ISHLT

A Society that Includes Basic Science, the Failing Heart, & Advanced Lung Disease

ISHLT2021 Preliminary Program

ishlt.org/ishlt2021

Saturday, 24 April, 2021
1:15 p.m. – 2:45 p.m. EDT

SYMPOSIUM 01: Controversial Debates in Valvular and Structural Heart Disease and Heart Failure

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Despite advances in the treatment of valvular heart disease and the emergence of TAVR and MitraClip, questions remain regarding patient selection and therapeutic options for left ventricular dysfunction and right-sided valves. This session will include rapid fire debates on challenging questions in the field, including valve repair versus advanced HF therapies in severe LV dysfunction, whether LV remodeling techniques have a role in the modern era, and valve options for the right heart. Audience polling will be used before and after each debate in this session.

Co-Chairs: **Richard C Daly, MD, Mayo Clinic, Rochester, MN, USA**
Ivan Knezevic, MD, University Clinical Centre, Ljubljana, Slovenia

1:15 p.m. ***DEBATE: Device-Directed Left Ventricular Remodeling Improves Patient Outcomes (PRO)***
Geetha Bhat, MD, Penn State Health Hershey MC, Hershey, PA, USA
Speaker will present the pro perspective on LV remodeling and newer devices including the Revivent-TC system, Parachute device and AccuCinch. Will also discuss SAVER and DOR procedures. Discussion on hemodynamics that favor LV remodeling attempts.

1:27 p.m. ***DEBATE: Device-Directed Left Ventricular Remodeling Improves Patient Outcomes (CON)***
Steven SL Tsui, MD, FRCS, Royal Papworth Hospital, Cambridge, United Kingdom
Speaker will present the con perspective on LV remodeling, asserting that the Revivent-TC system, Parachute device and AccuCinch do not work. Discussion of STITCH reconstruction and the no-longer-used Batista procedure.

1:39 p.m. ***DEBATE: Remembering the Right Heart: Percutaneous Options are Ideal for the Tricuspid and Pulmonic Positions (PRO)***
Valluvan Jeevanandam, MD, University of Chicago Medical Center, Chicago, IL, USA
Speaker will present the pro perspective on percutaneous options for congenital patients including Melody valve for pulmonic valve disease, and other similar percutaneous options in ACHD. Pro perspective for novel percutaneous options for the tricuspid valve, including the TriCinch system, Mitraclip and Cardioband.

1:51 p.m. ***DEBATE: Remembering the Right Heart: Percutaneous Options are Ideal for the Tricuspid and Pulmonic Positions (CON)***
Renata Shih, MD, University of Florida, Gainesville, FL, USA
Speaker will present the con perspective that surgery should be the preferred option in ACHD patients in order to address common concurrent lesions and for definitive repair. Con perspective that surgery should be preferred for tricuspid valve disease for a definitive repair or replacement. Discussion that ICD/pacemaker leads would prohibit many percutaneous options.

2:03 p.m. ***DEBATE: Valve Repair/Replacement is Always a Good Option Regardless of LV Function (PRO)***
JoAnn Lindenfeld, MD, Vanderbilt University, Nashville, TN, USA
Speaker will present the pro perspective of valve repair/replacement even in the setting of severe LV dysfunction. Pro perspective of MitraClip in most patients based on the COAPT and MITRA-FR data; consider discussion that MITRA-FR outcomes were skewed by operator experience and other factors.

Discussion of the role of TMVR in these patients. Introduce the notion of proportional MR to explain the results of these trials.

2:15 p.m. ***DEBATE: Valve Repair/Replacement is Always a Good Option Regardless of LV Function (CON)***
Alejandro M. F. Bertolotti, Sr., MD, Favaloro Foundation Univ Hospital, Buenos Aires, Argentina
Speaker will present the con perspective that valve repair/replacement in patients with severe LV dysfunction portends hemodynamic instability, specifically with surgical MV repair and MitraClip. Con perspective that these patients should be directly considered for durable LVAD or heart transplant.

2:30 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
1:15 p.m. – 2:45 p.m. EDT

SYMPOSIUM 02: ECMO and Lung Failure from Recovery to Transplant

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: There is continued push from pulmonary and critical care teams to bridge sick patients to lung transplant with mechanical support. For most centers these patients pose a prohibitive risk due to poor 1-year survival, however, select programs are able to show equipoise between the mechanical support population and their standard transplant patients. This session will discuss best practices in respiratory ECMO as well as who, when, and how to bridge to lung transplant.

Co-Chairs: **Sandeep Attawar, MD, KIMS Institute for Heart & Lung Transplantation, Hyderabad, Chennai, India**
Jasleen Kukreja, MD, MPH, UCSF Medical Center, San Francisco, CA, USA
Matthew G Hartwig, MD, Duke University Medical Center, Durham, NC, USA

1:15 p.m. ***Building a Successful Bridge to Transplant Program: Pitfalls and Traps***
Nathalie Roy, MD, Boston Children's Hospital, Boston, MA, USA
This presentation will focus on how to develop the teams and protocols necessary to have a successful ECMO program and the underlying goals and concepts of the team membership and the protocols, as opposed to just detailing "how we did it". The goal is to provide the learner with an understanding of components of a successful program and how to adapt those components to their institution.

1:30 p.m. ***The Expanding Pool of ECMO Programs: Patient Selection Criteria and Ethical Considerations***
Jens Gottlieb, MD, Hannover Medical School, Hannover, Germany
This lecture will discuss the ethical dilemmas posed by patient selection. The presenter may choose to discuss this as a case presentation or lecture (or combination). The presenter will discuss the ethics of patient selection, including patients who are deemed not to be ECMO candidates and those who don't recover and are deemed not to be transplant candidates. Additionally, the presenter will discuss the implications of having patients supported at non-transplant ECMO facilities who do not recover lung function and how best to address these patients and support these programs.

1:45 p.m. ***Successfully Transitioning from Pre-Operative to Intra-Operative to Post-Operative Mechanical Support***
Mani A. Daneshmand, MD, Emory University, Atlanta, GA, USA
This presentation will review the technical details of ECMO support including support strategies, cannulation strategies, and supporting patients throughout the spectrum of their bridging, transplant, and convalescence.

2:00 p.m. ***ECLS in Pediatric Patients***
Brigitte W. Willemse, MD, PhD, Univ Med Ctr Groningen, Groningen, Netherlands
This presentation will review new technologies, approaches to cannulation, and outcomes specific to pediatric patients.

2:15 p.m. ***In Vivo vs Ex Vivo Lung Perfusion: Should we perfuse marginal organs prior to transplant or support recipients after?***
Pablo G. Sanchez, MD PhD, University of Pittsburgh, Pittsburgh, PA, USA
As Ex Vivo Lung Perfusion experience and availability is growing, it is important to understand which donors are best served by this strategy. This presentation will explore the world of marginal donors

and discuss which donors are best served with EVLP and which marginal donors are better suited for direct transplant while accepting a risk for postoperative ECMO support (In Vivo Lung Perfusion). The presenter will also discuss support strategies and management of those patients who are getting “in vivo” lung perfusion.

2:30 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
1:15 p.m. – 2:45 p.m. EDT

SYMPOSIUM 03: Everybody Else is Doing It So Why Can't We? MCS in Adult Congenital Heart Disease

Primary Core Therapy: MCS
Primary Audience: Pediatrics
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Durable mechanical circulatory support (MCS) has revolutionized care for end-stage heart failure patients, however remains rarely used in adults with congenital heart disease (ACHD). This session will present the most recent data on MCS use in ACHD generally including patient and device selection and post MCS outcomes. The session will include a debate on the optimal MCS strategy to be used in the most complex patient group: Fontan-palliated single ventricle patients.

Co-Chairs: **David Crossland, MRCP, Freeman Hospital, Newcastle upon Tyne, United Kingdom**
Angela Lorts, MD, Cincinnati Children's Hospital, Cincinnati, OH, USA
Jodie Lantz, MSN, RN, PCNS-BC, Children's Health Dallas, Richardson, TX, USA

1:15 p.m. ***How Soon is Now? Timing of Referral for Advanced Heart Failure Care in Adult Congenital Heart Disease***
Susan Lucy Roche, MB ChB, University of Toronto, Toronto, ON, Canada
Discussion of the difficulty in defining end-stage heart failure in ACHD, and lesion-specific thresholds for referral.

1:30 p.m. ***Realizing the Promise of VAD Technology in Adult Congenital Heart Disease***
Ari M. Cedars, MD, Johns Hopkins Medical School, Dallas, TX, USA
Review of the most recent data on post durable MCS outcomes in ACHD patients.

1:45 p.m. ***DEBATE: Fontan Patients Should Get Cavopulmonary Support for Bridge to Transplant (PRO)***
TBD
There has been great interest in cavopulmonary support for failing Fontan patients, but would it really be any better than technology that is already available? Pro, it uniquely supports a unique circulation.

2:00 p.m. ***DEBATE: Fontan Patients Should Get Cavopulmonary Support for Bridge to Transplant (CON)***
TBD
There has been great interest in cavopulmonary support for failing Fontan patients, but would it really be any better than technology that is already available? Con, it would be no better and might be worse.

2:15 p.m. ***The ACTION Network: Acceleration Group Learning in Congenital MCS***
Kurt Schumacher, MD, University of Michigan, Ann Arbor, MI, USA
The ACTION network is a facile learning network where users help other users with clinical problems and techniques in CHD and MCS.

2:30 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 01: Primary Graft Dysfunction after Heart Transplantation

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: This session will describe and explore the range of acute graft dysfunction seen following heart transplantation. The talks outlines the definition, diagnostic tools, treatment options and outcomes for primary graft dysfunction. The speakers will examine the limitations of current understanding and review potential new or innovative approaches to tackle this important problem. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Monica M Colvin, MD, University of Michigan, Ann Arbor, MI, USA**
Fabiana G Marcondes-Braga, MD, PhD, Heart Institute, Sao Paulo, Brazil
Daniel H Kim, MD, University of Alberta Medical School, Edmonton, AB, Canada

3:00 p.m. ***Primary Graft Dysfunction: What's In A Name?***
Maryjane Farr, MD, Columbia University, New York, NY, USA
Defining, predicting and preventing PGD: Explore current definitions (ISHLT 2014 consensus document, time for an update?); Prediction through the use of risk scores and biomarkers; Difficulties with literature using differing definitions.

3:15 p.m. ***Primary Graft Dysfunction: Who's To Blame?***
Jong-Chan Youn, MD, PhD, Seoul St. Mary's Hospital, Catholic University of Korea, Seoul, Korea
Exploring aetiology and solutions: Donor factors and management (include DBD vs DCD); Retrieval surgeon (technical/video information sharing); Preservation (cryopreservation/sub-zero freezing); Ischaemia (ex-vivo machine perfusion options); Impact of allocation system on ischaemic time; Recipient factors.

3:30 p.m. ***Management of Primary Graft Dysfunction: What Works, What Doesn't***
Pedro Catarino, MD, Royal Papworth Hospital, Cambridge, United Kingdom
Discussion of choice of short term MCS devices (and possibly durable LVAD); Explore options for RV/LV support and discuss short term outcomes; Importance of end-organ perfusion (liver/kidney) vs unloading the heart?; Consideration of immunosuppression on MCS and rejection monitoring; How and when to wean support; Re-transplantation.

3:45 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 02: When the Going Gets Tough: Special Lung Transplant Considerations in Connective Tissue Diseases

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Pediatrics, Research and Immunology

Session Summary: This symposium will address the unique considerations in patients with connective tissue diseases, including unique evaluation and selection criteria considerations, GI issues, and non-GI post-transplant complications.

Co-Chairs: **Marie M Budev, DO, MPH, The Cleveland Clinic, Cleveland, OH, USA**
Maria M Crespo, MD, Hospital of the University of Pennsylvania, Philadelphia, PA, USA
Marshall I. Hertz, MD, University of Minnesota, Minneapolis, MN, USA

3:00 p.m. ***Evaluation and Selection Criteria Considerations in Lung Transplant Candidates with CTD***
Sofya Tokman, MD, Norton Thoracic Institute, St. Joseph Hospital and MC, Phoenix, AZ, USA
The presenter will discuss pertinent non-GI evaluation and selection criteria considerations in patients with CTD.

3:15 p.m. ***Esophageal Dysmotility: When Is It a Contraindication? Treatment Options, Tricks and Pitfalls of the Upper Gastrointestinal Track***
Usman Ahmad, MD, The Cleveland Clinic, Cleveland, OH, USA
The presenter will discuss pertinent evaluation specific to esophageal dysfunction and the role of surgical interventions pre- or post-transplant, including controversies and outcomes. The talk will also discuss early post-operative management of GI dysfunction.

3:30 p.m. ***Non-GI Post-Transplant Complications and Outcomes: What to look for when a patient with CTD lives beyond their lung fibrosis***
Osnat Shtraichman, M.D, Rabin Medical Center Belinson Campus, Petach Tikva, Israel
The presenter will discuss non-GI post-transplant issues and complications unique to lung transplant candidates with CTD, including management of immunosuppression in the setting the underlying rheumatologic disease.

3:45 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 03: Challenges in the Field of Pediatric Heart Transplantation: Are We Solving Them?

Primary Core Therapy: HEART
Primary Audience: Pediatrics
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pulmonology, Research and Immunology

Session Summary: While numerous advances have been made in the field of pediatric heart transplantation, there are a few topics that are still controversial. Over the last 4 decades, there have been enough studies to support each side of the argument. This session aims to discuss the greatest controversies that pediatric transplant providers have debated over the last decade.

Co-Chairs: **Shahnawaz Amdani, MD, Cleveland Clinic Children's Hospital, Cleveland, OH, USA**
Estela Azeka, MD, University of Sao Paulo, Sao Paulo, Brazil
Jennifer Conway, MD, Stollery Children's Hospital, Edmonton, AB, Canada

3:00 p.m. ***Why Be Positive When You Can Be Negative? The Utility of Virtual Crossmatch***
Chesney D. Castleberry, MD, Univ of Texas at Austin Dell Medical School, Austin, TX, USA
This speaker will highlight existing literature and benefits of transplantation against a positive cross match vs. waiting for a negative cross match or using desensitization both of which could be detrimental for the transplant recipient waiting for a heart.

3:15 p.m. ***To Be Old and Wise or Young and Stupid: Biopsy vs. Novel Non-Invasive Means to Diagnose Rejection***
Charles Canter, MD, St. Louis Children's, St. Louis, MO, USA
This speaker will highlight both standard biopsy and newer novel, non-invasive means for diagnosing rejection.

3:30 p.m. ***Referring the Fontan for Advanced Therapies: When, How, Why?***
Leigh C. Reardon, MD, UCLA Medical Center, Los Angeles, CA, USA
In the current decade, Fontan patients needing advanced therapies are becoming more common. The timing to referral is important to both the waitlist and post-transplant outcomes.

3:45 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 04: Treatment of Pulmonary Arterial Hypertension: New Pathways, New Opportunities

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Pathology, Research and Immunology

Session Summary: Advances in the understanding about the pathobiology of pulmonary arterial hypertension has provided the opportunity to exploit novel pathways to address the perturbations in cell growth, differentiation and regulation. Targeting these pathways may provide a more fundamental approach to the treatment of pulmonary arterial hypertension and fill a gap for those patients who progress in the face of current therapies.

Co-Chairs: **Alexandra Rice, FRCPath, Royal Brompton and Harefield NHS Foundation Trust, London, UK**
Roberto Badagliacca, MD, PhD, University of Rome Sapienza, Rome, Italy
Sern Lim, MD, University Hospital Birmingham, Birmingham, United Kingdom

3:00 p.m. ***It's All About Inflammation***
Mark R. Nicolls, MD, Stanford University, Palo Alto, CA, USA
Both PAH and CTEPH are characterized by an inflammatory phenotype in the pulmonary vasculature. Modulating inflammatory pathways may represent opportunities to mitigate the vasculopathy.

3:10 p.m. ***It's All About Abnormal Cell Growth and Apoptosis***
Francois Potus, PhD, Laval University, Kingston, ON, Canada
PAH is characterized by abnormalities in endothelial and smooth muscle cell growth regulation and apoptosis. New insights into these pathways allow us to capitalize on therapies that are used in cancer treatments.

3:20 p.m. ***Metabolism: Fat or Carbs?***
Lisa M. Mielniczuk, MD, Univ of Ottawa Heart Institute, Ottawa, ON, Canada
Both the pulmonary vasculature and right ventricle demonstrate abnormalities in metabolism of glucose and fats. While adaptive in acute stress, they may lead to propagation of the proliferative phenotype we see in PAH.

3:30 p.m. ***Omics: Signatures of RV and Pulmonary Vascular Disease***
Stephen Y. Chan, MD, PhD, University of Pittsburgh Medical Center, Pittsburgh, PA, USA
Maladaptive remodeling of the pulmonary circulation and right ventricle may have specific omic signatures. Knowledge of these patterns may translate into novel therapeutic strategies.

3:50 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
4:00 p.m. – 6:00 p.m. EDT

PLENARY 1: Opening Plenary Session

Primary Audience: ALL

Co-Chairs: **Peter M Hopkins, FRACP, The Prince Charles Hospital, Brisbane, Australia**
Joseph G Rogers, MD, Duke University Medical Center, Durham, NC, USA

4:00 p.m. ***Program Chair Report***
Peter M. Hopkins, FRACP, The Prince Charles Hospital, Brisbane, Australia

4:05 p.m. ***President's Report***
Joseph G. Rogers, MD, Duke University Medical Center, Durham, NC, USA

4:20 p.m. ***The Tham Luang Cave Rescue - Mission Impossible to Overcoming Adversity***
Richard Harris, MD, Adelaide, Australia
In June 2018, 12 boys aged 11 to 16 years and their coach from the Wild Boar soccer team entered an underground complex, the Tham Luang Nang Non Cave in Chiang Rai Province, Thailand to explore after football practice. Inundated with torrential rain, the team became trapped in the flooded cave system and an international rescue mission was launched. Hampering rescue efforts were rising water levels, unpredictable aquatic terrain, strong currents, zero visibility, decreasing oxygen levels in the cave, narrow sections of terrain and limited contact with the group. Amongst multiple ideas to rescue the boys, the diving option was recommended and brought forward in response to anticipated monsoon rains. This presentation delivered by Dr Richard Harris will provide insight into one of the most extraordinary international rescue efforts in modern history, a triumph of meticulous planning and preparation against relentless logistical challenges. The Thai Cave rescue was a testament to international collaboration, teamwork, leadership and effective crisis management. On the 25th January 2019, Dr Harris was named Australian of the Year along with Dr Craig Challen for their efforts in leading the specialist response.

5:00 p.m. ***Featured Abstract Presentation***

5:15 p.m. ***2020 Lifetime Achievement Commemoration of Michael Hess***
Jack G. Copeland, MD, UCSD Medical Center, San Diego, CA, USA
Commemoration of the life and contributions of ISHLT Past President Michael Hess, recipient of the 2020 Lifetime Achievement Award.

5:25 p.m. ***2020 Lifetime Achievement Award Recipient Lecture - Historical Perspective of ISHLT***
James K. Kirklin, MD, Univ of Alabama at Birmingham, Birmingham, AL, USA
In addition to the description of his Lifetime achievements, Dr. Kirklin will include a brief history of ISHLT.

Saturday, 24 April, 2021
6:15 p.m. – 7:45 p.m. EDT

SYMPOSIUM 04: Joint ISHLT/AST Symposium – Challenges in Heart/Kidney Transplantation

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: In collaboration with the American Society of Transplantation (AST), this joint symposium will provide an overview of the pathophysiological basis of cardiorenal syndrome and treatment strategies, and indicators of irreversible kidney disease that lead to dual organ transplantation. Contrasting views from cardiology and nephrology regarding treatment of sensitized candidates and graft monitoring after dual transplantation will be discussed, as will ethical concerns surrounding dual organ transplantation and various allocation strategies.

Co-Chairs: **Darshana Dadhania, MD, Weill Cornell Medicine, New York, NY, USA**
Jignesh K. Patel, MD, PhD, Cedars Sinai Heart Institute, Los Angeles, CA, USA

6:15 p.m. ***The Pathophysiology of Cardio-Renal Disease Leading to End Organ Failure***
Juan B. Ivey-Miranda, MD, Instituto Mexicano del Seguro Social, Ciudad de Mexico, Mexico
The pathophysiology of heart and kidney dysfunction and their intertwined relationship will be discussed, focusing on the cardiac hemodynamic profiles that affect kidney function in the acute and chronic setting. Other mechanisms, such as cardiovascular risk factors and drug toxicity will also be presented. Different types of cardio-renal syndrome and their implications will be discussed.

6:27 p.m. ***Reversible or Irreversible Kidney Damage: How do I Know? Indications for Heart-Kidney Transplantation***
Richard Formica, MD, Yale School of Medicine, New Haven, CT, USA
This presentation will focus on diagnostic tools that can help us identify which patients with moderate renal failure have the potential to recover renal function after heart transplantation vs. those whose renal function is not likely to recover and should undergo heart-kidney transplantation. Biomarkers, advanced imaging studies, and biopsy indications/interpretation will be reviewed from a clinical practice point of view.

6:39 p.m. ***Sensitization in Heart-Kidney Transplantation***
Darshana Dadhania, MD, Weill Cornell Medicine, New York, NY, USA
Allosensitization is very common in patients on dialysis. The presence of pre-transplant circulating HLA and non-HLA antibodies may have different implications for kidney compared with heart transplant. Different sensitization thresholds and desensitization techniques in the context of heart and kidney transplantation will be discussed. The risk of waiting for the optimal HLA match for the kidney needs to be balanced with waitlist mortality for a patient with end-stage HF

6:51 p.m. ***Interdisciplinary Management Strategies for Cardio-Renal Syndrome: Tools in Our Arsenal***
Michael M. Givertz, MD, Brigham & Women's Hospital, Boston, MA, USA
Treatment strategies for cardiorenal syndrome will be discussed, with special focus on the pre-transplant situation: (1) How to treat kidney failure in acute heart failure? (volume and cardiac output optimization). (2) How to preserve kidney function in the long term? (optimal follow up, pharmacological treatment), and (3) When is it time to use renal replacement therapy?

7:03 p.m. ***The Ethics of Dual Organ Transplantation: Evaluating Fairness in Organ Allocation***
Jayme Locke, MD, MPH, University of Alabama at Birmingham, Birmingham, AL, USA

This presentation will focus on dual organ transplantation from the ethical and organizational points of view. Allocation systems will be discussed, debating the benefits of simultaneous dual organ transplantation and the fairness for other kidney-only transplant candidates. Differences in combined organ transplant allocation between countries will be addressed. Dual transplantation in special populations such as amyloid disease or heart re-transplantation will be considered.

7:15 p.m. ***Partners for Life: Monitoring and Caring for the Heart and Kidney Allografts***
Luciano Potena, MD, PhD, University of Bologna, Bologna, Italy
This presentation will focus on the specific management of heart/kidney transplant recipients: (1) Coordination between the cardiologist and nephrologist, (2) Monitoring for acute rejection (invasive and non-invasive techniques), (3) Risk of rejection of 1 vs 2 organs and its mechanisms, (4) Management of immunosuppression in this context (induction, CNI and mTOR inhibitors, long-term considerations), and (5) Management of post-transplant cardiorenal syndrome.

7:27 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
6:15 p.m. – 7:45 p.m. EDT

SYMPOSIUM 05: Great Debates in MCS and Transplant Care

Primary Core Therapy: MCS
Primary Audience: Nursing and Allied Health
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Clinicians face daily challenges and debates in the care of our patients. Hot discussion topics among our teams and colleagues will include strategies around anticoagulation in MCS, device implantation or transplantation without social support, and decisions related to stopping life-sustaining treatments. This symposium will feature 3 debates from multidisciplinary clinicians on these burning topics.

Co-Chairs: **Gregory P Macaluso, MD, Advocate Christ Medical Center, Oak Lawn, IL, USA**
Desiree Robson, RN BSc (Hons), St Vincent 's Hospital, Sydney, Australia

6:15 p.m. ***DEBATE: Every MCS Patient Needs Anticoagulation (PRO)***
Andrew Woods, BSc, Newcastle upon Tyne NHS Foundation Trust, Newcastle upon Tyne, United Kingdom
This speaker will take the stance that anticoagulation is needed for all patients across the various devices that exist. In addition to the scientific literature, the speaker may provide clinical examples from their own center to support their assigned stance.

6:27 p.m. ***DEBATE: Every MCS Patient Needs Anticoagulation (CON)***
Sara Strout, PharmD, Johns Hopkins Hospital, Baltimore, MD, USA
This speaker will take the stance that anticoagulation is NOT needed for all patients across the various devices that exist. In addition to the scientific literature, the speaker may provide clinical examples from their own center to support their assigned stance.

6:39 p.m. ***DEBATE: We Can and Should Implant or Transplant without Social Support (PRO)***
Sarah E. Schroeder, ACNP-BC, MSN RN, Bryan Heart, Lincoln, NE, USA
This speaker will take a stance that the "highly recommended" need for social support to undergo MCS therapy or transplant listing is not always necessary for successful outcomes. In addition to the scientific literature, the speaker may provide clinical examples from their own center to support their assigned stance.

6:51 p.m. ***DEBATE: We Can and Should Implant or Transplant without Social Support (CON)***
TBD
This speaker will take a stance that the "highly recommended" need for social support to undergo MCS therapy or transplant listing remains imperative to successful outcomes. In addition to the scientific literature, the speaker may provide clinical examples from their own center to support their assigned stance.

7:03 p.m. ***DEBATE: The Final Decision to Turn Off the Pump Lies With The Patient (PRO)***
Karen Meehan, MSN, University of Chicago Medical Center, Chicago, IL, USA
This controversial talk will provide an excellent debate on how to proceed with end of life decisions in MCS patient care. This speaker will take the stance that the decision to deactivate MCS therapy should be determined by the patient themselves. Case examples may be utilized.

7:15 p.m. ***DEBATE: The Final Decision to Turn Off the Pump Lies With The Patient (CON)***
Shunichi Nakagawa, MD, Columbia University Medical Center, New York, NY, USA

This controversial talk will provide an excellent debate on how to proceed with end of life decisions in MCS patient care. This speaker will take the stance that the decision to deactivate MCS therapy should be determined by the medical/surgical team. Case examples may be utilized.

7:27 p.m. ***Panel Discussion with all speakers***

Saturday, 24 April, 2021
6:15 p.m. – 7:45 p.m. EDT

SYMPOSIUM 06: Like A Bridge Over Troubled Waters: Perioperative Assessment and Management of Pulmonary Hypertension

Primary Core Therapy: PVD
Primary Audience: Anesthesiology and Critical Care
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Pediatrics, Pulmonology

Session Summary: Patients with PH are at higher risk for adverse outcomes in elective and non-elective surgery. This session reviews pre-operative risk assessment and the evaluation and management of patients and the intra-operative and post-operative consideration to minimize adverse outcomes. The role of peri-operative MCS is explored. The session will include a debate on the role of PAC monitoring. This symposium heralds the ISHLT expert consensus document currently under development.

Co-Chairs: **Marc Simon, MD, University of Pittsburgh Medical Center, Pittsburgh, PA, USA**
TBD

6:15 p.m. ***The Calm Before the Storm: Preoperative Evaluation and Management***
Dana McGlothlin, MD, Kaiser Permanente, San Francisco, CA, USA
The lecture will review preoperative risk stratification of PH patients undergoing surgery and will present best approaches for surgical planning to minimize adverse outcomes.

6:27 p.m. ***The Raging Storm: Intraoperative Considerations and Management***
Karen M. McRae, MD, Toronto General Hospital, Toronto, ON, Canada
The presentation will review the optimal anesthetic and surgical intra-operative strategies to promote favorable outcomes.

6:39 p.m. ***The Aftermath: Postoperative Considerations and Management***
Oksana A. Shlobin, MD, Inova Fairfax Hospital, Falls Church, VA, USA
The lecture will address optimal practices to manage the PH patient in the immediate post-operative period.

6:51 p.m. ***Tread Carefully: Patient with Eisenmenger's Undergoing Surgery***
Erika B. Rosenzweig, MD, Columbia University Hospital, New York, NY, USA
The lecture will review peri- and post-operative management of patients with Eisenmenger's.

7:03 p.m. ***DEBATE: PAH is an absolute contraindication for pregnancy (PRO)***
Anna Hemnes, MD, Vanderbilt University, Nashville, TN, USA
The debate will present the pro argument that PAH remains a contra-indication for pregnancy.

7:15 p.m. ***DEBATE: PAH is an absolute contraindication for pregnancy (CON)***
John Granton, MD, University of Toronto, Toronto, ON, Canada
This debate will present the con argument that AH is not a contra-indication for pregnancy.

7:27 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 07: We Are The World: Building Transplant Programs Internationally

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Heart transplant (HTx) volume has plateaued internationally, yet the waiting lists continue to grow. This dilemma affects both HTx-developed and developing countries uniquely. Developing countries struggle with ethical/legal/cultural factors to establish socially-acceptable programs. This session aims to identify barriers and solutions to dilemmas that various HTx programs face worldwide.

Co-Chairs: **Tomoko S Kato, MD, PhD, International University of Health and Welfare, Tokyo, Japan**
Javier Segovia, MD, PhD, Hosp Puerta De Hierro, Madrid, Spain

6:15 a.m. ***Nothing's Gonna Stop Us Now: Challenges of Growing a Transplant Program***
Sonia Mirabet, MD, PhD, Hospital Sant Pau, Barcelona, Spain
This lecture will discuss important issues for transplant program establishment, including: (i) Get it right from the start: how to plan your program and build your team, (ii) Collaborate and coordinate: how to build national listing criteria, and (iii) Keeping your patients safe: Discuss quality gaps that are encountered in transplant programs.

6:27 a.m. ***Current Status and Challenges of Setting Up Transplant Programs in India***
Nandkishore Kapadia, MBBS MS MCh PhD, Kokilaben Dhirubhai Ambani Hospital & Research Institute, Mumbai, India
There are varying rates of organ utilization around the world, with oversupply in some countries (i.e. India). This presentation will cover the current state, challenges, and plans for management of advanced heart failure and expansion of heart transplantation in India.

6:39 a.m. ***Current Status and Challenges in the Management of Advanced Heart Failure in China and Southeast Asia***
Cumara C. Sivathasan, MBBS, FRCS, National Heart Centre, Singapore, Singapore
This presentation will cover the current state, challenges, and future plans for management of advanced heart failure and expansion of heart transplantation in China and Southeast Asia, including use of mechanical circulatory support in these countries.

6:51 a.m. ***Current Status and Challenges in the Management of Advanced Heart Failure in Korea and Japan***
Takeshi Nakatani, MD, PhD, Maki Hospital / Maki Health Care Group, Osaka, Japan
This presentation will cover the current state, challenges, and plans for management of advanced heart failure and expansion of heart transplantation in Japan and Korea, including use of mechanical circulatory support in these countries.

11:30 a.m. ***Current Status and Challenges in the Management of Advanced Heart Failure in South America***
Adriana Torres, MD, Los Cobos Medical Center, Bogota, Colombia
This presentation will cover the current state, challenges, and plans for management of advanced heart failure and expansion of heart transplantation in South America, including use of mechanical circulatory support.

7:03 a.m. ***We Are Family: How Developed and Developing Nations Can Work Together***
Stephen C. Clark, FRCS, Freeman Hospital, Newcastle Upon Tyne, United Kingdom

This lecture will discuss collaboration between developed and developing nations to establish transplant programs. The speaker will include examples of such programs, suggestions on how to contact a program in a developed country to establish networks, and how to start working together. The role of the ISHLT in this important process will be discussed.

7:15 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 08: Ex-Vivo Perfusion Across the Organs: The Current State and Future Perspectives

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery

Session Summary: This session will review the use of ex-vivo perfusion across all solid organ transplants, including unique challenges, successes, limitations, as well as the application for prolonged preservation.

Co-Chairs: **Clemens Aigner, MD, University Medicine Essen, Essen, Germany**
Michiel E. Erasmus, MD, PhD, Univ Med Ctr Groningen, Groningen, Netherlands
Anna L Meyer, MD, Leipzig Heart Center, Leipzig, Germany

6:15 a.m. ***Ex-Vivo Lung Perfusion: Applications and Strategies of USA***
Christine Lau, MD, University of Virginia, Charlottesville, VA, USA
This talk will provide an update on the utilization of EVLP around the world and the various indications for its use, including current status, challenges, successes, and limitations.

6:27 a.m. ***Ex-Vivo Heart Perfusion: Where are we now?***
Emily K. Granger, MBBS, St Vincent's Hospital, Sydney, Australia
This talk will provide an update on the utilization of ex-vivo perfusion of the heart around the world and the various indications for its use (including DCD and marginal hearts), with a discussion of current status of the field, challenges, successes, and limitations.

6:39 a.m. ***Use of Ex-Vivo in Abdominal Organs***
Markus Selzner, MD, University Health Network, Toronto, ON, Canada
This talk will update the heart and lung transplant community on the new innovations and strategies of use of ex-vivo perfusion in abdominal organ transplantation.

6:54 a.m. ***DEBATE: Days-long preservation of donor lungs can only be achieved with cross-circulation, not with EVLP (PRO)***
Matthew D. Bacchetta, MD, Vanderbilt University Medical Center, Nashville, TN, USA
The PRO side will argue the use of cross-circulation as the best means of prolonged lung perfusion allowing for adequate evaluation, repair, and ultimate transplantation.

7:06 a.m. ***DEBATE: Days-long preservation of donor lungs can only be achieved with cross-circulation, not with EVLP (CON)***
Marcelo Cypel, MD, Toronto General Hospital, Toronto, ON, Canada
The CON side will argue the use of EVLP as the best means of prolonged lung perfusion allowing for adequate evaluation, repair, and ultimate transplantation.

7:18 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 09: Pulmonary Hypertension in Left Heart Disease: Separating the Wheat from the Chaff

Primary Core Therapy: PVD
Primary Audience: Cardiology
Secondary Audiences: Cardiothoracic Surgery, Pulmonology

Session Summary: Pulmonary hypertension in the setting of left heart disease is often multifactorial and can result from both passive or resistive changes in the pulmonary circuit. Careful attention to hemodynamics is required to tease out the etiology and help define appropriate treatments. Provocation testing (e.g. exercise or pulmonary vasodilator challenge) may help inform treatment options, eligibility for heart transplant and potentially identify patients who may be suitable for evaluating the role of traditional pulmonary vasodilators used in group I PAH.

Co-Chairs: **Mardi Gomberg-Maitland, MD, MSc, GW Heart and Vascular Institute, Washington, DC, USA**
Kyung-Hee Kim, MD, PhD, Sejong General Hospital, Seoul, South Korea
Matthew Lander, MD, Allegheny General Hospital, Pittsburgh, PA, USA

6:15 p.m. ***Hemodynamics: Getting It Right Matters***
Susanna Mak, MD, PhD, Mount Sinai Hospital, Toronto, ON, Canada
Patients with PH complicating underlying myocardial and valvular heart disease remain a diagnostic challenge. Resting hemodynamics may be misleading. The correct diagnosis is critical to inform medical and surgical treatment decision and prognostication. In this session you will learn methods on how to use resting and provocative hemodynamic testing to correctly identify the underlying patient phenotype.

6:27 p.m. ***Treatment of RV Failure in the Context of Group II PH***
Celine Dewachter, MD, Erasme Hospital, Brussels, Belgium
The common adage of "the most common cause of right heart failure is left heart failure" may not work in the reverse. Treatment of right heart failure in the context of underlying cardiac disease requires a multimodal approach. In this session you will learn how to improve RV function in the context of left sided heart failure.

6:39 p.m. ***Vasodilator Testing in Risk Stratification: Is There a Role Beyond PAH and Heart Transplant Evaluation? Can We Predict RHF or Recovery After LVAD?***
Ryan J. Tedford, MD, Medical University of South Carolina, Charleston, SC, USA
Pulmonary vasodilator testing may serve to inform treatment decisions in PAH as well as assist in determining the risk and eligibility for heart transplantation. New data suggests that other parameters may inform treatment decision and serve to predict longer term outcomes after LVAD.

6:51 p.m. ***PH in Valvular Heart Disease: Can/Should We Fix This? Who to Treat?***
Marco Guazzi, MD, PhD, IRCCS Pol San Donato, Milan, Italy
Identifying patients with reversible pulmonary hypertension in the context of mitral and aortic valvular heart disease is challenging. In this session you will learn how to determine who may benefit from valve replacement.

7:03 p.m. ***PH in Valvular Heart Disease: Can/Should We Fix This? How to Treat?***
JoAnn Lindenfeld, MD, Vanderbilt University, Nashville, TN, USA
Pulmonary hypertension in the context of valvular heart disease may be improved with valve replacement or repair. In this session you will learn if medical therapies are useful in optimizing patients prior to definitive surgical or interventional therapies.

7:15 p.m. ***PH in Valvular Heart Disease: Can/Should We Fix This? Surgical Perspective - Heal with Steel***
Stephan M. Ensminger, MD, DPhil, University Herzzentrum Lubeck, Lubeck, Germany
Ultimately the decision to repair or replace a valve lies in the discussion between surgeon and patient. In this session you will learn about indications for surgical repair / replacement in patients with pulmonary hypertension.

7:27 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 10: CMV: Great Debates on Prevention and Management Controversies

Primary Core Therapy: HEART
Primary Audience: Infectious Diseases
Secondary Audiences: Cardiology, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Despite advances in diagnostics and prevention strategies, cytomegalovirus (CMV) infection continues to be a significant management challenge in thoracic organ transplantation. This session involves two pro and con debates and a lecture related to 3 controversial issues: 1) the duration of universal anti-viral prophylaxis, 2) the use of CMV-specific immune monitoring assays as adjuncts to viral load testing, and 3) approaches to the management of resistant or recurrent CMV.

Co-Chairs: **Michael Ison, MD, Northwestern University, Chicago, IL, USA**
Lara Danziger-Isakov, MD, MPH, Children's Hospital Medical Center, Cincinnati, OH, USA
Glen P Westall, FRACP, PhD, Alfred Hospital, Melbourne, Australia

8:00 a.m. ***Resistance, Toxicities, and More: A Case-Based Approach to the Management of CMV in Lung Transplant Recipients***
Catherine Burton, MD, University of Alberta, Edmonton, AB, Canada
The speaker will present challenging scenarios in CMV management, including the management of resistant virus, treatment-limiting toxicities, and recurrent disease in the context of abnormal CMV-specific immune responses.

8:20 a.m. ***DEBATE: Universal CMV Prophylaxis Should Be Short Or Not Used At All (PRO)***
Nicolas Mueller, MD, University of Zurich, Zurich, Switzerland
The speaker will cover the evidence supporting the duration of anti-viral prophylaxis in heart and lung allograft recipients including the use of pre-emptive therapy (extrapolation from other allograft types where clinical trials have occurred may be required), arguing for the shortest possible use of prophylaxis depending on allograft type and D/R subgroup. Included in the presentation will be a review of any evidence that suggests some CMV DNAemia promotes immune control.

8:32 a.m. ***DEBATE: Universal CMV Prophylaxis Should Be Short Or Not Used At All (CON)***
Emily A. Blumberg, MD, University of Pennsylvania, Philadelphia, PA, USA
The speaker will argue for the use of longer courses of prophylaxis and even indefinite prophylaxis in lung transplant recipients. Included in the discussion will be a review of evidence regarding indirect effects of CMV DNAemia in thoracic transplant recipients, which may be impacted by longer prophylaxis courses.

8:44 a.m. ***DEBATE: CMV-Specific Immune Monitoring Assays Are Ready For Prime Time! (PRO)***
Laurie D. Snyder, MD, Duke University Med Ctr, Durham, NC, USA
The speaker will review the use of CMV immune assays as adjuncts to viral load testing for establishing CMV risk status or tailoring CMV prevention and management with emphasis on the evidence for their usefulness, arguing for their current use.

8:56 a.m. ***DEBATE: CMV-Specific Immune Monitoring Assays Are Ready For Prime Time! (CON)***
Camille Kotton, MD, Mass General Hospital, Boston, MA, USA
The speaker will review the use of CMV immune assays as adjuncts to viral load testing for establishing CMV risk status or tailoring CMV prevention and management with emphasis on the limitations of the assays, arguing against their current use.

9:08 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 11: Eye Ball Test! I Know My Patient is Frail: Now What?

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology

Session Summary: Patients with end stage heart and lung disease are frequently identified as frail and this is predictive of worse outcomes. Currently the best management for these patients is unclear. This session will describe current evidence gleaned from across medical specialties to manage the frail patient in all facets of the phenotype. The session will highlight ongoing relevant trials and will culminate in a debate on the use of frailty as criteria to guide listing for transplant.

Co-Chairs: **Goran Dellgren, MD, University Hospital Goteborg, Goteborg, Sweden**
Cassie Kennedy, MD, Mayo Clinic, Rochester, MN, USA
Aleem Siddique, MBBS, University of Nebraska Medical Center, Omaha, NE, USA

8:00 a.m. ***Iron Man (or Woman): Targeting Frailty Before Lung Transplantation***
Aida Venado, MD, UCSF Medical Center, San Francisco, CA, USA
The talk will focus on the proven benefits of programs for cardiac and pulmonary rehabilitation and recommend an ideal prescription for frail patients with end stage lung disease before and after transplantation. It will include the concept of prehabilitation and highlight ongoing trials in this field, and the fashion of wearable rehabilitation devices.

8:12 a.m. ***The Incredible Bulk: Addressing Obesity and Body Composition Pre-Transplant***
Michaela Anderson, MD, Columbia University, New York, NY, USA
Obesity has been shown to be associated with primary graft dysfunction and post transplant mortality. Efforts to address obesity are complicated in this population due to low mobility and sarcopaenia. Data will be reviewed and recommendations made.

8:24 a.m. ***Frontiers of the Mind: Psychologic Frailty***
Katharina Tigges-Limmer, PhD, Herz- und Diabeteszentrum NRW, Bad Oeynhausen, Germany
The unique role of psychologic frailty will be discussed along with non-pharmacologic and pharmacologic means to mitigate its impact on the post-transplant course. Emerging psychosocial risk factors are increasingly associated with post transplant outcomes. Review of such factors (affect, adverse childhood events, mood disorders, health literacy and personality) will occur along with emerging strategies for intervention.

8:36 a.m. ***DEBATE: The Pre-Frail Patient Should Be Considered Earlier for Listing (PRO)***
Hanneke Kwakkel-van Erp, MD, University Hospital, Antwerp, Belgium
The speaker will advocate for the inclusion of frailty measures in the assessment of patients with advanced heart and lung disease with a view that identification of patients at-risk for frailty (pre-frail) should be an independent criterion for referral/consideration of listing to allow for earlier transplant before further deterioration.

8:48 a.m. ***DEBATE: The Pre-Frail Patient Should Be Considered Earlier for Listing (CON)***
Allan Glanville, MD, St Vincent's Hospital, Sydney, Australia
The speaker will advocate for the inclusion of frailty measures in the assessment of patients with advanced heart and lung disease with a view that identification of patients at-risk for frailty (pre-frail) should trigger a response aimed at reversing the process and optimizing the patient. Listing, however, should be based on standard criteria and delayed until the patient is optimized.

9:00 p.m. ***Endgame: When to Delist***

Joshua Diamond, MD, University of Pennsylvania, Philadelphia, PA, USA

Transplant practitioners need to be mindful of when the pre-transplant risk factors portend a poor prognosis and the patient should be delisted. Balancing pre-habilitation with excessive risks and limited organ availability is necessary to avoid excess mortality and wasted resources.

9:12 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 12: Challenges in Patient and Device Selection in Pediatric Heart Failure and MCS

Primary Core Therapy: MCS
Primary Audience: Pediatrics
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This symposium will explore the complexity of patient and device selection in pediatric mechanical circulatory support through 3 case-based debates, each highlighting a clinical scenario for which there is currently no standard approach. The session will present competing views on the risks and benefits of various management approaches to 3 distinct pediatric advanced heart failure populations.

Co-Chairs: **Aamir Jeewa, MD, Hospital for Sick Children, Toronto, ON, Canada**
Neha Bansal, MD, Children's Hospital at Montefiore, Bronx, NY, USA

8:00 a.m. ***How Low Can We Get? The Use of Durable LVADs in Pediatric Patients***
Umar S. Boston, MD, Le Bonheur Children's Hospital, Memphis, TN, USA
This talk will open the peds session and discuss the use of LVADs in kids. The use of durable LVADs is now expanding to children… a new option exists. When should we use it? What measurements should be done before? Which kids? What is the optimal weight? What are the chest/echocardiographic measurements that need to be done? How do we not over flow the kids? Ideal Rp.m.? Any modifications to be done in the chest? Who is the perfect candidate? The talk will emphasis the viable option of using these LVADs in kids.

8:10 a.m. ***DEBATE: All Neonates with DCM and Decompensated Heart Failure Should Receive a VAD as a Bridge to Transplant (PRO)***
Joshua Friedland-Little, MD, Seattle Children's Hospital, Seattle, WA, USA
The speaker will argue that mechanical circulatory support will provide the safest, most effective bridge to transplant for a neonate with dilated cardiomyopathy and decompensated heart failure. Speaker will highlight any published data to support this perspective.

8:20 a.m. ***DEBATE: All Neonates with DCM and Decompensated Heart Failure Should Receive a VAD as a Bridge to Transplant (CON)***
Michael Burch, MD, Great Ormond Street Hospital, London, United Kingdom
The speaker will argue that medical management will provide the safest, most effective bridge to transplant for a neonate with dilated cardiomyopathy and decompensated heart failure. Speaker will highlight any published data to support this perspective.

8:30 a.m. ***DEBATE: All Patients with Fulminant Myocarditis Failing Medical Therapy Should Be Bridged with ECMO Support as First Line MCS (PRO)***
Sabrina P. Law, MD, Columbia University Medical Center, New York, NY, USA
The speaker will argue that medical management will provide the safest, most effective bridge to transplant for a neonate with dilated cardiomyopathy and decompensated heart failure. Speaker will highlight any published data to support this perspective.

8:40 a.m. ***DEBATE: All Patients with Fulminant Myocarditis Failing Medical Therapy Should Be Bridged with ECMO Support as First Line MCS (CON)***
Jacob Mathew, MD, Royal Children's Hospital, Melbourne, Australia

The speaker will argue that a temporary or durable LVAD or BiVAD will provide the most effective bridge to recovery or transplant for a child with biventricular dysfunction due to myocarditis. Speaker will highlight any published data to support this perspective.

8:50 a.m. ***DEBATE: A Child with a Glenn Palliation with Severe Right Ventricular Systolic Dysfunction Should Be Bridged Medically to Transplant (PRO)***

Kathleen Simpson, MD, St. Louis Children's Hospital, Saint Louis, MO, USA

The speaker will argue that medical management will provide the safest, most effective bridge to transplant for a child with Glenn palliation with severe right ventricular dysfunction. Speaker will highlight any published data to support this perspective.

9:00 a.m. ***DEBATE: A Child with a Glenn Palliation with Severe Right Ventricular Systolic Dysfunction Should Be Bridged Medically to Transplant (CON)***

Antonio Amodeo, MD, Pediatric Hospital Bambino Gesù, Rome, Italy

The speaker will argue that mechanical circulatory support will provide the safest, most effective bridge to transplant for a child with Glenn palliation with severe right ventricular dysfunction. Speaker will highlight any published data to support this perspective.

9:10 a.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 13: HFpEF and Infiltrative Cardiomyopathies

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This session focuses on heart failure with preserved ejection fraction, including etiologies and hemodynamics, and the utility of advanced imaging techniques in diagnosis. This session also will discuss infiltrative cardiomyopathies, particularly conditions that often present with RV involvement or right heart failure, including amyloidosis and sarcoidosis, The speakers will discuss how to manage the specific cardiomyopathy, and when to refer these patients for advanced HF therapies. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Richard K Cheng, MD, MSc, University of Washington, Seattle, WA, USA**
Bojan Vrtovec, MD, PhD, UKC Ljubljana, Ljubljana, Slovenia
Carmela D. Tan, MD, Cleveland Clinic, Cleveland, OH, USA

9:45 a.m. ***Case Presentation: A Challenging Case of Dyspnea in an Older Woman***
Thomas Cascino, MD, MSc, University of Michigan, Ann Arbor, MI, USA
Junior faculty/fellow presentation of a case of a patient with a difficult diagnosis of HFpEF

9:50 a.m. ***Pathophysiology and Hemodynamics of Heart Failure with Preserved Ejection Fraction***
Sanjiv J. Shah, MD, Northwestern University, Chicago, IL, USA
This presentation will give a complete overview of the unique pathophysiology and hemodynamic characteristics of HFpEF according to its different etiologies: hypertension, hypertrophic cardiomyopathy, restrictive, and infiltrative cardiomyopathies. Hemodynamic patterns at rest and after exercise will be reviewed.

10:02 a.m. ***Role of Imaging in Assessing HFpEF - Echocardiography, MRI, and PET: Is Ejection Fraction Overrated?***
Jerry D. Estep, MD, Cleveland Clinic, Cleveland, OH, USA
This talk will provide a review of the role of echocardiography (TDI, strain rate), MRI, and PET for diagnosis of HFpEF. The speaker will discuss how a combined strategy of ECG, echo and MRI data is crucial in refining the diagnosis (HCM, amyloidosis, other infiltrative cardiomyopathies). Finally, the role of exercise echocardiography will be reviewed.

10:14 a.m. ***HFpEF: Treatment Options in Different Clinical Settings***
Maria Frigerio, MD, Niguarda Great Metropolitan Hosptal, Milan, Italy
This talk will give an overview of pharmacological treatments for HFpEF and use of devices according to different etiologies, as well as ongoing drug trials.

10:26 a.m. ***Case Presentation: ATTR Amyloid Patient with Severe Restrictive Physiology/Right Heart Failure and Pulmonary Hypertension***
Elsy V. Navas, MD, Cleveland Clinic Florida, Weston, FL, USA
Junior faculty/fellow presentation of a case of RV failure in amyloidosis

10:31 a.m. ***Restrictive Physiology and Emerging Treatment Options in ATTR Amyloidosis***
Natasha Altman, MD, University of Colorado, Aurora, CO, USA

Overview of common cardiac presentations of ATTR amyloidosis: Restrictive filling, right heart failure, cardiorenal syndrome, and paradoxical low output. Discussion on how to manage right heart failure in amyloidosis. Review of new and emerging therapies for ATTR.

10:43 a.m. ***Case Presentation: Right Heart Failure and Pulmonary Hypertension in Sarcoidosis***
Stephen Pan, MD MS, Westchester Medical Center / NY Medical College, New York, NY, USA
Junior faculty/fellow presentation of a case of RV dysfunction due to cardiac sarcoidosis.

10:48 a.m. ***Quest for Quiescence: Treating RV Dysfunction, Pulmonary Hypertension, and Arrhythmias in Sarcoidosis***
Maja Cikes, MD, PhD, University of Zagreb School of Medicine, Zagreb, Croatia
Overview of common cardiac and pulmonary manifestations of sarcoidosis: pulmonary hypertension, RV dysfunction, and arrhythmias. Discussion of immunosuppression options, including how to monitor response to treatment.

11:00 a.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 14: Jukebox Jives: Going Beyond the Fundamentals of Antifungal Therapy

Primary Core Therapy: LUNG
Primary Audience: Pharmacy and Pharmacology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pulmonology, Research and Immunology

Session Summary: Fungal infections are associated with high morbidity and mortality in thoracic transplant and MCS. This session will provide an overview of some less commonly encountered antifungal issues and provide guidance for clinicians enabling clinicians to make the most of currently available agents.

Co-Chairs: **Thais Gift, PharmD, BCPS, UT Southwestern Medical Center, Boston, MA, USA**
Fernanda Silveira, MD, University of Pittsburgh Medical Center, Pittsburgh, PA, USA
Patricia Ging, MSc, Mater Misericordiae University Hospital, Dublin, Ireland

9:45 a.m. ***Stuck on You: Reviewing Unique Antifungal Dosing in ECMO***
Haifa Lyster, MSc, Royal Brompton and Harefield NHS Foundation Trust, Middlesex, UK
Candidiasis is a leading cause of infection-related death in children and adults who are supported by extracorporeal membrane oxygenation (ECMO). Furthermore, the ECMO circuit can alter drug pharmacokinetics (PK) of a variety of medications, including anti-fungal agents utilized to treat candidiasis, leading to suboptimal drug exposure. During this presentation, available PK data and dosing strategy for anti-fungals in adults and pediatric patients on ECMO will be discussed.

10:00 a.m. ***Billie 'Gene': Pharmacogenomics of Antifungals***
Christina Aquilante, PharmD, University of Colorado, Aurora, CO, USA
Triazole antifungals are commonly prescribed to prevent or treat invasive fungal infections in heart and lung transplant patients. Genetic polymorphisms in CYP2C9, CYP2C19 and CYP3A5 can lead to population-specific variations in drug efficacy and safety, optimal dosing, and drug-drug interactions. When combined with the effects of immunosuppression, these variations can impact overall therapy outcomes. The purpose of this session is to discuss important pharmacogenetic considerations and the impact on medication regimens in pediatric and adult cardiothoracic transplant patients. Strategies to mitigate these issues will be discussed.

10:15 a.m. ***We Go Together: Synergy and Antagonism Among Antifungal Agents***
Taylor Pasley, PharmD, UF Health Shands Hospital, Tampa, FL, USA
Certain antifungal agents when utilized in combination might have synergistic or antagonistic effects for treatment of various fungal infections. This lecture will review mechanisms of action and active site for various agents and will describe how various agents might affect activity of others. Literature describing in vitro and in vivo effects will be reviewed. Evidence for logical and cost effective combinations will be discussed.

10:30 a.m. ***A Change is Gonna Come Armamentarium Against Scedosporium and Fusarium***
Me-Linh Luong, MD, St. Luc Hospital, Montreal, QC, Canada
This presentation will present an overview of the impact of Scedosporium on post-transplant outcome in the current era and discuss state-of-the-art antifungal management of difficult to treat fungal pathogens (Scedoporium apiospermum, Scedosporium prolificans and Fusarium sp).

10:45 a.m. ***Bitter Pill: Outside the [Pill] Box Antifungal Administration Strategies***
Rickey A. Evans, PharmD, University of North Carolina Healthcare, Chapel Hill, NC, USA

This presentation will examine alternative methods of delivery for antifungal agents. This will include various inhaled amphotericin products/dosing and delivery strategies, potential role for inhaled azoles, and topical/irrigation/local installation routes.

11:00 a.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 15: Pediatric Pulmonary Hypertension: Management of Advanced Disease and Thoracic Transplant Referral

Primary Core Therapy: PVD
Primary Audience: Pediatrics
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pharmacy and Pharmacology, Pulmonology

Session Summary: This session will bring together experts on pediatric pulmonary hypertension for a discussion that is much needed regarding the treatment of advanced pulmonary vascular diseases in children. In addition to medical management, discussions will include surgical management and referral for thoracic transplantation in refractory cases.

Co-Chairs: **Melinda Solomon, MD, Hospital for Sick Children, Toronto, ON, Canada**
Elina Heliövaara, MD, PhD, Helsinki University Central Hospital, Helsinki, Finland

9:45 a.m. ***The Matrix: What to Do When Children with Eisenmenger Physiology Become Adults***
Maurice Beghetti, HUG, Children's University Hospital, Geneva, Switzerland
Historically, the options for patients with ES are limited with a principle to avoid any factors affecting the physiology. However, more recent anecdotal experiences and literature provides insights into medical therapies that may be utilized to induce an early relief in clinical status and cardiopulmonary hemodynamics of ES patients. This talk will discuss monotherapy and combination therapy of medical therapies for ES patients.

9:57 a.m. ***Applying What We Know About Adult Therapies to Children***
Amy Kiskaddon, Johns Hopkins All Children's Hospital, St. Petersburg, FL, USA
The development of drugs that specifically target molecular pathways involved in disease pathogenesis has led to improvement in life quality and clinical outcomes in patients with PAH. However, there is limited literature in pediatric patients. This presentation aims to discuss how to apply what is known in adults to our children, evaluate study designs, and assess when to add or change therapy.

10:09 a.m. ***Considerations for Managing the Failing Fontan***
Steven Kindel, MD, Children's Hospital of Wisconsin, Milwaukee, WI, USA
Survivors of Fontan palliation mostly have diminished exercise tolerance and easily have a failure of Fontan-pulmonary circulation. Reduced PVR and pulmonary arterial pressure (PAP) could result in increased pulmonary blood flow and better cardiac filling. This session will discuss medical therapy options for the failing fontan, including the role of vasodilators.

10:21 a.m. ***Coagulation Wars: Rogue Anticoagulation Strategies in Durable MCS***
TBD
Surgical palliation and mechanical circulatory support for lung disease is occurring more frequently. There are many novel ways to support patients to recovery and to transplantation.

10:33 a.m. ***When to Refer a Child with Pulmonary Hypertension for Thoracic Transplant***
Brigitte Willemse, MD, Univ Med Ctr Groningen, Groningen, Netherlands
With no standard for when to refer children with pulmonary hypertension for thoracic transplantation, this presentation will provide insight regarding when children should be sent to a lung/heart-lung transplant program.

10:45 a.m. ***What Do Patients and Parents Want?***

TBD

A presentation given by a patient and family to share perspective of what it is like to live with and manage pulmonary hypertension. This session will enable providers to obtain a first hand perspective of life with pulmonary hypertension.

11:00 a.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
1:15 p.m. – 2:15 p.m. EDT

WORKSHOP 05: I Never Thought I'd Live to Be a Hundred: Lessons Learned to Delay Cardiac Allograft Vasculopathy and Malignancy

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: In this session, lecturers will speak about complications that decrease long-term survival post heart transplant cardiac allograft vasculopathy and malignancy, focusing on updated clinical evidence to prevent their onset and/or delay their progression. Complications related to proliferation signal inhibitors and their impact to prevent long-term complications and improve survival post-transplant will be discussed. A panel discussion with all speakers will conclude this session.

Co-Chairs: **David A Baran, MD, Sentara Heart Hospital, Norfolk, VA, USA**
Elena Sandoval, MD FEBCTS, Hospital Clinic, Barcelona, Spain
Georgina Waldman, PharmD, Massachusetts General Hospital, Boston, MA, USA

1:15 p.m. ***What's Beyond Ten Years?***
Maria Rosa Costanzo, MD, Midwest Heart Specialists-Advocate Medical, Naperville, IL, USA
Review of the long-term effects of immunosuppression in different organ systems that may impact morbidity and survival of heart transplant recipients. Conceptual definition for a comprehensive term to describe those changes (transplantopathy). Brief insights on how to prevent or postpone transplantopathy.

1:30 p.m. ***Facing the Facts: What Really Works and What Doesn't to Prevent and Delay CAV?***
Livia Goldraich, MD, Hospital de Clínicas Porto Alegre, Porto Alegre, Brazil
Brief description of the natural history of CAV and critical review of the literature on strategies to prevent or delay the development of CAV, and impact on long-term survival.

1:45 p.m. ***There Goes My Miracle: How Can We Prevent Post-Transplant Malignancies?***
Sandrigo Mangini, MD, PhD, Heart Institute, Sao Paulo, Brazil
Brief review of the impact of malignancies on survival post-heart transplant. Critical appraisal of strategies to prevent or delay their onset, focusing on surveillance and therapeutic choices of immunosuppression.

2:00 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
1:15 p.m. – 2:15 p.m. EDT

WORKSHOP 06: Making the Move: Accelerating Basic Science to Novel Clinical Trials in Transplant

Primary Core Therapy: LUNG
Primary Audience: Research and Immunology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Despite a desperate need for novel therapies to prevent or reverse chronic rejection, there has been a paucity of clinical trials in this area. This symposium will discuss barriers to interventional trials in transplant and their potential solutions.

Co-Chairs: **John R Greenland, MD, PhD, UCSF Medical Center, San Francisco, CA, USA**
Laurie D Snyder, MD, Duke University Medical Center, Durham, NC, USA
Simon Pecha, MD, University Heart Center Hamburg, Hamburg, Germany

1:15 p.m. ***Changing the Endgame: Surrogate Markers Instead of Clinical Endpoints?***
Jamie L. Todd, MD, Duke University Medical Center, Durham, NC, USA
Given the slow rate to develop clinically important endpoints like chronic rejection or death, this talk will explore surrogate endpoints and biomarkers for accelerating thoracic transplant trials and decreasing cost and time.

1:30 p.m. ***Sharing the Love: Translating Pre-Clinical Discoveries and Borrowing from Other Therapeutic Areas to Transplantation***
Patricia Uber, PharmD, Virginia Commonwealth University, Richmond, VA, USA
This talk will discuss identification of novel therapeutics in the pipeline based on pre-clinical science. Interventions available for other diseases, such as arthritis, kidney transplant, or myeloma, will be reviewed for their potential use in transplant based on their mechanistic targets.

1:45 p.m. ***Maximizing Efficiency: Novel Clinical Trial Designs***
Finn Gustafsson, MD, PhD, Rigshospitalet, Copenhagen, Denmark
Maximizing yield from clinical studies will require novel study methodologies. This talk will discuss adaptive study designs, combined control arms, and other approaches to clinical trial optimization.

2:00 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
1:15 p.m. – 2:15 p.m. EDT

WORKSHOP 07: Let's Talk about Sex, Baby! Intimacy in MCS and Transplant Patients

Primary Core Therapy: MCS
Primary Audience: Nursing and Allied Health
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: This multidisciplinary symposium focuses on issues specific to sexual intimacy and fertility in patients receiving device therapies, cardiac or lung transplantation. Topics will include: impact of heart failure medication on sexual potency, ethical issues and decision making around unplanned pregnancies, sexually transmitted infections, and fertility treatment, and supporting patients with device therapies around intimacy concerns.

Co-Chairs: **Pamela Combs, PhD RN, University of Chicago, Chicago, IL, USA**
Tonya I Elliott, MSN, RN, CCTC, CHFN, MedStar Washington Hosp. Center, Washington, DC, USA

1:15 p.m. ***I Can't Get No Satisfaction: Pharmacological Considerations***
Nathan Verlinden, PharmD, Allegheny General Hospital, Pittsburgh, PA, USA
This presentation will discuss the impact of heart failure medications on sexual performance. Recommendations will be provided from the pharmacological perspective on helping patients to find a balance between heart health and sexual health.

1:30 p.m. ***Papa Don't Preach: STI, Fertility and Pregnancy Dilemmas***
Vasiliki Gerovasili, MD, Queen Elizabeth Hospital, Oxford, United Kingdom
The speaker will highlight ethical and decision-making challenges related to pregnancy in post-transplant recipients, including adolescents with unplanned pregnancies and recipients with multiple miscarriages/complications. In addition, the risks of sexually transmitted infections/diseases will be discussed.

1:45 p.m. ***Rock With You: Sexual Intimacy and Device-Therapy in MCS Patients***
Melissa Sanchez, BSc, PGDip, MSc, DClinPSy, Royal Brompton Hospital, Harefield, United Kingdom
The speaker will discuss how to support patients with MCS and other device-therapies (e.g., infusion pumps) to have fulfilling sex lives and improved quality of life. Topics will include positioning with MCS/device, management of erectile dysfunction, and emotional/anxiety considerations.

2:00 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
1:15 p.m. – 2:15 p.m. EDT

WORKSHOP 08: Portopulmonary Rhapsody: Everything You Need to Know About Portopulmonary Hypertension

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Pathology

Session Summary: This session will review the new topics in the literature regarding portopulmonary hypertension. It will review the pathogenesis of portopulmonary hypertension and other forms of PAH related to liver disease, it will review the emerging treatment options for patients with portopulmonary hypertension, and will include a great debate on role of liver transplantation in treatment of portopulmonary hypertension.

Co-Chairs: **Nicholas A Kolaitis, MD, UCSF Medical Center, San Francisco, CA, USA**
Daniel H Kim, MD, Univ of Alberta Med School, Edmonton, AB, Canada
Richard D. Thompson, PhD, FRCP, Univ Hosp Birmingham, Birmingham, United Kingdom

1:15 p.m. ***Case Presentation: RVSP"itis": Patient with Newly Diagnosed Portopulmonary Hypertension***
Sophia Airhart, MD, Providence Heart and Vascular Institute, Portland, OR, USA
Case presentation on a patient with newly diagnosed portopulmonary hypertension. Patient with exceedingly high pressures and sets up two major questions (1) How to treat? (2) Is transplantation an option?

1:20 p.m. ***There Goes the Neighborhood: Updates in Pathogenesis, Epidemiology and Treatment of Portopulmonary Hypertension***
Olivier Sitbon, MD, PhD, Paris-Saclay University / Bicêtre Hospital, Paris Sud, France
This lecture will cover the pathogenesis of and treatment options for portopulmonary hypertension.

1:35 p.m. ***DEBATE: Liver Transplantation is a Treatment For Portopulmonary Hypertension (PRO)***
Thenappan Thenappan, MD, University of Minnesota, Minneapolis, MN, USA
Speaker will argue that liver transplantation can be used as treatment for portopulmonary hypertension.

1:50 p.m. ***DEBATE: Liver Transplantation is a Treatment For Portopulmonary Hypertension (CON)***
TBD
Speaker will argue that liver transplant is NOT a treatment option for portopulmonary hypertension.

2:05 p.m. ***Panel Discussion with all speakers***

Sunday, 25 April, 2021
4:00 p.m. – 6:00 p.m. EDT

PLENARY 2: Plenary Session

Primary Audience: ALL

Session Summary: Transplant outcomes remain constrained by immunosuppressive protocols that in many respects have shown little change over the last decade. This Plenary session will explore the immunosuppressive drug pipeline in development and likely role of novel agents compared to traditional therapy in the future. Furthermore, access to transplantation remains a universal problem with an imbalance between numbers of patients on active waitlists and donor organ supply. The current status, barriers and ethical challenges in the development of interspecies chimeras will be outlined. Could the waitlist finally be abolished? Myocardial recovery during Mechanical Circulatory Support remains an elusive goal with few patients expected to achieve restitution of normal myocardial function. This Plenary will provide latest insights into mechanisms of myocardial recovery and therapeutic approaches. The highlight of this session will be the acknowledgement to the recipient of the ISHLT 2021 Lifetime Achievement Award.

Co-Chairs: **Lori J West, MD, DPhil, University of Alberta, Edmonton, AB, Canada**
John Dark, MB, FRCS, Newcastle University, Newcastle Upon Tyne, United Kingdom

4:00 p.m. ***Laudation to 2021 Lifetime Achievement Award Recipient David Taylor***
Randall C. Starling, MD, MPH, Cleveland Clinic, Cleveland, OH, USA
Commemoration of the life and contributions of ISHLT Past President David Taylor, recipient of the 2021 Lifetime Achievement Award.

4:15 p.m. ***Is the Well Dry: What has Happened to the Immunosuppressive Drug Pipeline?***
Mandy L. Ford, PhD, Emory University, Atlanta, GA, USA
Therapeutic agents consisting of steroids, calcineurin inhibitor and a cytotoxic agent are considered standard strategies for immunosuppression delivery at the time of thoracic organ transplantation. This approach has endured for decades and whilst a familiar strategy for transplant units, is plagued with issues of poor tolerability, secondary end organ damage and persistent rates of chronic allograft rejection. A renaissance era of transplant therapeutics is required to reinvigorate immunosuppressive approaches. For example, proposed major targets include the inhibition of T cell proliferation, signalling mechanisms, suppression of cell surface molecules and inhibition of lymphocyte trafficking through chemokine blockade. Challenges include the fact that few phase III trials are underway in thoracic organ transplantation. Further hindering new drug development are the lack of hard clinical endpoints with acute rejection a vanishing outcome variable and improved graft survival requiring long term follow up. This presentation will outline those candidate drugs and biologic agents which will hold promise in the next decade for organ transplantation, propelled by our understanding of pathways that lead to rejection, tissue repair, genomic analysis and immune tolerance.

4:40 p.m. ***Featured Abstract Presentation***
TBD

4:55 p.m. ***Latest Insights into Myocardial Recovery during Mechanical Circulatory Support***
Bart Meyns, MD, PhD, UZ Leuven, Leuven, Belgium
The myocardium demonstrates potential for recovery following significant insult, further supported by advances in modern medicine. The volume and pressure unloading of the distressed heart with Mechanical Circulatory Support (MCS) allows for structural and functional reversal remodeling of the overloaded myocardium. However, this is only successful in a small percentage of patients. This lecture will focus on molecular, histological, physiological and cellular findings and how they correlate with functional outcomes to better define mechanistic approaches to facilitating more productive myocardial recovery. An overview of host factors and device characteristics that influence the extent

and sustainability of myocardial recovery associated with MCS support will be presented. Interventions will be outlined as to how best to assess and facilitate myocardial recovery on MCS along with defining thresholds to permit device extraction. Finally, innovative MCS device bioengineering that could enhance myocardial recovery will be explored.

5:20 p.m. ***Featured Abstract Presentation***
TBD

5:35 p.m. ***Interspecies Chimeras and the End of the Waitlist: Fair Game or Fanciful Folly***
Pablo J. Ross, PhD, University of California, Davis, CA, USA
Donor organ shortage and difficult recipient attributes lead to matching challenges in human transplantation. An alternative approach to traditional organ transplantation is blastocyst complementation to engineer an interspecies chimera. Previous studies delivering mouse embryonic stem cells into Pdx1 (the master regulator for the pancreas) deficient rat blastocysts have resulted in a rat-sized pancreas that was a derivative of the mouse pluripotent stem cells. Importantly, these chimeric pancreata were physiologically functional and subsequent transplantation into a diabetic mouse normalized and maintained glycaemic control for more than 12 months in the absence of immunosuppression. The feasibility of this strategy has been amplified with the derivation of human induced pluripotent stem cells (PSC) and the use of gene-editing technologies such as CRISPR/Cas9. Recently, human PSC delivered into a developing mouse embryo demonstrated differentiation to all 3-germ cell layer derivates. This presentation will focus on feasibility of clinical human transplantation utilising a large animal host for the generation of appropriately sized humanised organs and following harvesting of autologous PSC from patients with end stage cardiac or respiratory failure. Technical, biological and ethical hurdles will be outlined along with future challenges.

Monday, 26 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 16: From PGD to CLAD: The Lifespan of a Lung Allograft

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: Lung allografts survive numerous damaging insults, with the recipient ultimately succumbing to chronic lung allograft dysfunction (CLAD). The initial insult occurs at the time of transplant surgery leading to primary graft dysfunction (PGD). Over months to years, cumulative damage to the allograft from PGD, rejection, infection, and antibody production results in irreversible CLAD. In this session, we will review mechanistic data regarding these critical events limiting lung allograft longevity.

Co-Chairs: **John Dark, MD, Freeman Hospital, Newcastle Upon Tyne, United Kingdom**
Allison Carroll, MD, University of Alberta, Edmonton, AB, Canada
Christine Lau, MD, University of Maryland SOM, Baltimore, MD, USA

6:15 a.m. ***Clinical Strategies for the Prevention of Primary Graft Dysfunction: What's New on the Horizon***
Jason Christie, MD, University of Pennsylvania, Philadelphia, PA, USA
It is well established that donor, operative, and recipient variables affect the risk of primary graft dysfunction. In this talk, we will provide an overview of the clinical risk factors for PGD with an emphasis on new insights into mechanistic contributors identified with the utilization of extended criteria or DCD lungs and with the adoption of EVLP for donor management. Novel strategies and treatments for prevention will be explored.

6:27 a.m. ***Primary Graft Dysfunction: Molecular Mechanisms***
Ciara M. Shaver, MD PhD, Vanderbilt University Medical Center, Nashville, TN, USA
Over the last 5 years, there has been remarkable progress in the mechanistic understanding of PGD to move the field beyond clinical correlations. In this talk, we will discuss the role of endogenous danger-associated molecular patterns (Da.m.Ps), innate immune mechanisms, and epithelial injury in development of PGD and the translational studies which suggest potential treatment approaches to target these pathways.

6:39 a.m. ***Novel Cellular Modulators of Allograft Inflammation and Injury***
Daniel Chambers, MD, The Prince Charles Hospital, Brisbane, Australia
Innate immune effectors cells, including monocytes/macrophages and eosinophils, are increasingly recognized as major contributors to the early immune responses to the lung allograft. This talk with highlight recent observations of persistent of donor-derived immune effectors in allograft injury and review data suggesting that eosinophils may have a significant role in modulating inflammation in the injured lung.

6:51 a.m. ***Infectious Triggers of Increased Inflammation***
Andrew J. Fisher, PhD FRCP, Newcastle University, Newcastle Upon Tyne, United Kingdom
Newer data is revealing a critical role for host-pathogen interactions in allograft injury and development or acceleration of CLAD. This talk will focus on the infections most associated with CLAD progression and will discuss molecular mechanisms by which infection may contribute to T cell pathways.

7:03 a.m. ***CLAD: What's New in Terms of Clinical Risk?***
Robin Vos, MD, PhD, University Hospitals Leuven, Leuven, Belgium

Numerous clinical factors have been associated with clinical risk of CLAD with distinct contributors to BOS and RAS phenotypes. This talk with focus on recent advances in understanding risk factors contributing to CLAD development and will highlight translational studies that may suggest new preventive therapies for this devastating complication.

7:15 a.m. ***CLAD: Molecular Mechanisms***

Vibha N. Lama, MD, MS, University of Michigan, Ann Arbor, MI, USA

Over the last 5 years, the molecular research tools and animal models available to dissect the molecular mechanism of CLAD have expanded and now can adequately mimic human disease. In this talk, we will highlight novel insights into the cellular and immunologic mechanisms of CLAD with a strong focus on data from the murine orthotopic lung transplant model.

7:27 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 17: Seeing Through the VAD Patient with Multi-Modality Imaging: If You Know Your Enemy and Know Yourself, You Will Never Be Defeated

Primary Core Therapy: MCS
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Pediatrics

Session Summary: Cardiac imaging is indispensable in the management of patients supported by mechanical circulatory support (MCS) not only for hemodynamic assessment but also for prognostic surveillance and for a diagnosis of adverse events. In this session, we will discuss the role of echocardiography that has been considered as a primary imaging modality in the care of LVAD recipients and will also focus on intra-operative transesophageal echocardiography (TEE). In addition, we introduce advanced imaging techniques that guide the positioning of LVAD cannula, select the suitable MCS for pediatric patients considering body size, and detect subclinical infection associated with MCS.

Co-Chairs: **Jerry D Estep, MD, Cleveland Clinic, Cleveland, OH, USA**
Tomoko S Kato, MD, PhD, International University of Health and Welfare, Tokyo, Japan
Alexis E Shafii, MD, Baylor College of Medicine, Houston, TX, USA

6:15 a.m. ***The Game Has Just Begun: Pre- and Intra-Operative Echocardiography, Lessons Learned to Optimize Outcome***
Koichi Akiyama, MD, PhD, Yodogawa Christian Hospital, Osaka, Japan
The role of pre-operative evaluation by echocardiography in MCS candidates, such as valvular dysfunction and right ventricular function; The role of intraoperative TEE at the time of MCS implantation, such as setting the adequate rpm.

6:30 a.m. ***Enhanced Imaging To Guide Placement: 3D Printed Exoskeleton to Guide the LVAD Inflow Cannula***
Istvan Hartyanszky, MD, PhD, MSc, Semmelweis University, Budapest, Hungary
Newly developed technology such as 3D printers can guide the positioning of LVAD cannula. The flow dynamics can be estimated preoperatively using a new imaging modality.

6:45 a.m. ***DEBATE: Echocardiography is the Best Way to Monitor Patients Supported by Contemporary LVADs (PRO)***
TBD
Debate on whether echocardiography or hemodynamic monitoring is better for post LVAD management and patient optimization. This speaker will argue that echocardiography is the best way to monitor patients supported by contemporary LVADs.

6:55 a.m. ***DEBATE: Echocardiography is the Best Way to Monitor Patients Supported by Contemporary LVADs (CON)***
Nir Uriel, MD, MSc, FACC, Columbia University Irving Medical Center, New York, NY, USA
Debate whether echocardiography or hemodynamic monitoring is better for post LVAD management and patient optimization. Speaker will argue that hemodynamic monitoring is better for post LVAD management and patient optimization.

7:05 a.m. ***We Have a Clue: Cardiac CT and LVAD Troubleshooting in 2021***
Mahwash Kassi, MD, Houston Methodist Hospital, Houston, TX, USA
The role of cardiac CT for the preoperative estimation of body size in pediatric patients. The role of cardiac CT for the assessment of cannula angle, possible infection, and more.

7:17 a.m. ***We Found It!: Identifying and Prognosticating LVAD Infections: Are FDG PET/CT Scans the Answer?***

Marty Tam, MD, University of Michigan, Ann Arbor, MI, USA
The current strategy and recent progress of FDG PET/CT for the diagnosis of infection in LVAD recipients.

7:29 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
6:15 a.m. – 7:45 a.m. EDT

SYMPOSIUM 18: Joint ISHLT/PVRI Symposium – Of Mice and Men

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: In collaboration with the Pulmonary Vascular Research Institute (PVRI), the ISHLT is pleased to offer this joint symposium. The management of PAH has evolved considerably in the past years; however, the development of disease-modifying therapies faces challenges witnessed by a high number of negative Phase II trials. Do we make the right choice of agents? Should we change our RCT paradigm? How do we measure success and how does this translate in real-life management? These are some key questions the symposium will try to answer with world-leading experts who will discuss how the future will look like. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Paul Corris, MB FRCP, Freeman Hospital, Newcastle upon Tyne, United Kingdom**
Trevor Williams, MD, The Alfred Hospital/Monash University, Melbourne, Australia
Mardi Gomberg-Maitland, MD, MSc, GW Heart and Vascular Institute, Washington DC, USA

6:15 a.m. ***Journey to the Center of the Cell: New Pathways and Beyond***
Sebastien Bonnet, PhD, FAHA, Pulmonary Hypertension Research Group, Quebec, QC, Canada
This talk will unravel, among the multiple recent discoveries, which ones have the highest potential to change the course of the disease (i.e. BMPR2 pathway, inflammation, cell proliferation).

6:35 a.m. ***Intolerable Cruelty or Why Phase II Trials Failed***
Olivier Sitbon, MD, Université Paris-Saclay, Hôpital Bicêtre, Paris Sud, France
This talk will review the most recent negative Phase 2 trials, address the challenges of their design (which endpoint) and duration (short vs long term).

6:55 a.m. ***Facing the Void: How Do We Define Success in PAH?***
Jean-Luc Vachiery, MD, Erasme University Hospital, Brussels, Belgium
This talk will review the challenges in defining success in Phase3 RCTs, including ethical concerns, data quality, endpoints and novel biomarkers.

7:10 a.m. ***The Full Monty: Tools and Tricks for a Better Management***
Raymond L. Benza, MD, Ohio State University, Columbus, OH, USA
This talk will discuss the translation of success to real-life patient care, including advantages and disadvantages of risk management strategies, referring for transplantation, bridging to transplantation management and telemonitoring.

7:30 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
8:00 a.m. – 9:00 a.m. EDT

WORKSHOP 09: Considering Sex and Race: Strategies for the Non-Typical Transplant Recipient

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This symposium will focus on sex, gender, and race-specific strategies in HTX: differences in advanced HF therapies (MCS vs inotropic support, complications of MCS, status listing); differences in HTX and implications of sex and race matching; cardiovascular risk factors in women (traditional and non-traditional); pregnancy in HTX recipients (preconception considerations, timing, cardiac assessment, maternal and fetal complications, breastfeeding, immunosuppression, contraception, ethics); gender awareness. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Yael Peled, MD, Sheba Medical Center, Ramat Gan, Israel**
Lynn Punnoose, MD, Vanderbilt University, Nashville, TN, USA
Wandy Chan, PhD, FRACP, The Prince Charles Hospital, Brisbane, Australia

8:00 a.m. ***The Woman in Red: Sex Differences in Advanced Heart Failure Therapies and Outcomes***
Eileen M. Hsich, MD, Cleveland Clinic Foundation, Cleveland, OH, USA
Speaker will review sex differences in support while awaiting HTX: mechanical circulatory support (MCS) vs inotropic support; sex-specific complications of MCS; the effect of patient status listing on outcomes: males vs females; dealing with post-partum cardiomyopathy; and immunologic challenges specific to women. Speaker will review the donor and recipient sex matching for both male and female HTX recipient outcomes. There will be discussion of management strategies for sensitized and multiparous women awaiting transplantation, and transplant outcomes assessed by sex and by sex matching, including death, CAV, and rejection.

8:10 a.m. ***Racial Differences in Advanced Heart Failure Therapies and Outcomes***
Alanna A. Morris, MD, MSc, Emory University, Atlanta, GA, USA
Speaker will review racial differences in advanced therapies, MCS and transplant, and outcomes. They will discuss differences in selection for advanced therapies, immunologic challenges, and differences in outcomes for MCS and heart transplant.

8:20 a.m. ***Giving Birth After New Life: Pregnancy in Heart Transplant Recipients***
Tuvia Ben Gal, MD, Rabin Medical Center, Petah Tikva, Israel
The speaker will discuss preconception considerations, timing of pregnancy, cardiac assessment prior to conception, maternal and fetal complications (during pregnancy, delivery and the postpartum), breastfeeding and immunosuppressive medications, post-delivery contraception, ethics, and management of immunosuppression in pregnant and post-partum transplant recipients.

8:30 a.m. ***He/She/They: Gender Identity and Heart Transplant***
TBD
The speaker will discuss gender identification and its impact on heart transplant candidacy. The speaker will discuss how to approach gender issues when talking to a patient.

8:40 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
8:00 a.m. – 9:00 a.m. EDT

WORKSHOP 10: The Eternal Challenge: Difficult-to-Treat Organisms in Thoracic Transplantation

Primary Core Therapy: LUNG
Primary Audience: Infectious Diseases
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Despite advances in surgical technique and immunosuppressive management, infection remains a significant cause of morbidity among thoracic transplant recipients. Multidrug-resistant Gram-negative bacteria and nontuberculous mycobacteria are challenging to treat due to a limited antimicrobial armamentarium and toxicities. The global spread of newer multidrug-resistant pathogens such as *Candida auris* poses challenges for thoracic transplant candidates and recipients.

Co-Chairs: **Erik Verschuuren, MD, PhD, University Medical Centre Groningen, Groningen, Netherlands**
Cecilia Chaparro, MD, Toronto General Hospital, Toronto, ON, Canada

8:00 a.m. ***Expanding the Armamentarium: New Drugs and Novel Therapies for the Treatment of Multidrug-Resistant Gram-Negatives***
Stephanie Pouch, MD, MS, Emory University, Atlanta, GA, USA
The presenter will discuss the epidemiology and impact of multidrug-resistant Gram-negative bacterial infections in lung transplant recipients and provide a framework for the use of newer therapies, including novel antimicrobial agents and phage therapy.

8:15 a.m. ***The New Fungal Threat: Candida auris Infections in Thoracic Transplant Candidates and Recipients***
Paolo Grossi, MD, PhD, University of Insurbia, Varese, Italy
The presenter will review the epidemiology and diagnosis of *Candida auris* infections and will provide an approach to the management in thoracic transplant candidates and recipients infected with *C. auris*.

8:30 a.m. ***Draining the Abscess: Inside Mycobacterium abscessus***
Orla Morrissey, MD, The Alfred Hospital, Melbourne, Australia
The presenter will discuss approaches to optimize the medical management of M abscessus, including the role of newer agents such as inhaled liposomal amikacin, tedizolid, bedaquiline, and the potential role of phage therapy.

8:45 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
8:00 a.m. – 9:00 a.m. EDT

WORKSHOP 11: Cardiac Anesthesia: Tales from the Other Side of the Ether Screen

Primary Core Therapy: MCS
Primary Audience: Anesthesiology and Critical Care
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: The intraoperative management of patients undergoing mechanical circulatory support is challenging, multidisciplinary, and involves several aspects of patient care. This session addresses topics of paramount importance in the intraoperative period with tremendous impact on the outcome of the patients undergoing mechanical circulatory support.

Co-Chairs: **Anna Meyer, MD, University of Heidelberg, Heidelberg, Germany**
Archer Martin, MD, Mayo Clinic, Jacksonville, FL, USA
Sarvesh Pal Singh, MD, DM, All India Institute of Medical Sciences, New Delhi, India

8:00 a.m. ***When the Right Goes Wrong: Right Ventricle Failure in VAD Placement - Intraoperative Pearls***
Alina Nicoara, MD, Duke University, Durham, NC, USA
Management of RV function in patients undergoing ventricular assist device placement.

8:15 a.m. ***Management of Coagulopathy During VAD Placement: Bleed Now or Clot the Pump Later?***
Angela Maria Rajek, MD, Medical University Vienna, Vienna, Austria
Post- cardiopulmonary bypass coagulopathy in patients undergoing ventricular assist device placement is a very important issue. The balance between controlling coagulopathy and avoiding thrombosis of the pump is very tenuous.

8:30 a.m. ***Vasoplegia Syndrome Complicating Failure***
Leonardo Salazar, MD, Fundacion Cardiovascular de Colombia, Bucaramanga, Colombia
Patients undergoing ventricular assist device placement develop intraoperative vasoplegia frequently, sometimes unresponsive to several vasopressors. New methods of treatment have emerged.

8:45 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
8:00 a.m. – 9:00 a.m. EDT

WORKSHOP 12: Rewinding the Antibodies: Managing Highly Sensitized Patients Pre-Transplant

Primary Core Therapy: LUNG
Primary Audience: Pharmacy and Pharmacology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pulmonology, Research and Immunology

Session Summary: This symposium will provide an overview of important topics regarding antibodies and desensitization for thoracic transplant recipients. Topics reviewed will include immunology, strategies for desensitization, and sensitization considerations with regard to prioritization and allocation of organs.

Co-Chairs: **Amy Kiskaddon, PharmD, Johns Hopkins All Children's Hospital, St. Petersburg, FL, USA**
Tereza Martinu, MD, MHS, Toronto General Research Institute, Toronto, ON, Canada

8:00 a.m. ***Blues Brothers: HLA and Non-HLA Antibodies***
Adriana Zeevi, PhD, Univ of Pittsburgh Med Ctr, Pittsburgh, PA, USA
This talk will be a primer on immunology for thoracic transplant. The talk will focus on the role of HLA and non-HLA antibodies including mechanisms of allosensitization. The importance of these antibodies in the development and pathophysiology of a.m.R will be introduced.

8:15 a.m. ***Ghostbusters: Strategies for Desensitization***
Fay S. Burrows, BPharm, St. Vincent's Hospital, Sydney, Australia
This talk will provide an overview of desensitization strategies including plasmapheresis, intravenous immunoglobulin, rituximab, proteasome inhibitors and other agents (eculizumab, tocilizumab, etc.). Roles, mechanisms, and potential risks of various strategies/medications will be discussed. Novel options as well as ongoing or upcoming trials will be mentioned, and current gaps in knowledge will be highlighted.

8:30 a.m. ***Stand By Me: Organ Allocation and Sensitized Patients***
Scott Silvestry, MD, Florida Hospital Transplant Institute, Orlando, FL, USA
Pros and cons for prioritizing allosensitized patients for organs will be reviewed, including commentary on the US KDPI (kidney) system and current role of sensitization for kidney allocation. Conjecture will be given regarding the potential impact of incorporating sensitization into current international heart and lung allocation systems.

8:45 a.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
2:15 p.m. – 3:45 p.m. EDT

SYMPOSIUM 19: Shaping the Future of Thoracic Transplant Pathology: Multiplex, Multidisciplinary and Multimodality

Primary Core Therapy: LUNG
Primary Audience: Pathology
Secondary Audiences: Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pulmonology, Research and Immunology

Session Summary: Ancillary techniques are set to refine, rather than replace, histopathologic diagnosis in transplant pathology, including expression profiling, miRNA, cfDNA, multiplex immunohistochemistry, image analysis, integration with radiology, and integration of complex data using algorithms (including artificial intelligence processing). The aim of this symposium is to provide an overview of these techniques, and to describe their role in modern transplant pathology practice, including both lung and heart transplantation.

Co-Chairs: **Jan H von der Thüsen, MD PhD, Erasmus Medical Center, Rotterdam, Netherlands**
Fiorella Calabrese, MD, University of Padua, Padua, Italy
David M. Hwang, MD, PhD, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

2:15 p.m. ***Immunohistochemistry, Special Stains and Automated Image Analysis in Post-Transplant Follow-Up Cardiac Biopsies***
Gregory A. Fishbein, MD, Ronald Reagan UCLA Medical Center, Los Angeles, CA, USA
In addition to routine H&E assessment, the introduction of multiple targets for immunohistochemistry has the potential to improve the predictive value of pathology diagnoses. The sheer number of possible stains means that these are difficult to assess individually on different tissue levels, and in the modern era, mutliplex immunohistochemistry and (automated) image analysis algorithms are required to structure the information produced by these techniques. A number of these approaches will be described in the context of cardiac transplant biopsies.

2:27 p.m. ***Immunohistochemistry, Special Stains and Automated Image Analysis in Post-Transplant Follow-Up Transbronchial Biopsies***
Anja C. Roden, MD, Mayo Clinic Rochester, Rochester, MN, USA
In addition to routine H&E assessment, the introduction of multiple targets for immunohistochemistry has the potential to improve the predictive value of pathology diagnoses. The sheer number of possible stains means that these are difficult to assess individually on different tissue levels, and in the modern era, mutliplex immunohistochemistry and (automated) image analysis algorithms are required to structure the information produced by these techniques. A number of these approaches will be described in the context of lung transplant biopsies.

2:39 p.m. ***MicroRNA Signatures and Exosomes in Cardiac Biopsies and Detection of Allograft Rejection***
Marny Fedrigo, MD, University of Padua, Padua, Italy
microRNA (miRNA) is a small non-coding RNA molecule, that functions in RNA silencing and post-transcriptional regulation of gene expression. These have been found to play crucial roles in many disease processes, and can serve as markers for disease activity, including in transplantation. In this lecture, the experience of the field with miRNA in cardiac transplantation will be discussed.

2:51 p.m. ***Expression Profiling in Paraffin Material: A New Level of Understanding in Pathology***
Benjamin Adam, MD, University of Alberta, Edmonton, AB, Canada
Expression profiling of tissue can add considerable diagnostic information and mechanistic understanding of disease processes in solid organ rejection. It is of great benefit to perform this type of analysis on tissue that can also be morphologically assessed, especially paraffin embedded tissue, to allow for multiparametric assessment and cross-modality validation and integration. This

technique, and first results achieved using the NanoString methodology, will be discussed in this lecture.

3:03 p.m. ***Correlation of Histology with (Micro)CT Images in CLAD: A Reciprocal Relationship***
Stijn E. Verleden, PhD, KU Leuven, Leuven, Belgium
Computed tomography (CT) and histopathology image similar features in chronic lung allograft dysfunction, or CLAD. However, while CT so far lacks the resolution and tissue characterization capabilities of histology, microscopy is not capable of providing the extensive spatial information and possibilities for 3D reconstruction of CT imaging. These two techniques are therefore potentially complementary and synergistic, and able to inform and refine each other. Studies combining these approaches in CLAD will be discussed.

3:15 p.m. ***Making Sense of Big Data: Integration of Complex Data Using Algorithms***
Alexandre Loupy, MD, PhD, Necker Hospital, Universite de Paris, Paris, France
The possibilities and availability of multimodality, multiplex techniques for the assessment of transplant rejection allow for improved diagnosis and stratification of patients for therapy. The complexity and amount of the data thus generated, however, necessitates the use of advanced data management, integration and algorithms to produce meaningful and reproducible results. In this lecture, the potential and personal experience of the presenter with such techniques in transplant pathology will be discussed.

3:27 p.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
2:15 p.m. – 3:45 p.m. EDT

SYMPOSIUM 20: Greasing the Wheels: Antiplatelet Therapy for LVADs

Primary Core Therapy: MCS
Primary Audience: Pharmacy and Pharmacology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Research and Immunology

Session Summary: Management of antiplatelet therapies in patients with or awaiting durable LVAD and/or heart transplant has become highly variable due to the absence of well-controlled clinical trials evaluating the risk vs. benefit ratio of these agents. The management of these agents can be very challenging in certain scenarios. This symposium will review the existing data and provide discussion on management of these agents.

Co-Chairs: **Ian B Hollis, PharmD, BCPS, Univ. of North Carolina Med Center, Chapel Hill, NC, US**
Peter Ivak, MD, PhD, Institute for Clinical and Experimental Medicine, Prague, Czech Republic

2:15 p.m. ***More Than Warfarin: Oral Antiplatelet Therapy for Primary Prevention of Thromboembolic Events***
Andrew Mardis, PharmD, Prisma Health, Columbia, SC, USA
Aspirin is recommended in the ISHLT 2013 MCS guidelines with a level of evidence of C. No prospective trials have evaluated the risk/benefit profile of the addition of aspirin to warfarin in patients with a durable CF- LVAD. Concern about the high rate of GI bleed balanced against the varying rate of pump thrombosis in contemporary devices has led to variability in the use of antiplatelet agents as an adjunct to anticoagulation. This session will explore the existing clinical data in CF-LVAD patients and will discuss the clinical utility of oral antiplatelet agents in this population.

2:27 p.m. ***Putting Out the Fire: Antiplatelet Agents for the Acute Management of Pump Thrombosis***
Phillip Weeks, PharmD, Memorial Hermann - Texas Medical Center, Houston, TX, USA
CF-LVAD pump thrombosis (PT) is a catastrophic complication, and effective medical management options are limited. One strategy that has been utilized by several centers is the use of short-acting, intravenous antiplatelet agents such as eptifibatide or tirofiban for the acute management of PT. The safety and efficacy of the intravenous glycoprotein 2b3a agents, cangrelor, and the potential role of other antiplatelet agents such as the oral thienopyridines (clopidogrel/prasugrel) as well as ticagrelor or dipyridamole as add-on therapy will be discussed.

2:39 p.m. ***Down to the Nitty Gritty: Platelet Function-Guided Management of Antiplatelet Therapy***
Carlo R. G. Bartoli, MD, PhD, University of Pennsylvania, Philadelphia, PA, USA
This talk will have a "basic science" focus, with a discussion of experimental methods of assessing the role of platelets in the thrombotic and bleeding process in CF-LVAD patients. Differences in device technology (axial vs. continuous flow), degree of acquired von Willebrand deficiency, and reported thrombogenicity of the commonly used devices will be discussed. The speaker will also provide an overview of the potential role in therapy of Thromboelastography (TEG), various platelet function tests, the platelet activity state (PAS) assay, and other evolving technologies.

2:51 p.m. ***Timing is Everything: Management of Dual Antiplatelet Therapy Before or After LVAD***
Amanda Ingemi, PharmD, Sentara Norfolk General Hospital, Norfolk, VA, USA
The speaker will select specific case vignettes to illustrate common challenges in the management of dual antiplatelet agents in patients with or awaiting durable LVAD. Of particular interest will be patients with recent stent requiring DAPT with pending LVAD surgery, including those currently on ECMO. Systematic management of antiplatelet agents in outpatient LVADs listed for heart transplant with lower UNOS priority will be discussed as well.

3:03 p.m. ***DEBATE: Routine Use of Antiplatelet Agents Should Be Standard of Care for Durable LVADs (PRO)***
Ivan Netuka, MD, PhD, Institute for Clinical and Experimental Medicine, Prague, Czech Republic
The speaker will use existing data and/or clinical arguments to convince the audience that antiplatelet agents are beneficial and should be routinely used in patients with a CF-LVAD.

3:15 p.m. ***DEBATE: Routine Use of Antiplatelet Agents Should Be Standard of Care for Durable LVADs (CON)***
Christopher Michaud, PharmD, Spectrum Health, Grand Rapids, MI, USA
The speaker will use existing data and/or clinical arguments to convince the audience that antiplatelet agents are NOT beneficial and should NOT be routinely used in patients with a CF-LVAD.

3:27 p.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
2:15 p.m. – 3:45 p.m. EDT

SYMPOSIUM 21: Lean On Me: Mechanical Support of the Right Ventricle in Pulmonary Hypertension

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery

Session Summary: This session will focus on the role of mechanical circulatory support (ventricular assist devices, impeller devices, extracorporeal membranous oxygenation devices, etc) in the management of patients with advanced pulmonary hypertension with severe and complex heart failure physiology.

Co-Chairs: **Arun Jose, MD, University of Cincinnati, Cincinnati, OH, USA**
Maria G Crespo-Leiro, MD, Hospital University A Coruna, La Coruna, Spain
Christopher King, MD, FCCP, Inova Fairfax Hospital, Falls Church, VA, USA

2:15 p.m. ***Knowing When to Bail: Timing and Candidacy in MCS for End Stage Pulmonary Hypertension***
Manreet Kanwar, MD, Allegheny General Hospital, Pittsburgh, PA, USA
This talk will review candidacy for and timing of mechanical circulatory support of the right ventricle, including extracorporeal methods, right ventricular support devices, percutaneously implanted "impeller" devices, and bi-ventricular assistance devices.

2:30 p.m. ***Tickle Me ECMO: What is the Best Configuration to Support the Failing Right Ventricle?***
Sonja Bartolome, MD, UT Southwestern, Dallas, TX, USA
This talk will review MCS for RV failure in decompensated PAH, including extracorporeal methods, right ventricular support devices, percutaneously implanted "impeller" devices, and bi-ventricular assistance devices.

2:45 p.m. ***DEBATE: ECMO Should Be Routine Perioperatively for PAH Patients Undergoing Transplant (PRO)***
Konrad Hoetzenecker, MD PhD, Medical University of Vienna, Vienna, Austria
This debate will summarize and expand upon the previous presentations, centering on the role of mechanical circulatory support devices as a standard of care during transplantation of PAH patients and arguing AGAINST using ECMO as a standard pre and peri-operative transplant modality. Format: 15 mins for each debate speaker followed by 5 mins rebuttal.

3:00 p.m. ***DEBATE: ECMO Should Be Routine Perioperatively for PAH Patients Undergoing Transplant (CON)***
Christopher H. Wigfield, MD, FRCS, Univ of Pittsburgh Medical Center, Pittsburgh, PA, USA
This debate will summarize and expand upon the previous presentations, centering on the role of mechanical circulatory support devices as a standard of care during transplantation of PAH patients and arguing AGAINST using ECMO as a standard pre and peri-operative transplant modality. Format: 15 mins for each debate speaker followed by 5 mins rebuttal.

3:15 p.m. ***Future of MCS in Management of RV Failure: Will it be Destination Therapy for Patients with PAH?***
Olaf Mercier, MD, Paris-Sud University, Paris, France
This lecture will review innovations in MCS for treatment and support of right ventricular failure.

3:30 p.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 22: Calculus, King Lear and COVID-19: Innovations During Plagues

Primary Audience: ALL

Session Summary: Since the first description of a novel coronavirus causing acute respiratory illness in Wuhan City, Hubei Province, China in December 2019, the world has since been severely impacted by the SARS-CoV-2 virus with high documented transmissibility and case fatality rate especially in susceptible patient cohorts. This symposium will highlight relevant scientific, societal and epidemiological challenges with COVID-19 infection, especially in the context of providing care to those with advanced lung or health disease.

Co-Chairs: **Marta Farrero, MD PhD, Hospital Clinic de Barcelona, Barcelona, Spain**
Saima Aslam, MD, MS, University of California San Diego, San Diego, CA, USA
Bronwyn J. Levvey, RN, Grad Dip Clin Ep, Alfred Hospital, Melbourne, Australia

4:00 p.m. ***Novel Insights into the COVID Pandemic - Perspectives of a Global Epidemiologist***
Michael Osterholm, MD, University of Minnesota, Minneapolis, MN, USA
The COVID pandemic has been associated with marked epidemiological disparity in disease burden, varied levels of pandemic preparedness, numerous healthcare challenges and marked societal and economic disruption. This presentation will provide insight into these unique issues from a global perspective.

4:15 p.m. ***The Pandemic Response - Interplay between Science, Politics and the Media***
Ilaria Capua, DVM, PhD, One Health Care Center of Excellence, University of Florida, Gainesville, FL, USA
Responsible pandemic response planning is dependent on engagement from healthcare institutions, government, private companies, individuals and their communities. Pivotal to coordination and planning is communication of information and strategy to government and media organizations. This lecture shall outline the complex interplay between science, politics and the media in shaping a coherent and successful pandemic response.

4:27 p.m. ***Long Term Outcomes of Transplant Patients with COVID-1***
Jonathan Messika, MD, PhD, Bichat - Claude Bernard Hospital, APHP.Université de Paris, Paris, France, Paris, France
The long-term consequences of COVID-19 infection are emerging and may include persistent pulmonary damage, chronic cardiac complications, post viral chronic fatigue syndrome and neurological sequalae. This presentation will focus on the longer-term health consequences in lung and / or heart transplant recipients.

4:39 p.m. ***Challenges and Controversies in Developing a COVID-19 Vaccine***
Michael G. Ison, MD MS, Northwestern University Feinberg School of Medicine, Chicago, IL, USA
Numerous scientific challenges are associated with the development of a SARS-CoV-2 vaccine including the requirement for proof of clinical safety and efficacy. Furthermore, large scale manufacturing requires the construction and validation of production platforms to match unprecedented demand. The development of a vaccine is a complex and time consuming process, normally spanning 10-15 years from pre-clinical stages through to implementation of phase I, II and III clinical trials. The COVID-19 vaccine development and implementation pathway has been deliberately truncated and included controversial trials in which volunteers are intentionally infected to accelerate vaccine milestones. This lecture will provide an overview of the challenges and controversies in discovery of the COVID-19 vaccine.

4:51 p.m. ***Solidarity Trial: Challenges in Setting Up Global Clinical Trials in a Pandemic***

John-Arne Røttingen, MD, PhD, MSc, MPA, Ambassador for Global Health, Ministry of Foreign Affairs, Oslo, Norway

The initiation of clinical trials during a pandemic is faced with complex challenges and finding the balance between scientific needs, generating high quality data and ethical principles. Issues include study design, informed consent, sample size, publication plans, selection of investigational product, assessment of efficacy, safety definitions, participant selection and the ethics review process. This presentation will highlight these unique challenges and provide guidance on how best to approach finding an equilibrium.

5:03 p.m. ***Lung Transplantation for COVID-19 Respiratory Failure***

Ankit Bharat, MD, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

Lung transplantation as a therapeutic modality for respiratory failure for COVID-19 induced acute lung injury has been performed sparingly. The ISHLT COVID Taskforce has released some guidelines to assist in the selection of lung transplant candidates. This lecture will describe key determinants in assessing eligibility for lung transplantation for COIVD induced respiratory disease along with recommendations regarding management and outcomes.

5:15 p.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 23: Where Are We Now and Where Are We Heading in MCS?

Primary Core Therapy: MCS
Primary Audience: Cardiothoracic Surgery
Secondary Audiences: Anesthesiology and Critical Care, Cardiology

Session Summary: This symposium will discuss the overall future of Mechanical circulatory support. It will start with the direction of the mechanical circulatory support field focusing on the effect the new US transplant allocation system has had so far on LVAD use and outcomes, then discuss what are the limitations to implantation in the current era and what is unacceptable risk in high risk patients. The interplay between inflammation and the coagulation pathway in minimizing both thromboembolic and haemorrhagic events will then be discussed. Then an overview of the evolution of mechanical circulatory support including technological advances and clinical improvements in survival and future perspectives and emerging technologies will be discussed and put into perspective.

Co-Chairs: **Emma Birks, MD, PhD, University of Kentucky, Lexington, KY, USA**
Diyar Saeed, MD, PhD, Leipzig Heart Center, Leipzig, Germany
Emily K Granger, MBBS, St Vincent's Hospital, Sydney, Australia

4:00 p.m. ***Mechanical Circulatory Support: Past, Present and Future***
Daniel J. Goldstein, MD, Montefiore Medical Center, Bronx, NY, USA
Significant success in MCS has been achieved in the last decade and the current generation of continuous flow ventricular assist devices offer survival and quality of life advantages for patients with advanced heart failure and improved durability of long term support. However, the increasing use of continuous flow devices has resulted in new challenges, such as adverse events during long-term support, device thrombosis, percutaneous driveline damage, as well as conditions such as hemolysis, infection and cerebrovascular accidents. This presentation will give an overview of the evolution of mechanical circulatory support systems including technological advances and clinical improvements in long term patient survival and quality of life. Finally, future perspectives and emerging technologies will be discussed and put into perspective.

4:15 p.m. ***The Unholy Alliance of Inflammation and Coagulation in Mechanical Circulatory Support / ECLS***
John F. Fraser, MD PhD, University of Queensland, Brisbane, Australia
Mechanical Circulatory Support / Extracorporeal Life Support is associated with a range of bleeding and thrombotic complications, infection and a systemic inflammatory response syndrome (SIRS) like reaction. A balancing act between minimising both thromboembolic and haemorrhagic events is required for patient management. Multiple pathways leading to coagulopathy are in play with mechanical support including device flow rate, shear stress, vWF multimer loss, platelet activation, impaired platelet function and endothelial activation. Furthermore, research supports the notion of elevated circulatory inflammatory profiles, complement dysfunction and changes in leukocyte phenotypes in patients on mechanical support. Improved understanding of the interplay between inflammation and the coagulation pathway may improve patient outcomes. This presentation will focus on the unholy alliance between inflammation and coagulation, inter-connected and interdependent processes that need to be considered simultaneously with patient care. Novel therapeutic and management strategies to reduce device related complications will be outlined.

4:30 p.m. ***The Effect of the New Transplant Allocation System on LVAD Use***
Salpy V. Pamboukian, MD, University of Alabama at Birmingham, Birmingham, AL, USA
This talk will discuss the effect of the new US transplant allocation system on LVAD indication, use and outcomes.

4:45 p.m. ***Patients that won't take no for an answer, rejected at multiple centers, what is unacceptable risk?***
Francis D. Pagani, MD, PhD, University of Michigan, Ann Arbor, MI, USA

With the evolution of the pumps and the increasing use of destination therapy this talk will discuss the limitations and contraindications to implantation in the current era and what is unacceptable risk in high risk patients.

5:00 p.m. ***DEBATE: The Destination Therapy Patient Doing Well Should Not Be Transplanted (PRO)***
Stephan Schueler, MD, PhD, FRCS, Freeman Hospital, Newcastle Upon Tyne, UK
This debater will argue the case that a patient doing well clinically following a destination therapy VAD now has a good outcome and should not be listed for heart transplantation.

5:10 p.m. ***DEBATE: The Destination Therapy Patient Doing Well Should Not Be Transplanted (CON)***
Jon A. Kobashigawa, MD, Smidt Heart Institute at Cedars-Sinai, Los Angeles, CA, USA
This debater will argue the case that a patient doing well clinically following a destination therapy VAD will have the best outcome after transplantation and should be listed for heart transplantation.

5:20 p.m. ***Panel Discussion with all speakers***

Monday, 26 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 24: Old Problem, Current Challenge: Identification of New Means of Graft Evaluation To Guarantee a Long-Lasting Transplantation

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Selecting donor hearts is a key aspect for a successful transplantation. Despite the shortage of cardiac grafts, the acceptance rate of donor hearts for transplantation continues to be low. This is consequence of restrictive allocation policies that result in the needlessly rejection of about half of the organs offered. Based on common means of graft assessment, many non-conventional hearts that could be transplanted without compromising outcomes are considered not viable and not transplanted. Likewise, most of the biomarkers routinely used to assess suitability of cardiac grafts in conventional donation fail to predict post-transplant recovery of hearts obtained from donation after circulatory death and extended criteria donors. This session is therefore conceived to promote awareness in the clinical community about the necessity of identifying and validating new means of graft assessment and non-invasive biomarkers that may ultimately increase the numbers of hearts offered for transplantation.

Co-Chairs: **Darren H. Freed, MD, PhD, FRCSC, Univ of Alberta Hospital, Edmonton, AB, Canada**
Minoru Ono, MD, PhD, University of Tokyo, Tokyo, Japan
Evan P Kransdorf, MD, PhD, Cedars-Sinai Heart Institute, Los Angeles, CA, USA

4:00 p.m. ***Donor Cardiac Troponin as a Predictor of Post-Transplant Cardiac Dysfunction: To Be or Not To Be?***
Anne Vorlat, MD, University Hospital of Antwerp, Edegem, Belgium
Debate still remains regarding the use of cardiac troponin as a biomarker for evaluating potential cardiac donors. This lecture will review recent clinical trials carried out on this field and appoint additional circulating biomarker measured in the donor that hold great promise in the prediction of post-transplant outcomes.

4:12 p.m. ***Echocardiography Assessment of Donor Hearts: Go Beyond the Boundaries?***
Goran Dellgren, MD, PhD, Sahlgrenska Univ Hospital, Goteborg, Sweden
In most of the potential hearts that are not offered for transplantation the decision of not proceed with organ procurement is based on left ventricular dysfunction. In this lecture, the speaker will describe how hearts suffering from left ventricular dysfunction were safely transplanted. A less restrictive use of these hearts might significantly increase the rate of hearts available for transplantation.

4:24 p.m. ***Organ Preservation in the 2020s: Extended Hypothermic Machine Perfusion***
David C. McGiffin, MB, BS, FRACS, The Alfred Hospital, Melbourne, Australia
The next horizon in solid organ transplantation is machine perfusion for organ preservation. For all organs the goals of machine perfusion are similar -extending ischemic time, protecting against the damaging effects of ischemia-reperfusion injury and hence reducing the incidence of primary graft dysfunction, reconditioning Donation after Circulatory Death (DCD) and marginal organs, organ viability assessment and potentially immune modulation of donor grafts. The use of normothermic perfusion of DCD hearts with the ex-vivo organ perfusion system has been highly successful clinically. A far less mature perfusion technique for donor heart preservation is hypothermic ex-vivo perfusion (HEVP). The huge conceptual leap in HEVP was made by Dr Stig Steen who recognised the equivalency between a heart beating in a brain dead donor and a heart on a perfusion system - neither have a functioning vasomotor center or pituitary gland. Dr Steen's group achieved the remarkable result of 24 hours of HEVP (including "brain death hormone" cocktail) of donor hearts from brain dead pigs

followed by orthotopic transplantation with normal heart function. Clinical application trials of HEVP are now starting.

4:36 p.m. ***Normothermic Ex-Situ Machine Perfusion: How to Obtain the Bigger Benefit of It?***
Mitesh V. Badiwala, MD, PhD, FRCSC, Toronto General Hospital, Toronto, ON, Canada
Normothermic ex-situ machine perfusion is the platform of choice to store and transport hearts obtained from donation after circulatory death and, as well, from high-risk conventional donors. Its use has been associated with improved short-term outcomes in the context of an adverse donor-recipient risk profile, however longer perfusion times have been recently associated with edema development. This lecture will describe which functional parameters and biomarkers can be assessed at this stage than can better predict further recovery of the graft.

4:48 p.m. ***A New Era in the Search of Non-Invasive Biomarkers: Borrow Potential Candidates From the Preclinical Science***
Sarah Longnus, PhD, HGEK, Berne, Switzerland
It has been shown that common biomarkers used for evaluating cardiac viability of conventional donors are not fully applicable to high risk donors or donors after circulatory death. This lecture will highlight the recent discoveries of the scientific community in the identification of new biomarkers assessed in the donor or during graft storage that show high sensitivity and specificity to predict an optimal post-transplant hemodynamic function.

5:00 p.m. ***Let's Get Some Help: Artificial Intelligence as the New Tool to Predict Cardiac Post-Transplant Outcomes***
Johan Nilsson, MD, PhD, Skanes University Hospital, Lund, Sweden
In this lecture, the speaker will review risk score algorithms designed to predict post-transplantation functional outcome, as well as deep learning techniques that can aid practitioners to better match donor-recipient, and ultimately select the best recipient from a waiting list when a heart is available.

5:12 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 25: HCV State of the Art: How Do We Do This? An ISHLT HCV Consensus Conference

Primary Core Therapy: HEART
Primary Audience: Infectious Diseases
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This symposium will offer practical insights from the recent ISHLT HCV consensus conference and will discuss recommendations regarding use of HCV+ organs for cardiothoracic (CT) transplant. This includes details regarding direct acting antiviral therapy for HCV, with a focus on drug interactions, financial and waitlist time implications, summarize early results from use of HCV+ donors in CT transplant and management strategies regarding recipient and donor selection, and treatment of HCV.

Co-Chairs: **Kelly Schlendorf, MD, MHS, Vanderbilt University Medical Center, Nashville, TN, USA**
Haifa Lyster, MSc, Royal Brompton Hospital, Harefield, United Kingdom
Marcelo Cypel, MD, Toronto General Hospital, Toronto, ON, Canada

8:00 a.m. ***HCV Treatment Paradigms: Early Results from Cardiothoracic Transplantation and Consensus Recommendations***
Saima Aslam, MD, MS, UCSD Medical Center, San Diego, CA, USA
Summary of early results from use of HCV+ organs for CT transplantation, strategy for detection and treatment of donor-derived HCV infection.

8:15 a.m. ***Donor Profiles and Recipient Selection Criteria when Considering HCV-Infected Donors***
Cameron Wolfe, MBBS, MPH, Duke University, Durham, NC, USA
Donor profiles and recipient selection criteria when considering HCV-infected donors – what is the typical profile of an HCV+ organ donor, any disqualifying factors in the donor as well as recipient. Consideration about other hepatitis viruses, such as hepatitis B virus in the donor and/ or recipient.

8:30 a.m. ***Approaches to Donor-Derived HCV Infection: The Practical Applications of Pre-Emptive and Delayed Therapy***
Ann E. Woolley, MD, MPH, Brigham and Women's Hospital, Boston, MA, USA
Discussion of the practical approaches of HCV treatment and/or prevention following transplant from HCV+ donor, including effect of ex-vivo lung perfusion, administration of DAA in the immediate post-operative period, and initiation of DAA in the ambulatory setting.

8:45 a.m. ***Financial and Waitlist Time Implications from the Use of HCV+ Organs***
Mandeep R. Mehra, MD, FRCP, FACC, FESC, Brigham and Women's Hosp, Boston, MA, USA
Health economics of using HCV-infected donors including current drug pricing, focus on current use and unmet organ need and opportunities, discussion on cost effectiveness/ savings and on waitlist time implications.

9:00 a.m. ***Direct Acting Antivirals for HCV: A Whole New World!***
Steven P. Ivulich, BPharm, Alfred Hospital, Melbourne, Australia
Summary of direct acting antiviral agents for HCV infection, including adverse events, drug-drug interactions, gastro-intestinal absorption, different formulations, and drugs in the pipeline.

9:15 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 26: Update on Lung Transplantation in Cystic Fibrosis

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Pathology, Pediatrics

Session Summary: This session will provide an update on issues surrounding lung transplantation in candidates with cystic fibrosis. Topics to be covered include timing of referral/listing in the era of CFTR modulators, the use of CFTR modulators post-transplant, and other non-pulmonary considerations unique to this population.

Co-Chairs: **Christian Benden, MD FCCP, Swisstransplant, Bern, Switzerland**
Alice L. Gray, MD, University of Colorado, Aurora, CO, USA
Lilibeth M Carlos, BPharm (Hons), St. Vincent's Hospital, Sydney, Australia

8:00 a.m. ***Referral and Transplantation in the Era of CFTR modulators***
Ernestina Melicoff-Portillo, MD, Baylor College of Medicine, Houston, TX, USA
The presenter will discuss considerations regarding referral for transplant, listing, and transplantation of patients with CF in the era of CFTR modulators, including referral for multi-organ transplant (i.e. lung-liver transplant).

8:12 a.m. ***Perioperative Antimicrobial Strategies for Patient with CF Undergoing Lung Transplantation***
Erika D. Lease, MD, University of Washington, Seattle, WA, USA
The presenter will discuss the existing evidence to guide perioperative/ post-operative antimicrobial strategies for bacterial and fungal pathogens in CF transplant recipients, including difficult-to-treat organisms (B.cenocepacia, MDR Pseudomonas).

8:24 a.m. ***Pre/Post-Transplant GI Surgical Considerations in the CF Transplant Recipient***
Matthew G. Hartwig, MD, Duke University Medical Center, Durham, NC, USA
The presenter will discuss the pre- and post-transplant GI surgical considerations in CF lung transplant recipients including interventions for GERD and considerations for need and timing of liver transplantation.

8:36 a.m. ***Long-Term Considerations in the CF Post-Transplant Recipient***
Bart L. Rottier, MD, Univ Med Ctr Groningen, Groningen, Netherlands
The presenter will discuss the need for ongoing CF specialty care in the post-transplant patient including screening recommendations (including screening for CFRDM and osteoporosis), mental health assessment, family planning counseling, and the use of CFTR modulators post-transplant.

8:48 a.m. ***DEBATE: Transition of the CF Late Adolescent Transplant Patient Should Be Delayed (PRO)***
Stuart Sweet, MD, St. Louis Children's Hospital, St. Louis, MO, USA
Speakers will debate whether late adolescent CF patients (18-24 years) who are nearing transplant or post-transplant should be treated in adult or pediatric clinics. This talk will argue the pro side, that transition of late adolescent CF patients who are nearing transplant or post-transplant should be delayed to age ~24.

8:58 a.m. ***DEBATE: Transition of the CF Late Adolescent Transplant Patient Should Be Delayed (CON)***
Miranda Paraskeva, MBBS, Alfred Hospital, Melbourne, Australia
Speakers will debate whether late adolescent CF patients (18-24 years) who are nearing transplant or post-transplant should be treated in adult or pediatric clinics. This talk will argue the con side, that

transition of late adolescent CF patients who are nearing transplant or post-transplant should transition at age 18.

9:08 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 27: Success Starts at the Beginning: Improving Outcomes From Referral to Implant and Beyond

Primary Core Therapy: MCS
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: The purpose of this session is to discuss the process that surrounds mechanical circulatory support including when to refer, initial evaluation for candidacy, optimization before implant and management of patients following MCS therapy. In this session we will discuss various challenges and perspectives of the multidisciplinary team and how to best prepare the patients for positive outcomes. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Colleen J LaBuhn, RN, MSN, University of Chicago, Chicago, IL, USA**
Erin S Davis, BSN, RN, University of Utah Hospital, Salt Lake City, UT, USA
Finn Gustafsson, MD, PhD, Rigshospitalet, Copenhagen, Denmark

8:00 a.m. ***Early Identification of Advancing Heart Failure: Knowing When To Refer***
Bow (Ben) Chung, MD, University of Chicago, Chicago, IL, USA
Describe the key components to identify during referral from within the community. We will evaluate signs of early vs. late referral and identification of frequently experienced obstacles.

8:12 a.m. ***Evaluation for Candidacy: Can We Optimize for Better Results?***
Tonya I. Elliott, MSN, RN, CCTC, CHFN, MedStar Washington Hospital Center, Reston, VA, USA
Describe pre-operative testing, evaluation process and outcome associated with the evaluation process. This session will highlight the importance of a multidisciplinary team approach and hemodynamic optimization prior to MCS support.

8:24 a.m. ***Looking at MCS Though a Different Lens: The Psychosocial Perspective***
Kristin Sandau, PhD, RN, Bethel University, St. Paul, MN, USA
The talk will highlight the psychosocial and patient-centered aspects of MCS. It will evaluate the needs of the patient, the hurdles that patients go through and how to offer psychosocial support to provide successful outcomes for the patient and their family.

8:36 a.m. ***Can Early Education Be the Start of Success?***
Desiree Robson, RN BSc (Hons), St Vincent 's Hospital, Sydney, Australia
This talk will highlight the importance of education and the role of an educator during the evaluation process. Often times, the focus of education is directed at post-operative management but this session will look at how education should be utilized prior to MCS implant occurs.

8:48 a.m. ***What Role Does Medical Optimization Play in Surgical Implantation?***
Antonio Loforte, MD, PhD, S. Orsola Hospital, University of Bologna, Bologna, Italy
This talk will aim to look at the surgical aspect and the role that preoperative optimization plays in the success of surgical outcomes. It will look at various types of patients and determine if there is a group of patients that benefit from more optimization than others.

9:00 a.m. ***Adverse Events and How to Achieve Successful Management and Long Term Outcomes***
Sarah Schettle, PA-C, Mayo Clinic, Rochester, MN, USA
This talk will discuss common adverse events that MCS patients experience, management and techniques that may create successful outcomes and increase years of survival post MCS implant.

9:12 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 28: Hot Topics for Transplant and MCS Clinicians: Burnout, #SoMe and Psychosocial Issues

Primary Core Therapy: HEART
Primary Audience: Nursing and Allied Health
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This session focuses on hot topics relevant to transplant and MCS clinicians of all disciplines, including provider burnout and resilience, social media use among transplant professionals, and pressing psychosocial issues. This session will feature a physician’s own personal story of heart transplantation and transformation, after months of attributing heart failure symptoms to the busy lives we lead as healthcare providers. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Michael G. Petty, PhD, RN, CNS, Univ of Minnesota Medical Center, Minneapolis, MN, USA**
Sarah E Schroeder, ACNP-BC, MSN RN, Bryan Heart, Lincoln, NE, USA

9:45 a.m. ***From My Heart: A Physician's Personal Story of Transplant and Transformation***
Alin Gragossian, DO, The Mt Sinai Hospital, Icahn School of Medicine, Philadelphia, PA, USA
As an emergency medicine and critical care physician trainee, this speaker will share her personal story of heart transplantation and transformation. Amidst the busy life of a health care provider, the speaker will describe how she discredited her own signs of heart failure. Now post-heart transplant, she will share her lessons learned and strategies for work-life integration going forward as both a transplant recipient and physician.

9:57 a.m. ***A Hard Day at Work: Provider Burnout and Resilience in Transplant Medicine***
Melissa Cousino, PhD, C.S. Mott Children's Hospital, Ann Arbor, MI, USA
This presentation will review data on burnout among transplant professional and highlight newly collected data on burnout, professional fulfillment, and post-traumatic stress in pediatric transplant professionals. Strategies for promoting resilience and coping with patient deaths will also be discussed.

10:09 a.m. ***#SoMe, So What? Should the Transplant Community Embrace Social Media?***
Brian Keller, MD, PhD, The Ohio State University, Columbus, OH, USA
Social media has become a mainstream means of disseminating information. This talk will introduce the concept of social media and discuss its potential impact on the field of heart and lung transplantation.

10:21 a.m. ***Self-Management Interventions: What Really Works?***
Christiane Kugler, PhD, Albert-Ludwigs-University Freiburg, Dortmund, Germany
Do any interventions actually improve self-management and adherence among transplant recipients? This speaker will discuss what has been done, what interventions have been shown to be efficacious, and what is next in this important field of study and intervention.

10:33 a.m. ***DEBATE: Ready to Launch! Our Young Adults Must Transition (PRO)***
Lynsey M. Barkoff, NP, Lucile Packard Children's Hospital, Palo Alto, CA, USA
Ready to launch! A pediatric transplant coordinator will argue that our young adult transplant patients require transfer or care and are best served by adult transplant providers.

10:45 a.m. ***DEBATE: Ready to Launch! Our Young Adults Must Transition (CON)***
Kathleen L. Grady, PhD, APN, FAAN, Northwestern Memorial Hospital, Chicago, IL, USA

Failure to Launch! An adult transplant coordinator will argue that young adults are not well prepared for adult transplant care, posing risks for adverse outcomes.

10:57 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 29: What Has COVID Taught Us About MCS? Lessons from 2020 for 2021

Primary Core Therapy: MCS
Primary Audience: Cardiothoracic Surgery
Secondary Audiences: Cardiology, Infectious Diseases, Nursing and Allied Health

Session Summary: This symposium will first describe the use of ECMO in patients with COVID 19 and the experience of COVID infection in patients with mechanical support. Then it will discuss what we can learn from the pandemic to improve and streamline our management of VAD patients going forward -now that the current day pumps have greater reliability and durability can we see these patients less often and in more of a shared care model? Telehealth was successful during the pandemic can it be used more going forward in these patients and how can better virtual monitoring and Cardiomemes help in their care.

Co-Chairs: **Daniel Zimpfer, MD, Medical University of Vienna, Vienna, Austria**
Christopher T Salerno, MD, St. Vincent Heart Center, Indianapolis, IN, USA
Fabienne Dobbels, MSc, PhD, KU Leuven, Leuven, Belgium

9:45 a.m. ***ECMO Support for COVID-19***
Luciano Potena, MD, PhD, Bologna Academic Hospital, Bologna, Italy
This talk will describe and summarize the clinical use of ECMO in patients with COVID-19.

10:00 a.m. ***COVID Outcomes in VAD Patients***
Edo Y. Birati, MD, Hospital of the University of Pennsylvania, Philadelphia, PA, USA
This talk will describe the effect and outcomes of SARS COVID 19 in patients with LVADs.

10:15 a.m. ***VAD Follow-Up in 2021: Hindsight From 2020***
Leway Chen, MD, MPH, University of Rochester, Rochester, NY, USA
Now we have improved VAD durability and reliability this talk will discuss how frequently we should be seeing these VAD patients at our LVAD centers, use of shared local care etc. During the coronavirus pandemic most centers decreased the frequency of their routine outpatient visits and successfully introduced telehealth visits. What can be learned from this going forward in planning VAD follow up in 2021?

10:30 a.m. ***Cardiomems and LVAD***
Stavros G. Drakos, MD, PhD, FACC, University of Utah Health & SoM, Salt Lake City, UT, USA
This talk will describe the indication, use and outcomes of Cardiomems monitoring in LVAD patients.

10:45 a.m. ***Virtual Care Delivery During COVID-19 and Beyond: Lessons From the Plague for Telehealth and Virtual Monitoring***
Jesus Casida, PhD, RN, Johns Hopkins University, Baltimore, MD, USA
During the pandemic virtual monitoring of patients on mechanical circulatory support became even more important than ever, telehealth visits began to be used for patients on LVAD support and the health of these patients became increasingly dependent on the ability to care for them optimally remotely. These virtual monitoring methods used will be reviewed as well as any further advances in remote monitoring that can be envisioned going forward.

11:00 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 30: Global Perspectives on Decreasing Waitlist Mortality: Expanded Donors and Prioritized Candidates

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Advances in donor selection, innovative procurement strategies, and heart allocation policies are evolving. This session will review international practices aimed at decreasing wait list mortality. Talks will be given on the use of non-conventional donors, innovative procurement strategies, prioritization of underserved populations and controversial trends in urgent transplantation. A panel discussion will advance the discussion to considerations of post-transplant survival. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Kiran K Khush, MD, MAS, Stanford University, Stanford, CA, USA**
Javier Carbone, PhD, Hospital General Universitario Gregorio Maranon, Madrid, Spain

9:45 a.m. ***The New Normal: Decreasing Waitlist Mortality and Increasing Transplant Rates from Donors with High Risk Features***
Ricardo La Hoz, MD, University of Texas Southwestern, Dallas, TX, USA
This talk will focus on the impact of expanded selection criteria on increasing organ transplant rates and decreasing waitlist mortality, reviewing clinical experience with use of non-conventional donor hearts including HIV positive and opioid overdose donors.

9:57 a.m. ***Leveling the Playing Field: Decreasing Waitlist Mortality by Prioritizing Sensitized Patients in Canada***
Kim Anderson, MD, Dalhousie University, Toronto, ON, Canada
Prioritization of underserved patient populations has been an emphasis in recent allocation system updates to promote equitable access to transplantation. Allocation system handling and outcomes of patients with high levels of sensitization will be discussed.

10:09 a.m. ***Just Because We Can, Doesn't Mean We Should: Use of Status Modifying Therapies in Waitlist Urgency***
Maria G. Crespo-Leiro, MD, PhD, Hospital Universitario A Coruna, La Coruna, Spain
Review current understanding of the impact of various status modifying therapies (temporary MCS devices, vasopressors, durable VAD) on outcomes and discuss implications regarding device selection, timing of transplant and early outcomes after transplant. In Spain over 50% of patients were previously transplanted in cardiogenic shock on ECMO, with poor outcomes, resulting in changes to the heart allocation policy. The speaker will also discuss data from France and the Super-Urgent status outcomes.

10:21 a.m. ***More Opportunities: Evolving Practices Including Use of DCD and Advanced Age Donors***
Kumud K. Dhital, BMBCh, FRCS-CTh, FRACS, PhD, Yashoda Hospitals, Hyderabad, Telengana, India
This talk will focus on the impact of expanded donor selection criteria on increasing organ transplant rates and decreasing waitlist mortality. The speaker will review clinical experience using non-conventional donor hearts, including advanced age and DCD procurement.

10:33 a.m. ***Getting Warmer: Expanding the Donor Pool with Use of Ex-Vivo Perfusion***
Abbas Ardehali, MD, UCLA School of Medicine, Los Angeles, CA, USA

Discussion of clinical data to-date using the Organ Care System for donor heart procurement, both for increasing distance between donor and recipient, and for resuscitating marginal donor hearts. The speaker will also discuss on-going studies and potential impact of ex-vivo perfusion on donor heart procurement strategies around the world.

10:45 a.m. ***How We Got Here: Reflections on the Evolving OPTN Allocation System***
Maryl R. Johnson, MD, University of Wisconsin, Madison, WI, USA
The speaker will discuss his/her views on trimming the waitlist, prioritization based on urgency status, and the ethical implications of focusing on waitlist survival. This talk will lead into a final 15-minute panel discussion that includes all speakers and the chairs, discussing the role of long-term post-transplant survival on organ allocation priority decisions, both from the perspective of marginal organs and marginal recipients, and what the panelists see as the future of organ allocation.

10:57 a.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 13: Advances in the Microbiome: The Secret World Inside Us

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: It is now understood that the human body is home to a multitude of niche environments, each with their own unique microbiome, which appears to have an important symbiotic role with the host and modulates functioning of the associated organ system. The most researched of these is the gut microbiome. Although, our understanding of this symbiotic relationship has stemmed from gut-based research, it developed to include the reciprocal relationships between the gut and other organs including the heart and lung.

Co-Chairs: **Nancy Law, DO, MPH, UCSD Medical Center, San Diego, CA, USA**
Allan R Glanville, MBBS, MD, FRACP, St. Vincent's Hospital, Sydney, Australia

3:00 p.m. ***The Gut Microbiome as a Modulator in Transplant***
Steven Greenway, MD, Alberta Children's Hospital, Calgary, AB, Canada
Overview of the emerging understanding of the gut microbiome and the implication in transplantation immunology and therapeutics. This talk will discuss what is known in non-thoracic transplant and potential therapeutic targets.

3:15 p.m. ***The Microbiome Changes of Heart Failure, Heart Transplant and MCS***
Melana Yuzefpolskaya, MD, Columbia University, New York, NY, USA
Gut hypothesis of HF has been percolating in the literature over the last decade. This talk will review the role of gut microbial diversity in terms of symbiosis and dysbiosis in determining the pathophysiology of decompensation in heart failure and also allude to the role of these emerging concepts as they relate to MCS and heart transplantation outcomes.

3:30 p.m. ***The Microbiome After Lung Transplantation and Effects on CLAD***
Alicia B. Mitchell, B.Med.Sci (Hons), PhD, Sydney Medical School/University of Sydney, Sydney, Australia
This talk will review the potential link between gut and lung allograft microbiome and immune responses that may contribute to post lung transplant allograft survival and rejection.

3:45 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 14: DSAs and a.m.R: When and How to Treat

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: This session will provide guidance on when and how to treat the highly sensitized peri-operative candidate for transplant. Speakers will discuss treatment of donor specific antibodies identified in the post-transplant phase, and the treatment plan for recipients who develop antibody mediated rejection.

Co-Chairs: **Emilie Jean St. Michel, MD MSc, Hospital for Sick Children, Toronto, ON, Canada**
Deborah Levine, MD, UT Health Science Center, San Antonio, TX, USA

3:00 p.m. ***Peri-Operative Treatment of the Sensitized Candidate***
Patricia P. Chang, MD, Univ of North Carolina, Chapel Hill, NC, USA
The treatment of a highly-sensitized recipient is controversial, with significant variance among clinicians and transplant centers. This lecture will discuss potential peri-operative treatment options.

3:15 p.m. ***Post-Transplant DSAs: When and How to Treat***
Angela W. Velleca, RN, MHDS, CCTC, Cedars Sinai Heart Institute, Los Angeles, CA, USA
It is unclear if the development of donor specific antibodies (DSAs) always require treatment, especially in the patient with good graft function. This lecture will help clinicians understand whether or not treatments are indicated.

3:30 p.m. ***a.m.R in Pediatric and Adult Post-Transplant Recipients***
Steven P. Ivulich, BPharm, The Alfred Hospital, Melbourne, Australia
Many therapies are used for the treatment of anti-body mediated rejection (a.m.R). The speaker will give an overview of current a.m.R treatment options, with an emphasis on medications, including their place in therapy, efficacy and toxicity, and mechanism of action/theoretical basis for use will be covered.

3:45 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 15: Coagulation Wars: Rogue Anticoagulation Strategies in Durable MCS

Primary Core Therapy: MCS
Primary Audience: Pharmacy and Pharmacology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Pulmonology

Session Summary: This session will focus on anticoagulation strategies and monitoring in adult and pediatric patients on durable mechanical circulatory support (MCS). Anticoagulation bridging approaches, reversal methods, and anticoagulation monitoring strategies will be discussed.

Co-Chairs: **Douglas L Jennings, PharmD, New York-Presbyterian Hospital, New York, NY, USA**
Georgina Waldman, PharmD, Massachusetts General Hospital, Boston, MA, USA
Lucas Eastaugh, MBBS, FRACP, FCSANZ, Royal Children's Hospital, Melbourne, Australia

3:00 p.m. ***Phantom Menace: Anticoagulation Bridging for Durable MCS***
Tara Veasey, PharmD, BCPS, Allegheny General Hospital, Pittsburgh, PA, USA
This talk will review various controversial bridging scenarios related to durable MCS. This will include heparin-induced thrombocytopenia (HIT) and intraoperative / post-operative management at time of LVAD implantation (DTI, plasmapheresis, heparin exposure for CPB with post-operative DTI). Parenteral agents for bridging in the setting of subtherapeutic INR and inpatient admission versus outpatient bridging will also be discussed.

3:15 p.m. ***A New Hope: Reversal of Bleeding for Durable MCS***
TBD
This talk will discuss the approach to using newer anticoagulation reversal agents including 4-factor PCC in MCS for major bleeding events or prior to urgent procedures including heart transplantation. Any potential roles for andexanet alpha, ciraparantag, and idarucizumab will be mentioned. Additionally, adverse events related to usage of reversal agents or PCC-type products in MCS/ ECMO will be discussed.

3:30 p.m. ***Return of the Pharmacists: Pharmacist-Driven Anticoagulation for Durable MCS***
Cassandra Vale, BPharm, GradCert ClinPharm, The Prince Charles Hospital, Queensland, Australia
Pharmacists can play an integral role in anticoagulation management, and many centers have implemented pharmacist-driven protocols. This lecture will describe the benefits of pharmacist participation in anticoagulation management for durable MCS, and practical steps to implement a service in the adult and pediatric populations.

3:45 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 31: JHLT at ISHLT: The Year in a Capsule

Primary Audience: ALL

Session Summary: This session will review the most impactful papers published in Journal of Heart and Lung Transplantation (JHLT) over the past year, among a broad field of interest: advanced lung disease and lung transplantation, advanced heart disease and cardiac transplantation, mechanical circulatory support and pulmonary vascular disease. After a presentation of the main papers by junior faculty, expert senior members will comment how they significantly contributed to change the current knowledge and practice.

Co-Chairs: **Marco Masetti, MD, PhD, University of Bologna, Bologna, Italy**
Peter Hopkins, MD, The Prince Charles Hospital, Brisbane, Australia

4:00 p.m. ***JHLT Best Papers of the Year***
Daniel R. Goldstein, MD, University of Michigan, Ann Arbor, MI, USA
The speaker will present the activity of the Journal in the past year as well as the aims and goals for the incoming year.

4:05 p.m. ***Highlights of Advanced Heart Disease and Cardiac Transplantation***
Lynn Punnoose, MD, Vanderbilt Univ School of Medicine, Nashville, TN, USA
This talk will provide a review of the landmark papers published in JHLT in the field of advanced heart disease and HTx.

4:17 p.m. ***Invited Discussant in Advanced Heart Disease and Cardiac Transplantation***
Andreas Zuckermann, MD, Medical Univ of Vienna, Vienna, Austria
The speaker will discuss selected landmark papers in the field of advanced heart disease and HTx.

4:22 p.m. ***Highlights of Advanced Lung Disease and Lung Transplantation***
Caroline M. Patterson, BMBS BMedSci MD, Royal Papworth Hospital, Cambridge, United Kingdom
This talk will provide a review of the landmark papers published in JHLT in the field of advanced lung disease and LTx.

4:34 p.m. ***Invited Discussant in Advanced Lung Disease and Lung Transplantation***
Sandra Lindstedt, MD, PhD, Lund University Hospital, Lund, Sweden
The speaker will discuss selected landmark papers in the field of advanced lung disease and LTx.

4:39 p.m. ***Highlights of Mechanical Circulatory Support***
Yaron D. Barac, MD, PhD, Rabin Medical Center, Petach-Tikva, Israel
This talk will provide a review of the landmark papers published in JHLT the field of MCS.

4:51 p.m. ***Invited Discussant in Mechanical Circulatory Support***
Ivan Netuka, MD, PhD, IKEM, Prague, Czech Republic
The speaker will discuss selected landmark papers in the field of MCS.

4:56 p.m. ***Highlights of Pulmonary Vascular Disease***
Sarah Medrek, MD, University of New Mexico, Albuquerque, NM, USA
This talk will provide a review of the landmark papers published in JHLT in the field of PVD.

5:08 p.m. ***Invited Discussant in Pulmonary Vascular Disease***
Marion Delcroix, MD, University Hospital Leuven, Leuven, Belgium
The speaker will discuss selected landmark papers in the field of PVD.

5:13 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 32: Early Markers for CLAD Development: Ready to Use or Discard?

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Research and Immunology

This session will give an update on the current status of blood and BAL biomarkers and early changes in pulmonary function, imaging, and pathology which might predict the development of CLAD and its specific phenotypes. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Geert M Verleden, MD, PhD, FERS, University Hospital Leuven, Leuven, Belgium**
Federica Meloni, MD, Policlinico San Matteo, Pavia, Italy
Kieran Halloran, MD, MSc, University of Alberta, Edmonton, AB, Canada

4:00 p.m. ***Pulmonary Function Changes as an Early Marker and Prognostic Sign for CLAD Phenotypes***
Greg Snell, MD, The Alfred Hospital, Melbourne, Australia
The role of early changes in pulmonary function for the diagnosis of CLAD and its phenotypes will be summarized. Spirometry, lung volumes and also non-traditional lung function testing modalities, such as diffusing capacity and oscillometry, will be discussed.

4:12 p.m. ***Imaging Changes as an Early Marker and Prognostic Sign for CLAD Phenotypes***
Katharine Tweed, MBBS, BMedSci, Royal Papworth Hospital, Cambridge, United Kingdom
The role of early changes in imaging (Chest CT and newer techniques) for the diagnosis of CLAD and its phenotypes will be summarized.

4:24 p.m. ***Early Pathologic Changes: How predictable are they as an early Marker and prognostic sign for CLAD phenotypes***
Elizabeth N. Pavlisko, MD, Duke Univ Med Ctr, Durham, NC, USA
The role of early changes in pathology for the diagnosis of CLAD and its phenotypes will be summarized. In addition, discussion of non-rejection pathologic changes (i.e. DAD, AFOP, etc.) and their prediction for the later development of CLAD.

4:36 p.m. ***Blood Biomarkers: Does Anything Stand at Present?***
Sam S. Weigt, MD, UCLA Medical Center, Los Angeles, CA, USA
A good blood biomarker for the early detection or even prediction of CLAD would be ideal. Several have been identified but so far none proved to be of importance. This speaker will give an overview of the current knowledge.

4:48 p.m. ***BAL Biomarkers: What's in the Name?***
Angela Koutsokera, MD, PhD, Lausanne University Hospital, Lausanne, Switzerland
Comparable to blood biomarkers, many groups have been looking for the ideal BAL biomarker. Several potential molecules came in but again there is no real evidence that one is better than the other; A summary will be given on the current status.

5:00 p.m. ***Wrap Up: the final answers?***
Scott M. Palmer, MD, MHS, Duke University, Durham, NC, USA
This presentation will provide a summary of where we are for early markers for CLAD and its phenotypes and future directions.

5:12 p.m. ***Panel Discussion with all speakers***

Tuesday, 27 April, 2021
4:00 p.m. – 5:30 p.m. EDT

SYMPOSIUM 33: The Good, the Bad, the Ugly: Individualized VAD Therapy

Primary Core Therapy: MCS
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology

Session Summary: Tailoring treatments to individual patients has revolutionized other fields of medicine, but personalized therapies still need to gain attention in the left ventricle assist devices (LVADs) field. Even if LVADs are just few types, they are implanted in patients with different clinical and cultural characteristics. This symposium focuses on current disparities among LVAD patients and it investigates the importance of individualized therapies, titrated on sex, body mass, ethnicity and culture. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Cally K Ho, MD, queen Mary Hospital, Hong Kong, China**
Jaime A Hernandez Montfort, MD MPH, Cleveland Clinic Florida, Weston, FL, USA
Stephan M. Ensminger, MD, DPhil, University Herzzentrum Lubeck, Lubeck, Germany

4:00 p.m. ***Gender Matters Before, During and After LVAD Implantation***
Silvia Mariani, MD, Hannover Medical School, Hannover, Germany
This presentation will give an overview of the current differences in men and women before, during and after LVAD implantation and it will analyze the key gender-related factors which can be targeted in individualized therapies.

4:12 p.m. ***Asterix or Obelix? Don´t Forget Body Mass Index!***
Hannah Copeland, MD, University of Mississippi Medical Center, Jackson, MS, USA
This presentation will focus on the short and long-term effects of body mass index after LVAD implantation. It will highlight how body weight can influence outcomes and why it should be considered as a specific target of individualized therapies in LVAD patients. The presentation will address the problems of both underweight/cachectic patients and overweight/obese patients.

4:24 p.m. ***Social Environment: Essential But Underestimated***
Alessandro Barbone, MD PhD, Humanitas Research Hospital IRCCS, Milan, Italy
This presentation will highlight how medicine should focus also on the social environment of patients receiving a complex treatment such as LVAD, with special attention to low socio-economical classes. Psychological and social support should be considered as essential parts of the complex LVAD therapy.

4:36 p.m. ***Europe, North America and Australia: Brothers But Not Triplets in the VAD Family***
Daniel Zimpfer, MD, Medical University Vienna, Vienna, Austria
This lecture will analyze how ethnic variables might influence LVADs outcomes in a multicultural world. The main focus will be on differences in indications, management and outcomes in the three continents which are currently leading the LVAD world in terms of number of implants and research.

4:48 p.m. ***VADs in Asia, Africa and South America: The Need for Local Standards***
Erik Fung, MD, PhD, Prince of Wales Hospital, Hong Kong, China
This lecture will analyze the LVAD population in Asia, Africa and South America. The main focus will be on ethnic, social and cultural variables which may influence outcomes of patients undergoing VAD therapy in these continents. The presentation will highlight the importance of specific tools titrated on ethnic and social features of each continent.

5:00 p.m. ***The Complexity of a VAD Patient: How to Reach an Individualized Therapeutic Approach***

Pascal N. Leprince, MD, PhD, La Pitie Salpetriere, Paris, France
This lecture will summarize all the previous discussions, giving a final overview of the possible future individualized treatment strategies in the field of LVADs. The aim of this lecture is to provide the tools to clinically apply the basic concepts of patient-tailored therapies in the real clinical life.

5:12 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 34: Joint ISHLT/TTS Symposium – Meeting Ethical Challenges in Transplantation Through Global Partnership

Primary Audience: ALL

Session Summary: In collaboration with The Transplantation Society (TTS), this joint symposium will address the challenges of organ transplantation across borders. Country disparities in the access to transplantation lead to ethical dilemmas when organs, donors or recipients cross the borders. Good collaborative experiences as well as the challenges of transplant tourism or organ traffic will be discussed. Experiences on the rise of transplant programs in developing countries will be shared. Society policies regarding transplantation in China be will be discussed.

Co-Chairs: **Are M Holm, MD, PhD, Oslo Univ Hospital, Oslo, Norway**
Jeremy Chapman, MD, University of Sydney, Sydney, Australia
Sharon A. Hunt, MD, Stanford Univ Med Ctr, Stanford, CA, USA

8:00 a.m. ***Cultural and Religious Implications in the Donation and Transplant Process***
Marta Farrero, MD, PhD, Hospital Clinic de Barcelona, Barcelona, Spain
There are significant differences in donation and transplantation rates among countries, causing disparity of access to this life-saving technique and leading to equity problems. Cultural and religious aspects around the world may have a great impact on organ availability differences. This presentation will focus on social, cultural, religious and legal aspects of organ donation and transplantation in various parts of the world, and on potential initiatives directed to overcome these differences.

8:12 a.m. ***Transplantation Across International Borders: The Ethical Challenges***
Peter G. Stock, MD, PhD, UCSF Medical Center, San Francisco, CA, USA
There are differences in access to transplantation depending on the area of the world and the socio-economic status. Ethical dilemmas pertaining to this will be discussed, such as: coercion, income disparity and access to transplantation, the importance of nationality, transplant tourism, etc. This talk will set the general ethical-theoretical basis for the discussions of the following speakers. The Declaration of Istanbul will be discussed.

8:24 a.m. ***Established International Collaborations in Organ Sharing: Benefits and Challenges***
Are M. Holm, MD, PhD, Oslo Univ Hospital, Oslo, Norway
Agreement between countries or geographic areas can allow the transportation of organs across the borders, in order to improve access and maximize donor utilization. Some examples of good collaborative efforts across national borders will be reviewed: Scandiatransplant, Eurotransplant, Canada/US, Argentina/Uruguay.

8:36 a.m. ***Transplant Tourism: Recipients Crossing Borders***
Komarakshi Balakrishnan, MD, Fortis Malar Hospital, Chennai, India
Limited access to organs, particularly in some countries, may make some patients in need of a transplant travel to countries where there is increased organ availability or access. This might typically be the case for "transplant tourism" from rich countries with limited organ access to poorer countries. Specific management challenges for "recipient countries" and "donor countries" will be discussed. Rules on organ access to foreign nationals in specific countries will be discussed and critically reviewed.

8:48 a.m. ***Partnerships for Establishing Deceased Donor Transplant Programs in Emerging Countries***
Richard Allen, MBBS, University of Sydney, Sydney, Australia

Transplant societies as well as transplant institutions are increasing their collaboration to establish transplant programs in emerging countries. The most common difficulties encountered and specific experiences will be shared, as well as a general view of how international societies could contribute to emerging transplant programs.

9:00 a.m. ***Organ Transplantation in China***

Jeremy Chapman, MD, University of Sydney, Sydney, Australia

China's transplantation policy has previously been judged as non- acceptable by the international community, but there may have been important changes in the recent years. TTS policies in regard to transplantation in China will be discussed.

9:12 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 35: Crossing the HLA Rubicon: Lung Transplantation in the Presence of Donor Specific Antibodies

Primary Core Therapy: LUNG
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: Highly sensitized lung transplant candidates have prolonged waitlist times and increased waitlist mortality. This symposium will include representatives from programs that differ in their approaches to achieving successful transplant outcomes in this population. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Andrew Courtwright, MD, University of Pennsylvania, Philadelphia, PA, USA**
Christine S. Falk, PhD, Hannover Medical School, Hannover, Germany
Annette M Jackson, PhD, Duke University, Durham, NC, USA

8:00 a.m. ***Not All Created Equal: Which Pre-Transplant DSAs Really Matter?***
Elaine F. Reed, PhD, UCLA Immunogenetics Center, Los Angeles, CA, USA
Presentation will focus on antibody characteristics-MFI, titer, c1q binding, surrogate cell testing, class specificity-that make for more or less appealing targets when crossing DSA. A review of the increased risk associated with certain HLA antibodies such as DQ will be undertaken. In addition, review how we should categorize an "acceptable" and "unacceptable" antigen prior to transplant and stratify immunological risk.

8:12 a.m. ***DEBATE: Desensitization is an Effective Bridge to Lung Transplant (PRO)***
Ramsey Hachem, MD, Washington University SoM, Saint Louis, MO, USA
Speaker will discuss the merits of pre-transplant and perioperative desensitization, including which protocols may be most effective, evaluating response to desensitization, and whether desensitization offers reassurance about antibody recrudescence.

8:24 a.m. ***DEBATE: Desensitization is an Effective Bridge to Lung Transplant (CON)***
Antoine Roux, MD, Foch Hospital, Paris, France
Speaker will advocate for the apparent lack of benefit of pre-transplant and perioperative desensitization techniques, including which protocols are in clinical use, evaluating response to desensitization, and whether desensitization offers reassurances about antibody recrudescence after transplant.

8:36 a.m. ***It's Time to Include Testing for Non-HLA Antibody in Thoracic Transplantation***
Nancy Reinsmoen, PhD, Cedars Sinai Health System, Los Angeles, CA, USA
Non HLA antibodies are classified into 2 main categories: alloantibodies directed against polymorphic antigens that differ between the recipient and the donor, and antibodies that recognize self-antigens - autoantibodies. Recent studies provide compelling experimental evidence and clinical findings demonstrating that such antibodies may contribute to the process of antibody mediated acute and chronic rejection. This lecture will focus on the clinical significance of non HLA antibodies, testing approaches and current theories concerning their pathogenesis.

8:48 a.m. ***Pheresis Your Fears Away (In The OR)***
Lianne G. Singer, MD, FRCPC, Toronto General Hospital, Toronto, ON, Canada
The timing of plasmapharesis when cross DSA is controversial with risks and benefits of intra-operative versus post-operative plasmapheresis. Presentation will focus on timing and complications associated with plasmapheresis around transplant

9:00 a.m. ***You Must Augment: Induction and Maintenance Immunosuppression When Crossing DSA***
Glen Westall, MD, The Alfred Hospital, Melbourne, Australia
Speaker will discuss immunosuppression strategies when crossing DSA, including whether augmentation with, for example, thymoglobulin, is necessary, and when and for whom rituximab should be given. Short and long term outcomes for sensitized patients post lung transplant will be discussed.

9:12 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
8:00 a.m. – 9:30 a.m. EDT

SYMPOSIUM 36: Tales from the Plague Year: Remote Monitoring of Heart Transplant Recipients

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: This session will review strategies from around the world to closely monitor and manage heart transplant recipients while minimizing their trips to the hospital and hence exposure to COVID-19.

Co-Chairs: **Howard Eisen, MD, Penn State Hershey Medical Center, Hershey, PA, USA**
Young-Nam Youn, MD, PhD, Yonsei University, Seoul, South Korea
Sonia Mirabet, MD, PhD, Hospital Sant Pau, Barcelona, Spain

8:00 a.m. ***Use of Donor-Derived Cell-Free DNA to Remotely Monitor Allograft Status in Cardiac Transplant Recipients***
Shelley Hall, MD, Baylor University Medical Center, Dallas, TX, USA
Novel strategies have been employed to remotely assess allograft function and minimize contact between immunosuppressed heart transplant patients and COVID-19 exposure in hospitals and medical facilities. One such approach is to detect allograft damage using donor-derived cell free DNA.

8:12 a.m. ***The Role of At-Home Gene Expression Profiling Test to Remotely Manage Heart Transplant Recipients and Prevent Undue Viral Exposures***
Shelley Hankins, MD, Drexel College of Medicine, Philadelphia, PA, USA
Novel strategies have been employed to remotely assess immune activation and minimize contact between immunosuppressed heart transplant patients and COVID-19 exposure in hospitals and medical facilities. One such approach is to use gene expression profiling with point of care blood tests obtained in patient homes to determine which patients require endomyocardial biopsies.

8:24 a.m. ***How Italy Remotely Managed Heart Transplant Recipients in the Epicenter***
Attilio Iacovoni, MD, ASST Ospedale Papa Giovanni XXIII, Bergamo, Italy
Italy was an early epicenter of the corona virus pandemic. How Italy managed the pandemic and saved its transplant patients and others offers valuable insights to other nations in terms of how to mitigate the effects and consequences of the pandemic.

8:36 a.m. ***Making It Up Along the Way: How We Cared for Heart Transplant Patients Without Exposing Them to Risk Before Anything Was Known About the Novel Coronavirus - The Experience From South Korea***
In-Cheol Kim, MD, PhD, Keimyung University Dongsan Hospital, Daegu, South Korea
South Korea was impacted very early in the pandemic providing the first encounters of heart transplant patients with COVID-19. Their experience, which has been successful in containing the pandemic, will be highly instructive to others.

8:48 a.m. ***Being in the Southern Hemisphere Did Not Always Predict Success: How Brazil Remotely Managed Our Heart Transplant Patients***
Estela Azeka, MD, University of Sao Paulo, Sao Paulo, Brazil
Latin America encountered the pandemic later than other parts of the world and became an epicenter of the pandemic. More recently, the pandemic has come under better control in Latin America. This talk will explain what happened and what lessons can be learned.

9:00 a.m. ***The Surgical Perspective: Challenges to Organ Procurement Traveling Across Borders in the Eurotransplant Zone: How to Optimize Acquisition of Donor Information with Limited Access***
Andreas Zuckermann, MD, Medical Univ of Vienna, Vienna, Austria
Border closings as a result of COVID-19 have had a great impact on organ retrieval in the multinational organ transplantation Eurotransplant zone. Despite these hurdles, surgical teams were able to develop strategies for maintaining organ transplantation.

9:12 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 37: It's All About Trust: Time for Networking on Long Distance Retrievals

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Pulmonology

Session Summary: This session will focus on the challenge of traveling through areas with different rates of COVID infection during the pandemic crisis for heart and lung retrievals. This situation brought the necessity and possibility of regional surgical teams networking, avoiding the movement of human and technical resources for long distance retrievals, nationally or internationally.

Co-Chairs: **Thomas K Lund, MD, PhD, Rigshospitalet, Copenhagen, Denmark**
Cumara C Sivathasan, MBBS, FRCS, National Heart Centre, Singapore, Singapore
Edith Boyes, APN, Amita Health, Chicago, IL, USA

9:45 a.m. ***Networking on Long Distance Retrievals: Heart Vision***
Hannah Copeland, MD, Lutheran Medical Group, Fort Wayne, IN, USA
What are the pros and cons of retrievals performed by different teams? Collaboration between teams can improve organ donation rates, transplant rates and outcomes in heart transplantation. This talk will explain how this can be accomplished. (Heart Transplant teams vision)

10:00 a.m. ***Networking on Long Distance Retrievals: Lung Vision***
Marcos N. Samano, MD, PhD, Albert Einstein Hospital, São Paulo, Brazil
What are the pros and cons of retrievals performed by different teams? Collaboration between teams can improve organ donation rates, transplant rates and outcomes in lung transplantation. This talk will explain how this can be accomplished. (Lung transplant teams vision)

10:15 a.m. ***Networking on Long Distance Retrievals: Can telehealth technologies enable a better approach/assessment of the donor?***
Antonio Loforte, MD, PhD, S. Orsola Hospital, University of Bologna, Bologna, Italy
The speaker will provide an overview of the pros and cons of using different ex vivo platforms for networking and sharing long distance retrievals. This topic is of critical importance now, as a result of the pandemic and the increasingly important role that telemedicine plays and will play in the future in patient management.

10:30 a.m. ***Donors for Everyone: Regional Organ Procurement***
Michael K. Pasque, MD, Washington University School of Medicine, St. Louis, MO, USA
Regional cooperation has become very important in enhancing organ donation and transplantation rates. The speaker will discuss how this cooperation has developed and how it can be enhanced to become more effective in the future.

10:45 a.m. ***Networking for Organ Allocation in Europe When the Borders Are Closed***
Axel Rahmel, MD, German Procurement Organisation DSO, Frankfurt, Germany
Eurotransplant represents a unique multinational, collaborative transplant environment. How they were able to continue organ retrieval and transplantation would be very instructive as a model of cross-national collaboration.

11:00 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 38: Immunology of Aging in Thoracic Transplantation and MCS

Primary Core Therapy: LUNG
Primary Audience: Research and Immunology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Older thoracic transplant and mechanical circulatory support patients have increased rates of infection and death compared with younger patients, demonstrating the important of age-associated immune dysfunction in the growing numbers of older candidates. At the same time, older patients have lower rates of rejection compared with younger patients. This symposium seeks to explore differences across a variety of immunologic lineages, leading to a concept of biologic rather than chronologic age.

Co-Chairs: **Hanneke M Kwakkel-van Erp, MD, PhD, University Hospital Antwerp (UZA), Antwerp, Belgium**
John McDyer, MD, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

9:45 a.m. ***Biology of T Cell Aging: Senescence and Exhaustion***
Joanna M. Schaenman, MD, PhD, UCLA School of Medicine, Los Angeles, CA, USA
Description of T cell phenotypes associated with aging and antigen exposure including exhaustion, senescence, and terminal differentiation, and implications for infection and rejection after transplantation and MCS.

10:00 a.m. ***B Cells, Aging and Impact on Transplantation***
Marilia Cascalho, MD, PhD, University of Michigan Hospital, Ann Arbor, MI, USA
The role of B cells in aging and relevance to rejection and infection in the older transplant recipient, including potential impact on tolerance and antibody production.

10:15 a.m. ***NK Cells, Aging, and Tolerance in Transplantation***
Daniel Calabrese, MD, UCSF Medical Center, San Francisco, CA, USA
The importance of NK cells is increasingly appreciated in terms of transplant rejection and tolerance. The impact of aging on NK cells and their interaction with the adaptive and innate arms of the immune system will be explored in the context of transplantation.

10:30 a.m. ***Chronic Inflammation in Immune Aging - Role of Telomeres***
John McDyer, MD, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA
A minimum length of telomeres is required for cellular replication with shortening associated with cell cycle arrest and senescence of vital cells. Age related decline in immunity is associated with telomere shortening, stem cell exhaustion, a progressive decline in absolute numbers of T and B lymphocytes and deterioration of innate leukocyte defence mechanisms. Furthermore, chronic inflammation may accelerate immune aging through regulation of telomere maintenance and telomerase activity. This presentation will focus on the interplay between chronic inflammation, immunosenescence and telomere length / telomerase activity and reflect on relevance to organ transplantation.

10:45 a.m. ***Continuous Flow Ventricular Assist Devices and Cellular Aging***
Maja-Theresa Dieterlen, PhD, Herzzentrum Leipzig, Leipzig, Germany
The unnatural physiology of continuous flow and its effects on blood cells, including erythrocytes, leukocytes, as well as endothelial cells during MCS will be discussed; Importantly, immune alterations that result in heightened infection risk as a result of potential "immune aging" will be outlined.

11:00 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
9:45 a.m. – 11:15 a.m. EDT

SYMPOSIUM 39: Short-Term MCS in Bridging the Gap Between Recovery and Transplant

Primary Core Therapy: MCS
Primary Audience: Cardiothoracic Surgery
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Infectious Diseases, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology, Research and Immunology

Session Summary: The symposium will review all short-term circulatory support devices and their pros and cons. We will discuss which patients are best suited for short-term support, which would do better with durable support, and who should not be supported at all. We will discuss how to manage the acute heart failure patient; specifically, which patients will recover and which should be transitioned to durable support or transplant. Finally, we will review the new heart allocation system in the US and its impact on decision making around support strategies.

Co-Chairs: **Carmelo A Milano, MD, Duke University Medical Center, Durham, NC, USA**
Jens Garbade, MD, PhD, Heart Center, University of Leipzig, Leipzig, Germany
Kewal Krishan, MD, Max Super Speciality Hospital Saket, Dehli, India

9:45 a.m. ***Percutaneous Management of the Acute Heart Failure Patient***
David Schibilsky, MD, University of Freiburg, Freiburg, Germany
The presenter will discuss indications and techniques for the utilization of percutaneous devices (IABP, Impella) to stabilize and treat the acute heart failure patient. The presenter will also discuss which patients should be transitioned to central support (temporary and/or durable) and how to determine the clinical timing of the transition.

9:57 a.m. ***Surgical Management of the Acute Heart Failure Patient, Temporary vs Durable Support***
Julia Riebandt, MD, University of Vienna, Vienna, Austria
This presentation will build upon the "percutaneous management" presentation. It will discuss which acute heart failure patients should be primarily supported or converted quickly to central support with either temporary or durable LVAD. The presentation will discuss the best surgical support strategies including novel techniques (like trans-apical Pro-Tek Duo for LV support.

10:09 a.m. ***Will This Heart Beat Again? Who Will Recover and Who to Transplant***
Shelley Hall, MD, Baylor University Medical Center, Dallas, TX, USA
This presentation will be a deep dive into the management of the supported acute heart failure patient. It will focus on the medical optimization of the patients and the decision regarding next phases of care. Specifically, the presenter will discuss which patients should be supported until they recover, which should be transitioned to durable devices, and who should be maintained on temporary support until transplant.

10:21 a.m. ***Novel Strategies for Extended Support for Pediatric and Adult Patients with 'Short-Term' Mechanical Circulatory Support***
Iki Adachi, MD, Texas Children´s Hospital/Baylor College of Medicine, Houston, TX, USA
The presenter will discuss novel devices (e.g the NuPulse) and new strategies (e.g. long-term support with Impella 5.0/LD) for stabilization of the acute and chronic heart failure patient.

10:33 a.m. ***DEBATE: Short-Term MCS is the Best Strategy for Bridge to Heart Transplant (PRO)***
Lauren B. Cooper, MD, MHS, Inova Heart and Vascular Institute, Fairfax, VA, USA
The presenter will discuss the benefits of utilizing short-term MCS to bridge heart failure patients to heart transplant. They will discuss this within the context of optimal donor organ utilization and

patient outcomes. They will review the implications of the new US heart donor allocation rules and how increased short-term MCS use may have future policy implications.

10:45 a.m. ***DEBATE: Short-Term MCS is the Best Strategy for Bridge to Heart Transplant (CON)***
Jeffrey J. Teuteberg, MD, Stanford University, Stanford, CA, USA
The presenter will discuss the downsides of utilizing short-term MCS to bridge heart failure patients to heart transplant. They will advocate for the utilization of durable MCS as bridge to transplant. They will discuss this within the context of optimal donor organ utilization and patient outcomes. They will review the implications of the new US heart donor allocation rules and how increased short-term MCS use may not honor the spirit of the new regulations.

10:57 a.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
11:30 a.m. – 1:00 p.m. EDT

SYMPOSIUM 40: Selection of Donors for Pediatric Heart and Lung Transplantation: Maximizing Use of a Limited Resource

Primary Core Therapy: HEART
Primary Audience: Pediatrics
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pharmacy and Pharmacology, Pulmonology

Session Summary: This session aims to report the current state of donor selection and management, discuss the factors that impact donor acceptance, highlight provider behaviors that may negatively impact donor utilization, discuss the positive and negative impacts of publicly reported outcome data, and discuss future strategies to optimize the utilization of potentially viable donor hearts and lungs. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Justin Godown, MD, Monroe Carell Jr. Children's Hospital at Vanderbilt, Nashville, TN, USA**
Ernestina Melicoff, MD, Baylor College of Medicine, Houston, TX, USA
Christian Benden, MD FCCP, Swisstransplant, Berne, Switzerland

11:30 a.m. ***Donor Allocation Systems Across the Globe: How Can We Improve Use of Limited Resources?***
Jens Boehmer, MD, The Queen Silvia Children's Hospital, Gothenburg, Sweden
Presentation about allocation systems around the world and ways that each have been structured to increase transplant and donor utilization rates.

11:42 a.m. ***Donor Selection Among Pediatric Heart Transplant Providers: Waste Not, Want Not***
Anna Joong, MD, Lurie Children's Hospital, Chicago, IL, USA
An overview of current data regarding donor selection, variation in practice, and implications for waitlist survival.

11:54 a.m. ***Donor Selection Among Pediatric Lung Transplant Providers: Waste Not, Want Not***
Nicolaus Schwerk, MD, Hannover Medical School, Hannover, Germany
Lecture on the challenges in donor allocation and donor shortage for pediatric lung transplant.

12:06 p.m. ***Donor Assessment Scoring in Pediatric Heart Transplantation to Ensure the Optimal Use of Organs***
Farhan Zafar, MD, Children's Hospital Med Ctr, Cincinnati, OH, USA
Discussion of the potential advantages/utility of developing a donor scoring system to aid providers in donor selection for pediatric heart transplantation.

12:18 p.m. ***Behavioral Economics: How Our Biases Impact Provider Decision-Making in Donor Selection***
Gretchen Chapman, PhD, Carnegie Mellon University, Pittsburgh, PA, USA
A review of the behavioral factors influencing transplant team decisions in donor selection.

12:30 p.m. ***Public Reporting of Transplant Outcomes: Does This Change Our Willingness to Take Organs?***
Ryan Davies, MD, Children's Hospital, Dallas, TX, USA
A review of the current transplant outcome data that are publicly reported, discussing the need for and potential pitfalls of public reporting, as well as future strategies to offset the potential for risk adverse behaviors among centers.

12:42 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
11:30 a.m. – 1:00 p.m. EDT

SYMPOSIUM 41: A Balancing Act: Innate Mechanisms of Injury and Immunomodulation in Transplantation

Primary Core Therapy: LUNG
Primary Audience: Research and Immunology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology

Session Summary: Transplant immunology is a rapidly advancing field. This session aims to challenge existing paradigms regarding how the innate immune system and its effector cells are helpful or harmful to thoracic allografts. Identifying similarities and differences between heart and lung transplant immunology may help advance understanding of the immunobiology of both organs. The primary goal of this session is to enrich understanding of allograft immune responses with a focus on targets for interventions.

Co-Chairs: **Christian Heim, MD, University of Erlangen, Erlangen, Germany**
Ciara M Shaver, MD PhD, Vanderbilt University Medical Center, Nashville, TN, USA
Stephen C Juvet, MD, PhD, FRCPC, University Health Network, Toronto, ON, Canada

11:30 a.m. ***Setting the Stage***
Christian Heim, MD, University of Erlangen, Erlangen, Germany
The speaker will provide an overview of allograft injury highlighting the topics featured in this symposium.

11:35 a.m. ***Cellular Death: The Kickoff***
Mingyao Liu, MD, MSc, Toronto General Hospital, Toronto, ON, Canada
Cell death occurring in the context of IRI can trigger sterile inflammation through the release of Da.m.Ps, even prior to neutrophil infiltration. However, this death appears to be distinct in thoracic organs. For example, in preclinical models, ferroptosis drives innate immune cell infiltration leading to early graft dysfunction in cardiac transplantation, while necroptosis contributes to graft dysfunction after lung transplantation. By better understanding these mechanisms of injury, we can utilize novel therapeutics to arrest allograft injury and potentially improve outcomes.

11:47 a.m. ***Mitochondria: A Game Changer***
Andrew E. Gelman, PhD, Washington University School of Medicine, St. Louis, MO, USA
Mitochondria are increasingly recognized as being central to IRI contributing to allograft injury. They additionally contribute to activation of the immune response, immunomodulation, and cell death. The recognition of the central role of mitochondria in IRI and an increased understanding of the pathophysiology that undermines these processes has resulted in identification of novel therapeutic targets and potential biomarkers. This talk will summarize therapeutic approaches that are currently under exploration and may have potential in ameliorating IRI in lung and heart transplant in the future.

11:59 a.m. ***Endothelium and Epithelium: Ground Zero***
Christine Falk, PhD, Hannover Medical School, Hannover, Germany
Activation of the pulmonary endothelium and epithelium is well described in driving the inflammatory cascade of IRI and other injury. Following injury, endothelial cells upregulate several adhesion markers, and epithelial disruption prompts Da.m.P release which stimulate and recruit alveolar macrophages to migrate to the site of inflammation. This session will outline the injury observed in the endothelium and epithelium and the role this initial injury plays in innate immune recruitment. Parallels with cardiac endothelium in heart transplantation will be described.

12:11 p.m. ***Complement: Defending Cell Integrity***

Hrishikesh S. Kulkarni, MD, Washington University in St Louis, Saint Louis, MO, USA

A key component of both innate and adaptive immunity, new understandings of the complement system are expanding its roles beyond that traditionally appreciated. Complement has an intracellular arsenal of components that provide not only immune defense, but also assist in key host cell functions. Complement appears to modulate primary graft dysfunction and acute rejection, especially in the context of extended criteria donors. This talk will discuss the evolving understanding of complement, particularly its role on protecting epithelial cell integrity in the lung and heart allografts.

12:23 p.m. ***Therapeutic Targets for Innate Immune Manipulation: The Comeback***

Carol Atkinson, PhD, Medical University of South Carolina, Charleston, SC, USA

Selective targeting of innate pathways is an attractive approach that could complement existing strategies to reduce the burden of injury. A growing understanding of the role of Da.m.Ps, complement, and innate effector cells in directing the immune response has suggested novel avenues for the treatment or prevention of graft injury that could redirect contemporary immunosuppression and lead to improved outcomes. This talk will discuss emerging innate targets and recent studies evaluating innate immune therapies in thoracic organ transplantation.

12:35 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
11:30 a.m. – 1:00 p.m. EDT

SYMPOSIUM 42: Big Brother is Watching You! Home-Monitoring and Technical Advances in VAD Therapy

Primary Core Therapy: MCS
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Nursing and Allied Health, Pathology, Pediatrics, Pulmonology, Research and Immunology

Session Summary: Long-term mechanical circulatory support improves outcome and quality of life of patients with advanced heart failure. There is growing evidence that home-monitoring of patients with a ventricular assist device (VAD) may impact outcome. In addition, recent innovations in powering devices and both internal and external device management have advanced VAD therapy. In this session, the role of home-monitoring of VAD patients and recent innovations in VAD technology will be discussed.

Co-Chairs: **Kathleen Grady, PhD, APN, FAAN, Northwestern Memorial Hospital, Chicago, IL, USA**
Laurens Tops, MD, Leiden University Medical Center, Leiden, Netherlands
Andrew J Lenneman, MD, University of Alabama at Birmingham, Birmingham, AL, USA

11:30 a.m. ***When the Beat Goes On: Monitoring of Arrhythmias in VAD Patients***
Gabriel Sayer, MD, New York Presbyterian Hospital/Columbia Univ MC, New York, NY, USA
In this presentation, the role of home-monitoring of arrhythmias with the use of ICD / CRT in VAD patients is discussed. A brief case of a patient with a (supra)ventricular arrhythmia is presented, and afterwards scientific evidence and practical issues are discussed.

11:42 a.m. ***Forgotten No More? Use of Hemodynamics in Monitoring and Optimization of VAD Patients***
Eugene C. DePasquale, MD, Keck School of Med of USC, Los Angeles, CA, USA
This talk will discuss the implications of the use of (home-)monitoring of hemodynamics, including non-invasive methods (i.e. wireless pulmonary artery hemodynamic monitoring; echocardiography), in the long-term management and optimization of patients with mechanical circulatory support.

11:54 a.m. ***Of Cuff and Doppler: (Home-)Monitoring of Blood Pressure in VAD Patients***
Van-Khue Ton, MD, PhD, Massachusetts General Hospital, Boston, MA, USA
This presentation discusses strategies to improve blood pressure control, including home-monitoring, examples of blood pressure management protocols, and the various ways blood pressure can or should be measured.

12:06 p.m. ***It's All About Coordination: The VAD Coordinator's Perspective on Home-Monitoring***
Thomas Schloeglhofer, MSc, Medical University of Vienna, Vienna, Austria
In this presentation, the role of the VAD coordinator in integration of all (digital) information from VAD patients is discussed. New strategies and interfaces to integrate different home-monitoring systems are demonstrated.

12:18 p.m. ***Of Apps and Icons: Utilizing Smart Phones and Tablets to Enhance Patient Monitoring***
Jesus Casida, PhD, RN, APN-C, FAAN, Johns Hopkins Univ, Baltimore, MD, USA
This presentation discusses current and future use of smart phone apps for monitoring of patients' vital signs, INR, activities, etc., and how the technology should be integrated into daily LVAD care.

12:30 p.m. ***Innovations in Mechanical Circulatory Support***
Pramod Bonde, MD, Yale School of Medicine, New Haven, CT, USA
This talk will discuss innovations in mechanical circulatory support with future and immediate application such as use of alternative power (i.e. wireless coplanar energy transfer), alternate design concepts (i.e. counterpulsation extra-aortic balloon pump), use of waveforms, and other advances.

12:42 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 16: Cardiac Allograft Injury: It's More Than Just Rejection!

Primary Core Therapy: HEART
Primary Audience: Cardiology
Secondary Audiences: Anesthesiology and Critical Care, Cardiothoracic Surgery, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology, Pulmonology, Research and Immunology

Session Summary: Cardiac allograft dysfunction (CAD) reflects myocardial injury (MI). Previously attributed to acute cellular rejection and infection, the current etiology is multifactorial. New diagnostic modalities are directed at detection and enumeration of MI. This symposium will discuss CAD as a consequence of MI. Clinicians and pathologists will be aware of causes of injury and how diagnostic modalities address them. The symposium will unite clinicians and pathologists to discuss emerging modalities.

Co-Chairs: **Martin Goddard, MD, Royal Papworth Hospital, Cambridge, United Kingdom**
Brandon T Larsen, MD, PhD, Mayo Clinic, Scottsdale, AZ, USA
Connie White-Williams, RN, PhD, University of Alabama, Birmingham, AL, USA

3:00 p.m. ***Histopathology of Allograft Injury: A Temporal Paradigm***
Gerald J. Berry, MD, Stanford University, Stanford, CA, USA
The lecture will briefly review the myriad causes of allograft injury at various time periods after transplant. It will provide the background for the subsequent lectures.

3:15 p.m. ***Allograft Dysfunction: A Clinician's Approach to a Common Dilemma***
Christopher S. Hayward, MD, St. Vincent's Hospital, Sydney, Australia
This lecture will discuss the clinical approach to the transplant recipient presenting with allograft dysfunction and how to stratify the clinical, laboratory, imaging, and molecular information in a timely and comprehensive manner.

3:30 p.m. ***Integration of Information Overload: The Role of the Pathologist***
Ornella Leone, MD, Sant'Orsola Academic Hospital, Bologna, Italy
This lecture will focus on the role of the pathologist in the integration of the laboratory, histopathology and molecular data in the management of the transplant patient. With the emergence of new non-invasive techniques the role of the pathologist in the evaluation of methodologies, limitations, and applications will be evaluated.

3:45 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 17: A Worthwhile Pursuit: Balancing Parallel Goals of Prolonged Life and Relief from Symptom Burden in Advanced Heart and Lung Disease

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pediatrics, Pharmacy and Pharmacology

Session Summary: Advanced cardiopulmonary disease (both the disease and treatment) has a devastating effect of quality of life (QoL). Palliative care support as a treatment option is very much underutilized in patients with end stage heart and lung disease both before and after transplantation. This session will focus on how to integrate palliative care and improve QoL both before and after transplantation. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Sasha Storaasli, LCSW, Columbia University Medical Center, New York, NY, USA**
Sandeep Sahay, MD, Houston Methodist Hospital, Houston, TX, USA
Rachel M Crackett, MSc, Freeman Hospital, Newcastle upon Tyne, United Kingdom

3:00 p.m. ***Case Presentation on End-Stage Cardiopulmonary Disease***
Sandeep Sahay, MD, Houston Methodist Hospital, Houston, TX, USA
Will be presenting a case of a patient with advanced cardiopulmonary disease experiencing poor response to therapy who struggles to tolerate any treatment options and/or symptoms of dyspnea while on the waiting list for transplant.

3:05 p.m. ***A Breath of Fresh Air: Management of Dyspnea in End Stage Heart/Lung Disease***
Rebecca Colman, MD, University of Toronto, Toronto, ON, Canada
This talk will discuss various management techniques in end stage heart and lung disease including rational use of narcotics and adjunctive agents including cannabis.

3:20 p.m. ***This Could Go a Couple of Ways: Understanding How Preoperative Expectations of Quality of Life After Transplant Measure Up with Actual Experience***
Meghan Aversa, MD, University Health Network, Toronto, ON, Canada
An overview of data looking into how patients' preoperative expectations of HR-QoL outcomes after transplant compared to their actual experience. Explores what degree of risk patients are willing to take to achieve various QoL and ultimately tip the scale intochoosing destination therapies and transplant. The presence of met/unmet expectations is valuable information for dialogue about symptom burden and treatment decisions, including advanced directives.

3:35 p.m. ***A Shared Reality: Seeing Through the Lens by All Providers, Starting Early***
Eric P. Nolley, MD, MS, Johns Hopkins, Baltimore, MD, USA
This presentation will discuss provider attitude towards palliative care, identifying barriers and delays, and ultimately address why this treatment option is frequently underutilized, strategic use of skills for effective communication with patients in delivering difficult news, burdensome symptom management, goals of care and end of life planning. Time will be spent discussing multidisciplinary nature of palliative care. Encouragement given toward early engagement of PC by primary team.

3:50 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 18: VAD Infection: What Are We Doing Wrong?

Primary Core Therapy: MCS
Primary Audience: Cardiothoracic Surgery
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Infectious Diseases, Nursing and Allied Health, Pathology, Pediatrics, Pharmacy and Pharmacology

Session Summary: This session will provide an overview of evidence-based approaches to diagnosis and management of LVAD infections. Individual speakers will add their own personal experience. Lectures will cover all aspects of non-VAD specific to VAD specific infection from the peri-operative period to months/years after implantation.

Co-Chairs: **Keyur Shah, MD, Virginia Commonwealth University, Richmond, VA, USA**
Margaret M Hannan, MD, Mater Misericordiae University Hospital, Dublin, Ireland
Stephanie M Pouch, MD, MS, Emory University, Atlanta, GA, USA

3:00 p.m. ***Drive-Line Infection: Perils and Comprehensive Mitigation Strategies***
Michiel Morshuis, MD, Heart Center NRW, Bad Oeynhausen, Germany
This talk will focus on drive line infection – the impact of surgical technique, role of chronic suppression antibiotic therapy, different modification of driveline dressing protocol. Presenter will mention possible impact of geographical location (warmer vs. colder climate) and impact of different manner of follow-up on LVAD associated infection (hub and spoke organization design versus community led follow-up).

3:15 p.m. ***LVAD Exchange or Heart Transplantation in Intractable Pump Infection?***
Marian Urban, MD, PhD, University of Nebraska Medical Center, Omaha, NE, USA
The presenter will discuss decision making process in the strategy to address chronic pump infection. Will address the outcomes of LVAD exchange for infection as well as the impact of chronic LVAD infection on post heart transplantation outcomes. Patient populations and geographically specific approaches will be outlined.

3:30 p.m. ***Internal Pump Components Infection***
Palak Shah, MD, MS, Inova Fairfax Hospital, Falls Church, VA, USA
The presenter will discuss impact of chronic inflammation on hemocoagulation parameters, the role of imaging in detection of inflammation of internal pump components.

3:45 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
3:00 p.m. – 4:00 p.m. EDT

WORKSHOP 19: Challenging CTEPH Surgical Cases in the BPA Era

Primary Core Therapy: PVD
Primary Audience: Pulmonology
Secondary Audiences: Anesthesiology and Critical Care, Cardiology, Cardiothoracic Surgery, Nursing and Allied Health, Pathology

Session Summary: BPA is becoming a new standard of treatment for inoperable CTEPH patients as it achieved satisfactory early and mid-term outcomes. Hence, it appears a grey zone for operable patients with distal disease whose surgery remains challenging and BPA seems possible. The aim of the session is to present surgical results of distal pulmonary endarterectomy (splenectomy, chronic emboli from catheter, blood disorders) and debate to know what is the best treatment of this challenging subset of patients. A panel discussion with all speakers will conclude this session.

Co-Chairs: **Andrea D'Armini, MD, University of Pavia School of Medicine, Pavia, Italy**
Manreet Kanwar, MD, Allegheny General Hospital, Pittsburgh, PA, USA
Michael Mcinnis, MD, University of Toronto, Toronto, ON, Canada

3:00 p.m. ***Case Presentation: Pulmonary Endarterectomy in Catheter-Induced CTEPH Patients***
Andrea M. D'Armini, MD, University of Pavia School of Medicine, Pavia, Italy
Presentation of a case of catheter induced distal endarterectomy, literature review and personal experience. 5 min discussion after case is presented.

3:05 p.m. ***Case Presentation: Pulmonary Endarterectomy in Blood Disorders Patients***
David P. Jenkins, FRCS, Royal Papworth Hospital, Cambridge, United Kingdom
Presentation of a case of distal endarterectomy in a patient presenting blood disorder (myeloproliferative disorders, coagulopathies, sickle cell disease...), literature review and personal experience. 5 min discussion after case is presented.

3:10 p.m. ***Case Presentation: Pulmonary Endarterectomy in Splenectomised Patients***
Marc De Perrot, MD, Toronto General Hospital, Toronto, ON, Canada
Presentation of a case of endarterectomy in a splenectomized patient, literature review and personal experience. 5 min discussion after case is presented.

3:15 p.m. ***DEBATE: CTEPH in High-Risk Patients is Better Managed Using BPA Rather Than Undergoing Pulmonary Endarterectomy (PRO)***
Hiromi Matsubara, MD, PhD, Okayama Medical Center, Okayama, Japan
Speaker will demonstrate that BPA is the best treatment for challenging distal CTEPH (heart catheters & p.m. leads, splenectomy, myeloproliferative disorders).

3:25 p.m. ***DEBATE: CTEPH in High-Risk Patients is Better Managed Using BPA Rather Than Undergoing Pulmonary Endarterectomy (CON)***
Elie Fadel, MD, Hosp Marie Lannelongue, Le Plessis Robinson, France
Speaker will demonstrate that surgery remains the gold standard treatment of CTEPH even in distal disease.(heart catheters & p.m. leads, splenectomy, myeloproliferative disorders).

3:35 p.m. ***Panel Discussion with all speakers***

Wednesday, 28 April, 2021
4:00 p.m. – 6:00 p.m. EDT

PLENARY 3: Plenary Session

Primary Audience: ALL

Co-Chairs: **Lara Danziger-Isakov, MD, MPH, Cincinnati Children's Hospital, Cincinnati, OH, USA**
Laurie D Snyder, MD, Duke University Medical Center, Durham, NC, USA

4:00 p.m. ***Awards Presentations***

4:10 p.m. ***Organ Preservation in the 2020s: Suspended Animation - Subzero Supercooling***
Shannon N. Tessier, PhD, Massachusetts General Hospital, Boston, MA, USA
The limitation in preserving vascularised organs beyond several hours at standard hypothermic preservation of 4 degrees C is a significant contributor to donor organ shortage. In evolutionary terms several mammalian species exhibit the ability of suspended animation or hibernation, whereby body temperature and basal metabolic rate reduce substantially to decrease oxygen consumption and enter a period of biological dormancy. The underlying molecular machinery for such a phenomenon may share commonalities across multiple species. Previous scientific studies of supercooled ice-free storage at -6 degrees C have demonstrated limitations including random formation of damaging ice crystals in animal tissue models. This presentation will focus on recent advances in supercooling technology including the use of preconditioning chemical agents and air removal, assisted by extended sub-normothermic machine perfusion. The latest research involving both human liver and cardiac organs will be outlined along with future directions. The implications for organ preservation in the future including shortcomings in lung allograft preservation due to ice crystal formation will be discussed.

4:35 p.m. ***Featured Abstract Presentation***
TBD

4:50 p.m. ***Going Full Circle - From Tobacco Leaves to 3D Lung***
Oded Shoseyov, PhD, Hebrew University of Jerusalem, Jerusalem, Israel
Bioprinting involves the utilization of 3-dimensional printing techniques to combine cells, growth factors and other supportive matrix to fabricate biomedical parts that imitate natural tissue characteristics. Recent technological advances have raised the prospect of more widespread application of Bioprinting to facilitate tissue healing, development of tissues for pharmaceutical testing, bone tissue regeneration and manufacture of artificial organs. Collagen is an essential building block of human organs providing key structural support and biological signalling. Extraction techniques of collagen from human and animal sources has proved problematic with irreversible modifications impeding clinical application. More recently, genetically engineered tobacco plants have had procollagen extracted from mature leaves and have produced a highly purified recombinant human type 1 collagen – the building block of regenerative medicine. Unique properties of this rhCollagen include biocompatibility with no immunogenic properties, optimal rheology and excellent safety profile. This presentation will focus on the latest advances in Bioprinting technologies in the quest to manufacture a functional 3D Lung including future opportunities and challenges.

5:15 p.m. ***PRESIDENT'S DEBATE: Psychosocial Issues are a Contraindication to Transplantation (Introduction)***
Melissa Cousino, PhD, C.S. Mott Children's Hospital, Ann Arbor, MI, USA
Especially in younger transplant patients, psychosocial issues such as substance abuse and non-compliance are fairly prevalent and still a very controversial subject. The range in decision making is wide and in some countries these patients will have no chance to ever get on a waiting list for a transplant. The speaker will present a controversial case to introduce the debate argument.

5:20 p.m. ***PRESIDENT'S DEBATE: Psychosocial Issues are a Contraindication to Transplantation (PRO)***
Erik Verschuuren, MD, PhD, University Medical Centre Groningen, Groningen, Netherlands
This speaker will clearly argue why these patients should not receive a transplant.

5:35 p.m. ***PRESIDENT'S DEBATE: Psychosocial Issues Alone are a Contraindication to Transplantation (CON)***
Lianne G. Singer, MD, FRCPC, Toronto General Hospital, Toronto, ON, Canada
This speaker will clearly argue why these patients should definitely have a chance to receive a transplant.

5:50 p.m. ***Moderated Debate Rebuttals***