LEARNING OBJECTIVES

SUNDAY, MARCH 11, 2012

2:00 – 6:30 pm Workshop 1: CPB
Moderators: Robert C. Groom, CCP; Eugene A. Hessel II, MD; Bruce Searles, CCP; Jeffrey Riley, CCP

Massive Air Embolism – All workshop faculty
Poor Oxygenation – All workshop faculty
Vasoplegia – All workshop faculty
High Arterial Line Pressure – All workshop faculty
Wrap-up and Q&A – All workshop faculty

3:00 – 7:00 pm Workshop 2: TEE
Moderators: Bonnie L. Milas, MD; Alexander Mittnacht, MD

The Value of 3-D TEE – Greg W. Fischer, MD
At the conclusion of this lecture, the participant should be able to:
1. Explain how ultrasound transducers acquire 2D versus 3D images
2. Understand the strengths and limitations of 3D TEE
3. Obtain an overview of the pertinent literature regarding 3D TEE

Complete Exam of Tricuspid Valve – Bonnie L. Milas, MD
At the conclusion of the discussion, the participant should be able to:
1. Describe detailed tricuspid valve anatomy
2. Explain a standard approach and TEE windows for a thorough tricuspid valve exam.
3. Understand what 3-D echocardiography can add to a tricuspid valve exam.
4. Identify various tricuspid valve abnormalities by TEE.

PRO/CON: Ultrasound Vascular Access – Alexander Mittnacht, MD (PRO); Michael P. Fanshawe, MD (CON)

PRO:
At the conclusion of this lecture, the participant should be able to:
1. Recite the indications for ultrasound guided vascular access.
2. Understand the various techniques used for ultrasound guided vascular access.
3. Understand how your patient and your practice can benefit from using US for vascular access.
4. Discuss about the evidence gained from numerous studies on ultrasound guided vascular access.
CON:
At the conclusion of this lecture, the participant should be able to:
1. Appreciate the increased risk when no ultrasound is available in those who have only trained with the ultrasound or deskill in the landmark techniques.
2. Appreciate that significant complications still occur despite the use of ultrasound.
3. Appreciate that with experienced operators the landmark technique compares favorably with ultrasound guided access and is more cost effective.
4. Appreciate that mandating the use of ultrasound would likely create an increased exposure to medico-legal risk and documentation and reimbursement bureaucracy when ultrasound was not used even when there was a legitimate reason for not using ultrasound.

Breakout session with vendors will provide hands-on activity for:
1. Vascular access techniques
2. 3D Knobology
3. Transthoracic 3D

Cases that Changed my Clinical Practice – Steven N. Konstadt, MD
At the conclusion of this lecture, the participant should be able to:
1. Learn how TEE can change patient care
2. Appreciate the significance of careful diagnostic evaluation

Update on Certification – Jack S. Shanewise, MD
At the conclusion of this lecture, the participant should be able to:
1. Describe the difference between basic and advanced perioperative TEE certification.
2. Appreciate the historical development of certification in perioperative TEE
3. List the requirements for basic and advanced perioperative TEE certification

3:00 – 7:00 pm Workshop 3: Hands-on Electrical and Mechanical Circulatory Support
Moderators: Abe DeAnda, MD; Gregory M. Janelle, MD

This workshop has been developed to fulfill a gap in knowledge and competency identified in the medical support of patients with electrical and mechanical devices for whom the attendee cares for in practice but may not be the healthcare worker typically identified to primarily interface with some or all of these devices. At the end of this workshop, attendees will:
1. Better understand the nuances of caring for patients with electrical and mechanical support devices.
2. Identify the appropriate reasons for interrogating permanently implanted pacemakers and automatic internal cardiac defibrillators and for temporarily changing settings in the perioperative period.
3. Gain comfort in troubleshooting ventricular assist devices, permanent and temporary pacemakers, automatic internal cardiac defibrillators, and intra-aortic balloon counterpulsation devices.

Trouble-shooting VADs – Tomas D. Martin, MD
At the conclusion of this lecture, participants should be able to:
1. Understand the optimal operating parameters of commonly implanted ventricular assist devices
2. Understand the general pairing of devices with the temporal and clinical indications for mechanical ventricular support.
3. Be able to critically examine VAD performance based on available monitoring parameters and diagnose common clinical scenarios that require intervention.

Permanent Pacers/ICDs: Basics of interrogation and reprogramming – Gregory M. Janelle, MD
At the conclusion of this lecture, participants should be able to:
1. Understand commonly used nomenclature for pacemakers and AICDs
2. Understand the indications for perioperative pacemaker and AICD interrogation
3. Understand when a magnet is an appropriate intervention for perioperative management of patients with pacers/AICDs.
4. Understand when perioperative re-programming of these devices is appropriate

Temporary Pacers: Types, indications, and troubleshooting – Jonathan Leff, MD
At the conclusion of this lecture, participants should be able to:
1. Understand the indications for temporary pacing
2. Understand the nuances of some of the less commonly used pacemaker settings (e.g. overdrive pacing, PVARP)
3. Be able to make appropriate choices for temporary pacing devices based on clinical indications and underlying pathophysiology

Intra-aortic Balloon Counterpulsation: Indications and pitfalls – David Fitzgerald, CCP
At the conclusion of this lecture, participants should be able to:
1. Understand the indications for placement of an intra-aortic balloon pump (IABP).
2. Understand the relevant hemodynamic changes induced by use of an IABP.
3. Understand the appropriate placement of an IABP and how to assess the balloon’s position.
4. Be able to troubleshoot suboptimal IABP settings, particularly those related to timing, filling, and triggering.

At the conclusion of the hands-on portion of the workshop, by rotating to multiple teaching stations staffed by a faculty presenter, each participant should be able to:
1. Gain familiarity and experience in interrogating and reprogramming permanently implantable pacemakers and AICDs.
2. Gain familiarity and experience in troubleshooting suboptimally functioning ventricular assist devices
3. Gain familiarity with programming/using multiple different temporary pacing devices
4. Gain familiarity with optimizing settings for IABPs.

Hands-on Stations - Attendees will rotate through all stations
1. Medtronic pacer interrogation/programming – G Janelle
2. Boston Scientific pacer interrogation/programming – L Davies
3. St. Jude pacer interrogation/programming – J Leff
4. VAD station – T Martin
5. Temporary pacing station- N Weitzel
6. Balloon station (+ cell-saver operation) – D Fitzgerald
6:55 – 9:30 AM Valvular Heart Disease
Moderators: Albert T. Cheung, MD; Steven N. Konstadt, MD

Overall Learning Objectives
1. Learn the how to successfully perform transcatheter aortic valve implantations in your institution.
2. Understand what information the intraoperative TEE examination can provide the cardiac surgeon and what information the surgeon expects from the intraoperative TEE examination for planning mitral valve repair.
3. Learn and understand the clinical controversies pertaining to the sizing of prosthetic aortic valves for implantation in order to prevent prosthesis-patient mismatching.

How to Implement a Successful Transcatheter Aortic Valve Implantation Program – Wilson Szeto, MD
1. Learn the requirements necessary to perform transcatheter aortic valve implantations (TAVI).
2. Learn how anesthesiologists, surgeons, cardiologists, and perfusions work together as a team for TAVI procedures.
3. Understand potential complications of TAVI and how to manage them.

How to Apply 2-D and 3-D TEE for Mitral Valve Surgery: What the surgeon needs to know – Greg Ribakove, MD
1. Explain to anesthesiologists what anatomical information the surgeon needs to perform mitral valve repair.
2. Explain to anesthesiologists how a surgeon evaluates the mitral valve for repair procedures.
3. Explain how mitral valve repairs are performed and the potential complications of repair.

How to Apply 2-D and 3-D TEE for Mitral Valve Surgery: What the Anesthesiologist Needs to Know – Albert T. Cheung, MD
At the conclusion of this lecture, the participant should be able to:
1. Apply 2D and 3D TEE to characterize mitral valve pathology.
2. Apply 2D and 3D TEE to quantify and anatomically localize mitral valve pathology.
3. Report and display 3D and 3D TEE mitral valve pathology to the cardiac surgeon.

How to Avoid Prosthetic-Patient Mismatch: The Anesthesiologist’s Perspective – Jack S. Shanewise, MD
1. Learn to apply intraoperative echocardiographyto measure the size of the aortic valve annulus.
2. Learn to apply TEE to assess the hemodynamic function of prosthetic aortic valves.
3. Learn to apply TEE to diagnose prosthetic-patient mismatch.

The Surgeon’s Perspective – Wilson Szeto, MD
1. Understand the clinical consequences of prosthetic-patient mismatch.
2. Explain techniques to avoid prosthetic-patient mismatch.
3. Explain controversies regarding the clinical significance of prosthetic-patient mismatch.

Case Discussion – Albert T. Cheung, MD; Steven N. Konstadt, MD
1. Present and discuss actual case examples of TAVI.
2. Present and discuss actual case examples of mitral valve repair.
3. Present and discuss actual case examples of prosthetic-patient mismatch.

**4:00 – 6:30 pm  Neuromonitoring**
*Moderators: Laurie K. Davies, MD; Alexander Mittnacht, MD*

*NIRS – Greg W. Fischer, MD*
At the conclusion of this lecture, the participant should be able to:
1. Understand which factors influence cerebral blood flow/metabolism.
2. Understand the principals of how modern cerebral oximeters function.
3. Understand the strengths and limitations of cerebral oximetry.
4. Review of the pertinent literature.

*EEG – Laurie K. Davies, MD*
At the conclusion of this lecture, the participant should be able to:
1. Understand the principle behind EEG and BIS monitoring
2. Appreciate the typical patterns of change in these monitors associated with cardiopulmonary bypass
3. Recognize the limitations of this technology in brain monitoring

*Detection of Cerebral Embolization – Robert C. Groom, CCP*
At the conclusion of this lecture, the participant should be able to:
1. Understand the etiology of emboli during cardiac surgery and cardiopulmonary bypass.
2. Understand current modalities for monitoring emboli in the CPB circuit and in the brain.
3. Describe strategies to minimize the occurrence of cerebral emboli during CPB

*Neuromonitoring for Pediatric Cardiac Surgery – Alexander Mittnacht, MD*
At the conclusion of this lecture, the participant should be able to:
1. Know the different modalities used for neuromonitoring in pediatric cardiac surgery
2. Discuss the indications for neuromonitoring in pediatric cardiac surgery
3. Recite differences between adult and pediatric neuromonitoring in cardiac surgery
4. Obtain an overview of the literature on neuromonitoring in pediatric cardiac surgery

**TUESDAY, MARCH 13, 2012**

**6:55 – 9:30 am  Improving Quality and Patient Safety**
*Moderators: Abe DeAnda, MD; Bruce D. Spiess, MD*

*Using Risk Prediction in Clinical Practice – Donald S. Likosky, PhD*
At the conclusion of this lecture, the participant should be able to:
1. Understand what is meant by risk prediction, i.e. what is a predictive model (compared to a probabilistic model).
2. Appreciate how risk prediction models are created.
3. Identify ways that risk prediction models can be used to incorporate changes in clinical practice.

*Using Clinical Databases to Implement Quality Improvement – Donald S. Likosky, PhD*
At the conclusion of this lecture, the participant should be able to:
1. Know the differences and origins of database types, i.e. what is a clinical database versus an administrative database.
2. Understand the limitations of databases in effecting quality improvement and changes in clinical practice.
3. Realize how clinical databases can be used to improve quality and clinical outcomes.

_Focusing on Checklists, Time-outs, Huddles, and Sign-offs – Elizabeth A. Martinez, MD_
At the conclusion of this lecture, the participant should be able to:
   1. Understand the need for enhanced communication in and out of the operating room.
   2. Review the use of checklists in the operating room.
   3. Appreciate the impact on patient safety when communication goes awry.

_Guidelines for Improving Quality and Safety – Bruce D. Spiess, MD_
At the conclusion of this lecture, the participant should be able to:
   1. Understand why improvements in processes are pertinent to everyone in the operating room.
   2. See which areas we have already made an impact on.
   3. Review current and future guidelines (i.e. FOCUS) for patient safety.

_Case Discussion - Physician makes a mistake – Abe DeAnda, MD; Elizabeth A. Martinez, MD; Bruce D. Spiess, MD_

4:00 – 6:30 pm _State-of-the-art Perfusion Management_
Moderators: Robert C. Groom, CCP; Linda Shore-Lesserson, MD

_Overall Objective_
At the conclusion of this session, the participant should be able to: formulate a plan for perfusion management and optimize end-organ function, initiate strategies that protect the brain, heart, and blood, and discuss perfusion challenges with the team.

_Blood Protection – Glenn P. Gravlee, MD_
At the conclusion of this lecture, the participant should be able to:
   1. Understand factors contributing to RBC trauma
   2. Be able to describe factors mitigating RBC trauma
   3. Understand factors leading to platelet injury and sequestration
   4. Describe some of the factors and controversies mitigating platelet injury

_Protecting the Brain on CPB – Robert C. Groom, CCP_
At the conclusion of this lecture, the participant should be able to:
   1. Describe the known and reputed risks of CPB on neurologic function.
   2. Discuss strategies for cerebral protection in both pharmacology and technology.

_Protecting the Heart on CPB – Greg Ribakove, MD_
At the conclusion of this lecture, the participant should be able to:
   1. Appreciate the myocardial perfusion and protection strategies used during CPB.
   2. Describe the blood flow to the heart during CPB and how perfusion and cardioplegia protect the heart.
   3. Discuss the effects of temperature and composition of perfusate will also be discussed.
Technical Challenges in the Conduct of CPB – Jeffrey Riley, CCP
At the conclusion of this lecture, the participant should be able to:
1. Define the goals of CPB and clinical situations in which it is used.
2. Understand and discuss the participant will hear of difficulties in establishing safe and effective extracorporeal circulation and will be able to trouble-shoot such circumstances.

Case Discussion – Jeffrey Riley, CCP; Linda Shore-Lesserson, MD
At the conclusion of this lecture, the participant should be able to: manage a difficult case of a patient requiring cardiopulmonary bypass who has end-organ dysfunction at baseline in the form of previous stroke, renal dysfunction, and a recent operation also including CPB.

WEDNESDAY, MARCH 14, 2012

6:55 – 9:30  Hemostasis and Coagulation
Moderators: Michael P. Fanshawe, MD; Linda Shore-Lesserson, MD

Overall Objectives
1. Learn the pharmacodynamics and pharmacokinetics of new anticoagulants and new antiplatelet agents.
2. Understand the types, practical uses, and limitations of perioperative platelet function monitoring.
3. Learn how to diagnose and treat heparin resistance and understand the role of antithrombin 3 (AT3)
4. Learn a transfusion algorithm and understand the uses of benefits of using such an algorithm in the bleeding cardiac surgical patient.

New Anticoagulants and New Antiplatelet Agents – Michael P. Fanshawe, MD
At the conclusion of this lecture, the participant should be able to:
1. Know the names and classes of drugs of the new antiplatelet and anticoagulant agents
2. Understand the pharmacokinetics and pharmacodynamics of these agents
3. Learn the clinical implications of these medications in cardiac surgery and how to cope with these agents

The Utility of Perioperative Platelet Function Monitoring – Nathaen S. Weitzel, MD
At the conclusion of this lecture, the participant should be able to:
1. Understand the various types of platelet function monitoring that are available in the perioperative period
2. Appreciate what part of platelet function these monitors are measuring
3. Understand the usefulness and limitations of available platelet function monitoring
4. Appreciate how platelet function monitoring may be practically and beneficially utilized in cardiac surgical patients

Heparin Resistance and Antithrombin 3 (AT3) – Jonathan Leff, MD
At the conclusion of this lecture, the participant should be able to:
1. Learn the definition of heparin resistance.
2. Understand the mechanism of action of heparin resistance and how to diagnose heparin resistance
3. Learn how to treat heparin resistance especially the use of AT3 concentrate in the context of cardiopulmonary bypass
4. Develop an approach to heparin resistance in patients presenting for cardiopulmonary bypass

Transfusion Algorithms for the Bleeding Cardiac Surgical Patient – Linda Shore-Lesserson, MD
At the conclusion of this lecture, the participant should be able to:
1. Learn a practical, clinically relevant transfusion algorithm for use in the bleeding cardiac surgical patient
2. Understand the rationale behind the algorithm
3. Understand the proven benefits of using a transfusion algorithm in cardiac surgery

Case Presentation – Michael P. Fanshawe, MD; Linda Shore-Lesserson, MD
A case will be presented to gain a practical, clinically relevant appreciation of the following hemostasis and coagulation issues in cardiac surgery: new antiplatelet and anticoagulant agents, heparin resistance and AT3, the use of platelet function monitoring, and the benefits of using a transfusion algorithm.

4:00 – 6:30 pm  End-Organ Protection/ICU
Moderators: Abe DeAnda, MD; Patricia M. Murphy, MD

Perioperative Renal Protection – Bruce D. Spiess, MD
At the conclusion of this lecture, the participant should be able to:
1. Understand the risk factor for the development of renal failure/dysfunction during and following surgery.
2. Discuss potential mechanisms for renal injury.

The Role of ECMO in Acute Respiratory Failure – Charles W. Hoopes, MD
At the conclusion of this lecture, the participant should be able to:
1. Appreciate the pathophysiology of acute respiratory failure.
2. Understand the application of extracorporeal membrane oxygenation in supporting adult and pediatric patients with acute respiratory failure.
3. Recognize the risks and benefits of ECMO in the adult patient.

PRO/CON: Hypothermia for In-hospital Cardiac Arrest – Patricia M. Murphy, MD (PRO);
Eugene A. Hessel II, MD (CON)
At the conclusion of this lecture, the participant should be able to:
1. Consider the rationale for hypothermia for in-hospital cardiac arrest
2. Understand the pro’s and con’s of utilizing this technology.

Preventing Pulmonary Injury in the Cardiac Surgical Patient – Brett A. Simon, MD
At the conclusion of this lecture, the participant should be able to:
1. Know the common causes and types of pulmonary injury in the cardiac surgical patient.
2. Understand the diagnostic approaches to pulmonary injury.
3. Learn the ways of preventing pulmonary injury.

Case Discussion – Abe DeAnda, MD; Patricia M. Murphy, MD
Overall Learning Objectives
1. Review fundamental concepts in pulmonary physiology and learn how these concepts can be applied to the clinical management of cardiac surgical patients with lung disease.
2. Learn the pathophysiologic mechanisms that cause or exacerbate lung injury during cardiac operations.
3. Learn strategies to manage patients with chronic lung disease to achieve optimal clinical outcomes.

Applied Pulmonary Physiology – Brett A. Simon, MD
At the conclusion of this lecture, the participant should be able to:
1. Use arterial blood gas analysis to diagnose lung disease.
2. Understand how the lung regulates blood flow and gas exchange.
3. Understand how to manipulate pulmonary hemodynamics with drug therapy.

Lung Injury Update – Charles W. Hoopes, MD
At the conclusion of this lecture, the participant should be able to:
1. Understand mechanisms of lung injury
2. Prevent lung injury
3. Treat lung injury

Lung Transplantation – Charles W. Hoopes, MD
At the conclusion of this lecture, the participant should be able to:
1. Understand how lung transplantation is performed.
2. Understand the application of cardiopulmonary bypass for lung transplantation procedures.
3. Learn techniques to prevent ischemia-reperfusion injury of the lungs.

Outcomes and Challenges in Managing Long-term Mechanical Ventilatory Support – Andrew J. Patterson, MD, PhD
At the conclusion of this lecture, the participant should be able to:
1. Learn to identify patients at risk for ventilator-dependent respiratory failure.
2. Understand the prognosis of ventilator-dependent respiratory failure in cardiac surgical patients.
3. Learn the state-of-the-art medical management of patients with ventilator-dependent respiratory failure.

Case Discussion - Respiratory Failure after Cardiac Surgery – Albert T. Cheung, MD; Eugene A. Hessel II, MD
Present and discuss the management of actual cases of lung injury, lung transplantation, and patients with postoperative ventilator-dependent respiratory failure.
4:00 – 6:30 pm Descending Aorta Disease
Moderators: Abe DeAnda, MD; Gregory Janelle, MD

*Detection and Treatment of Spinal Cord Ischemia – Hilary P. Grocott, MD*
At the conclusion of this lecture, participants should:
1. Understand the background and significance of spinal cord ischemia as a perioperative complication of thoracic aortic operations.
2. Gain an understanding of perioperative methods of detecting spinal cord injury and their use in evidence-based practice.
3. Understand the therapeutic interventions aimed at reducing the incidence of spinal cord injury from thoracic aortic procedures.
4. Understand the treatment strategies following identification of spinal cord ischemia and/or injury from thoracic aortic procedures.

*Medical vs. Surgical treatment for Type-B Aortic Dissection - TBD*
At the conclusion of this lecture, participants should:
1. Understand the background and significance of Stanford Type-B (DeBakey Type-III) aortic dissections.
2. Understand the indications for urgent surgical intervention in patients with Type-B aortic dissections.
3. Understand the different surgical approaches for correction of Type-B aortic dissections and the implications for the perioperative care team.
4. Understand when medical treatment is warranted for Type-B aortic dissections and survival expectations with medical management in such patients.

*Perfusion management for Open TAAA Repair – David Fitzgerald, CCP*
At the conclusion of this lecture, participants should:
1. Be familiar with historical developments in the surgical approaches to open repair of thoracoabdominal aortic aneurysms.
2. Understand the alternative strategies of the various approaches to perfusion strategies for open TAA repair, including clamp-and-sew techniques vs. partial left-atrial/bypass vs. femoral arterial/venous cannulation for distal perfusion (with or without selective visceral perfusion) vs. deep hypothermic circulatory arrest.

*PRO/CON: Lumbar CSF Drainage for TEVAR – Hilary P. Grocott (PRO); Albert T. Cheung, MD (CON)*
The format for this session will be a pro/con debate. At the conclusion of this debate, participants should:
1. Understand the background and significance of spinal cord injury from thoracic endovascular aortic repair.
2. Understand the relative efficacy of different techniques to prevent and treat spinal cord ischemia in patients undergoing TEVAR.
3. Understand the potential complications associated with lumbar CSF drainage.
Friday, March 16, 2012

6:55 – 9:30 am Controversies in Cardiothoracic Surgery
Moderators: Laurie K. Davies, MD; Alexander Mittnacht, MD

PRO/CON: Tight Intraoperative Glycemic Control – Andrew J. Patterson, MD, PhD (PRO); Jack S. Shanewise, MD (CON)

At the conclusion of the PRO lecture, participants should:
1. Understand the adverse effects of hyperglycemia upon wound healing.
2. Appreciate the limitations of currently available blood glucose monitoring techniques.
3. Discuss the evidence that intraoperative hyperglycemia is a risk factor for complications after cardiac surgery.

At the conclusion of the CON lecture, participants should:
1. Explain the adverse consequences of perioperative hypoglycemia
2. Site the evidence in the medical literature against tight intraoperative glucose control
3. Criticize the evidence used in favor of tight glycemic control in the OR

PRO/CON: Neuroaxial Analgesia for CPB – Alexander Mittnacht, MD (PRO); Nathaen S. Weitzel, MD (CON)

At the conclusion of the PRO lecture, participants should:
1. Understand the benefits of neuraxial anesthesia/analgesia in cardiac surgery
2. Learn about the various neuraxial techniques used
3. Learn about the safety of performing a neuraxial technique in patients undergoing cardiac surgery
4. Obtain an overview of the current literature on neuraxial anesthesia/analgesia in cardiac surgery.

At the conclusion of the CON lecture, participants should:
1. Understand and identify the risks involved with neuraxial anesthesia in cardiac surgical procedures.
2. Understand the limits in interpretation of current data / literature supporting neuraxial techniques in cardiac surgery.
3. Understand adjunctive techniques used with general anesthesia that have proven benefits to patient mortality, morbidity and satisfaction.

Perfusion Assessment During CPB – Glenn P. Gravlee, MD
At the conclusion of this lecture, participants should:
1. Understand fundamentals of flow and pressure physiology
2. Describe controversy about optimal mean arterial pressure
3. Be able to list common markers for adequacy of systemic perfusion other than flow and mean arterial pressure
4. Describe selected markers for regional perfusion (e.g., CNS)
Volume expansion after the “Boldt Scandal.” Is there still a clinical indication for starches? – Elizabeth A. Martinez, MD

At the conclusion of this lecture, participants should:

1. Understand the physiologic basis for colloid use
2. Understand the recent controversies of colloid use in the setting of fraudulent research
3. Review of the current state of the evidence for colloid use

Case Discussion – Laurie K. Davies, MD; Alexander Mittnacht, MD

4:00 – 6:30 pm Challenges in the Cardiac Catheterization Laboratory and Hybrid Operating Room
Moderators: Laurie K. Davies, MD; Bonnie L. Milas, MD; Patricia M. Murphy, MD

At the completion of the session, the participant should be able to:

1. Explain technical aspects, TEE management, and unique patient characteristics of TAVI procedures.
2. Describe TEE evaluation of endovascular procedures.
3. Employ sound management strategies to address catheterization laboratory catastrophes.
4. Explain the benefits of hybrid revascularization.
5. Understand the expanded capabilities and limitations of the cardiac catheterization laboratory/hybrid OR setting.

Challenging Problems in TAVI – Bonnie L. Milas, MD

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

1. Explain technical aspects of TAVI procedures.
2. Describe TEE management of transcatheter valve deployment and assessment.
3. Explain typical TAVI patient population.
4. Describe complications related to TAVI procedures.

Use of TEE for Endovascular Procedures in the Cardiac Catheterization Laboratory – Greg W. Fischer, MD

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

1. Understand the advantages of using TEE to facilitate management of patients coming to the cath lab
2. Learn the 3D views that can aid in confirming correct device placement
3. Understand the unique differences in anesthetic management between cath lab and regular surgical patients

Managing Cardiac Catheterization Laboratory Catastrophes – Patricia M. Murphy, MD

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

1. Recognize common cath lab problems that precede serious scenarios
2. Diagnose impending cath lab emergencies and initiate corrective actions
3. Develop emergency management scenarios for cath lab emergencies
4. Discuss scenarios that necessitate surgical intervention for cath lab emergency

The Argument for Hybrid Revascularization Procedures – Charles T. Klodell, Jr., MD

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