

## General Information:

**Name:** Brian C. Ayers  
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## Education:

- 06/2020 – Present **Massachusetts General Hospital – Boston, MA**  
 Categorical General Surgery Resident
- 09/2015 – 05/2020 **University of Rochester School of Medicine and Dentistry – Rochester, NY**  
 Doctor of Medicine (MD)
- Alpha Omega Alpha Honor Medical Society
  - Honors Distinction in Research
- 08/2014 – 05/2016 **University of Rochester Simon Business School – Rochester, NY**  
 Masters of Business Administration (MBA)
- Phillip Myers Award for highest GPA in graduating class
  - Beta Gamma Sigma, International Business Honor Society
- 09/2010 – 06/2014 **Middlebury College – Middlebury, VT**  
 Bachelor of Arts (BA) - Biochemistry major, Computer Science minor
- Summa cum laude, GPA: 3.81

## Honors and Awards:

- 2023
- Outstanding Resident Teacher Award, general surgery MGH
  - MIT 100K Pitch Competition, Finalist
  - First place, MIT hacking medicine bench to bedside fall hackathon (quickER AI)
- 2020
- Alpha Omega Alpha Honor Medical Society
  - Distinction in Clinical Research, University of Rochester Medical School
  - Robert L. Caldwell Prize in Surgery – awarded to highest performing 4<sup>th</sup> year medical student
- 2019
- AΩA Carolyn L. Kuckein Student Research Fellowship
- 2018
- ELSO Research Grant, Extracoporeal Life Support Organization
  - Looking to the Future Scholarship Recipient, Society of Thoracic Surgery
  - Innovation Corps Grant, National Science Foundation
  - Student Research Fellowship Grant, Office of Medical Education
- 2017
- Eastern Vascular Surgery Society Medical Student Scholarship
  - Society for Vascular Surgery General Surgery Resident/Med Student Scholarship
- 2016
- Phillip Myers Award, Simon Business School, highest GPA in graduating class
  - Gary and Bill Sanders Poster Award, Computing in Cardiology, Vancouver, Canada
- 2015
- New York State Business Plan Competition 3<sup>rd</sup> Place, Social Entrepreneurship
  - McGary Merit Scholarship Recipient, Simon Business School
- 2014
- Baggataway Award (selected for leadership and sportsmanship), Middlebury Men's Lacrosse
  - NEILA Academic All-Region Selection (Lacrosse)
  - NESCAC All-Academic Selection (Lacrosse; 2014, 2013, 2012)
- 2010
- Charter Communications Scholar-Athlete of the Year for Central New England
  - Academic All-American (Lacrosse); All New-England (Football, Quarterback)

**Research Experience:**

- July 2023 – Present  
**MIT Cardiovascular Device Development Lab – Boston, MA**  
*Visiting Scientist*
- Member of Dr. Ellen Roche’s Therapeutic Technology Design & Development lab at MIT.
  - Primary role is providing clinical insight to the lab’s MIT engineering students and postdocs to help shape clinically feasible and useful projects from the technology.
  - Also perform animal surgery for their animal studies.
- June 2021 – Present  
**MGH Aguirre Cardiovascular Research Laboratory – Boston, MA**  
*Resident Researcher*
- Member of Dr. Aaron Aguirre’s research laboratory located in the Wellman Center for Photomedicine and the Center for Systems Biology at MGH involved with the development of new digital health and medical device technologies for use in the intensive care unit.
  - Projects involve training machine learning algorithms that augment clinical decision making for the perioperative care of cardiothoracic surgery patients
- Aug 2018 – June 2019  
**Cardiothoracic Surgery Research Department – Rochester, NY**  
*Student Research Fellowship*
- Clinical research – extracted big data from Epic for clinical research on ECMO and LVAD patients using machine learning and traditional statistical approaches.
  - Educational research – worked with an engineering team to develop a high-fidelity 3D printed hydrogel model of the thoracic cavity for surgical simulation.
- Summer 2016  
**Heart Research Follow-Up Program, URMC – Rochester, NY**  
*Digital Signal Processing Software Engineer*
- Wrote digital signal processing software to implement algorithmic detection of atrial fibrillation using a novel EKG monitoring device.
- Summer 2014  
**Middlebury College Biology Department – Middlebury, VT**  
*Bioinformatics Research Technician*
- Performed analysis of next-gen sequencing datasets to identify specific gene differentiation, alternative splicing, and novel transcripts to study the genetics of various diseases.
- Summer 2013  
**University of Massachusetts Medical School – Worcester, MA**  
*Researcher in Biochemistry and Molecular Pharmacology Department*
- Conducted research on the cytotoxicity and functionalization of up-converting nanoparticles to be used for cancer imaging
  - Applied knowledge to senior thesis project “Conjugation of anti-CD47 antibody to gold nanoparticles via click chemistry for cancer therapy”
- Summer 2012  
**University of Massachusetts Medical School – Worcester, MA**  
*Clinical Research Assistant in the Emergency Department*
- Surveyed patients in the emergency room to gather data on tobacco use for clinical studies.
  - Provided resources and counseling on tobacco cessation programs.
- Summer 2011  
**University of Massachusetts Medical School – Worcester, MA**  
*Cell Biology Summer Researcher*
- Extracted and measured levels of various miRNA in arthritic hip and knee cartilage taken from total joint replacement patients to study osteoarthritis at the molecular level.

## Research Support:

- 2023 **MGH Surgery W. Gerald Austen Research Fellowship**
- Grant awarded from the MGH Department of Surgery to support my research efforts in software and hardware innovation within the MGH Cardiac Surgery Innovation Lab and Ellen Roche's MIT device development lab.
- 2022 **Center of Expertise Medical Education Grant**
- Grant awarded from Mass General Brigham (MGB) for "Eye tracking for quantitative feedback during surgical simulation".
  - The goal of the study is to use wearable cameras and pupil tracking software in conjunction with deep learning algorithms to identify times of maximum cognitive load and stress for trainees while performing surgical simulation tasks to provide insights for more targeted training
- 2019 **AΩA Carolyn L. Kuckein Student Research Fellowship**
- Grant awarded from national AΩA organization to investigate the use of machine learning techniques to predict the likelihood of neurologically intact survival for patients supported by VA-ECMO
  - The goal of the study is to utilize big data analysis to develop an algorithm capable of augmenting clinician decision making in regard to the often difficult choices related to the continuation of VA-ECMO support in critically ill patients
- 2019 **ELSO Research Grant, Extracorporeal Life Support Organization**
- Grant awarded to study patterns in renal recovery after VA-ECMO
  - Big data analysis conducted by creating an institutional ECMO database that combines patient characteristics with over 2 million lab values to gain insights to improve patient care
- 2018 – 2019 **Innovation Corps Grant, National Science Foundation**
- Grant awarded to aid in the development of an iOS-based app to collect patient reported outcomes and activity data postoperatively.
  - The goal is to leverage technology to improve patient adherence to ERAS protocols and integrate wearable technologies to collect more detailed data that can be incorporated into machine learning algorithms to reduce LOS and improve postoperative outcomes.
  - My role is the development of the concept and the software development for the app.
- 2018 – 2019 **Student Research Fellowship Grant, Office of Medical Education URM**
- Grant awarded to conduct a research year with the cardiothoracic surgery department
  - Research focused on outcomes projects involving big data and predictive analytics, as well as the development of 3D-printed synthetic organs for surgical simulation
- 2016 **Student Research Grant, Office of Medical Education URM**
- Grant awarded for 3 months of research with the Heart Follow-Up Research Department
  - My project was to write the code to automate the detection of atrial fibrillation using a single lead signal from a novel EKG-enabled scale.

## Teaching Experience:

- 10/2017 – 9/2019 **Course Coordinator and Teaching Assistant, University of Rochester Medical School**
- Student leader for the course "Effective Communication in the Clerkship"
  - Elective for 2<sup>nd</sup> year medical students to practice having difficult conversations with standardized patients on diverse topics such as end of life decision making and delivering cancer diagnosis
- 8/2016 – 8/2018 **Digital Medical Education Developer, University of Rochester Medical School**
- Built an interactive web app to practice identifying histology slides during 1<sup>st</sup> year of medical school
  - Distributed the website to all classmates and we subsequently achieved the highest class average for histology in the school's history. Transferred code to the university IT department.

## Professional and University Leadership Positions:

- 08/2018 – 07/2019 **National Representative**, Committee on Health Information Technology, American Medical Association
- Elected member of the national AMA committee on healthcare information technology.
  - We provide research and recommendations for technology related healthcare policy for the AMA.
- 08/2016 – 05/2019 **Technology Coordinator**, URWell Free Health Clinic, University of Rochester Medical School
- In charge of all technology related to the student run free healthcare clinic, including managing the website to relay information to our patient population.
  - Built a private Wikipedia-style website to allow for the central storage of clinic information for volunteers.
- 10/2016 – 05/2017 **Technology Representative**, Student Senate, University of Rochester Medical School
- Elected representative on behalf of medical student class to represent their interests to the school administration in regard to the use of technology in the medical school curriculum.
- 08/2016 – 05/2017 **Student Liaison**, Surgery Interest Group, University of Rochester Medical School
- Helped coordinate events for the medical school surgery interest group throughout the year, specifically acting as the liaison to the vascular surgery department.

## Work Experience:

- 02/2023 – 05/2023 **DigitalDx Ventures – Remote**  
*Venture Fellow*
- Participated in the DigitalDx venture fellowship. Participated in deal sourcing, due diligence, and market mapping for the clinical diagnostics sector.
- 03/2022 – 06/2023 **Gesund.ai – Boston, MA**  
*Consultant*
- I work as a consultant for a medical AI startup developing a full-stack machine learning platform that allows for thorough and secure validation of medical AI algorithms.
  - Provide clinical insights, research development, business development, and contribute to the code base
- 01/2014 – 06/2020 **Freelance Web Developer – Boston, MA**  
*Self-employed*
- I build websites as a freelance web developer as a source of income during medical training. Clients include startup healthcare companies spun-out of the University of Rochester Technology transfer office.
- 10/2014 – 06/2016 **Simon Venture Capital Fund – Rochester, NY**  
*Due Diligence Analyst*
- Performed due diligence analysis on healthcare companies seeking investment from the Simon School Venture Capital Fund.
  - Presented analysis and investment recommendation directly to the Board of Directors, including current board members of the university.
- 01/2011 – 10/2015 **Goodees Clothing – Southborough, MA**  
*Founder, acquired 2015*
- Founded a custom clothing and lifestyle brand during college that is positioned as a socially conscious, USA-made clothing company.
  - Expanded to over 10 schools across the country. Acquired in 2015 before starting medical school.

## Volunteer and Community Service:

2014 – Present	Patrick Wiese Foundation, Syracuse, NY, Board Member
2014	Lacrosse the Nations, Managua, Nicaragua, Volunteer
2013	Common Hope, Antigua, Guatemala, Volunteer
2012	Open Door Clinic, Middlebury, VT, Volunteer
2010	Orphanage Outreach Teach Corps, Dominican Republic, Volunteer

## Memberships:

2020 – Present	Alpha Omega Alpha Honor Society
2016 – Present	Beta Gamma Sigma, International Business Honor Society
2015 – Present	American Medical Association

## Ad hoc guest reviewer:

2021 – Present	Artificial Intelligence in Medicine
2021 – Present	Clinical Case Reports
2020 – Present	Nature Partner Journals: Digital Medicine
2019 – Present	Innovations: Technology and Techniques in Cardiothoracic and Vascular Surgery

## Interests:

Waterskiing, snow skiing, hiking & camping (100-mile hike Tour du Mont Blanc), running, basketball, creating websites and apps, building computers, ceramics

## Peer Reviewed Publications

### Published:

1. Singh, M., Bonnemain, J., Ozturk, C., **Ayers, B.**, Saeed, M., Quevedo-Moreno, D., Rowlett, M., Park, C., Fan, Y., Nguyen, C., & Roche, E. Robotic right ventricle is a biohybrid platform that stimulates right ventricular function in (patho)physiological conditions and intervention. *Nature Cardiovascular Research*. Accepted.
2. Mahdi, E., Toscano, N., Pierson, L., Ndikumana, E., **Ayers, B.**, Chacon, A., Brayer, A., Chess, M., Davis, C., Dorman, R., Livingston, M., Arca, M., & Wakeman, D. Sustaining the gains: Reducing unnecessary computed tomography scans in pediatric trauma patients. *J Pediatr Surg*. 2022 Sep 26. doi: 10.1016/j.jpedsurg.2022.09.027.
3. Kruger, J., Balceniuk, M., Zhao, P., **Ayers, B.**, Ellis, J., Doyle, A., Glocker, R., & Stoner, M. Left Subclavian Artery Coverage is Not Associated with Neurological Deficits in Trauma Patients Undergoing Thoracic Endovascular Repair. *Ann Vasc Surg*. 2022 Oct. doi: 10.1016/j.avsg.2022.04.050.
4. **Ayers, B.**, Sandhold, T., Padman, R., Gosev, I., Prasad, S., & Kilic, A. Using Machine Learning to Improve Survival Prediction After Heart Transplantation. *J Card Surg*. 2021 Aug 19. doi: 10.1111/jocs.15917.
5. Bjelic, M., **Ayers, B.**, Paic, F., Bernstein, W., Barrus, B., Chase, K., Gu, Y., Alexis, J., Vidula, H., Cheyne, C., Prasad, S., & Gosev, I. Study results suggest less invasive HeartMate 3 implantation is a safe and effective approach for obese patients. *J Heart Lung Transplant*. 2021 Jun 11. doi: 10.1016/j.healun.2021.06.001.
6. Lindenmuth, D., Chase, K., Cheyne, C., Wyrobek, J., Bjelic, M., **Ayers, B.**, Barrus, B., Vanvoorhis, V., Mckinley, E., Falvey, J., Barney, B., Fingerut, L., Sitler, B., Kumar, N., Akwaa, F., Paic, F., Vidula, H., Alexis, J., & Gosev, I. Enhanced Recovery After Surgery in Patients Implanted with Left Ventricular Assist Device. *J Card Fail*. 2021 May 26. doi: 10.1016/j.cardfail.2021.05.006.
7. **Ayers, B.**, Wood, K., Sheen, S., Morrison, E., Vidula, H., Prasad, S., & Gosev, I. Complete sternal-sparing left ventricular assist device implantation is associated with improved postoperative mobility. *Interact Cardiovasc Thorac Surg*. 2021 Feb 4.

doi: 10.1093/icvts/ivab017.

8. Balceniuk, M., Blegen, M., **Ayers, B.**, Calderon, T., Negron, T., Retz, W., Glocker, R., Doyle, A., & Stoner, M. Evaluation of Opioid Prescription and Consumption Habits Following Endovascular Aortic Aneurysm Repair. *Ann Vasc Surg.* 2021 Feb 3;S0890-5096(21)00093-5. doi: 10.1016/j.avsg.2020.12.033.
9. **Ayers, B.**, & Kilic, A. Extended Reality Platforms: A Technological Solution Still Finding the Right Problem. *Ann Thorac Surg.* 2021 Jan 29;S0003-4975(21)00133-8. doi: 10.1016/j.athoracsur.2020.11.064
10. **Ayers, B.**, Bjelic, M., Kumar, N., Wood, K., Barrus, B., Prasad, S., & Gosev, I. Long-term renal function after venoarterial extracorporeal membrane oxygenation. *J Card Surg.* 2021 Mar. doi: 10.1111/jocs.15277.
11. **Ayers, B.**, & Kilic, A. Commentary: Extended Reality Platforms: A Technological Solution Still Finding the Right Problem. *Ann Thorac Surg.* 2021 Jan 29. doi: 10.1016/j.athoracsur.2020.11.064.
12. **Ayers, B.**, E Lee, Wood, K., Bruckel, J., Alexis, J., Vidula, H., Barrus, B., Prasad, S., & Gosev, I. Patient-Reported Outcomes Measurement Information System (PROMIS) in Left Ventricular Assist Device Patients. *Ann Thorac Surg.* 2020 Dec 1;S0003-4975(20)32041-5. doi: 10.1016/j.athoracsur.2020.11.011.
13. **Ayers, B.**, Wood, K., Bjelic, M., & Gosev, I. Minimally invasive off-pump surgical pulmonary embolectomy for improved patient-centered care. *Eur J Cardiothorac Surg.* 2020 Nov 22;ezaa380. doi: 10.1093/ejcts/ezaa380.
14. Bjelic, M., **Ayers, B.**, Ling, F., Prasad, S., & Gosev, I. Transcatheter aortic valve replacement in Left Ventricular Assist Device patient- Overcoming the complications with transapical approach and circulatory arrest. *J Card Surg.* 2020 Nov 22. doi: 10.1111/jocs.15199.
15. Sebastian, A., Balceniuk, M., Schroeder, A., **Ayers, B.**, Raman, K., Ellis, J., Doyle, A., Glocker, R., & Stoner, M. Regional Variation in Usage of Ultrasound Guided Femoral Access in the Vascular Quality Initiative. *Ann Vasc Surg.* 2020 Sep 16. doi: 10.1016/j.avsg.2020.08.156.
16. Balceniuk, M., Motyl, C., **Ayers, B.**, Geiger, J., Sebastian, A., Doyle, A., Glocker, R., & Stoner, M. Association Between the Atherosclerotic Disease Risk Score and Carotid Artery Stenosis. *J Surg Res.* 2020 Aug 21;257:189-194. doi: 10.1016/j.jss.2020.06.041.
17. Saba, P., **Ayers, B.**, Melnyk, R., Gosev, I., Ghazi, A., & Hicks, G. Development of a High-Fidelity Coronary Artery Bypass Graft Training Platform Using 3D Printing and Hydrogel Molding. *J Thorac Cardiovasc Surg.* 2020 Jun 24. doi: 10.1016/j.jtcvs.2020.05.106.
18. **Ayers, B.**, Wood, K., Sagebin, F., Kumar, N., P Knight, Barrus, B., Prasad, S., & Gosev, I. The Use of Hydroxycobalamin for Vasoplegic Syndrome in Left Ventricular Assist Device (LVAD) Patient. *Clin Case Rep.* 2020 Jun 26;8(9):1722-1727. doi: 10.1002/ccr3.2967.
19. **Ayers, B.**, Wood, K., Gosev, I., & Prasad, S. Predicting Survival after Extracorporeal Membrane Oxygenation by Using Machine Learning. *Ann Thorac Surg.* 2020 Oct;110(4):1193-1200. doi: 10.1016/j.athoracsur.2020.03.128.
20. **Ayers, B.**, Wood, K., Cameron, S., Marinescu, M., Bjelic, M., Barrus, B., & Gosev, I. Surgical Pulmonary Embolectomy with No Systemic Anticoagulation for Patient with Recent Stroke. *Ann Thorac Surg.* [Accepted, In Press]
21. **Ayers, B.**, Wood, K., Melvin, A., Prasad, S., & Gosev, I. MELD-XI is Predictive of Mortality in Venarterial Extracorporeal Membrane Oxygenation (VA-ECMO). *J Card Surg.* 2020 Apr 27. doi: 10.1111/jocs.14578. *J Card Surg.* 2020 Jun;35(6):1275-1282. doi: 10.1111/jocs.14578.
22. **Ayers, B.**, Goodman, A., and Thomas, S. Obtaining Accurate In-Office Blood Pressure Readings. *Indian Hypertension Journal.*
23. **Ayers, B.**, Wood, K., McNitt, S., I Goldenberg, Chen, L., Alexis, J., Vidula, H., Thomas, S., Storozynsky, E., Barrus, B., Prasad, S., & Gosev, I. Association of Previous Cardiac Surgery with Outcomes in Left Ventricular Assist Device Patients.

*Interact Cardiovasc Thorac Surg.* 2020 Apr 4. pii: ivaa055. doi: 10.1093/icvts/ivaa055.

24. **Ayers, B.**, Sagebin, F., Wood, K., Barrus, B., Thomas, S., Storzynsky, E., Chen, L., Bernstein, W., Lebow, B., Prasad, S., & Gosev, I. Complete Sternal-Sparing Approach Improves Outcomes for Left Ventricular Assist Device Implantation in Patients with History of Prior Sternotomy. *Innovations: Technology and Techniques in Cardiothoracic and Vascular Surgery.* 2020 Jan 5;1556984519886282. doi: 10.1177/1556984519886282.
25. Louis, C., **Ayers, B.**, Barrus, B., Prasad, S., Alexis, J., Bernstein, W., Cheyne, C., & Gosev, I. HeartMate 3 Pump Exchange via Sternal-Sparing Bilateral Mini-Thoracotomies. *J Card Surg.* 2020 Feb 25. doi: 10.1111/jocs.14476.
26. **Ayers, B.**, Cheyne, C., Wood, K., Quinlan, A., Dick, S., Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. Management Strategies for the Treatment of Short-to-Shield in Left Ventricular Assist Device Patients. *Clinical Case Reports.* 2020 Feb 7. doi: 10.1002/ccr3.2583
27. Brodell, J., **Ayers, B.**, Baumhauer, J., DiGiovanni, B., Flemister, A., Ketz, J., & Oh, I. Chopart's Amputation: Questioning the Clinical Efficacy of a Longstanding Surgical Option. *J Am Acad Orthop Surg.* 2020 Mar 6. doi: 10.5435/JAAOS-D-19-00757.
28. Sagebin, F.\*, **Ayers, B.\***, Wood, K., Barrus, B., Chen, L., Alexis, J., Vidula, H., Thomas, S., Storzynsky, E., Prasad, S., & Gosev, I. Extracorporeal Life Support to Ventricular Assist Device: Improved Outcomes Using Sternal-Sparing Approach. *J Thorac Dis.* 2019 Nov;11(11):4790-4797. doi: 10.21037/jtd.2019.10.21. \*equal contribution authors
29. Gosev, I., Wood, K., **Ayers, B.**, Barrus, B., Knight, P., Alexis, J., Vidula, H., Lander, H., Wyrobek, J., Cheyne, C., Goldenberg, I., McNitt, S., & Prasad, S. Implantation of a Fully Magnetically Levitated Left Ventricular Assist Device Using a Sternal-Sparing Surgical Technique. *J Heart Lung Transplant.* 2019; <https://doi.org/10.1016/j.healun.2019.09.012>
30. Balceniuk, M., Zhao, P., Chu, I., Negron, T., **Ayers, B.**, Glocker, R., Doyle, A., & Stoner, M. Opioid Consumption Following Carotid Revascularization. *Annals of Vascular Surgery.* 2019 Aug; doi: 10.1016/j.avsg.2019.08.070
31. Wood, K., **Ayers, B.**, Gosev, I., Kumar, N., Melvin, A., Barrus, B., & Prasad, S. Venoarterial ECMO Without Routine Systemic Anticoagulation Decreases Adverse Events. *Ann Thorac Surg.* 2019 Sep 26. pii: S0003-4975(19)31429-8. doi: 10.1016/j.athoracsur.2019.08.040
32. Mitchell, D., **Ayers, B.**, Patel, A., Chacon, M., Wood, K., Barrus, B., Prasad, S., Gosev, I., & Christiano, J. Bilateral Pectoralis Major Flaps for Salvage of Ventricular Assistance Device Deep Pocket Infection. *European Journal of Plastic Surgery.* Forthcoming. doi: 10.1007/s00238-019-01554-6
33. Gosev, I., **Ayers, B.**, Wood, K., Barrus, B., & Prasad, S. Cessation of Anticoagulation for Bleeding and Subsequent Thrombosis Events with a Fully Magnetically Levitated Centrifugal Left Ventricular Assist Device. *J Heart Lung Transplant.* 2019; doi: 10.1016/j.healun.2019.04.005
34. **Ayers, B.**, Stahl, R., Wood, K., Bernstein, W., Gosev, I., Philippo, S., Lebow, B., Barrus, B., & Lindenmuth, D. Regional Nerve Block Decreases Opioid Use After Complete Sternal-Sparing Left Ventricular Assist Device Implantation. *J Card Surg.* 2019 Mar; doi: 10.1111/jocs.14008
35. **Ayers, B.**, Weinberg, G., Caserta, M., Kauffman, A., & Wakeman, D. Pyogenic liver abscess following perforated appendicitis. *J Pediatric Surgery Case Reports.* 2019 May; DOI: 10.1016/j.epsc.2019.101196
36. Wood, K., **Ayers, B.**, Sagebin, F., Vidula, H., Thomas, S., Barrus, B., Knight, P., Prasad, S., & Gosev, I. Complete Sternal-Sparing HeartMate 3 Implantation: a Case Series of Ten Consecutive Patients. *Ann Thorac Surg.* 2018 Nov; doi: 10.1016/j.athoracsur.2018.10.005
37. Fernandez, G., Narins, C., Bruckel, J., **Ayers, B.**, & Ling, F. Patient and Physician Perspectives on Public Reporting of Mortality Ratings for Percutaneous Coronary Intervention in New York State. *Circ Cardiovasc Qual Outcomes.* 2017 Sep; 10(9). doi: 10.1161/CIRCOUTCOMES.116.003511

38. **Ayers, B.**, Beshaw, C., Serrano-Finetti, E., Casas, O., Pallas-Areny, R., & Couderc, JP. Enabling Atrial Fibrillation Detection Using a Weight Scale. *Computing in Cardiology*. Sep 2016; 43:11-5. doi: 10.23919/CIC.2016.7868906

### Abstracts & Presentations:

1. **Ayers, B.**, Sandhold, T., Padman, R., Gosev, I., Prasad, S., & Kilic, A. Using Machine Learning to Improve Survival Prediction After Heart Transplantation. *Digital poster, AHA Scientific Sessions, Nov 2020*.
2. Ndikumana, E., **Ayers, B.**, Chacon, A., Dorman, R., Livingston, M., Mahdi, E., Michels, J., Toscano, N., Wittman, L., & Wakeman, D. Sustaining the Gains: Reducing Unnecessary Computed Tomography Scans in Pediatric Trauma Patients. *Oral presentation, Pediatric Trauma Society Meeting, New Orleans, LA, Nov 2020*.
3. **Ayers, B.**, Wood, K., Kozakiewicz, L., Bernstein, W., Lander, H., Alexis, J., Vidula, H., Barrus, B., Prasad, S. & Gosev, I. Acuity Matters: INTERMACS Profile for Left Ventricular Assist Device Patients Implanted via Sternal-Sparing Approach. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
4. **Ayers, B.**, Marini, T., Wood, K., Kim, S., Croake, M., Bernstein, W., Storzynsky, E., Tallman, M., Cheyne, C., Barrus, B., Prasad, S. & Gosev, I. Sternal-Sparing Approach for LVAD Implantation Allows for a More Consistent Inflow Cannula Angle. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
5. **Ayers, B.**, Wood, K., Cheyne, C., Alexis, J., Chen, L., Goldenberg, I., Barrus, B., Prasad, S. & Gosev, I. Concurrent Left Atrial Appendage Occlusion and Sternal-Sparing LVAD Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
6. Sherazi, S., **Ayers, B.**, Polonsky, B., McNitt, S., Kutiyifa, V., Alexis, J., Gosev, I., Goldenberg, I. & Vidula, H. Association of Cardiac Rehabilitation with Improved Healthcare Utilization and Long-Term Survival after Left Ventricular Assist Device Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
7. Schettle, S., Stulak, J., Rosenbaum, A., Cheyne, C., **Ayers, B.**, Alexis, J. & Gosev, I. Outcomes Following Discontinuation of Warfarin in Heartmate 3 Patients: A Multi-Center Review. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
8. Bernstein, W., Wyrobek, J., Tang, J., Lindenmuth, D., Stahl, R., **Ayers, B.** & Gosev, I. An Anesthetic Approach to Off Pump Complete Sternal-Sparing Implantation of a Fully Magnetically Levitated LVAD. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
9. Wood, K., **Ayers, B.**, Bernstein, W., Vidula, H., Chen, L., Barrus, B., Prasad, S. & Gosev, I. Sternal-Sparing LVAD Implantation Reduces the Incidence of Severe Right Heart Failure. *Oral presentation, International Society for Heart and Lung Transplantation Annual Meeting, Montreal, Canada, Apr 2020*.
10. **Ayers, B.**, Wood, K., Gosev, I., & Prasad, S. Machine Learning Prediction Model for Early Prognosis of Extracorporeal Membrane Oxygenation Support. *Oral Presentation, The Society of Thoracic Surgeons Annual Meeting, New Orleans, LA, Jan 2020*.
11. **Ayers, B.**, Wood, K., Cameron, S., Wright, C., Lin, Y., Elbadawi, A., Hamer, A., Barrus, B., Prasad, S., & Gosev, I. Surgical pulmonary embolectomy in good surgical candidates leads to exceptional survival and low chronic thrombotic burden. *Poster Presentation, PERT Scientific Symposium, Boston, MA, Oct 2019*.
12. **Ayers, B.**, Wood, K., Gosev, I., & Prasad, S. Machine Learning Prediction Model for Early Prognosis of Extracorporeal Membrane Oxygenation Support. *Oral Presentation, The Society of Thoracic Surgeons Critical Care Conference, Baltimore, MD, Sep 2019*.
13. Kumar, N., **Ayers, B.**, Wood, K., Smith, K., Knight, P., Barrus, B., Gosev, I. & Prasad, S. Renal Recovery in Survivors of Venoarterial Extracorporeal Membrane Oxygenation. *Poster Presentation, The Society of Thoracic Surgeons Critical Care Conference, Baltimore, MD, Sep 2019*.



14. Balceniuk, M., Zhao, P., **Ayers, B.**, Glocker, R., & Stoner, M. Association Between Carotid Artery Stenosis and Atherosclerotic Disease Risk Score in a Screening Ultrasound Population. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
15. Balceniuk, M., Zhao, P., **Ayers, B.**, Glocker, R., Doyle, A., & Stoner, M. Chronic Anticoagulation Is Associated with Increased Rates of Reintervention for Endoleak Following Endovascular Aneurysm Repair. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
16. Balceniuk, M., Zhao, P., **Ayers, B.**, Doyle, A., Glocker, R., & Stoner, M. Association Between Distal Lower Extremity Bypass and Dialysis Status on Short-term Outcomes. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
17. Balceniuk, M., J Robins, J Kim, **Ayers, B.**, A Sebastian, Zhao, P., Doyle, A., & Stoner, M. Association Between Inpatient Opioid Use and Outpatient Prescription Following Endovascular Aneurysm Repair. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
18. Balceniuk, M., Zhao, P., M Blegen, **Ayers, B.**, T Calderon, & Stoner, M. Opioid Consumption Following Endovascular Repair of Abdominal Aortic Aneurysm. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
19. J Robins, Zhao, P., Balceniuk, M., C Motyl, **Ayers, B.**, Doyle, A., M Stoner, R Glocker. Patients Undergoing Fasciotomy in the Setting of Extracorporeal Membrane Oxygenation Have a High Rate of Amputation With Poor Overall Survival and Functional Status. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
20. Balceniuk, M., A Schroeder, Zhao, P., **Ayers, B.**, Ellis, J., & Stoner, M. Percutaneous Femoral Access Associated with Reduced Resource Use After Thoracic Endovascular Aortic Repair for Trauma. *Poster presentation, Society for Vascular Surgery Annual Meeting, Washington, DC, June 2019.*
21. **Ayers, B.**, Sagebin, F., Wood, K., Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. Complete Sternal-Sparing Technique Improves Outcomes and Decreases RV Failure Compared to Re-Operative Sternotomy. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
22. **Ayers, B.**, Wood, K., Lee, E., Bruckel, J., Ling, F., Kutuyifa, V., McNitt, S., Vidula, H., Alexis, J., Prasad, S., & Gosev, I. PROMISing New Tool Correlates Well with Kansas City Cardiomyopathy Questionnaire in Left Ventricular Assist Device Patients. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
23. **Ayers, B.**, Sagebin, F., Wood, K., Barrus, B., Prasad, S., & Gosev, I. Extracorporeal Membrane Oxygenation is an Effective Bridge to Left Ventricular Assist Device Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
24. Wood, K., **Ayers, B.**, Philippo, S., Lindenmuth, D., Stahl, R., Wyrobek, J., Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. Regional Nerve Block Decreases Opioid Use after Complete Sternal Sparing Left Ventricular Assist Device Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
25. **Ayers, B.**, Wood, K., Falvey, J., Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. Safety and Efficacy of Recombinant Factor VII in HeartMate 3 Recipients. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
26. Melvin, A., **Ayers, B.**, Wood, K., & Gosev, I. Lactate is an Early Predictor of Mortality in Patients on Venoaerterial Extracorporeal Membrane Oxygenation. *Oral Presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
27. Gosev, I., Wood, K., **Ayers, B.**, Vidula, H., Alexis, J., Kumar, N., Delehanty, J., Barrus, B., Knight, P., Chen, L., & Prasad, S. Less Invasive HeartMate 3 Implantation is Safe and Reproducible with Excellent Outcomes. *Poster presentation, International*

*Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*

28. **Ayers, B.**, Wood, K., Sheen, S., Morrison, E., Vidula, H., Alexis, J., Prasad, S., & Gosev, I. Complete Sternal-Sparing LVAD Implantation Improves Mobility Compared to Full Sternotomy. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
29. Wood, K., **Ayers, B.**, Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. Complete Sternal-Sparing LVAD Implantation is a Safe and Effective Technique for Obese Patients. *Oral Presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
30. Wood, K., **B. Ayers**, Vidula, H., Alexis, J., Barrus, B., Prasad, S., & Gosev, I. INTERMACS 3 and 4 Patients Have Excellent Outcomes after Complete Sternal-Sparing HeartMate 3 Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
31. Vidula, H., McNitt, S., Wang, M., Polonsky, B., Sherazi, S., Gosev, I., **Ayers, B.**, Wood, K., Barrus, B., Alexis, J., Chen, L., Kutuyifa, V., & Goldenberg, I. Time-Dependent Association of Renal Function with Long-Term Survival Following LVAD Implantation. *Oral Presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
32. Vidula, H., McNitt, S., Wang, M., Polonsky, B., Sherazi, S., **Ayers, B.**, Wood, K., Barrus, B., Alexis, J., Chen, L., Kutuyifa, V., Gosev, I., & Goldenberg, I. Long-Term Survival of Patients Requiring Early Temporary RVAD Support Following LVAD Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
33. Vidula, H., McNitt, S., Wang, M., Polonsky, B., Sherazi, S., **Ayers, B.**, Wood, K., Barrus, B., Alexis, J., Chen, L., Kutuyifa, V., Gosev, I., & Goldenberg, I. Predictors of Early Unplanned RVAD Use in Patients Undergoing LVAD Implantation. *Poster presentation, International Society for Heart and Lung Transplantation Annual Meeting, Orlando, Fl, Apr 2019.*
34. Balceniuk, M., Zhao, P., **Ayers, B.**, & Stoner, M. Outcomes of Distal Lower Extremity Bypass Based on Dialysis Status. *Poster presentation, Society for Clinical Vascular Surgery, Boca Raton, Fl, March 2019.*
35. Balceniuk, M., Zhao, P., Chu, I., Negron, T., **Ayers, B.**, Glocker, R., Doyle, A., & Stoner, M. Opioid Consumption Following Carotid Revascularization. *Oral Presentation, Vascular Endovascular Surgery Society Annual Meeting, Snowbird, UT, Feb 2019.*
36. **Ayers, B.**, Wood, K., Melvin, A., Prasad, S., & Gosev, I. MELD-XI is Predictive of Mortality in Extracorporeal Membrane Oxygenation (ECMO). *Poster presentation, The Society of Thoracic Surgery Annual Conference, San Diego, CA, January 2019.*
37. Wood, K., **Ayers, B.**, Melvin, A., Prasad, S., & Gosev, I. Not Anticoagulating Patients Supported with Venoarterial Extracorporeal Membrane Oxygenation Decreases Complications, Blood Transfusions and Heparin Induced Thrombocytopenia. *Oral presentation, The Society of Thoracic Surgery Annual Conference, San Diego, CA, January 2019.*
38. Wood, K., **Ayers, B.**, Barrus, B., Prasad, S., & Gosev, I. Complete Sternal-Sparing Left Ventricular Assist Device Implantation Technique: Instructional Video. *Oral presentation, The Society of Thoracic Surgery Annual Conference, San Diego, CA, January 2019.*
39. Balceniuk, M., **Ayers, B.**, & Stoner, M. Association of Chronic Anticoagulation and Antiplatelet Therapy with Endoleak Reintervention Following EVAR. *Poster Presentation, Southern Association for Vascular Surgery Annual Meeting, Boca Raton, Fl, Jan 2019.*
40. **Ayers, B.**, Wood, K., Melvin, A., & Gosev, I. Higher ACT Predictive of Mortality for Patients on Extracorporeal Membrane Oxygenation (ECMO). *Poster Presentation, American College of Surgeons Clinical Conference, Boston, MA, Oct 2018.*
41. Balceniuk, M., Chu, I., **Ayers, B.**, & Stoner, M. The Association of Aortic Injury Grade and Overall Injury Severity with Resource Utilization in Patients Undergoing Endovascular Aortic Injury Repair. *Oral Presentation, American College of*

*Surgeons Clinical Conference, Boston, MA, Oct 2018.*

42. **Ayers, B.**, Wood, K., Sagebin, F., Kumar, N., Knight, P., Barrus, B., Prasad, S., & Gosev, I. The Use of Hydroxycobalamin for Vasoplegic Syndrome in Left Ventricular Assist Device (LVAD) Patient. *Oral Presentation, The Society of Thoracic Surgeons Critical Care Conference, Washington, DC, Oct 2018.*
43. Balceniuk, M., Cardelli, F., **Ayers, B.**, Chu, I., Doyle, A., & Stoner, M. Left Subclavian Artery Coverage Association with Neurologic Events in Trauma Patients Undergoing Thoracic Endovascular Repair. Eastern Vascular Society Annual Meeting. *Oral Presentation, Washington, DC, September 2018.*
44. Balceniuk, M., Stoner, M., **Ayers, B.**, Kokkosis, A., & Tassoipoulos, A. Post-Approval Safety and Efficacy of Transcarotid Arterial Revascularization. *Poster Presentation, Society for Vascular Surgery, Boston, MA, June 2018.*
45. Sagebin, F., **Ayers, B.**, Barrus, B., Prasad, S., Vidula, H., Storozynsky, E., Thomas, S., Chen, L., Alexis, J., & Gosev, I. Predictors of Respiratory Failure in Patients Supported with Continuous Flow Ventricular Assist Devices and The Effect on Survival. *Poster Presentation, International Society for Heart and Lung Transplantation, Nice, France, Apr 2018.*
46. Sagebin, F., **Ayers, B.**, Barrus, B., Prasad, S., Vidula, H., Storozynsky, E., Thomas, S., Chen, L., Alexis, J., & Gosev, I. Effects of Right Ventricle Optimization on Post-Operative Outcomes: a Retrospective Comparison. *Poster Presentation, International Society for Heart and Lung Transplantation, Nice, France, Apr 2018.*
47. **Ayers, B.**, Cameron, S., Toth, S., Doyle, A., Caliste, X., & Stoner, M. Innominate Artery Stenting with Flow-Reversal Neuroprotection: Case Report of Two Surgical Procedures. *Poster Presentation, Eastern Vascular Society, Savannah, GA, Oct 2017.*
48. Toth, S., Mix, D., Cameron, S., **Ayers, B.**, Glocker, R., Ellis, J., Doyle, A., Raman, K., & Stoner, M. Embolization of Retrievable Inferior Vena Cava Filter Fragment to the Right Ventricle: A Case Report. *Poster Presentation, Eastern Vascular, Savannah, GA, Oct 2017.*
49. **Ayers, B.**, Toth, S., Mix, D., Kumar, N., Rasheed, K., Caliste, X., & Stoner, M. Clinical Management of Recurrent Leiomyosarcoma of the Inferior Vena Cava Requiring Aortobifemoral Bypass. *Poster Presentation, Society for Vascular Surgery, San Diego, CA, June 2017.*
50. **Ayers, B.**, Beshaw, C., Serrano-Finetti, E., Casas, O., Pallas-Areny, R., & Couderc, JP. Enabling Atrial Fibrillation Detection Using a Weight Scale. *Poster Presentation, Computing in Cardiology, Vancouver, Canada, September 2016.*
51. Fanning, P., **Ayers, B.**, Walcott, M., Stein, G., Ayers, D., & Lian, J. The Varus Knee Reveals Differential Expression Patterns of miRNAs in Spared vs. Non-spared Compartments. *Poster Presentation, Orthopedic Research Society Annual Meeting, San Francisco, CA, February 2012.*

### **Book Chapters:**

1. **Ayers, B.** & Kilic, A. Chapter 11: Cardiovascular Medicine and Surgery. *Artificial Intelligence and Machine Learning in Healthcare.* Book chapter in process.

### **Videos:**

1. STS Roundtable Discussion: Artificial Intelligence and Machine Learning in Cardiothoracic Surgery. *STS Annual Meeting, 2020.* [https://youtu.be/suwb\\_2yPJtc](https://youtu.be/suwb_2yPJtc)