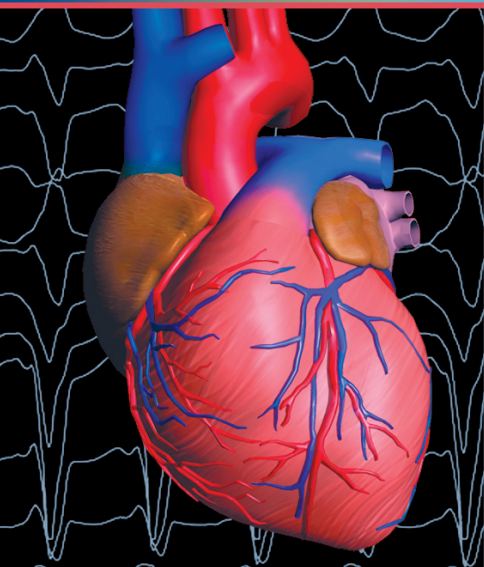
**VIRTUAL** with Live Discussions and Live EP Cases

16th International Symposium on

# **VENTRICULAR ARRHYTHMIAS:**

## **Pathophysiology & Therapy**

[www.vtsymposium.com](http://www.vtsymposium.com)



A CME-ACCREDITED SYMPOSIUM

**Friday & Saturday  
October 15-16, 2021**

This course will be  
**LIVE-STREAMED**

Co-hosted by:  
**Hospital of the  
University of Pennsylvania  
The Mount Sinai Hospital**

Co-sponsored with:



**Heart Rhythm Society<sup>SM</sup>**

### **COURSE DIRECTORS**

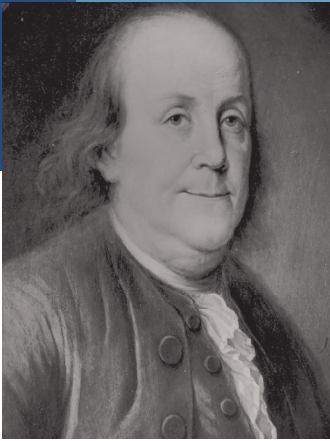
Francis Marchlinski, MD

David Callans, MD

Vivek Reddy, MD

Andre d'Avila, MD, PhD

Srinivas Dukkipati, MD



## PROGRAM OVERVIEW

This is the 16th year for the *International Symposium on Ventricular Arrhythmias: Pathophysiology and Therapy*. Using a combination of didactic presentations, panel discussions, and question and answer sessions, our goal is to educate the participants in state of the art information the pathophysiology and treatment of ventricular arrhythmias. There will also be VT ablation cases streamed live from the University of Pennsylvania and The Mount Sinai Hospital during which a moderated panel discussion and question and answer session will occur to educate and demonstrate to the audience members the most up to date techniques for complex ablation procedures.

### Hosting Organizations

The *16th International Symposium on Ventricular Arrhythmias: Pathophysiology & Therapy* is hosted by the Department of Medicine, Division of Cardiology, University of Pennsylvania Health System, Philadelphia, PA and the Division of Cardiology, The Mount Sinai Hospital, New York, NY.

### Target Audience

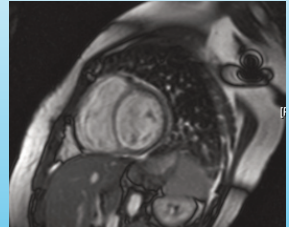
This course has been developed to meet the educational needs of electrophysiologists, cardiologists and other physicians and associated professionals with an interest in the pathophysiology and management of ventricular arrhythmias.

### Program Objectives

1. Provide a review of new information on the basic pathophysiology of ventricular arrhythmias
2. Provide an in-depth understanding of current management strategies used for the care of ventricular arrhythmias in various disease states, including non-pharmacological therapies such as implantable device and catheter ablation techniques.

At the conclusion of this symposium, participants should be able to:

- Discuss strategies to improve treatment outcome in patients with ventricular arrhythmias and structural heart disease including new techniques and technologies
- Discuss the current status and future role for device therapy in the management of sudden cardiac death and heart failure.
- Discuss the role of imaging in VT ablation including functional scar imaging, MRS, and high-density mapping
- Describe risk stratification for sudden death and treatment including VF ablation in patients with VF due to various substrates and syndromes
- Identify the challenges related to treatment of PVCs and idiopathic VT
- Describe the science critical to the understanding and treatment of ventricular arrhythmias including:
  - The role of the autonomic nervous system in ventricular arrhythmogenesis.
  - Anatomic substrate for ventricular tachycardia (VT)
- Describe the status of ongoing multicenter VT related trials
- Discuss future directions and questions to be answered



## Accreditation



JOINTLY ACCREDITED PROVIDER™  
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, Penn Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

## Designation of Credit

**Physicians:** Penn Medicine designates this live activity for a maximum of 20.5 *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Physician Assistants:** AAPA accepts certificates of participation for educational activities certified for *AMA PRA Category 1 Credit*™ from organizations accredited by ACCME or a recognized state medical society. PAs may receive a maximum of 20.5 Category 1 credits for completing this activity.

## Certificates and Transcripts

After the conference has concluded, all participants will receive a followup email with a link and instructions on how to claim their credit. Once participants submit the request for credit, the earned credits will be available for viewing on your transcript or available for printing at <https://upenn.cloud-cme.com>. Please note that the individual certificate will not be mailed.



**VIRTUAL** with Live Discussions and Live EP Cases

16th International Symposium on  
**VENTRICULAR ARRHYTHMIAS:  
Pathophysiology & Therapy**

A CME-ACCREDITED SYMPOSIUM

Friday & Saturday, October 15-16, 2021

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### **VIRTUAL/LIVE PRESENTATION**

The 16th International Symposium on Ventricular Arrhythmias: Pathophysiology & Therapy will be held Friday & Saturday, October 15-16, 2021 by live-stream (virtual) attendance only. The virtual presentation will follow the scheduled agenda in real time (EDT).

### **THERE IS NO FEE TO ATTEND (VIRTUAL ATTENDANCE ONLY)**

Please register online at <https://upenn.cloud-cme.com/VT2021>.

Attendees who are registered to attend will receive an email that includes the link to join the symposium two-days in advance. That email will also include the handout as a downloadable PDF.

On the days of the symposium, all attendees will be required to sign into the platform using your first name, last name and email address in order to be marked as attended and receive credit. Please remember if you plan to claim credit, then you must be preregistered. The link to preregister and claim credit differs from the link for the symposium.

**Need to Register by Mail?** Please note: mailed registrations can take up to 5-10 business days before they are received. We are experiencing longer delays receiving mail due to the COVID-19 pandemic. We encourage all attendees to register online.

All registrations will be confirmed by email as long as your registration is received no later than October 13, 2021.

#### **For VT Symposium Information Contact:**

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### **Cancellation**

The University reserves the right to cancel or postpone any course due to unforeseen circumstances. In the event of cancellation or postponement, the University will refund registration fees but is not responsible for related costs or expenses to participants, including cancellation fees assessed by hotels, airlines, and travel agencies.

### **Disclosures**

Penn Medicine, Office of Continuing Medical and Interprofessional Education, adheres to the *ACCME Standards for Integrity and Independence in Accredited Continuing Education*.

Faculty disclosure information will be made available in the conference materials and syllabi.

Faculty members are also expected to disclose to participants any discussions of off-label and/or investigational uses of pharmaceutical products within their presentations.



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234 bpm



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# AGENDA | FRIDAY, OCTOBER 15, 2021

All times are Eastern Daylight Time (EDT)

7:30 – 7:40 AM

Welcome/Introductions/Opening Remarks

Francis Marchlinski, MD

## SESSION I

Biology/Biophysics of Old and New Ablation Strategies

Moderators: David Haines, MD; Atul Verma, MD

Digital Moderator: Vivek Reddy, MD

7:40 – 7:49 AM

Techniques for Making RFA More Effective in the Ventricles

Elad Anter, MD

7:49 – 7:58 AM

Scar, Conduction System, and Coronaries: Impact on Pulsed Field Ablation

Samuel Asirvatham, MD

7:58 – 8:07 AM

Pulsed Field Ablation in Ventricular Myocardium: Challenges

Jacob Koruth, MD

8:07 – 8:16 AM

PFA: Effect of Contact Force and Repetitive Focal Application

Hiroshi Nakagawa, MD, PhD

8:16 – 8:25 AM

Effects of Focused Radioablation on Basic Electrophysiology: Functional Ablation?

Stacey Rentschler, MD, PhD

8:25 – 8:50 AM Panel Discussion

8:50 – 9:05 AM Break/Visit Exhibits

## SESSION II

New Concepts in Sudden Death Risk Stratification

Moderators: David Callans, MD;

Christine Albert, MD, MPH

Digital Moderator: Rajat Deo, MD

9:05 – 9:14 AM

SCD Risk: Substrate, Triggers and Modulators: New Insights

Kalyanam Shivkumar, MD, PhD

9:14 – 9:23 AM

Sudden Death in Patients with PVCs: New Markers of Risk

Daniele Muser, MD

9:23 – 9:32 AM

Sudden Death in Malignant MVP and MAD: Update on Risk/Treatment

Marc Miller, MD

9:32 – 9:41 AM

Use of ECG-based Neural Networks for Risk Prediction

Andrea Natale, MD

9:41 – 9:50 AM

PROFID (Post MI) SCD Risk Prediction Model – Can it Rise to the Challenge?

Gerhard Hindricks, MD

9:50 – 10:15 AM Panel Discussion

## SESSION III

Advances in Device Therapy

Moderators: Andrew Epstein, MD;

Andrea Russo, MD

Digital Moderator: Kenneth Ellenbogen, MD

10:15 – 10:24 AM

CRT in the Era of Conduction System Pacing

Pugazhendhi Vijayaraman, MD

10:24 – 10:33 AM

Conduction System Pacing:

His Bundle vs. Left Bundle Pacing?

Kenneth Ellenbogen, MD

10:33 – 10:42 AM

UNTOUCHED and PRAETORIAN:

Present Role for the S-ICD

Michael Gold, MD, PhD

10:42 – 10:51 AM

Substernal Extravascular ICD

Charles Swerdlow, MD

10:51 – 11:00 AM

Perspective: What Trials are Necessary for Advancing Device Therapy Effectiveness/ Appropriate Use?

Jeanne Poole, MD

11:00 – 11:25 AM Panel Discussion

11:25 – 11:35 AM Lunch/Visit Exhibits

## SESSION IV

LIVE CASES 1 with Working Lunch

11:35 AM – 1:35 PM

Live cases from the Hospital of the University of Pennsylvania

Moderator: Francis Marchlinski, MD

Digital Moderator: Andre d'Avila, MD, PhD

Panel: Vivek Reddy, MD; William Stevenson, MD;

Jeffrey Winterfield, MD; Wendy Tzou, MD; Katie

Walsh MBBS; Pierre Jais, MD

Hospital of University of Pennsylvania Operators:

Gregory Supple, MD; Fermin Garcia, MD;

Pasquale Santangeli, MD, PhD; David Frankel, MD;

Robert Schaller, DO; David Lin, MD; Ramanan

Kumareswaran, MD; Gustavo Guandalini, MD;

Matthew Hyman, MD, PhD;

Michael Riley, MD, PhD

1:35 – 1:55 PM Break/Visit Exhibits

## SESSION V

Annual Mark E. Josephson Memorial Lecture

1:55 – 2:15 PM

Lessons Learned from More than

40 Years of Surgical Ablation

John Miller, MD

Moderator: David Callans, MD

Digital Moderator: Francis Marchlinski, MD

2:15 – 2:35 PM

Panel Discussion: John Miller, MD; Wendy Tzou, MD; Michael Acker, MD; William Stevenson, MD; Vivek Reddy, MD; Alfred Buxton, MD



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## SESSION VI

### PVCs: Mapping/Ablation

*Moderators:* Jose Huizar, MD; Magdi Saba, MD  
*Digital Moderator:* Sanjay Dixit, MD

**2:35 – 2:44 PM**

**Spontaneous Variability and Remission of PVCs**  
Timm Dickfeld, MD, PhD

**2:44 – 2:53 PM**

**PVCs: Role of Early Intervention**  
Edward Gerstenfeld, MD

**2:53 – 3:02 PM**

**Limitations of Unipolar Mapping for PVCs**  
Wendy Tzou, MD

**3:02 – 3:11 PM**

**Intramural PVCs: Imaging, Localization and Ablation**  
Frank Bogun, MD

**3:11 – 3:20 PM**

**Pacemapping for Infrequent PVCs: Is There a Role?**  
Robert Schaller, DO

**3:20 – 3:45 PM**

Panel Discussion

**3:45 – 4:00 PM**

Break/Visit Exhibits

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## SESSION VII

### Nonischemic Cardiomyopathy and VT

*Moderators:* Vivek Reddy, MD;  
William Stevenson, MD  
*Digital Moderator:* Andre d'Avila, MD, PhD

**4:00 – 4:09 PM**

**Pathological Features of COVID-19-Associated Myocardial Injury: Should We be Concerned about VT?**  
Cristina Basso, MD, PhD

**4:09 – 4:18 PM**

**Substrate Localizing Clues from the Surface ECG and Intracardiac Electrograms**  
Francis Marchlinski, MD

**4:18 – 4:27 PM**

**Defining Midseptal Substrate and Ablation Targets: Don't Forget to Map the Veins**  
Fermin Garcia, MD

**4:27 – 4:36 PM**

**Automatic VTs in Non-ischemic CM: Recognition/Ablation**  
Usha Tedrow, MD, MS

**4:36 – 4:45 PM**

**Targeting Late Potentials and LAVA in NICM: Pitfalls**  
Caterina Bisceglia, MD

**4:45 – 4:55 PM**

**New Observations on VT Ablation in Patients with Sarcoid**  
Konstantinos Siontis, MD

**4:55 – 5:04 PM**

**What New Data or Tools are Needed to Improve Outcome in VT Ablation in NICM?**  
David Wilber, MD

**5:04 – 5:35 PM**

Panel Discussion

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**7:30 – 10:30 PM**

**Asia-Pacific VT Symposium 2021 Program**  
*Moderators:* Francis Marchlinski, MD;  
Vivek Reddy, MD  
*Digital Moderator:* Sanjay Dixit, MD

### Session 1

**7:30 – 7:45 PM**

**Highlights of Day 1 VT Symposium**  
Sanjay Dixit, MD

**7:45 – 7:57 PM**

**Update on the PROTECT Trial**  
Pramesh Koor, MBBS, PhD

**7:57 – 8:09 PM**

**Stellate Ganglion Phototherapy**  
Kyoko Soejima, MD

**8:09 – 8:21 PM**

**SAECG and Epicardial Substrate in ARVC**  
Fa Po Chung, MD

**8:21 – 8:50 PM**

Panel Discussion

**8:50 – 9:00 PM**

Break/Visit Exhibits

### Session 2

**9:00 – 9:10 PM**

**Anticipated New Information/Teasers from Day 2 VT Symposium – Please Stay Tuned!**  
Vivek Reddy, MD

**9:10 – 9:22 PM**

**PAUSE SCD Study Update**  
Minglong Chen, MD

**9:22 – 9:34 PM**

**Cardiac Inflammation and VT – Unique Scenarios**  
Calambur Narasimhan, MD

### Session 3

**9:34 – 9:54 PM**

**Improve SCA Study: Lessons Learned**

**9:34 – 9:44 PM**

**Commentary from China**  
Shu Zhang, MD

**9:44 – 9:54 PM**

**Commentary from South Korea**  
Young-Hoon Kim, MD, PhD

**9:54 – 10:06 PM**

**Extravascular ICD implant – State of the Art**  
Haris Haqqani, MBBS, PhD

**10:06 – 10:30 PM**

Panel Discussion

# AGENDA | SATURDAY, OCTOBER 16, 2021

All times are Eastern Daylight Time (EDT)

**7:30 – 7:40 AM**

Welcome – Day 2

Francis Marchlinski, MD

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## SESSION VIII

**Important Role of Imaging in VT Ablation**

*Moderators:* Vivek Reddy MD;

Thomas Deneke, MD

*Digital Moderator:* Cory Tschabrunn, PhD

**7:40 – 7:49 AM**

**Relationship Between MRI Defined Scar Geography and the VT Isthmus**

Christian de Chillou, MD, PhD

**7:49 – 7:58 AM**

**Ablation of MRI Scar Channels as Primary Prevention**

Antonio Berruezo, MD, PhD

**7:58 – 8:07 AM**

**Signs of Trouble on Preprocedural Imaging for VT Ablation**

Saman Nazarian, MD, PhD

**8:07 – 8:16 AM**

**ECGi 3D Ventricular Tachycardia Mapping**

John Sapp, MD

**8:16 – 8:25 AM**

**Imaging Guided Approach to VT Ablation: Future Directions**

Pierre Jais, MD

**8:25 – 8:50 AM**

Panel Discussion

**8:50 – 9:10 AM**

Break/Visit Exhibits

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## SESSION IX

**Unique Methods/Physiology for VT/VF Control/Ablation**

*Moderators:* Edward Gerstenfeld, MD;

Pasquale Santangeli, MD, PhD

*Digital Moderator:* Francis Marchlinski, MD

**9:10 – 9:19 AM**

**Direct Sympathetic Modulation – Why it Beats Betablocker?**

Marmar Vaseghi, MD, PhD

**9:19 – 9:28 AM**

**A 3D Construct of Lateral Isthmus Boundaries and Intramural Isthmus Components**

Roderick Tung, MD

**9:28 – 9:37 AM**

**Targeting Ventricular Tachycardias in Myocarditis: A Patient Tailored Approach**

Paolo Della Bella, MD

**9:37 – 9:46 AM**

**Repolarization Heterogeneities and Post Infarct VT Mechanism**

Kevin Donahue, MD

**9:46 – 9:55 AM**

**The Purkinje Network: A New Target for VF in HCM**

Michel Haissaguerre, MD

**9:55 – 10:20 AM**

Panel Discussion

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## SESSION X

**Before/During/After VT Ablation**

*Moderators:* David Callans, MD;

Melissa Robinson, MD

*Digital Moderator:* Andre d'Avila, MD, PhD

**10:20 – 10:29 AM**

**Setting Up a Hybrid OR for VT Ablation: Equipment, Patients, Goals**

Gregory Supple, MD

**10:29 – 10:38 AM**

**Usefulness of ICD Electrogram Recordings for VT Ablation**

Jesus Almendral, MD, PhD

**10:38 – 10:47 AM**

**Adverse Impact of VT Substrate Mapping on Programmed Stimulation: The Observer Effect**

William Stevenson, MD

**10:47 – 10:56 AM**

**Update on the Usefulness of Postprocedural NIPS**

David Frankel, MD

**10:56 – 11:15 AM**

Panel Discussion

**11:15 – 11:25 AM**

Lunch/Visit Exhibits

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## SESSION XI

**LIVE CASES 2 with Working Lunch**

**11:25 AM – 1:25 PM**

**Live cases from The Mount Sinai Hospital**

*Moderator:* Vivek Reddy, MD

*Digital Moderator:* Andre d'Avila, MD, PhD

*Panel:* David Callans, MD; Sanjay Dixit, MD;

Roderick Tung, MD; Paolo Della Bella, MD;

Mélèze Hocini, MD, PhD; Thomas Deneke, MD

*Mount Sinai Hospital Operators:*

Srinivas Dukkupati, MD; Jacob Koruth, MD;

William Whang, MD, MS; Marc Miller, MD;

Mohit Turagam, MD; Daniel Musikantow, MD

**1:25 – 1:50 PM**

Break/Visit Exhibits

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## SESSION XII

### Debates That Will Move the Field Forward

*Moderator:* Francis Marchlinski, MD

*Digital Moderator:* Vivek Reddy, MD

**1:50 – 2:10 PM**

#### Debate 1

##### There is No Signal for Improved Mortality with VT Ablation

*Pro:* David Callans, MD

*Con:* William Sauer, MD

**2:10 – 2:20 PM**

#### Rebuttals/commentary/questions

**2:20 – 2:40 PM**

#### Debate 2

##### In NICM and VT:

##### EPI Access Should be Obtained

*Upfront Access:*

Luigi Di Biase, MD, PhD

*Access if Persistent Inducibility or*

*Defined Substrate:*

Andre d'Avila, MD, PhD

**2:40 – 2:50 PM**

#### Rebuttals/commentary/questions

**2:50 – 3:00 PM**

Break/Visit Exhibits

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## SESSION XIII

### Bailouts for Failed Ablation Procedures and Future Directions to Improve Outcome – Part 1

*Moderators:* Francis Marchlinski, MD; Harikrishna Tandri, MBBS, MD

*Digital Moderator:* David Frankel, MD

**3:00 – 3:09 PM**

##### What the IVTCC Database Suggests People are Using for Bailouts

Jason Bradfield, MD

**3:09 – 3:18 PM**

##### Radioablation: Patient Selection, Targets, Outcome

Phillip Cuculich, MD

**3:18 – 3:27 PM**

##### Alcohol Ablation: Optimal Techniques for Improving Effectiveness

Miguel Valderrabano, MD

**3:27 – 3:36 PM**

##### Stellate Ganglion Blockade in Electrical Storm Before VT Ablation?

Josef Kautzner, MD, PhD

**3:36 – 4:00 PM**

Panel Discussion

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## SESSION XIV

### Bailouts for Failed Ablation Procedures and Future Directions to Improve Outcome – Part 2

*Moderators:* David Callans, MD;

Joshua Moss, MD, MS

*Digital Moderator:* Francis Marchlinski, MD

**4:00 – 4:09 PM**

##### Large Lesion VT Ablation:

##### Beware of Collateral Injury to Normal LV

Douglas Packer, MD

**4:09 – 4:18 PM**

##### Transcutaneous Magnetic Stimulation for Electrical Storm

Timothy Markman, MD

**4:18 – 4:27 PM**

##### Techniques to Minimize Peri-Procedural Heart Failure and Hemodynamic Compromise

Srinivas Dukkupati, MD

**4:27 – 4:36 PM**

##### Advances in Mapping and Advanced Technical Approaches that May Improve Outcome – Looking to the Future!

Pasquale Santangeli, MD, PhD

**4:36 – 4:45 PM**

##### New Technologies with Promise for More Effectively and Safely Ablating VT

Vivek Reddy, MD

**4:45 – 5:10 PM**

Panel Discussion

**5:10 – 5:15 PM**

##### Thank You and Concluding Remarks

Francis Marchlinski, MD

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