Max B. Mitchell, MD The Meg F. Rady and Family Chair In Congenital Cardiac Surgery

Children's Hospital Colorado
Heart Institute
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Academic cardiothoracic surgeon with 20 years of post-graduate clinical experience specializing in all areas of congenital cardiac surgery including: complex neonatal repairs, neonatal and pediatric heart transplantation, pediatric mechanical circulatory support, pediatric tracheal reconstruction and adult congenital heart disease.

Current Position

Professor, Department of Surgery, Division of Cardiothoracic Surgery University of Colorado at Denver and Health Sciences Center and

Attending Surgeon, Children's Hospital Colorado Heart Institute

Education

Undergraduate

University of Denver 1982-84, Denver, CO B.Sc., (Major - Chemistry, Minors - Biology, Mathematics) Jun 2, 1984

Graduate

George Washington University School of Medicine 1984-88, Washington, DC Doctor of Medicine with Distinction, May 27, 1988

Internship

General Surgery- University of Colorado Health Sciences Center. Denver, CO 1988-89

Residency

General Surgery- University of Colorado Health Sciences Center. Denver, CO 1989-95

Research Fellowship

N.I.H. Postdoctoral Research Fellowship - Advisor: Alden H. Harken, MD.

Department of Surgery, University of Colorado Health Sciences Center. Denver, CO.

Areas of interest: signal transduction of myocardial preconditioning, coronary vasomotor function, pulmonary vasomotor function 1991-93

Residency

Thoracic Surgery - University of Colorado Health Sciences Center. Denver, CO 1995-98

Fellowships

Pediatric Cardiac Surgery - Children's Hospital Colorado. Denver, CO Jul-Dec 1995 & Jan-Jun 1997

Senior Pediatric Cardiac Surgery Fellow - The Royal Children's Hospital. Melbourne, VIC, Australia, Jan 1-June 30, 1999

Academic Appointments

Instructor, Department of Surgery, Division of Cardiothoracic Surgery, University of Colorado Health Sciences Center. Denver, CO Jul 1, 1995-Jun 30, 1998

Assistant Professor, Department of Surgery, Division of Cardiothoracic Surgery, University of Colorado Health Sciences Center. Denver, CO Jul 1, 1998- Jun 30, 2002

Associate Professor, Department of Surgery, Division of Cardiothoracic Surgery, University of Colorado Health Sciences Center. Denver, CO Jul 1, 2002 – June 30, 2009

Professor, Department of Surgery, Division of Cardiothoracic Surgery, University of Colorado Health Sciences Center, Denver, CO July 1, 2009 – present

Special Faculty Appointment for University of Colorado at Boulder Graduate School of Engineering: Mechanical Engineering MS & PhD committees, May 2010

Professional Positions

Hospital

Children's Hospital Colorado, Aurora, CO

Attending physician, Pediatric Cardiothoracic Surgery - Active Status, Category V privileges, Jul 1, 1998 – present

Director, Mechanical Circulatory Support Program, Jul 2001 - present

Co-director, Extracorporeal Membrane Oxygenation Program, Apr 2008 - present

University Hospital, Aurora, CO

Attending physician, Adult Congenital and Pediatric Cardiothoracic Surgery - Active Status Jul 1, 1998 - present

Exempla Saint Joseph Hospital, Denver, CO

Medical Staff (Courtesy), Adult and Pediatric Cardiothoracic Surgery Nov 1, 1999 - present

Presbyterian Saint Luke's Medical Center, Denver, CO

Attending physician, Pediatric Cardiothoracic Surgery - Active Status with Category V privileges, Jul 28, 1999 - Jul 27, 2010

Surgical Director, Pediatric Cardiac Critical Care Unit, Jul 1999 - Sep 2004

Director, Pediatric Cardiac Surgery, Oct 2004 – Jul 2008

Military

United States Army Reserve, Medical Corps Officer

Commission - Captain, Aug 17, 1989

Promotion - Major, Sep 4, 1997

Promotion - Lieutenant Colonel, Dec 31, 2003

Honorable Discharge - November 9, 2007

Military Specialty

General Surgeon (61J) 1995 – 2007

Thoracic Surgeon (61K) 1998 - 2007

Military education

AMEDD Officer Basic Course - Fort Sam Houston, TX Dec 29, 1990 - Jan 10, 1991

Executive New Equipment Training (EXNET) for Deployable Medical Systems (DEPMEDS) - Fort McCoy, WI Sep 19-24, 1999

Assignments

National AMEDD Augmentation Detachment, Ft. McPherson, GA, General and Thoracic Surgeon, Aug 19, 1989 - Jun 20, 2000

48th Combat Support Hospital, Fort Meade, MD, General and Thoracic Surgeon, Jun 21, 2000 - Nov 21, 2002

5502nd United States Army Hospital, Aurora, CO, General and Thoracic Surgeon, Nov 22, 2002 - Nov 9, 2007

Active Duty Assignments

Operation Enduring Freedom & Operation Iraqi Freedom -

936th Forward Surgical Team (Rutba, Iraq). General and Thoracic Surgeon, Jun 15 -Sep 29, 2003

21st Combat Support Hospital (Balad, Iraq). General and Thoracic Surgeon, Sep 30 - Oct 15, 2003

Operation Enduring Freedom -

Tripler Army Medical Center, Division of Cardiothoracic Surgery - Honolulu, HI. Thoracic Surgeon, Sep 22 - Dec 22, 2006

Corporate

Admedus Limited (ASX:AHZ), <u>www.admedus.com</u>. Member, Advisory Board. Jan 30 2018 – present.

Honors, Special Recognition and Awards

Undergraduate

University Scholars Award Scholarship in Chemistry (\$6000), University of Denver, Denver, CO. 1982-84

Outstanding Student in General Physics, University of Denver, Denver, CO. 1982-83

Hornbeck Scholar Award (awarded 4 times), University of Denver, Denver, CO

Phi Beta Kappa – elected Junior year, University of Denver, Denver, CO. 1983

B.Sc. Chemistry - Magna Cum Laude, University of Denver, Denver, CO. Jun 1984

Graduate

Alpha Omega Alpha - George Washington University, elected Junior year, 1987 Doctor of Medicine with Distinction - George Washington University, Washington DC. May 27, 1988

Community

2003 Volunteer of the Year, Chinese Children Adoption International. Englewood, CO. Aug 2003 2007 Volunteer of the Year, Chinese Children Adoption International. Englewood, CO. Aug 2007

Professional

First place (\$500) 1992 Le Roy Stahlgren abstract competition. American College of Surgeons, Colorado Chapter annual meeting. Balloon tamponade for bilobar transfixing hepatic gunshot wounds. May 8, 1992

First place (\$500) 1993 Le Roy Stahlgren abstract competition. American College of Surgeons, Colorado Chapter annual meeting. Near fatal case of hyperparathyroidism. May 7, 1993

Elected to membership in the Congenital Heart Surgeon's Society, Oct 2004

2007 Top Docs list in Thoracic Surgery for Colorado's most trusted physicians, specialists and surgeons. CORE 2007 Top Docs Survey by Castle Connolly's physician led team of researchers, *CORE Magazine* Dec 06/Jan07 issue

American College of Surgeons and Society of Thoracic Surgeons combined Health Policy Scholarship (\$8000) to attend "Executive Leadership in Health Policy and Management" Heller School for Social Policy and Management, Brandeis University Jun 3-8, 2007

2007 Service Excellence Every Day Manager Level Award. Children's Hospital Colorado, Denver, CO. Presented in recognition of my ongoing role in the education of Children's Hospital Colorado Heart Institute nursing staff

Listed in the 2009 Edition of "Guide to America's Top Surgeons." Consumer's Research Council of America: www.consumerresearch.cncl.org

Selected by Castle Connolly Medical, Ltd. as one of "America's Top Doctors." Dec 16 2009.

Top Doctor in Congenital Cardiac Surgery, *5280 Magazine* August 2012 issue: feature article pg. 79, listed pg. 86.

Best Doctors, Inc. 2013-14 Best Doctors database, *Denver Business Journal* March 2013 issue. Named to Castle and Connolly's 13th edition of America's Top Doctors. Jan 24, 2014

Awarded "the Sam and Fern Primack Heart Who Cares Award" (awarded annually to an individual from the Children's Hospital Colorado Heart Institute deemed to have gone above and beyond in caring for co-workers, patients and families). 30th Annual Children's Hospital Colorado Heart Institute Little Hearts Luncheon. April 10, 2015.

Listed in Best Doctors, Inc. 2015-16 Best Doctors database, *Denver Business Journal* Aug 7-13 issue, pg. S11.

Listed in "America's Tops Surgeons 2016" from Consumer's Research Council of America. July 2016.

Top Doctor in Congenital Cardiac Surgery, 5280 Magazine August 2016.

The Meg F. Rady and Family Chair in Congenital Cardiac Surgery (\$3.3 Million). Awarded as the inaugural chairholder, Children's Hospital Colorado Foundation. Aurora, CO. Investiture May 23, 2017.

CU Innovations SPARK Fellowship award for development of a cardiac assist device surgical tool. July 2018 – Jun 2020.

Top Doctor, Colorado Parent Magazine July 2017.

Top Doctor in Congenital Cardiac Surgery, 5280 Magazine Aug 2017.

Children's Hospital Colorado SEED (Service Evidence Every Day) Badge for Teamwork. Awarded May 16, 2018.

Norman Shumway award for best paper presentation at the Western Thoracic Surgical Association 44th annual meeting. Santa Barbara, CA Jun 27-30, 2018. Senior author and mentor to 1st author and presenter Michal Schafer for paper entitled "Reduced proximal aortic compliance and elevated wall stress are present in preadolescent and adolescent patients with Tetralogy of Fallot despite early repair and normalized aortic dimensions".

Top Doctor in Congenital Cardiac Surgery, 5280 Magazine Aug 2018.

Children's Hospital Colorado Innovation Challenge. Selected Runner-up for LVAD Aortic Anastomotic Device. Feb 19, 2019.

Children's Hospital Colorado Innovation Challenge. Audience favorite for LVAD Aortic Anastomotic Device. Feb 19, 2019.

Top Doctor in Congenital Cardiac Surgery, 5280 Magazine Aug 2019.

Children's Hospital Colorado SEED (Service Evidence Every Day) Badge for Professionalism. Awarded September 7, 2019.

Military

Army Service Ribbon

National Defense Service Medal (x2)

Good Conduct Medal (x4)

Armed Forces Reserve Medal with Mobilization Device (x2)

Commanders Coin, Presented 2002 by COL Jane McCullough, Commander 48th Combat Support Hospital, 99th RSC for service to the 48th Combat Support Hospital

Combat Badge - Operation Iraqi Freedom, Presented by the 3rd Armored Cavalry Division for active military service in a combat zone Jul 1-Oct 15, 2003

Combat Medical Badge awarded during Operation Iraqi Freedom, Jul 1, 2003

Commanders Coin, Presented 2003 by COL Peter Kilburn, Commander 6250th United States Army Hospital for service at Balad, Iraq. Sep 23-Oct 13, 2003

2003 Warrior Citizen Award of Excellence, Awarded by LT GEN Helmly, Chief, United States Army Reserve

Commanders Coin, Presented in 2004 by COL Robert House, Commander 5502nd US Army Hospital for active duty service to the United States

Membership in Professional Organizations

American College of Surgeons, Associate Member, 1990 - 2001

American College of Surgeons, Fellow (no. 03014986), 2001 - present

International Society for Heart and Lung Transplantation, Active Member, Sep 1998 - present Rocky Mountain Thoracic and Cardiac Surgical Society, Active Member, 1998 - present Denver Academy of Surgery, Active Member, 1999 - present

The Western Thoracic Surgical Association, Active Member (no. 20360) 2001 - present

The Society of Thoracic Surgeons, Active Member, 2002 - present

The Congenital Heart Surgeons Society, Active Member, 2004 – present

American Association for Thoracic Surgery, Member, May 5, 2010 – present (no. 20360)

World Society for Pediatric and Congenital Heart Surgery, Active Member, Dec 19, 2013 - present

Major Committee and Service Responsibilities University

Member, Search Committee for Chief, Division of Cardiothoracic Surgery, University of Colorado Health Sciences Center. Denver, CO Oct 2002 - Apr 2003

Member, By-laws Revision Committee, University Physicians, Inc. Aurora, CO. Oct 2007 - Apr 2008

Hospital

Blood Utilization and Resource Committee, University Hospital, Denver, CO Apr 1999 – Jun 2010

Search Committee for Pediatric Cardiac Intensive Care Unit Director, Children's Hospital Colorado, Denver, CO Sep 1999 - Feb 2000

Blood Utilization and Review Committee, Children's Hospital Colorado, Denver, CO Mar 2000 - present

Hypothermia Treatment Protocol Development Committee, Children's Hospital Colorado, Denver, CO May 2000 - Dec 2000

Medical Board, Children's Hospital Colorado. Denver, CO Elected Feb 2002 - Jan 2004

Cardiovascular Surgery Operating Room design and planning team for Children's Hospital Colorado Fitzsimmons location. Denver, CO 2003-2007

Medical Board, Children's Hospital Colorado. Aurora, CO Feb 2007 - Jan 2009

Chair, Children's Hospital Colorado ECMO Review Task Force. Apr 2008 - Jul 2009. This group was commissioned to assess the quality of ECMO service at Children's Hospital Colorado. We Developed an ECMO specialist based program, Updated circuit technology - First major U.S. pediatric hospital to employ centrifugal pump ECMO circuits for all patient ages and sizes.

Co-Chair, Surgery supply chain improvement project. Children's Hospital Colorado. May 2008 – Jun 2012

Medical Board, Children's Hospital Colorado. Aurora, CO Feb 2009 - Jan 2011

Children's Hospital Colorado Medical Staff Campaign Council, Founding Member. 2014 – present. Mission: promotion of hospital philanthropy by the Medical Staff.

National

Member, International Society for Heart and Lung Transplantation, Council on Pediatric Transplantation, Apr 2000-2008

Member, Workforce on Patient Safety and Communications. Society of Thoracic Surgeons. Term 2006-2009

Member, Workforce on Health Policy, Reform, and Advocacy. Society of Thoracic Surgeons. Term 2007-2010

Sub-Section Editor for Congenital Heart Failure section. American Board of Thoracic Surgery Self-Education Self-Assessment in Thoracic Surgery (SESATS XIII) Exam. Jul 2018 - present

Community

Medical Advisory Committee of Donor Alliance, Denver, CO. 1998-2010

Member, Colorado and Wyoming Organ and Tissue Donation Coroner Protocol Review Committee. 2000-2004

Volunteer Organizations

Pediatric cardiac surgeon, Karaganda, Kazakhstan. Sep 1998, performed open-heart surgery on needy children, sponsored by Project Open Heart. Denver, CO

Medical consultant for Chinese Children Adoption International, Englewood, CO. I provide counseling to families considering the adoption of special needs orphaned Chinese children with congenital heart disease. 2001-present

Pediatric heart surgeon for Chinese Children's Charities and the Lili Orphan Care Center. Hangzhou, P. R. China, Performed surgery on Chinese orphans, Oct 28 - Nov 3, 2001

Pediatric heart surgeon for Chinese Children's Charities and the Lili Orphan Care Center. Hangzhou, People's Republic of China. Performed surgery on Chinese orphans, Mar 9-15, 2002

Chairman, Chinese Children's Charities Fund. Englewood, CO. Directed provided oversight of charitable contribution distributions made for the betterment orphaned Chinese children. Annual appropriations exceed \$400,000. Apr 2002- 2010

Pediatric heart surgeon for Chinese Children's Charities and the Lili Orphan Care Center in Hangzhou, People's Republic of China. I performed surgery on Chinese orphans, March 10-12, 2003

Mentor, Kent Denver School Career Intern Experience: 2-week internship for a graduating high school senior. (Anson Snow), May 2005

Mentor Kent Denver School Career Intern Experience: for 2-week internship for a graduating high school senior (Christine Snow). May 2007

Team Physician and volunteer medical provider for Flatirons Community Church mission to Afghan refugees. Kabul, Afghanistan. Apr 1-10, 2008

Executive Board member, Chinese Children Adoption International. Englewood, CO. Nov 2010 – present

Board Member, 2HEARTS (www.2HEARTS.org), Denver, CO. Jan 2017 - present.

2HEARTS is a not for profit 501C3 organization. This mission of 2HEARTS is to support and educate teens with congenital heart disease in their transition to adulthood.

Licensure and Board Certification

National Board of Medical Examiners - certified Mar 1, 1989

Colorado State Board of Medical Examiners - licensed Sep 13, 1991 (current May 1, 2017 – Apr 30, 2019)

American Board of Surgery (Certificate #40987) - Certified Feb 28, 1996

Recertified- Oct 2004 (exp Jul 1, 2016)

American Board of Thoracic Surgery (Certificate #6292) - Certified Jun 4, 1999

Recertified - Oct 2007

5-year milestone maintenance of certification completed Dec 2014

Recertified – Dec 15, 2017 – Dec 31, 2029.

American Board of Thoracic Surgery Subspecialty Certification in Congenital Heart Surgery (Certificate #39) Certified Nov 30, 2009, expiration Dec 31, 2019

5-year milestone maintenance of certification completed Oct 24, 2014

Recertified - Dec 15, 2017, exp Dec 31, 2029

Review and Referee Work

Invited reviewer, Annals of Thoracic Surgery

Invited reviewer, Journal of Heart and Lung Transplantation

Invited reviewer, Journal of Thoracic and Cardiovascular Surgery

Invited reviewer, Cardiology in the Young

Invited reviewer; World Journal for Pediatric & Congenital Heart Surgery

Program Committee, 2006 Annual meeting of the Western Thoracic Surgical Association

Program Committee, 2007 Annual meeting of the Western Thoracic Surgical Association

Program Committee, 2008 Annual meeting of the Western Thoracic Surgical Association

Panelist, 2008 Combined American College of Surgeons and Society of Thoracic Surgeons Health Policy Scholarship selection committee, Mar 2008

Invited reviewer, 2010 American College of Cardiology Annual Scientific Session Abstract Reviewer for Congenital Cardiac Surgery, October 2009

Invited reviewer, 2011 American College of Cardiology Annual Scientific Session Abstract

Reviewer for Congenital Cardiac Surgery, October 2010

Invited Presentations, Visiting Professorships

Local

- 1. Current Management of Pheochromocytoma. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Jan 21, 1989
- Complications of Diverticular Disease: Conservative Management. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Apr 21, 1990.
- All patients following vascular surgery should be treated with aspirin forever. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Oct 13, 1990
- 4. All Abdominal Aortic Aneurysms Should Be Repaired. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Sep 21, 1991
- 5. Pharmacologic Nephrotoxicity is Preventable. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Mar 21, 1992
- 6. Flow Dependent Oxygen Consumption in Critical Illness. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Oct 10, 1992
- 7. Axillary-Femoral Bypass: Valuable vs. Overrated. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Oct 23, 1993.
- 8. Physiology and Pathophysiology of Vasomotor Control. University of Colorado Health Sciences Center Resident Presentation, Surgical Grand Rounds. Denver, CO. Jan 22, 1994
- 9. The Future of Heart Transplantation: Mechanical Circulatory Support vs. Xenograft Transplantation. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Dec 2, 1995
- The Future of Heart Transplantation: Mechanical heart vs. Tissue Replacement. University of Colorado Health Sciences Center Resident Debate, Surgical Grand Rounds. Denver, CO. Dec 7, 1996
- 11. Infant Heart Transplantation: Lessons Learned to Improve Patient Care in the Future. University of Colorado Health Sciences Center and the Denver Veteran Affairs Medical Center Health Services Grand Rounds. Denver, CO. Jan 27, 1998
- 12. Conservative Mitral Valve Surgery: Cardiology Grand Rounds. University of Colorado Health Sciences Center. Denver, CO. Oct 9, 1998
- 13. Kazakhstan: A team Report of Lessons Learned. Cardiac Care Center Quarterly Meeting, Children's Hospital Colorado. Denver, CO. Dec 9, 1998
- 14. Operation Iraqi Freedom: Surgery in Iraq. University of Colorado Department of Surgery Staff Grand Rounds. Denver, CO. Apr 13, 2004
- 15. Neurodevelopmental Outcomes Following Surgery for Congenital Heart Disease: What do We Know About This? Cardiac Kids Parent's Conference. Children's Hospital Colorado. Denver, CO. Sep 9, 2006
- Right Ventricular Failure: Timing and Indications for Pulmonary Valve Replacement. University of Colorado Health Sciences Center Division of Cardiothoracic Surgery City-wide Journal Club. Denver, CO. May 14, 2007
- 17. Basics in Vascular Rings. Pediatric Surgery Grand Rounds. University of Colorado at Denver Health Sciences Center and Children's Hospital Colorado. Aurora, CO. Nov 14, 2014
- 18. Mechanical circulatory support in children. Department of Surgery Grand Rounds. University of Colorado at Denver Health Sciences Center. Aurora, CO. Dec 1, 2014
- 19. Mechanical circulatory support in children. Department of Surgery Grand Rounds. University of Colorado at Denver Health Sciences Center. Aurora, CO. Apr 24, 2017
- 20. Vascular Compression of the Airway. Invited presentation for Pediatric Surgery Grand Rounds Citywide Conference. Children's Hospital Colorado. Aurora, CO. Sep 8, 2017
- 21. Panel: Is the surgeon scientist dead? Invited panelist 2nd Annual Center for Children's Surgery Research Symposium. Children's Hospital Colorado. Aurora, CO Mar 1, 2019

Regional

- 1. Mitral Valve Repair. Aspen Valley Hospital Grand Rounds. Aspen, CO. Aug 18, 1999
- 2. Coarctation of the Aorta. Cardiology and Cardiac Surgery Grand Rounds. Presbyterian St. Luke's Medical Center. Denver, CO. Sep 11, 2002
- 3. Surgery in Iraq. 5502nd United States Army Hospital Symposium. Aurora, CO. Mar 7, 2004
- 4. Update on Pediatric Ventricular Assist Devices. Children's Hospital Colorado Cardiac Conference 2012 2nd Teaching Course and Workshop on Pediatric and Congenital Heart Disease. Aurora, CO. Mar 22, 2012
- 5. Congenital Heart Disease in Waiting Children. Waiting Child Medical Conference, CCAI Adoption Services. Englewood, CO. Feb 16, 2013
- 6. Surgical intervention for Hypoplastic Left Heart Syndrome. 15th Eliza Fernie Pediatric Critical Care Symposium. Aurora, CO. Jan 22, 2014
- 7. Pediatric cardiac injuries resulting from blunt trauma. Colorado Pediatric Trauma Conference. Hosted by Children's Hospital Colorado. Nov 19, 2015.
- 8. Tracheo-bronchial Trauma in Children. Pediatric Trauma Conference. Hosted by Children's Hospital Colorado. Nov 14, 2018.

National

- 1. All Patients Following Vascular Surgery Should Be Treated with Aspirin Forever. Horizons in Surgery. Breckenridge, CO. Mar 4, 1991
- 2. All Abdominal Aortic Aneurysms Should Be Repaired. Horizons in Surgery. Breckenridge, CO. Mar 1, 1992
- Flow Dependent Oxygen Consumption in Critical Illness. Horizons in Surgery. Breckenridge, CO. Mar 4, 1993
- 4. Flow Dependent Oxygen Consumption in Critical Illness. The Southern Society of Clinical Surgery. Denver, CO. Apr 5, 1993
- 5. Amputation vs. Revascularization for Critical Lower Extremity Ischemia: Revascularization. Horizons in Surgery, Breckenridge, CO. Mar 3, 1995
- 6. Aortic Root Replacement after Prior Homograft Insertion in Children. A Team Approach to Pediatric Cardiac Disease. Vail, CO Feb 26, 2001
- 7. Sinus of Valsalva Aneurysm: Pathophysiology and Surgical Management. Department of Thoracic Surgery, Walter Reed Army Medical Center. Washington, DC Apr 3, 2001
- 8. Thoracic Surgery Boards and In-Service Examination Review: Topics in congenital heart disease. Thoracic Surgery Residency teaching conference. Walter Reed Army Medical Center. Washington DC. Apr 3, 2001
- 9. Hypoplastic Left Heart Syndrome: Outcome following transplantation. A Team Approach to Pediatric Cardiac Disease. Vail, CO Mar 2, 2003
- 10. Heart Transplantation for the Failed Fontan Circulation. A Team Approach to Pediatric Cardiac Disease. Vail, CO Mar 2, 2003
- 11. Heart Transplantation for Hypoplastic Left Heart Syndrome. Invited faculty for the American College of Surgeons 89th Clinical Congress, Post-graduate Course #31: Cardiac Surgery. Chicago, IL. Oct 21, 2003
- 12. Transplant for Patients with a Failing Fontan. Congenital Heart Disease Symposium: American Association for Thoracic Surgery 84th Annual Meeting. Toronto, Ontario, Canada. Apr 25, 2004
- Re-replacement of the Allograft Aortic Root in Children. Invited lecture, Department of Cardiothoracic Surgery, Oregon Health Sciences University and Doerenbecher Children's Hospital. Portland, OR. Nov 15, 2004
- 14. Risks of Transplantation for Fontan Failure. Invited presentation for the American College of Cardiology 54th Annual Scientific Session Minicourse: Fontan Long-term Outcomes. Orlando, FL. Mar 6, 2005
- 15. Outcomes and Trends in Heart Transplantation for Hypoplastic Left Heart Syndrome. 10th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Mar 15, 2005
- 16. Pulmonary Vascular Disease in the Fontan Circulation. 10th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Mar 16, 2005

- 17. Vascular Compression of the Airway. Invited presentation, Department of Surgery Tripler Army Medical Center. Honolulu, HI. Aug 3, 2005
- Invited discussant: "Aortic Translocation in the Treatment of Transposition with Ventricular Sepal Defect and Pulmonary Stenosis". 11th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Mar 6, 2007
- 19. Co-Moderator. Congenital Heart Disease Concurrent Forum. The Western Thoracic Surgical Association 34th Annual Meeting. Kona, HI. Jun 28, 2008
- 20. Course Director. Post-graduate Course #18: Cardiac Surgery for Candidates of Certification and Recertification. American College of Surgeons 94th Annual Clinical Congress. San Francisco, CA. Oct 12, 2008
- 21. Co-moderator. Session on Interventional Cardiology. 12th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Mar 3, 2009
- 22. Balloon Angioplasty/Stenting is the treatment of choice for Coarctation of the Aorta in Children & Adolescents: CON. 12th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Mar 3, 2009
- 23. Co-Moderator. Congenital Heart Disease Concurrent Forum. The Western Thoracic Surgical Association 35th Annual Meeting. Banff, Alberta. June 27, 2009
- 24. Invited discussant. A UNOS analysis of Heart Transplantation in Adults with Congenital Heart Disease: Outcomes and Factors Associated with Mortality and Retransplantation. The Western Thoracic Surgical Association 35th Annual Meeting. Banff, Alberta. June 27, 2009
- 25. Supravalvar Aortic Stenosis in Infants. Congenital Heart Disease Symposium: American Association for Thoracic Surgery 90th Annual Meeting. Toronto, Ontario, Canada. May 2, 2010
- 26. Surgical Management of Supravalvar Aortic Stenosis. 13th Vail Symposium on Pediatric Cardiac Diseases. Vail, CO. Feb 28, 2011
- 27. Update on the PumpKIN trial. American Society of Extracorporeal Technology Pediatric Perfusion. Denver, CO. Nov 15, 2013
- 28. Transplantation in the Fontan Patient. Congenital Heart Disease Symposium, Issues Beyond the Textbook: American Association for Thoracic Surgery 94th Annual Meeting. Toronto, Ontario, Canada. Apr 27,2014
- 29. Inpatient Aero Model Tracheal Ring Case Panel participant. 3rd Annual Contemporary Management of Aerodigestive Disease in Children. Aurora, CO Nov 6, 2015
- 30. Panel discussion participant. 54th International Conference of the American Society of Extracorporeal Technology. Colorado Springs, CO. Mar 16, 2016.
- 31. Surgical management of Transposition of the Great Arteries. 2016 Annual Meeting of the Congenital Cardiac Anesthesia Society. Colorado Springs, CO. Apr 1, 2016
- 32. Pediatric cardiac injuries resulting from blunt trauma. Western Pediatric Trauma Conference. Snowmass, CO. July 22, 2016
- 33. A Primer on ECMO Utilization in the Last Decade. 27th Annual Specialist Education in Extracorporeal Membrane Oxygenation Conference: Challenges in ECMO Across the Age and Disease Spectra (SEECMO). Aurora, CO Jun 2, 2017

International

- 1. Heart Transplantation in Infancy. Visiting lecturer, Department of Cardiovascular Surgery, Yamanishi Medical University. Kofu, Japan. Apr 10, 2000
- 2. Heart Transplantation in Children. Visiting consultant and invited lecturer. Zhejiang University Children's Hospital. Hangzhou, PR China. Nov 1, 2001
- 3. Coronary Transfer Problems in Transposition of the Great Arteries. Visiting consultant and invited lecturer, Zhejiang University Children's Hospital. Hangzhou, PR China. Mar 11, 2002
- 4. Invited Co-chair Session on Hypoplastic Left Heart Syndrome. New Era in Congenital Heart Management. Sponsored by the Pediatric Heart Institute of Hospital Universitario 12 Octubre. Madrid, Spain. Oct 4, 2002.

- 5. Invited presentation Re-operative Replacement of the Homograft Aortic Root in Children. New Era in Congenital Heart Management. Sponsored by the Pediatric Heart Institute of Hospital Universitario 12 Octubre. Madrid, Spain. Oct 5, 2002
- 6. Visiting consultant in pediatric cardiac surgery. Zhejiang University Children's Hospital. Hangzhou, PR China. Mar 10-14, 2003
- 7. Coarctation of the Aorta. Grand Rounds presentation. United States Army 21st Combat Support Hospital. Balad, Iraq. Sep 30, 2003

Teaching Record

Lectures to medical students

 Pediatric Cardiothoracic Surgery as a Career Choice. University of Colorado School of Medicine Surgical Society. Denver, CO. Apr 14, 2004

Lectures to graduate students

Mechanical Cardiac Assist Devices. Lecture for *Biomedical Device and Instrumentation Design*. Department of Biomechanical Engineering (Course director - Robin Shandas, PhD). University of Colorado School of Engineering. Boulder, CO. Apr 26, 2001

Lectures to nursing staff and physician extenders

- 1. Effects of Cardiac Surgery on the EKG. Invited lecture for "Catch the Beat! Pediatric EKGs: Etiology, Intervention, and Interpretation". Children's Hospital Colorado. Denver, CO. Oct 18, 2000
- 2. Effects of Cardiac Surgery on the EKG. Invited lecture for "Catch the Beat! Pediatric EKGs: Etiology, Intervention, and Interpretation". Children's Hospital Colorado. Denver, CO, Oct 23, 2002
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing education course. Children's Hospital Colorado. Denver, CO. Apr 2, 2003
- 4. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Lecture for Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Denver, CO. Apr 20, 2004
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Lecture for Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Denver, CO. Sep 14, 2004
- 6. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Lecture for Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Denver, CO. Apr 14, 2005
- 7. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Lecture for Cardiac Intensive Care Nursing and Cardiac Operating Room Personnel Education Course. Children's Hospital Colorado. Denver, CO. Sep 26, 2005
- 8. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Lecture for CICU and Cardiac Operating Room Nursing Education Course. Children's Hospital Colorado. Denver, CO. Sep 18, 2006
- 9. Neurologic outcomes and cardiopulmonary bypass strategies in children. Operating Room and CICU nursing Education Course. Children's Hospital Colorado. Denver, CO. Jun 13, 2007
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. Jun 18, 2008
- 11. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. July 28, 2009
- 12. Circuit selection and cannula selection for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Mar 30, 2010

- 13. Cannulation for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Mar 30, 2010
- 14. Surgical and interventional procedures in the ECMO-supported patient. . ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Mar 30, 2010
- 15. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. May 18, 2010
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. May 31, 2011
- 17. Cannulation for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. May 29, 2012
- 18. Surgical and interventional procedures in the ECMO-supported patient. . ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. May 29, 2012
- 19. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. Jun 5, 2012
- 20. Cannulation for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Nov 22, 2013
- 21. Surgical and interventional procedures in the ECMO-supported patient. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Nov 22, 2013
- 22. ECMO Circuit selection. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Apr 21, 2015
- 23. Cannulation for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Apr 21, 2015
- 24. Surgical and interventional procedures in the ECMO-supported patient. . ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Apr 21, 2015
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. Jun 9, 2015
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. Nov 14, 2016
- Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiac Intensive Care Nursing Education Course. Children's Hospital Colorado. Aurora, CO. May 22, 2017
- 28. Circuit selection and cannula selection for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Jul 2, 2019
- 29. Cannulation for ECMO. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Jul 2, 2019
- 30. Surgical and interventional procedures in the ECMO-supported patient. ECMO specialist didactic training course. Children's Hospital Colorado. Aurora, CO. Jul 2, 2019

Presentations to house officers

- Management of Massive Air Embolism During Cardiopulmonary Bypass. Thoracic Surgery Resident Teaching Conference, University of Colorado Health Sciences Center. Denver, CO. Oct 6, 1999
- 2. Management of Postoperative Atrial Fibrillation. Thoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Nov 10, 1999
- 3. Management of Cardiopulmonary Bypass During Pregnancy. Thoracic Surgery Resident Teaching Conference, University of Colorado Health Sciences Center. Denver, CO. Jan 27, 2000

- 4. Vascular Rings and Pulmonary Artery Sling. Pediatric Surgery Resident Education Series. University of Colorado Health Sciences Center and Children's Hospital Colorado. Denver, CO, Feb 23, 2000
- 5. Anatomy of d-TGA, I-TGA, HLHS, and Truncus Arteriosus. Thoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Apr 27, 2000
- 6. Sinus of Valsalva Aneurysm. Thoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Jun 16, 2000
- Coarctation of the Aorta. Pediatric Surgery Resident Education Series. University of Colorado Health Sciences Center and Children's Hospital Colorado. Denver, CO. Sep 19, 2001
- 8. Vascular Compression of the Airway. Pediatric Surgery Resident Education Series. University of Colorado Health Sciences Center and Children's Hospital Colorado. Denver, CO. Sep 26, 2001
- 9. Vascular Compression of the Airway. Thoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Sep 26, 2001
- 10. Vascular Compression of the Airway. Pediatric Cardiology Fellows Education Conference. Children's Hospital Colorado. Denver, CO. Jan 9, 2002
- 11. Sinus of Valsalva Aneurysm. Cardiology Fellows Education Conference. Children's Hospital Colorado. Denver, CO. Jan 25, 2002
- 12. Reoperations on the Aortic Root. Thoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Oct 24, 2002
- 13. Vascular Rings. Children's Hospital Heart Institute Lecture Series. Children's Hospital Colorado. Denver, CO. Mar 22, 2004
- 31. Mechanisms of Fontan Failure. Children's Hospital Heart Institute Lecture Series. Children's Hospital Colorado. Denver, CO. Jun 28, 2004
- 32. Complex Aortic Root Re-operations in Children. Children's Hospital Heart Institute Lecture Series. Children's Hospital Colorado. Denver, CO. Dec 13, 2004
- 33. Vascular Compression of the Airway. Invited presentation for the Division of Pediatric Surgery. Children's Hospital Colorado. Denver, CO. Sep 30, 2005
- 34. Coarctation of the Aorta. Invited presentation for the Division of Pediatric Surgery. Children's Hospital Colorado. Denver, CO. Nov 11, 2005
- 35. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Pediatric Cardiology Fellows lecture. Children's Hospital Colorado. Denver, CO. Dec 16, 2005
- 36. Vascular Compression of the Airway. Invited presentation for the Division of Pediatric Surgery. Children's Hospital Colorado. Denver, CO. Feb 9, 2007
- 37. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. University of Colorado and Children's Hospital Colorado Department of Pediatric Anesthesia Resident and Fellow's lecture series. Denver, CO. Apr 13, 2007
- 38. Vascular Compression of the Airway. Division of Cardiothoracic Surgery Resident Teaching Conference. University of Colorado Health Sciences Center. Denver, CO. Mar 21, 2007
- 39. Vascular Compression of the Airway. Invited presentation for the Division of Pediatric Surgery. Children's Hospital Colorado. Aurora, CO. Sep 5, 2008
- 40. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiology Fellows Core Lectures. Children's Hospital Colorado. Aurora, CO. July 29, 2009
- 41. Update on the latest technology for extracorporeal membrane oxygenation (ECMO) and overview of the new ECMO system at Children's Hospital Colorado. Invited presentation to the Division of Pediatric Surgery. Children's Hospital Colorado. Aurora, CO. July 31, 2009
- 42. Cardiopulmonary Bypass: Overview and Physiologic Effects in Pediatric Patients. Cardiology Fellows Core Lectures. Children's Hospital Colorado. Aurora, CO. Aug 26, 2010
- 43. Vascular Compression of the Airway. Invited presentation for the Division of Pediatric Surgery. Children's Hospital Colorado. Aurora, CO. Feb 14, 2014
- 44. Cardiothoracic anomalies affecting the airway. Invited presentation to the Department of Otolaryngology. University of Colorado at Denver Health Sciences Center. Aurora, CO. Nov 6, 2014

Ward/Clinic Attending Duties

Mon-Fri scheduled, urgent and emergent cases involving intra-operative 1:1 teaching with Congenital CV Surgery fellows, Thoracic Surgery residents, Pediatric Cardiology fellows and Pediatric Anesthesia fellows at Children's Hospital Colorado.

Mon-Th 0715-0815, Fri 0645-0730. Cardiac Intensive Care Unit and Cardiac Progressive Care Unit surgical rounds at Children's Hospital Colorado. All active patients on the Cardiology - Cardiac Surgery service are discussed and peri-operative management for cardiac surgical patients is directed. These rounds involve clinical teaching for Congenital CV Surgery fellows, Thoracic Surgery residents, Cardiology residents, PICU fellows, NICU fellows, and mid-level providers rotating on the Heart Institute service.

Mon 1330-1430. Pediatric Cardiac Transplant Rounds at Children's Hospital Colorado. All actively listed heart transplant patients are discussed, new patients are considered for listing and in-hospital post-transplant patients are discussed. Rounds are attended by CV Surgery Attendings, Pediatric Transplant Cardiologists, CV Surgery Fellows, Pediatric Cardiology Residents and mid-level providers.

Tue 1600-1700. Children's Hospital Colorado Heart Institute Educational Series. Sequentially used for lectures related to Congenital Heart Disease, Monthly CV Surgery Morbidity and Mortality discussion, Bi-monthly Congenital Cardiac Surgery Journal Club. This is a Heart Institute-wide educational exchange attended by CV Surgery Attendings, Pediatric Cardiologists, CV Surgery Fellows, Pediatric Cardiology Residents and mid-level providers.

Fri 0730-0900. Combined Cardiology - Cardiac Surgery Patient Case Conference. Children's Hospital Colorado. Attended by CV Surgery Attendings, Pediatric Cardiologists, CV Surgery Fellows, Thoracic Surgery residents, Pediatric Cardiology Residents and mid-level providers. This is an educational exchange in which all active patients are reviewed, scheduled cases are discussed and difficult case management plans are formulated.

Mon-Fri 24-hour/day Mechanical Circulatory Support coverage for Children's Hospital Colorado Ventricular Assistance Device Program.

Every 3rd week, Mon-Sun 24hr/7d Pediatric Cardiothoracic Surgery Call coverage for Children's Hospital Colorado.

Every 3rd week, Mon-Sun 24hr/7d Adult Congenital Cardiothoracic Surgery Call coverage for University of Colorado Hospital.

Every 3rd week, Mon-Sun 24hr/7d Pediatric Heart Transplant Surgery Call coverage for Children's Hospital Colorado.

Accomplishments

I developed and remain the Surgical Director of the Children's Hospital Colorado Ventricular Assist Device (VAD) program. Our program was among one of the first pediatric programs in the United States to offer the Thoratec extracorporeal VAD system, the CentriMag VAS system. I was the local PI for the Berlin Heart EXCOR pediatric VAD IDE trial.

I assisted our program director in gaining approval from the American Board of Thoracic Surgery (ABTS) and the Thoracic Surgery Program Directors Association for subspecialty certification of the Pediatric Cardiac Surgery Fellowship at the University of Colorado Denver Health Sciences Center. Our fellowship was approved for 1 trainee/year beginning Jul 1, 2008. Currently, we have 1 of only 12 Congenital Cardiac Surgery Fellowships approved by the ABTS.

I led a multi-disciplinary team that completely overhauled the Children's Hospital Colorado ECMO program (2007-2010). We developed a financial plan and personnel model that accomplished a cost-effective conversion from a contract perfusionist-managed ECMO program to a hospital employed RN/RT ECMO specialist program. Our program was the first free-standing U.S. Children's Hospital to deploy the Maquet Rotoflow/Quadrox ECMO circuit for hospital-wide use across all size and age ranges. We developed a didactic curriculum, wet-lab and preceptor-based clinical training to support 40+ ECMO cases per year in 3 separate units. We developed a rapid deployment ECMO capacity capable of emergently deploying ECMO throughout the hospital. This program consistently receives the ELSO award for excellence in life support. Our ECMO program was one of 12 institutions world-wide that were awarded Platinum status by ELSO the first year this distinction was offered (2017).

Grant Support

- Principal Investigator, Academic Enrichment Fund. University of Colorado, Support for Cardiovascular research laboratory. Jul 1, 1998 Dec 31, 2002. Funding: \$30,000.
- Co-Principal Investigator, Cobe Laboratories Cardiothoracic Surgery Research and Development. Cobe Cardiovascular, Inc. Jul 1, 2000 Jun 30, 2002. Funding: \$90,000.
- American Heart Association. Tissue Engineering Heart Valves with VICs. Co-investigator with Kristi Anseth, PhD. School of Engineering, University of Colorado. Jul 2003- Jun 2006. Funding: \$198,000.
- Principal Investigator, Toll-like receptors regulate extra-cellular matrix remodeling in pediatric bicuspid aortic valve. 2008-09. Funding: \$50,000 (UCDHSC Academic Enrichment Fund \$34,000, UCDHSC Department of Surgery \$16,000).
- Local Principal Investigator, CentriMag Ventricular Assist System (VAS): Treatment of Failure-to-Wean from Cardiopulmonary Bypass for Pediatric Patients U.S. Clinical Study Protocol (Protocol # PED:-001). I directed one of 4 clinical sites in a multicenter trial sponsored by Levotronix, LLC, Waltham, MA. Aug 2008. Funding: \$8000/patient entered. Study closed May 2011.
- Principal Investigator, Development of a left ventricular camera for closure of difficult ventricular septal defects. Mar 2009. Funding: Children's Hospital Colorado department of Surgery, \$5000.
- Local Principal Investigator, Berlin Heart EXCOR Pediatric Ventricular Assist Device IDE Clinical Trial (Protocol 09-05-2008 Version 8). I directed 1 of 15 clinical sites in the U.S. multi-center trial of this device sponsored by Berlin Heart, Inc. Funding: \$7500/patient entered. Apr 2009 through December 2011 (FDA HDE approval Dec 2011).
- Principal Investigator, Development of a left ventricular camera for closure of difficult ventricular septal defects. Nov 2009. Chair's Fund, The Department of Surgery, University of Colorado at Denver Health Sciences Center. Funded amount: \$15,000.
- Principal Investigator, XPLORE-2: Prospective, non-randomized, open label clinical study to assess the feasibility of the Bioabsorbable pulmonary valved conduit in subjects undergoing Right Ventricular Outflow Tract (RVOT) reconstruction. June 2018. Xeltis, Inc. Zurich, Switzerland and The Woodlands, TX. (Funding: \$8800/patient enrolled).
- Principal Investigator. Development of a cardiac assist device surgical tool. July 2018 Jun 2020. University of Colorado CU Innovations SPARK fellowship grant (Funding: \$100,000).
- Principal Investigator. Development of a cardiac assist device surgical tool. July 2018 Jun 2020. University of Colorado Department of Surgery AEF Grant. (Funding: \$30,000).
- Principal Investigator. Development of a cardiac assist device surgical tool. Children's Hospital Colorado Innovation Challenge runner-up and audience favorite. Feb 19. 2019. (Funding: \$40,000).

Patents

- Ventricular Assist Assembly, And Method. US 2019/0134285 A1, Publication date May 9, 2019. Inventors: Max B. Mitchell and Alex Travis Brown. A method to automate apical cuff implantation for commercially available Left Ventricular Assist Devices.
- Ventricular Assist Assembly, And Method. US 10335527 B2, Publication date Jul 2, 2019. Inventors: Max B. Mitchell and Alex Travis Brown. A method to automate apical cuff implantation for commercially available Left Ventricular Assist Devices.
- 3. Ventricular Assist Assembly, And Method. **US 2019/0269837 A1**, Publication date Jul 2, 2019. Inventors: Max B. Mitchell and Alex Travis Brown. An apparatus and apical cuff system to automate implant with commercially available Left Ventricular Assist Devices.

Bibliography

Peer Reviewed Journal Articles

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- 2. **Mitchell MB**, Stiegmann GV, Mansour A. Improved technique for establishing pneumoperitoneum for laparoscopy. *Surg Laparosc and Endosc* 1991;1:198-99.
- 3. **Mitchell MB**, Winter CB, Banerjee A, Harken AH. Prophylaxis against peri-operative myocardial ischemia-reperfusion injury. *Surgery* 1992;112:1-2.
- 4. Poggetti RS, Moore EE, Moore FA, **Mitchell MB,** Read RA. Balloon tamponade for bilobar transfixing hepatic gunshot wounds. *J Trauma* 1992;33:694-97.
- 5. **Mitchell MB**, Winter CB, Locke-Winter CR, Banerjee A, Harken AH. The benefits of cardiac preconditioning do not require the deleterious effects of myocardial stunning. *Ann Thorac Surg* 1993;55:395-400.
- 6. **Mitchell MB,** McAnena OJ, Rutherford RB. Ruptured mesenteric artery aneurysm in a patient with alpha-1-antitrypsin deficiency: Etiologic implications. *J Vasc Surg* 1993;17:420-24.
- 7. **Mitchell MB**, Winter CB, Banerjee A, Harken AH. The relationship between ischemia-reperfusion injury, myocardial "stunning," and cardiac preconditioning. *Surg Gynecol Obstet* 1993;177:97-114.
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- 11. Fullerton DA, **Mitchell MB**, McIntyre RC, Banerjee A, Campbell DN, Harken, HA, Grover FL. Cold ischemia and reperfusion each produce pulmonary vasomotor dysfunction in the transplanted lung. *J Thorac Cardiovasc Surg* 1993;106:1213-7.
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Book Chapters and Invited Articles

- 1. **Mitchell MB**, Moore FA. Splenic Trauma. *Surgical Secrets, 2nd Edition*. Abernathy CM, and Harken AH eds. Hanley & Belfus, Inc.; Philadelphia, 1991 pp. 67-70.
- 2. Rutherford RB, **Mitchell MB**. Extra-anatomic Bypass. *Vascular Surgery, 4th Edition*. Rutherford RB, ed. W.B. Saunders Co.; Philadelphia, 1995 pp.815-827.
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- 5. Fullerton DA, **Mitchell MB**, McIntyre RC, Brown JM, Meng X, Campbell DN, Grover FL. Mechanisms of coronary vasomotor dysfunction in the transplanted heart. *Yearbook of Transplantation*, Mentzer RM (ed.) Mosby-Year Book, Inc., Chicago, IL 1995.
- 6. Rutherford RB, **Mitchell MB**. Importance of percent stenosis as an independent variable for predicting stroke risk in symptomatic and asymptomatic carotid disease. *Surgery for Cerebrovascular Disease*, Moore WS, ed. W.B. Saunders Co.; Philadelphia, 1996 pp.20-27.
- 7. **Mitchell MB**, Moore FA. Splenic Trauma. *Surgical Secrets, 3rd Edition*. Harken AH, and Moore EE eds. Hanley & Belfus, Inc.; Philadelphia, 1996.
- 8. Campbell DN, **Mitchell MB**. Congenital obstructive cardiac anomalies. *Surgical Decision Making, 4th Edition.* Norton LW, Stiegmann G, Eiseman B, eds. W.B. Saunders Company, 2000 pp. 86-87.

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- Mitchell MB, Goldberg S. Left Ventricular Outflow Tract Supravalvar aortic stenosis. *Operative Techniques in Thoracic and Cardiovascular Surgery: A comparative Atlas.* 2011; 16:70-84
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- 22. **Mitchell MB**, da Cruz E. Supravalvar aortic stenosis. *Textbook of Pediatric and congenital cardiology, cardiac surgery and intensive care, 1st Edition.* Da Cruz E, Ivy DD, Jaggers J, Hraska V, eds. Springer-Verlag London Ltd, London. October 2013, pp. 1615-1629.
- 23. **Mitchell MB.** Pulmonary venous obstruction in the single ventricle patient: possible causes, possible solutions. Invited commentary to Kotani, et al. Anatomical risk factors surgical treatment and clinical outcomes of Left-sided Pulmonary Vein Obstruction in Single Ventricle Patients. *J Thorac Cardiovasc Surg* 2015;149:1245-46. (PMID 25680748)
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- 25. **Mitchell MB.** Pulmonary valve replacement for congenital heart disease: What valve substitute should we be using? Mitchell MB. Pulmonary valve replacement for congenital heart disease: What valve substitute should we be using? Invited commentary to Nomoto, et al. Outcomes of stented bovine pericardial tissue valves for pulmonary valve replacement in congenital heart disease. *J Thorac Cardiovasc Surg* 2016;152:1230-32. (PMID 27637425)
- 26. **Mitchell MB**. The Fontan Procedure at Altitude: Fenestrate or not? Invited commentary for "Outcomes of the Non-fenestrated Fontan Procedure at High Altitude" by Palacios-Macedo, et al. *World J Pediatr Congenit Heart Surg* 2019;10:597-98. (PMID 31535124)
- 27. Turbendian H, **Mitchell MB**, da Cruz E. Supravalvar aortic stenosis. *Textbook of Pediatric and congenital cardiology, cardiac surgery and intensive care, 2nd Edition.* Da Cruz E, Ivy DD, Jaggers J, Hraska V, eds. Springer-Verlag London Ltd, London. In press.

Invited Web-published Products of Scholarship

- 1. **Mitchell MB**. Sinus of Valsalva Aneurysm. Thoracic Surgery Directors Association web site requisite curriculum (http://www.tsda.org). Jun 2000.
- 2. **Mitchell MB**. Heart Transplantation for Hypoplastic Left Heart Syndrome. Thoracic Surgery Directors Association web site requisite curriculum. (http://www.tsdacurriculum.org/packages/TsdaPlayer.asp?prof=8100&date=8100&slide=1).

Competitive Scientific Abstracts

- 1. **Mitchell MB**, Winter CB, Cairns CB, Harken AH, Banerjee A. Phosphatidylinositol hydrolysis and intracellular calcium mobilization in myocardial preconditioning. *Circulation* 1992; 86(Suppl I):I-32. American Heart Association, New Orleans, LA. Nov 18, 1992
- 2. **Mitchell MB**, Poggetti RS, Moore EE, Moore FA, Read RA. Balloon tamponade for bilobar transfixing hepatic gunshot wounds. Colorado Chapter of the American College of Surgeons. Colorado Springs, CO. May 8, 1992 (First place, 1992 Le Roy Stahlgren abstract competition)
- 3. **Mitchell MB**, Winter CB, Banerjee A, Harken AH. Inhibition of sarcoplasmic reticulum calcium release reduces myocardial stunning. Association of Academic Surgeons, Montreal, Quebec. Nov 21, 1992 (ref. 8 peer reviewed publications).
- 4. **Mitchell MB**, Liechty RD. Near fatal case of hyperparathyroidism. Colorado Chapter, American College of Surgeons. Breckenridge, CO. May 7, 1993. (First place, 1993 Le Roy Stahlgren abstract competition)
- 5. **Mitchell MB**, Brew EC, Harken AH, Banerjee A. Does protein kinase C mediate functional preconditioning? *J Mol Cell Cardiol.* 1993;25(Suppl III):S-64. International Society for Heart Research. Columbia, MO. Jun 21-24, 1993
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- 8. **Mitchell MB**. Nonoperative management of traumatic biliary-pleural fistula. Colorado Chapter, American College of Surgeons. Colorado Springs, CO. May 13, 1994.
- 9. **Mitchell MB**, Campbell DN, Boucek MM, Fullerton DA, Clarke DR, Grover F, Pietra B, Luna M, Shroyer L, Rosky J. Infant cardiac transplantation: Improved intermediate results. Western Thoracic Surgical Association, Napa, CA Jun 28, 1997 (ref. 27 peer reviewed publications).
- 10. **Mitchell MB,** Clarke DR, Campbell DN. Infant cardiac transplantation: Improved intermediate results. Congenital Heart Surgeons Association meeting, Chicago IL. Sep 12, 1997
- 11. **Mitchell MB**, Campbell DN, Fullerton D. Cardiac transplantation in infancy. Colorado Chapter of the American College of Surgeons Meeting. Breckenridge, CO. Jun 11, 1998
- 12. **Mitchell MB**, Campbell DN, Bielefeld MR, Doremus TE. Utility of extracorporeal membrane oxygenation for early donor graft failure following heart transplantation in infancy. International Society for Heart and Lung Transplantation. Osaka, Japan. Apr 8, 2000. (ref. 30 peer reviewed publications)
- 13. **Mitchell MB,** Clarke DR, Campbell DN. Heart transplantation for single ventricle anomalies following failed Fontan or prior cavopulmonary shunt. European Association of Cardiothoracic Surgery 14th annual meeting. Frankfurt, Germany. Oct 10, 2000
- Pietra BA, Ivy DD, Sondheimer HM, Shaffer EM, Mashburn C, Ripe DW, Gilbert DJ, Kyle TE, Mitchell MB, Campbell DN, Boucek MM. Comparison of Pre-transplant Transfusion with or without Cyclosporin Inhibition on Post Transplant Outcome. Journal Heart Lung Transplant 2001 20(2);222-3. International Society for Heart and Lung Transplantation, Vancouver, BC, April 25-28, 2001
- 15. **Mitchell MB**, Campbell DN, Bishop DA, Mackenzie T, Clarke DR. Failed aortic root allografts placed in childhood: Surgical options and results. Western Thoracic Surgical Association. Rancho Bernardo, CA. Jun 23, 2001 (ref. 36 peer reviewed publications).
- 16. Mitchell MB, Campbell DN, Boucek MM, Sondheimer HM, Chan KC, Ivy DD, Pietra B,

- Mackenzie T. Bilateral pulmonary artery banding reduces morbidity and mortality of heart transplantation in older infants with hypoplastic left heart syndrome. European Association of Cardiothoracic Surgery 16th annual meeting. Monte Carlo, Monaco. Sep 24, 2002 (ref. 37 peer reviewed publications)
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- 18. **Mitchell MB**, Campbell DN, Ivy DD, Boucek MM, Sondheimer HM, Pietra B, Das BB, Coll JR. Favorable outcome for heart transplantation following failed Fontan or cavopulmonary shunt. American Association for Thoracic Surgery 83rd annual meeting. Boston, MA. May 5, 2003 (ref. 41 peer reviewed publications)
- Miyamoto SD, Pietra BA, Chan KC, Ivy DD, Mashburn C, Campbell DN, Mitchell MB, Boucek MM. Successful cardiac transplantation following interventional palliation in patients with Hypoplastic Left Heart Syndrome. *Circulation* 2003;108(17):IV-495. American Heart Association 2003 Scientific Sessions. Orlando, FL. Nov 9-12, 2003
- Pietra BA, Mashburn C, Gilbert D, Legette F, Ivy DD, Sondhiemer HM, Mitchell MB, Campbell DN, Boucek MM. Early management in transplantation for HLHS leads to infrequent rejection and improved survival. *Circulation* 2003:108(7);IV-330. American Heart Association Scientific Sessions, Orlando, FL. Nov 9-12, 2003
- 21. Pietra BA, Mashburn C, Gilbert D, Legette F, Kunz E, Ivy DD, Sondheimer HM, **Mitchell MB**, Campbell DN, Boucek MM. Reduced calcineurin inhibition during induction for HLHS transplantation leads to infrequent rejection and improved survival. American Transplant Congress. Boston, MA. May, 2004
- 22. Boucek MM, Pietra BA, Kunz E, Mashburn C, Ivy DD, **Mitchell MB**, Campbell DN. Negative Immunization Prior to Infant Heart Transplantation: RBC Transfusion Under Cyclosporine Cover. American Transplant Congress. Boston, MA. May, 2004
- 23. Miyamoto SD, Pietra BA, Chan KC, Ivy DD, Mashburn C, Campbell DN, **Mitchell MB**, Boucek MM. Normal pulmonary arterial development following transplantation in patients with HLHS who were palliated with internal pulmonary artery bands. *Cardiology in the Young* 2005;15(suppl 2):21-22. 40th Annual Meeting, Association of European Paediatric Cardiology. Copenhagen, Denmark. May 18-21, 2005
- 24. Le PN, Miyamoto SD, Schofield SJ, **Mitchell MB**, Campbell DN and Pietra BA. Reducing pretransplant mortality in Hypoplastic Left Heart Syndrome: Order on the wait list as an important variable. The Second International Conference on Heart Failure in Children and Young Adults. Laguna Niguel, CA. Nov 28- Dec 2, 2006
- 25. Kaza AK, Maldonado A, Miyamoto S, Pietra B, **Mitchell MB**, Clark DR, Campbell DN, Lacour-Gayet F. Aristotle Score Predicts Mortality and Morbidity in Pediatric Heart Transplantation. The Society of Thoracic Surgeons 43rd Annual Meeting, San Diego, CA. Jan 29-31, 2007
- 26. Miyamoto SD, Gilbert D, Ballard A, Anderson S, Le PN, Mitchell MB, Campbell DN and Pietra BA. Campath-1H therapy for resistant rejection in pediatric heart transplant patients. J Heart Lung Transplant 2007. International Society of Heart and Lung Transplantation 27th Annual Meeting and Scientific Sessions. San Francisco, CA. Apr 27, 2007
- Phelps CM, Tissot C, Buckvold S, Ivy DD, Campbell DN, Mitchell MB, Pietra BA, Miyamoto SD. Inotropic and mechanical support in acute graft rejection for pediatric heart transplant patients. Pediatric Critical Care Medicine 2007;8(3): A282. 5th World Congress on Pediatric Critical Care. Geneva, Switzerland. Jun 24-28, 2007
- Tissot C, Buckvold S, Phelps CM, Ivy DD, Campbell DN, Mitchell MB, Pietra BA, Miyamoto SD. Use of ECMO to reverse primary graft failure after heart transplantation in children. *Pediatric Critical Care Medicine* 2007;8(3):A279. 5th World Congress on Pediatric Critical Care, Geneva, Switzerland. Jun 24-28, 2007
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- 31. Malhotra SP, Ivy DD, **Mitchell MB**, Campbell DN, Dines M, Miyamoto S, Kay J, Clarke DR, Lacour-Gayet F. Performance of cavopulmonary palliation at elevated altitude: Midterm outcomes and risk factors for failure. 2007 Scientific Sessions of the American Heart Association. Orlando, FL. Nov 2007 (ref. 49 peer reviewed publications)
- 32. Kaza AK, Boucek M, **Mitchell MB**, Pietra BA, Miyamoto S, Mashburn C, Hall DM, Campbell DN. Infant heart transplantation utilizing donors after cardiac death. Society of Thoracic Surgeons. Fort Lauderdale, FL. Jan 29, 2008
- 33. Malhotra SP, **Mitchell MB**, Campbell DN, Miyamoto S, Clarke DR, Dines ML, Ivy DD, Lacour-Gayet F. Mechanical mitral valve replacement under one year of age does not increase risk of mortality or anticoagulant-related complication. Society of Thoracic Surgeons. Fort Lauderdale, FL. Jan 29, 2008
- 34. Malhotra SP, Lacour-Gayet F, Campbell DN, Miyamoto S, Clarke DR, Dines ML, Ivy DD, **Mitchell MB**. Outcomes of reparative and transplantation strategies for multilevel Left heart obstructions with mitral stenosis. Society of Thoracic Surgeons. Fort Lauterdale, FL. Jan 29, 2008 (ref. 50 peer reviewed publications)
- 35. Tissot C, Pietra BA, Boucek MM, Gilbert DJ, Campbell DN, **Mitchell MB**, Miyamoto SD. Coronary flow reserve differentiates stable from progressive transplant coronary artery disease in pediatric heart recipients. *J Heart Lung Transplant 2008;27(2S):128.* International Society of Heart and Lung Transplantation 28th Annual Meeting and Scientific Sessions, Boston, MA. Apr 9-12, 2008
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- 37. Tissot C, Pietra BA, Boucek MM, Diamond BA, Buckvold S, Campbell DN, **Mitchell MB**, Ivy DD, Miyamoto SD. Coronary Flow Reserve Is Lower At The Time Of Transplant Coronary Artery Disease Diagnosis In Children Transplanted In Infancy. The Scientific Basis for Heart Failure in Children, Estes Park, CO. May 14-16, 2008
- 38. Tissot C, Pietra BA, Boucek MM, Gilbert DJ, Campbell DN, **Mitchell MB**, Ivy DD, Miyamoto SD. Early diagnosis of transplant coronary artery disease by intravascular ultrasound (IVUS) improves the outcome of pediatric heart transplant recipients. *Cardiology in the Young* 2008;18(Suppl 1):88-89. 43rd Annual Meeting, Association of European Paediatric Cardiology. Venice, Italy. May 20-24, 2008.
- 39. Miyamoto SD. Coronary flow reserve can detect progressive transplant coronary artery disease in pediatric heart transplant recipients. *Cardiology in the Young* 2008; 18(Suppl 1):29. 43rd Annual Meeting, Association of European Paediatric Cardiology. Venice, Italy May 20-24, 2008
- Tissot C, Pietra BA, Boucek MM, Campbell DN, Ripe DW, Mashburn C, Mitchell MB, Ivy DD, Miyamoto SD. Long-term outcome of paediatric heart transplant recipients from donation after cardiac death. Cardiology in the Young: 2008;18(Suppl 1):52. 43rd Annual Meeting, Association of European Paediatric Cardiology. Venice, Italy May 20-24, 2008
- 41. Scott D, Campbell DN, Clark DR, Lacour-Gayet F, Kozik DJ, **Mitchell MB**. Twenty-year review of supravalvar aortic stenosis repair for patients with Williams-Beuren syndrome. Southern Thoracic Surgical Association 55th Annual meeting. Austin, TX. Presented Nov 7, 2008
- 42. Tissot C, Pietra BA, Ivy DD, **Mitchell MB**, Campbell DN, Gilbert DJ, Miyamoto SD. Pediatric heart transplant recipients with transplant coronary artery disease show a steady increase in filling pressures over time. *J Heart Lung Transplant, pnd.* Accepted for presentation at the International Society of Heart and Lung Transplantation 30th Annual Meeting and Scientific Sessions, Chicago, IL. Apr 21, 2010
- 43. Karamichalis JM, Miyamoto S, Campbell DN, Smith J, Clark S, Pietra B, **Mitchell MB**. Pediatric heart re-transplantation: Patterns of rejection differ between recipients initially transplanted in infancy compared to older children. Oral presentation at the American Association for Thoracic Surgery 90th Annual Meeting. Toronto, ON. May 3, 2010

- 44. Tissot C. Pietra BA, Ivy DD, Campbell DN, **Mitchell MB**, Miyamoto SD. Transplant coronary artery disease is diagnosed later and is more severe in pediatric heart recipients transplanted during infancy. 44th Annual meeting of the Association for European Pediatric Cardiology. Innsbruck, Austria May 26, 2010
- 45. Tissot C, Pietra BA, Ivy DD, **Mitchell MB**, Campbell DN, Gilbert DJ, Miyamoto SD. Paediatric heart recipients with transplant coronary artery disease show a steady increase in filling pressures over time. Swiss Society of Cardiology Congress, St-Gall, Switzerland. Jun 10, 2010
- 46. Tissot C, Pietra BA, Ivy DD, Campbell DN, **Mitchell MB**, Diamond BA, Miyamoto SD. Asymptomatic rejection diagnosed by surveillance endomyocardial biopsy in pediatric heart transplant recipients: do we need to treat? Swiss Society of Cardiology Congress, St-Gall, Switzerland. Jun 11, 2010
- 47. Hart K, **Mitchell M**, Rentschler M. Initial Design and Evaluation of an Intra-Cardiac Camera System for Ventricular Septal Defects. ASME International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering Conference (CIE) Mechanisms and Robotics Conference, Montreal, Quebec, Canada, Aug 17, 2010
- 48. Auerbach SR, Smith JK, **Mitchell MB**, Campbell DN, Jaggers J, Pietra BA, Miyamoto SD. Children Transplanted for Single Ventricle Physiology Without Prior Surgery Have Better Graft Survival. *J Heart Lung Transplant* 2011;30:s167
- 49. Gist K, Panwar S, Landeck B, **Mitchell M**. Branch Pulmonary artery flow reversal: Does it correlate with valve leak? *Cardiology in the Young* 2011, 21(S1): PW1-12, S37-38 Presented at the 2011 European Pediatric Cardiology Meeting. Granada, Spain, 2011
- 50. Gist KM, Schuchardt EL, Morose M, Kaufman J, da Cruz E, Campbell DN, **Mitchell MB**, Jaggers J, McCanta AC. Characterization of tachyarrhythmia following the Norwood procedure. European Pediatric Cardiology Society. Istanbul, Turkey. May 2012
- 51. Gist KM, Schuchardt EL, Morose M, Kaufman J, da Cruz E, Campbell DN, **Mitchell MB**, Jaggers J, McCanta AC. Characterization of Tachyarrhythmia following Norwood operation. American Academy of Pediatrics NCE. New Orleans, LA. Oct 2012.
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