

## **BIDMC Smith Center Vascular Research Program – 2024 Review**

### ***The Research***

2024 was a banner year for the vascular section. Our group had 60 publications and attended more than a dozen national and international conferences to present state-of-the-science research on topics ranging from supervised exercise therapy to mitigating radiation exposure in the cath lab. We had an especially strong showing from our trainees at ACC, TCT, and AHA.

In recognition of BIDMC and the Smith Center's superior contributions to this year's TCT Conference, we were ranked Top 10 globally and nationally among institutions leading the way in interventional cardiovascular medicine. BIDMC was named a Top 10 institution in three separate rankings: Global, National and Late-Breaking Clinical Research.

The vascular section received >\$650,000 in FDA and industry funding this year to conduct ambitious, forward-thinking cardiovascular outcomes studies. In partnership with the FDA, **Dr. Eric Secemsky**, T32 fellow **Dr. Joe Kim**, and team produced a nearly 500-page report on the safety and efficacy of endovascular revascularization for CLTI (SAFE-CLTI), which promises to branch into several novel outcomes projects in the new year. The seventh and final SAFE-PAD report from Dr. Secemsky and **Dr. Bobby Yeh** was shared with the FDA this summer; it was the culmination of 5 years of dedicated work on the safety of paclitaxel coated devices. Dr. Secemsky and **Dr. Enrico Ferro** concluded their collaboration with the FDA on a report analyzing trends in usage and retrieval of IVC filters (SAFE-IVC), which was published in *JAMA* last month. *JAMA*, *JACC*, and *Circulation* are just three of the high-impact journals where the vascular section's work appeared this year.

**Dr. Anna Krawisz** continues to provide robust support to patients with hypertension in the Complex Hypertension Clinic. She and the Smith Center team have made stellar progress on the Renal Denervation Registry, which is now host to data from 21 renal denervation patients from BIDMC. Dr. Secemsky performed three RDN procedures earlier in December as a course attended by 13 physicians from across the country. Eight sites nationally are set to join the registry in 2025, as formal data use agreements are nearing completion, and begin contributing data on upwards of 100 RDN patients.

This year, **Dr. Secemsky** completed enrollment for his K23 award implementing the SHOW-ME PAD Decision Aid to evaluate patient-reported outcome measures for patients with claudication. Eric also applied for his first R01 grant, which aims to investigate variable responses to renal denervation. He received the Vascular Luminary of the Year award from the Global PAD Impact Awards in recognition of his research

into lifestyle modifications for PAD prevention and his advocacy for updating PAD clinical practices. Eric was a featured lecturer at this year's ACC, TCT, VEITH, SVM, and VIVA conferences on the subjects of PAD, RDN, and more, and was promoted to Associate Professor of Medicine at Harvard Medical School.

**Dr. Brett Carroll** presented on lymphatic imaging at the Society for Vascular Medicine, and published several articles on lymphedema in *Vascular Medicine*, and cardiovascular events in pregnancy in the *American Journal of Cardiology*.

**Dr. Alec Schmaier** led discussion at SVM on venous endothelium response, and presented an abstract at the American Society of Hematology. Alec had several publications, including the *Journal of Extracellular Biology*, and *Arteriosclerosis, Thrombosis and Vascular Biology*.

Both Brett and Alec contributed to several mentee papers that were published in *Circulation: Cardiovascular Interventions*, *Annals of Internal Medicine* and *Vascular Medicine*.

### ***Additional Team Members***

Our Vascular Section team continued to grow in 2024. We welcomed several new members including: Clinical Research Writing Assistant **Izzy Lockhart**, Vascular Medicine Fellow **Christian Mewaldt**, HMS student **Lorenzo Arvanitis**, Sarnoff Fellow **Frank Medina**, post-doctoral fellow **Dr. Maxime Lebaz Dubosq**, and research fellow **Dr. Christopher Koo**. We are also in the process of hiring a second full time analyst.

**Izzy Lockhart** has already been a great asset to the team after joining in June, assisting with writing study reports, creating visual abstracts to showcase publications, and spearheading the creation and launch of the group's new OpenScholar [website](#).

**Christian Mewaldt** joined as the BIDMC Vascular Medicine Fellow and has been an essential contributor to the launch of the Renal Denervation Registry, working closely with both Drs. Krawisz and Secemsky.

**Lorenzo Arvanitis** is a second-year medical student at HMS. This summer, he worked closely with **Dr. Enrico Ferro** on a project investigating tricuspid valve interventions among patients with CIEDs.

**Frank Medina** from the University of Chicago Pritzker School of Medicine joined us in June for a year-long research fellowship. Frank is currently working with **Dr. Chitra Mosarla** to investigate disparities and outcomes of IVUS use; he presented two abstracts of their work at this year's TCT Conference. He is also working on a project looking at pharmacotherapy for peripheral arterial disease (PAD).

**Maxime Lebaz** is a vascular surgeon from Paris, France. Since his arrival at the Smith Center in November, he has taken on a project on socioeconomic disparities in CLTI treatment, with collaboration from **Dr. Joe Kim**. Maxime will be with us for the year.

**Christopher Koo** is an interventional cardiologist from Singapore, where his research focus is coronary artery disease. The newest member of the team, Dr. Koo is set to work with Dr. Secemsky on research into coronary physiology and pulmonary embolism management.

We are very pleased that **Dr. Nathan Watson** will continue to work with our team in Boston – he joined the Brigham and Women’s residency program this year.

There was an abundance of great research accomplished this year by our fellows, trainees and collaborators. Some highlights include:

- **Dr. Matthew Herzig (BIDMC Internal Medicine resident)** had his work on contemporary trends in endovascular revascularizations for acute limb ischemia published in *JACC: Cardiovascular Interventions*;
- **Dr. Sanjay Divakaran (BWH Cardiologist)** had his work on subendocardial perfusion in patients with hypertension published in *Circulation*, and underutilization of supervised exercise therapy published in *Vascular Medicine*;
- **Dr. Patrick Heindel (BWH Vascular Surgery Resident)** had his work on the use of colchicine in the setting of PAD published in the *European Heart Journal*;
- **Dr. Joe Kim (BIDMC Cardiology Fellow)** had his work on trends in device use for fem-pop revascularization published in *JACC*;
- **Dr. Chitra Mosarla (NYU Interventional Cardiology Fellow)** had her work on outcomes with distal transradial access in patients with advanced CKD published in the *Journal of Invasive Cardiology*;
- **Dr. Nathan Kong (BIDMC Cardiology Fellow), Dr. Kim (BIDMC Cardiology Fellow)** and **Dr. Heindel (BWH Vascular Surgery Resident)** had their work on outcomes following arteriovenous fistula creation in patients with end-stage kidney disease published in the *American Journal of Cardiology*;
- **Dr. Nathan Watson (BWH Internal Medicine resident)** had his work on trends in discharge rates for acute pulmonary embolism, published in *Annals of Internal Medicine*, and outcomes and predictors of advanced therapy for right heart thrombus published in *Circulation: Cardiovascular Interventions*.
- **Dr. Firas Hentati (BIDMC Internal Medicine resident), Dr. Will Earle (OHSU Cardiology Fellow)** and **Dr. Shantum Misra (Dartmouth Cardiology Fellow)** had their work on inaccuracy of death certificate documentation for PE patients published in the *Society for Vascular Medicine*;
- **Dr. Jason Gusdorf (BIDMC Internal Medicine resident)** had his work on outcomes for PAD patients hospitalized for acute MI highlighted and presented at

the American Heart Association Scientific Sessions and his paper is currently under review.

### ***Looking Ahead***

Dr. Secemsky will be recognized as a 2025 Boston Top Doc by *Boston Magazine!*

**Dr. Aishwarya Raja's** paper on variations in revascularization strategies for CLTI has been accepted into *JACC Interventions* and is set to be published in February.

Multiple team members have had abstracts accepted for presentation at ACC 2025, which will take place in Chicago this March. We look forward to seeing their presentations!

At long last, **Dr. Hyeok-Hee Lee**, our postdoctoral fellow from South Korea, will officially be joining us in January! We're excited to welcome him to the team.

**Section of Interventional Cardiology and Vascular Research**  
Smith Center for Outcomes Research

 Eric Secemsky, MD Director of Vascular Intervention	 Anna Krawisz, MD Attending Cardiologist, BIDMC	 Keri Hannagan, MPH Program Manager	 Izzy Lockhart, BA Writing Assistant	 Siling Li, MS Biostatistician	 Yang Song, MSc Biostatistics Director	 Brett Carroll, MD Section Head, Vascular Medicine	 Alec Schmaier, MD Attending, Vascular Medicine	
 Joseph Kim, MD	 Sanjay Divakaran, MD	 Chitra Mosaria, MD	 Nathan Kong, MD	 Aishwarya Raja, MD	 Enrico Ferro, MD	 Christian Mewaldt, MD	 Matthew Herzig, MD	 Firas Hentati, MD
 Shantam Misra, MD	 William Earle, MD	 Katie Kentoffio, MD	 Jason Gusdorf, MD	 Nathan Watson, MD	 Betsy Rose, RN	 Frank Medina, BA	 Lorenzo Arvanitis, BS	

## 2024 Publications

1. Quantifying patients' preferences on tradeoffs between mortality risk and reduced need for target vessel revascularization for claudication. Reed SD, Sutphin J, Wallace MJ, Gonzalez JM, Yang JC, Reed Johnson F, Tsapatsaris J, Tarver ME, Saha A, Chen AL, Gebben DJ, Malone M, Farb A, Babalola O, Rorer EM, Parikh SA, Simons JP, Jones WS, Krucoff MW, **Secemsky EA**, Corriere MA. *Vasc Med*. 2024 Dec;29(6):675-683. doi: 10.1177/1358863X241290233. Epub 2024 Oct 16. PMID: 39415520
2. A call for interdisciplinary and guideline-recommended PAD treatment. Korosoglou G, Rammos C, **Secemsky E**. *Vasa*. 2024 Nov 20. doi: 10.1024/0301-1526/a001161. Online ahead of print. PMID: 39565718 No abstract available.
3. What Is the Rush?: Optimizing the Timing of P2Y12 Inhibition in Non-ST-Segment Elevation Acute Coronary Syndromes. **Kim JM, Yeh RW, Secemsky EA**. *J Am Coll Cardiol*. 2024 Nov 13:S0735-1097(24)10300-2. doi: 10.1016/j.jacc.2024.10.099. Online ahead of print. PMID: 39545901 No abstract available.
4. Postmarketing Surveillance of Inferior Vena Cava Filters Among US Medicare Beneficiaries: The SAFE-IVC Study. **Ferro EG, Mackel JB, Kramer RD, Torguson R, Whatley EM, O'Connell G, Pullin B, Watson NW, Li S, Song Y, Krawisz AK, Carroll BJ, Schermerhorn ML, Weinstein JL, Farb A, Zuckerman B, Yeh RW, Secemsky EA**. *JAMA*. 2024 Nov 6:e2419553. doi: 10.1001/jama.2024.19553. Online ahead of print. PMID: 39504004
5. Validating International Classification of Diseases Code 10th Revision algorithms for accurate identification of pulmonary embolism. Bikdeli B, Khairani CD, Bejjani A, Lo YC, Mahajan S, Caraballo C, Jimenez JV, Krishnathasan D, Zarghami M, Rashedi S, Jimenez D, Barco S, **Secemsky EA**, Klok FA, Hunsaker AR, Aghayev A, Muriel A, Hussain MA, Appah-Sampong A, Lu Y, Lin Z, Mojibian H, Aneja S, Khera R, Konstantinides S, Goldhaber SZ, Wang L, Zhou L, Monreal M, Piazza G, Krumholz HM; PE-EHR+ Investigators. *J Thromb Haemost*. 2024 Nov 4:S1538-7836(24)00620-2. doi: 10.1016/j.jtha.2024.10.013. Online ahead of print. PMID: 39505153
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7. Endovascular versus surgical revascularization for patients with chronic limb-threatening ischemia: A systematic review and meta-analysis of randomized controlled trials. Machanahalli Balakrishna A, Alla VM, Aronow HD, **Secemsky E**, Altin SE, Jayasuriya S, Goldsweig AM. *Catheter Cardiovasc Interv*. 2024 Nov;104(5):1012-1014. doi: 10.1002/ccd.31200. Epub 2024 Aug 20. PMID: 39162243 No abstract available.
8. Procedural Feasibility and Peri-procedural Outcomes of Peripheral Endovascular Therapy via Transradial versus Transfemoral Access: A Systematic Review and Meta-Analysis. Tsukagoshi J, Bhuyan A, **Secemsky EA**, Shirasu T, Nakama T, Jujo K, Wiley J, Kuno T. *Eur J Vasc*

Endovasc Surg. 2024 Nov;68(5):605-616. doi: 10.1016/j.ejvs.2024.07.036. Epub 2024 Aug 5. PMID: 39111535 Review.

9. Contemporary Practice Patterns and Outcomes of Endovascular Revascularization of Acute Limb Ischemia. **Herzig MS**, Kennedy KF, Hawkins BM, **Secemsky EA**. JACC Cardiovasc Interv. 2024 Oct 28;17(20):2379-2390. doi: 10.1016/j.jcin.2024.09.010. PMID: 39477641

10. Outcomes Following Arteriovenous Fistula Creation in Medicare Beneficiaries With End-Stage Kidney Disease. **Kong NW, Kim JM, Krawisz AK, Heindel P**, Tale A, **Song Y**, Weinstein JL, Hussain MA, **Secemsky EA**. Am J Cardiol. 2024 Oct 22;234:79-86. doi: 10.1016/j.amjcard.2024.10.006. Online ahead of print. PMID: 39447721

11. Death certificate documentation is inaccurate for most patients with acute pulmonary embolism. **Hentati F**, Kaushik M, **Misra S, Carroll BJ, Earle WB, Secemsky EA**. Vasc Med. 2024 Oct 16:1358863X241287691. doi: 10.1177/1358863X241287691. Online ahead of print. PMID: 39415519 No abstract available.

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A.Vasc Med. 2024 Sep 12;1358863X241281872. doi: 10.1177/1358863X241281872. Online ahead of print.PMID: 39264058

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Weinberg I, Vadlamudi V, Matthai WH Jr, Saleh A, Cristea E, Lansky AJ, Giri J.J Soc Cardiovasc Angiogr Interv. 2024 May 3;3(6):102049. doi: 10.1016/j.jscai.2024.102049. eCollection 2024 Jun.PMID: 39132596 Free PMC article.

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