2019 MSK CARDIO-ONCOLOGY SYMPOSIUM

MAY 17-18, 2019
Memorial Sloan Kettering Cancer Center
Rockefeller Research Laboratories
New York, NY
OVERVIEW

Cardio-oncology is a burgeoning field that has great importance as newly developed cancer treatment improve cancer survival. With novel treatments come new or unexpected cardiovascular toxicities as many cancer survivors are now living enough to experience the potential cardiotoxic effects of these treatments.

The purpose of this conference is to provide a state-of-the-art, comprehensive, case-based curriculum that addresses important clinical topics relevant to the cardiovascular health of patients with cancer. Clinical experts from Memorial Sloan Kettering Cancer Center and around the country will present an up-to-date overview on cutting edge cancer therapies and best practice strategies in the evaluation and management of heart disease in cancer patients from early diagnosis, treatment and long-term surveillance. All presentations will include devoted time to permit interaction between audience members and presenters.

This course is intended for cardiologists, internists, hematologists/oncologists and other affiliated healthcare professionals who are involved in the care of cancer patients or have a special interest in this area.

Learning Objectives

- Describe the cardiotoxic regimens used in cancer treatment including novel targeted therapies
- Identify patients at high cardiovascular risk prior to planned oncologic treatment
- Construct cardioprotective strategies prior, during and after cancer therapy
- Explain the principles of surveillance and the incorporation of current guidelines on cardiotoxicity monitoring into clinical practice.
- Describe primary and secondary prevention of cardiotoxicity
- Explain the appropriate use of non-invasive imaging modalities for cardiotoxicity monitoring; the strengths and weaknesses of each modality including echocardiography, MUGA, CMR and CTA.
- State the late cardiovascular sequelae of cancer and its treatment
- Describe the importance of the multi-disciplinary cardio-oncology team

ECHOCARDIOGRAPHY LEARNING LAB

There will be a separate (optional) computer-based session which will provide participants a personalized hands-on experience in Global Longitudinal Strain (GLS) performance and analysis.

The aim of the learning lab is to provide participants personalized hands-on experience in GLS performance and analysis. Following an introductory lecture on the clinical application of strain, participants will analyze real cases pre-loaded on their own computer workstation under the supervision of the faculty. A step-by-step how to perform and analyze 2D GLS will be demonstrated. Tips on acquiring optimal 2D images for speckle tracking and how to measure GLS accurately will be discussed with examples of common pitfalls to avoid.

Space is limited to allow each participant sufficient opportunity to interact with faculty; we encourage early registration. Please note that if you register for the 2019 MSK Cardio-Oncology Symposium, you will receive a $50 discount code and a link to register for the workshop in your email confirmation.

Accreditation

Memorial Sloan Kettering Cancer Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA Credit Designation Statement

Memorial Sloan Kettering Cancer Center designates this live activity for a maximum of 16.50 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

ABIM MOC Recognition Statement

Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 16.50 Medical Knowledge MOC points in the American Board of Internal Medicine Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider’s responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Faculty Disclosure

It is the policy of MSK to make every effort to insure balance, independence, objectivity, and scientific rigor in all continuing medical education activities which it provides as an ACCME accredited provider. In accordance with ACCME guidelines and standards, all faculty participating in an activity provided by MSK are expected to disclose any significant financial interest or other relationship with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services which are discussed by the faculty members in an educational presentation. As required by the ACCME, when an unlabeled use of a commercial product or an investigational use not yet approved for any purpose is discussed during an educational activity, MSK requires the speaker to disclose that the product is not labeled for the use under discussion or that the product is still investigational.
Symposium Highlights

- Clonal Hematopoesis of Indeterminate Potential (CHIP): A New Cardiovascular Risk Factor?
- Breast cancer treatment: Contemporary best practice strategies in cancer treatment, cardiotoxicity monitoring and management.
- Immunotherapy: Understanding cutting edge check-point inhibitor and CAR-T cell therapy with a detailed discussion of their cardiovascular effects.
- Novel oncologic therapy and emerging cardiotoxicity: Recognizing the potential cardiac effects of new targeted therapy.
- Cardiac amyloidosis: Contemporary approach to diagnosis and advances in treatment.
- Radiation-Induced Heart Disease: Understanding the practice change over time; monitoring and management of CV side effects.
- Cardiovascular risk assessment: Primary and secondary cardiovascular risk reduction during and after cancer therapy.
- Cardiac Imaging: Which modality, how often and which patient?
  Optional hands-on workshop on GLS measurement by 2D STE.
- Clinical Challenges:
  - 5FU induced chest pain
  - Cardiovascular considerations in bone marrow transplant
  - Atrial fibrillation and anticoagulation
  - Surgical clearance
  - Pharmacologic, surgical and interventional cardiac approaches to acute coronary syndromes, valvular disease and arrhythmias
  - Stroke in cancer patients
- Survivorship: Diagnosis, prevention and management of CV disease in cancer survivors
- Establishing a cardio-oncology program: Identifying the stakeholders
- How to Code and Bill for Cardio-Oncology

Live Simulcast Available! Visit mskcc.org/Cardio-Onc for more information.

### MSK Course Faculty

- **Oren Cahlon, MD**
  Radiation Oncology
- **Angel Chan, MD, PhD**
  Cardiology Service
- **Carol Chen, MD**
  Cardiology Service
- **Chau Dang, MD**
  Breast Oncology Service
- **Sergio A. Giralt, MD**
  Bone Marrow Transplant Service
  Myeloma Service
- **Dipty Gupta, MD, MPH**
  Cardiology Service
- **Bhisham Harchandani, MD**
  Cardiology Service
- **Michelle Johnson, MD, MPH**
  Cardiology Service
- **Heather J. Landau, MD**
  Bone Marrow Transplant Service
  Myeloma Service
- **Katherine Lee-Chuy MD**
  Cardiology Service
- **Elena Mead, MD**
  Critical Care Medicine Service
- **Michael Postow, MD**
  Melanoma Service
- **Wendy Schaffer, MD, MPH**
  Cardiology Service
- **Gerald Soff, MD**
  Benign Hematology Service
- **Emily S. Tonorezos, MD, MPH**
  General Internal Medicine Service
- **Anthony Yu, MD**
  Cardiology Service
- **Daniel Lenihan, MD**
  Washington University
- **Steven E. Lipshultz, MD, FAAP, FAHA**
  University at Buffalo Jacobs School of Medicine and Biomedical Sciences
  John R. Oishei Children’s Hospital
- **Bruce Lytle, MD**
  The Heart Hospital Baylor Plano
- **Peter Libby, MD**
  Brigham and Women’s Hospital
- **Syed Mahmood, MD**
  Weill Cornell Medical Center
- **Javid Moslehi, MD**
  Vanderbilt University Medical Center
- **Babek Navi, MD**
  Weill Cornell Medical Center
- **Vera Potievskaya, MD, PhD**
  National Medical Research Radiology Center
- **Alex Reytentovich, MD**
  NYU Langone Health
- **Jonathan Weinsaft, MD**
  Weill Cornell Medical Center

### Invited Course Faculty

- **Gregory Armstrong, MD, MSCE**
  St. Jude Children's Research Hospital
- **Anita Arnold, DO, MBA**
  Lee Physician Group
- **Ana Barac, MD, PhD**
  MedStar Washington Hospital Center
- **Usman Baber, MD**
  Mt. Sinai Hospital
- **Jim Cheung, MD**
  Weill Cornell Medical Center
- **Marielle Scherrer Crosbie, MD, PhD**
  Perelman School of Medicine
  University of Pennsylvania
- **Susan Dent, MD**
  Duke University
- **Michael Fradley, MD**
  University of South Florida
- **Joerg Herrmann, MD**
  Mayo Clinic, Rochester NY
- **Bonnie Ky, MD, MSCE**
  Perelman School of Medicine
  University of Pennsylvania

### MSK COURSE DIRECTORS

- **Jennifer Liu, MD**
  Director, Cardiovascular Laboratories
  Attending Physician
  Memorial Sloan Kettering Cancer Center
  Associate Professor of Medicine
  Weill Cornell Medical College

- **Richard M. Steingart, MD**
  Chief, Cardiology Service
  Attending Physician,
  Memorial Sloan Kettering Cancer Center
  Professor of Medicine.
  Weill Cornell Medical College
# SYMPOSIUM SCHEDULE

**Friday, May 17, 2019**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00</td>
<td>Registration &amp; Breakfast</td>
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<td>8:00</td>
<td>Welcome &amp; Introduction</td>
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<td></td>
<td>Jennifer Liu, MD</td>
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<td>8:05</td>
<td>Opening Remarks</td>
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<td>Richard M. Steingart, MD</td>
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<td>8:15</td>
<td>From Bench to Bedside</td>
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<td>Clonal Hematopoiesis of Indeterminate Potential (CHIP): A New Risk</td>
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<td>Factor of Cardiovascular Disease?</td>
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<td>Peter Libby, MD</td>
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<td>Keynote Lecture</td>
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<td>Cardio-Oncology – Past, Present and Future</td>
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<td>Susan Dent, MD</td>
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<td>9:00</td>
<td>Q&amp;A</td>
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<td>10:10</td>
<td>Managing CV issues During and After Breast Cancer Treatment – Case</td>
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<td>Review</td>
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<td>Michelle Johnson, MD</td>
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<td>10:25</td>
<td>Q&amp;A</td>
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<td>11:00</td>
<td>Immunotherapy: Understanding Antitumor Immunity and Moving the Field</td>
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<td>Michael Postow, MD</td>
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<td>11:20</td>
<td>CAR T-cell Therapy: What, How, For Whom?</td>
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<td>Understanding the Potential Toxicities</td>
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<td>Elena Mead, MD</td>
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<td>11:40</td>
<td>Immunotherapy Associated Myocarditis – Detection and Treatment</td>
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<td>Strategies</td>
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<td>Javid Moslehi, MD</td>
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<td>12:00</td>
<td>Case Review</td>
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<td>Carol Chen, MD</td>
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<td>Q&amp;A</td>
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<td>12:35</td>
<td>Lunch</td>
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<td>12:55</td>
<td>Cardiac Amyloidosis: Epidemiology, Presentation, Diagnosis</td>
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<td>Jennifer Liu, MD</td>
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<td>1:15</td>
<td>Contemporary Management of AL amyloidosis</td>
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<td>Heather J. Landau, MD</td>
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<td>Emerging Treatments for TTR Cardiac Amyloid</td>
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<td>Alex Reyentovich, MD</td>
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<td>1:55</td>
<td>Treatment of Multiple Myeloma – Cardio Safety with Proteasome and</td>
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<td>Immunomodulatory Drugs</td>
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<td>Daniel Lenihan, MD</td>
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<td>Q&amp;A</td>
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<td>2:30</td>
<td>Break</td>
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<td>Venous Thromboembolism in Cancer Patients: Prevention and Treatment</td>
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<td>Gerald Soff, MD</td>
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<td>VSPI and Adverse Cardiovascular Effects – HTN, LV Dysfunction and</td>
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<td>Thromboembolism</td>
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<td>Daniel Lenihan, MD</td>
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<td>3:20</td>
<td>Chemotherapeutic Agents Associated Coronary Ischemia</td>
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<td>Wendy Schaffer, MD</td>
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<td>Cardiovascular Effects of Androgen Deprivation Therapy in Prostate</td>
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<td>Cancer Patients</td>
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<td>Dipti Gupta, MD</td>
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<td>4:00</td>
<td>Q&amp;A</td>
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<td>4:20</td>
<td>Break</td>
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<td>4:35</td>
<td>Late Onset Cardiotoxicity in Adult Survivors of Childhood Cancer:</td>
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<td>Incidence, Risk Factors and Individual CV Risk Prediction</td>
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<td>Gregory Armstrong, MD</td>
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<td>4:55</td>
<td>How to Mitigate Cardiotoxicity – Role of Exercise, Statin and</td>
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<td>Cardioprotective Agents. Lessons Learned from Survivors of Childhood</td>
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<td>Cancer</td>
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<td>Steven E. Lipshultz, MD</td>
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<td>5:15</td>
<td>Cancer Survivorship Clinic: Essential Components of Care</td>
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<td>Emily S. Tonorezos, MD</td>
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<td>5:35</td>
<td>Q&amp;A</td>
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<td>Special Lecture</td>
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<td>The QT Interval Conundrum in Patients with Cancer – How to and Why</td>
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<td>Measure QT Interval?</td>
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<td>Michael Fradley, MD</td>
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<td>Q&amp;A</td>
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**SESSION II**

**Vascular Complications in Patients with Cancer**

- **2:40 PM** Venous Thromboembolism in Cancer Patients: Prevention and Treatment
- **3:00 PM** VSPI and Adverse Cardiovascular Effects – HTN, LV Dysfunction and Thromboembolism
- **3:20 PM** Chemotherapeutic Agents Associated Coronary Ischemia
- **3:40 PM** Cardiovascular Effects of Androgen Deprivation Therapy in Prostate Cancer Patients
- **4:00 PM** Q&A
- **4:20 PM** Break

**SESSION III**

**Cancer Survivorship**

- **4:35 PM** Late Onset Cardiotoxicity in Adult Survivors of Childhood Cancer: Incidence, Risk Factors and Individual CV Risk Prediction
- **4:55 PM** How to Mitigate Cardiotoxicity – Role of Exercise, Statin and Cardioprotective Agents. Lessons Learned from Survivors of Childhood Cancer
- **5:15 PM** Cancer Survivorship Clinic: Essential Components of Care
- **5:35 PM** Q&A
- **5:55 PM** Special Lecture
- **6:15 PM** Q&A
- **6:20 PM** Adjourn
## SYMPOSIUM SCHEDULE

### Saturday, May 18, 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>7:30 AM</td>
<td>Breakfast</td>
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<tr>
<td>7:50 AM</td>
<td>Opening Remarks/Day 1 Review</td>
<td>Jennifer Liu, MD, Richard M. Steingart, MD</td>
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<tr>
<td>8:00 AM</td>
<td>Keynote Lecture</td>
<td>Bonnie Ky, MD, MSCE</td>
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<td>8:20 AM</td>
<td>Role of Echo in Clinical Decision Making for Patients During and After Cancer Therapy</td>
<td>Jennifer Liu, MD</td>
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<td>8:40 AM</td>
<td>Is 2D Echo LVEF Enough? The Role of Serum Biomarker, Strain Imaging, 3D Echo and Cardiac MRI</td>
<td>Marielle Scherrer Crosbie, MD, PhD</td>
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<td>9:00 AM</td>
<td>Multimodality Imaging of Cardiac Masses</td>
<td>Jonathan Weinsaft, MD</td>
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<td>9:20 AM</td>
<td>Q&amp;A</td>
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### Session IV

**Imaging in Cardio-Oncology/Preclinical Markers of Cardiotoxicity**

**MODERATOR** Angel Chan, MD, PhD

- **8:20 AM** Role of Echo in Clinical Decision Making for Patients During and After Cancer Therapy
  - Jennifer Liu, MD

- **8:40 AM** Is 2D Echo LVEF Enough? The Role of Serum Biomarker, Strain Imaging, 3D Echo and Cardiac MRI
  - Marielle Scherrer Crosbie, MD, PhD

- **9:00 AM** Multimodality Imaging of Cardiac Masses
  - Jonathan Weinsaft, MD

- **9:20 AM** Q&A

### Session V

**Cardiovascular Considerations in Hematologic Malignancies**

- **9:40 AM** Understanding Stem Cell/Bone Marrow Transplant
  - Sergio A. Giralt, MD

- **10:00 AM** Common CV Issues Encountered during Bone Marrow Transplant
  - Wendy Schaffer, MD, PhD

- **10:20 AM** TKI Associated CV Toxicity in CML
  - Joerg Herrmann, MD

- **10:40 AM** Q&A

- **11:00 AM** Break

### Session VI

**Cardiovascular Challenges in Cancer Patients**

- **11:20 AM** CLINICAL CONUNDRUMS
  - Medical and Interventional Management of Acute and Chronic CAD
    - Usman Baber, MD
  - AF and Anticoagulation – Does the CHADS Score Apply
    - Jim Cheung, MD
  - Stroke in Patients with Cancer
    - Babek Navi, MD

- **12:20 PM** Q&A

- **12:40 PM** Lunch

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**SESSION VII**

**Radiation and the Heart**

**MODERATOR** Vera Potievskaya, MD, PhD

- **1:20 PM** Radiation Therapy, Strategies to Minimize Radiation Induced Cardiotoxicity - Past, Present and Future
  - Oren Cahlon, MD

- **1:40 PM** Cardiovascular Complications of Radiation
  - Richard M. Steingart, MD

- **2:00 PM** Cardiac Surgery in Patients with Radiation Associated Heart Disease
  - Bruce Lytle, MD

- **2:20 PM** Q&A

### Session VIII

**Challenging Real-World Cases – Discussion with the Experts**

- **2:40 PM** MODERATOR
  - Carol Chen, MD

- **3:00 PM** PRESENTERS
  - Syed Mahmood, MD
  - Katherine Lee-Chuy, MD
  - Bhisham Harchandani, MD

- **3:40 PM** Special Lecture
  - How to Code and Bill for Cardio Oncology
  - Anita Arnold, DO, MBA

- **4:00 PM** Q&A

- **4:05 PM** Closing Remarks and Adjourn

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**Computer Based Hands-On Learning Lab (Optional)**

- **How to Perform and Analyze Global Longitudinal Strain (GLS) - Tips and Tricks**
  - 4:15 PM - 6:15 PM

**LEARNING OBJECTIVES**

- State the methodology behind speckle tracking and the utility of GLS in clinical practice.
- Demonstrate how to acquire 2D images for GLS measurement
- Perform GLS analysis and discuss common pitfalls to avoid.

Space is limited and we do encourage early registration.

Please note that if you register for the 2019 MSK Cardio-Oncology Symposium, you will receive a $50 discount code and a link to register for the workshop in your email confirmation.

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[mskcc.org/Cardio-Onc](mskcc.org/Cardio-Onc)
Course registration includes continental breakfast, lunch, and refreshment breaks. Please contact cme@mskcc.org at least one week prior to the course if you have any special dietary requests or require any specific accommodations.

**Conference Location**
Rockefeller Research Laboratories
430 East 67th Street
New York, NY 10065

**Accommodations**
MSK has negotiated special rates and amenities at select hotels in Manhattan. For information on hotels in the vicinity of MSK with discounted rates, please visit: mskcc.org/cme.

**Register Online:**
mskcc.org/Cardio-Onc

Course registration includes continental breakfast, lunch, and refreshment breaks. Please contact cme@mskcc.org at least one week prior to the course if you have any special dietary requests or require any specific accommodations.

- **If you register for the 2019 MSK Cardio-Oncology Symposium, you will receive a $50 discount code for this workshop in your email confirmation.** Please complete registration for the 2019 Cardio-Oncology Symposium first and then register for the Learning Lab. Please note there is a waitlist for MSK employees.

- **MSK CME offers a 30% discounted rate for MSK Alumni, MSK Cancer Alliance and Cancer Care Partners.** If you are a member of one of these groups, please contact cme@mskcc.org for more information.

- **MSK employee registration is complimentary.** However, you must complete course registration in order to attend this course.

**REGISTRATION FEES**

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<tr>
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<tbody>
<tr>
<td>Physicians (MDs, PhDs and DOs)</td>
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<td>Residents, Fellows, Nurses and Other Healthcare Providers</td>
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<td>Industry Professionals**</td>
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<td>Learning Lab (seperate registration required)</td>
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*Early Registration expires March 17, 2019
**Industry professionals may attend MSK CME activities for their own education. Marketing, sales, and promotion of products and services is strictly prohibited at MSK CME activities.

**Contact**
Memorial Sloan Kettering Cancer Center
Office of Continuing Medical Education
mskcc.org/cme
cme@mskcc.org