Western Vascular Society

37th Annual Meeting

September 17 – 20, 2022

Fairmont Empress, Victoria, B.C.

www.westernvascularsociety.org

TABLE OF CONTENTS

MISSION, VISION, AND VALUES STATEMENTS

MISSION

To promote education, research, advocacy and leadership in the art and science of compassionate vascular health in the Western United States, Canada and the Pacific Rim

VISION

To inspire excellence and innovation in vascular surgery

VALUES

Education

We strive to continue to produce a high quality, balanced scientific meeting to attract the best and brightest into our field, expanding incorporation of new science, techniques and practices

Research

We encourage multi-center collaboration on research initiatives in the Western United States, Canada and the Pacific Rim

Public Awareness

We endeavor to increase public awareness of the prevalence of vascular disease and promote optimizing vascular health through public outreach.

Preserving and promoting the very rich academic heritage and tradition of the Western Vascular Society is of paramount importance.

Advocacy

We encourage professionalism, diversity, and inclusiveness at the highest levels for ethical and compassionate care for patients.

Career Development

We promote leadership development to the WVS membership to cultivate future vascular surgery leaders locally, regionally, nationally, and internationally.

DIVERSITY, EQUITY AND INCLUSION COMMITTEE MISSION

The Mission of the Diversity, Equity and Inclusion Committee for the Western Vascular Society is to promote an academically enriching and supportive climate that allows all members of the Society to thrive and succeed.

The Diversity, Equity and Inclusion Committee will collaborate with members to provide a comprehensive approach to diversity and inclusivity, access, and equity.

Through strategic planning and programmatic development the committee shall empower medical students, residents, fellows and members to build a diverse and inclusive society.

VASCULAR SURGERY INTEREST GROUP COMMITTEE MISSION

The Mission of the Vascular Surgery Interest Group Committee is to help promote the specialty of vascular surgery among medical students across the United States and to stimulate interest in training within the existing programs encompassed by the Western Vascular Society.

OFFICERS AND COMMITTEES

OFFICERS

Vincent Rowe, MD — President
Wei Zhou, MD — President Elect
Matthew Mell, MD — Recorder
Ahmed Abou-Zamzam, Jr., MD — Secretary Treasurer
R. Eugene Zierler, MD — Historian
Niten Singh, MD — VSIG Chair
LeAnn Chavez, MD — DEI Chair
Michael Conte, MD — Past President
Benjamin W. Starnes, MD — Past President
York N. Hsiang, MB, ChB, MHSc, FRCSC — Past President

PROGRAM COMMITTEE

Omid Jazaeri, MD — Chair
Elina Quiroga, MD
Jade Hiramoto, MD
Karen Woo, MD, PhD

Ex-Officio Program Committee Members

Vincent Rowe, MD — President
Wei Zhou, MD — President Elect
Matthew Mell, MD — Recorder
Ahmed Abou-Zamzam, Jr., MD — Secretary Treasurer

MEMBERSHIP COMMITTEE

Ali Azzizedeh, MD
Robert Chang, MD
Christian Ochoa, MD

WVS REPRESENTATIVE TO THE SVS

Ahmed Abou-Zamzam, Jr., MD

LOCAL ARRANGEMENTS COMMITTEE CHAIRMAN

York N. Hsiang, MB, ChB, MHSc, FRCSC

PAST MEETINGS

1986	Dana Point, CA	Organizing Committee
1987	Tucson, AZ	W. Sterling Edwards, MD
1988	Monterey, CA	Robert B. Rutherford, MD
1989	Kauai, Hawaii	D. Eugene Strandness, Jr., MD
1990	Coronado, CA	Ronald J. Stoney, MD
1991	Rancho Mirage, CA	Victor M. Bernhard, MD
1992	Maui, Hawaii	Wesley S. Moore, MD
1993	Sonoma, CA	John M. Porter, MD
1994	Santa Barbara, CA	Eugene F. Bernstein, MD
1995	Phoenix, AZ	Robert L. Kistner, MD
1996	Dana Point, CA	Jerry Goldstone, MD
1997	Lana'I, Hawaii	Richard L. Treiman, MD
1998	Whistler, BC, Canada	Kaj H. Johansen, MD
1999	Lake Tahoe, NV	Ralph B. Dilley, MD
2000	Coeur d'Alene, ID	Peter F. Lawrence, MD
2001	Santa Fe, NM	William C. Krupski, MD
2002	Newport Beach, CA	Cornelius Olcott, IV, MD
2003	Kona, Hawaii	Lloyd M. Taylor, Jr., MD
2004	Victoria, BC, Canada	J. Dennis Baker, MD
2005	Park City, UT	Gregory L. Moneta, MD
2006	La Jolla, CA	George Andros, MD
2007	Kona, Hawaii	Jeffrey L. Ballard, MD
2008	Napa, CA	Alexander W. Clowes, MD
2009	Tucson, AZ	Fred A. Weaver, MD
2010	Sunriver, OR	Linda M. Reilly, MD
2011	Kauai, Hawaii	Ronald L. Dalman, MD
2012	Park City, UT	William J. Quinones-Baldrich, MD
2013	Jasper, AB, Canada	Joseph L. Mills, Sr., MD
2014	Coronado, CA	Peter A. Schneider, MD
2015	Wailea, Hawaii	Larry Kraiss, MD
2016	Colorado Springs, CO	William Pevec, MD
2017	Blaine, WA	Steven Katz, MD
2018	Santa Fe, NM	E. John Harris, MD
2019	Wailea, HI	York N. Hsiang, MB, MHSc
2020	Virtual	Benjamin W. Starnes, MD
2021	Teton Village, WY	Michael Conte, MD

SECRETARY-TREASURERS

1986 - 1990	**Wesley S. Moore, MD**
1990 - 1993	**J. Dennis Baker, MD**
1993 - 1996	**P. Michael McCart, MD**
1996 - 1999	**Gregory L. Moneta, MD**
1999 - 2000	**Terence M. Quigley, MD**
2000 - 2002	**Julie A. Freischlag, MD**
2002 - 2005	**Jeffrey L. Ballard, MD**
2005 - 2008	**Joseph L. Mills, MD**
2008 - 2011	**Larry W. Kraiss, MD**
2011 - 2014	**E. John Harris, Jr., MD**
2014 - 2017	**York N. Hsiang, MB, MHSc**
2017 - 2020	**Roy Fujitani, MD**
2020 - 2023	**Ahmed Abou-Zamzam, Jr., MD**

RECORDERS

1987 - 1989	**Victor M. Bernhard, MD**
1989 - 1992	**Eugene F. Bernstein, MD**
1992 - 1995	**Peter F. Lawrence, MD**
1995 - 1998	**William C. Krupski, MD**
1998 - 2001	**Roy L. Tawes, MD**
2001 - 2004	**Ronald L. Dalman, MD**
2004 - 2007	**Peter A. Schneider, MD**
2007 - 2010	**William C. Pevec, MD**
2010 - 2013	**Steven Katz, MD**
2013 - 2016	**Benjamin W. Starnes, MD**
2016 - 2019	**Michael Conte, MD**
2019 - 2022	**Matthew Mell, MD**

NEW MEMBERS ELECTED IN 2021

Donald Baril

Thoetphum Benyakorn

Graham Donald

Sundeep Guliani

Mimmie Kwong

Kristyn Mannoia

Elsie Ross

Samuel Schwartz

Brigitte Smith

Tze-Woei (Kevin) Tan

Sarah Zettervall

Kenneth Ziegler

WVS PRESIDENTIAL GUEST LECTURERS

1986	**Emerick Szilagyi**
1987	**None**
1988	**James Stanley**
1989	**Brian Thiele**
1990	**Frank Veith**
1991	**Allan Callow**
1992	**Malcolm Perry**
1993	**Norman Hertzer**
1994	**Norman Browse**
1995	**Calvin Ernst**
1996	**Anthony Whittemore**
1997	**None**
1998	**None**
1999	**Jonathan Towne**
2000	**R. Thomas Grayston**
2001	**William Hiatt**
2002	**Thomas R. Russell**
2003	**None**
2004	**None**
2005	**Kevin G. Burnand**
2006	**Jean Pierre Becquemin**
2007	**None**
2008	**John H. N. Wolfe**
2009	**Jack L. Cronenwett**
2010	**None**
2011	**Germano Melissano**
2012	**Roy K. Greenberg**
	Hazim J. Safi
2013	**Spence M. Taylor**
2014	**Alan B. Lumsden**
2015	**Peter Gloviczki**
2016	**Alik Farber**
2017	**Bruce Perler**
2018	**Thomas Wakefield**
2019	**Thomas Forbes**
2020	**Gustavo Oderich**
2021	**Michael Belkin**
2022	**Gilbert Upchurch**

EDUCATIONAL INFORMATION

EDUCATIONAL OBJECTIVES & METHODS

The 37th Annual Meeting of the Western Vascular Society was established with the specific purpose of advancing the art and science of vascular surgery, a goal that directly addresses competence, practice performance, and patient outcomes. The majority of the educational content includes scientific presentations by members, sponsored guests, and residents, selected by the WVS Program Committee.

PROGRAM LEARNING OBJECTIVES

This activity is designed for: vascular surgeons, vascular fellows, vascular residents, and general surgeons along with other individuals interested in vascular interventions and treatments. This meeting will feature original oral scientific presentations by members, sponsored guests, and trainees that will serve to expand our knowledge and illustrate the incorporation of new science, techniques, and practices in vascular surgery. CME and Self-Assessment credit hours for the program will be estimated and accessed by AMEDCO in Joint provider ship with Western Vascular Society.

At the end of this program, participants should be able to discuss the following topics:

Cerebrovascular Disease

- Describe the impact of chronic renal disease on carotid artery revascularization outcomes
- Describe effect of hypoxia in carotid artery plaque

Open Surgical and Endovascular Techniques of the Aorta and Aortic Branches

- Describe the impact of patient sex on outcomes in patients with aortoiliac occlusive disease and aortic aneurysms
- Identify key features in the clinical and technical management of complications related to repair of thoracic and abdominal aortic aneurysms

- Evaluate long term outcomes of physician-modified endovascular grafts for complex aneurysm repair
- Describe techniques for false lumen exclusion in patients with chronic type B dissection

Peripheral Vascular Disease

- Describe the presentation and management of arteriopathy in patients with Marfan syndrome
- Evaluate the imaging modalities for diagnosis of popliteal artery entrapment syndrome
- Assess the feasibility and safety of outpatient elective open arterial reconstruction
- Identify the presentation and management of cystic adventitial disease

Hemodialysis Access

- Describe the history of how arteriovenous fistula procedures were developed
- Apply techniques of central venous recanalization
- Assess impact of chronic kidney disease and end stage renal disease on outcomes after carotid revascularization

EDUCATIONAL INFORMATION continued

EDUCATIONAL METHODS

Authored papers are supported by PowerPoint presentations.
Full papers have a primary discussant and ample time provided for questions and discussion from the audience. Panel and group discussions are encouraged using the WVS meeting app.

DISCLOSURE INFORMATION

In compliance with ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation Statement

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, this activity has been planned and implemented by Amedco LLC and Western Vascular Society. Amedco LLC is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Credit Designation Statement
Amedco LLC designates this live activity for a maximum of **10.25** *AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

INSTRUCTIONS FOR CME CREDIT COLLECTION

To claim the 10.25 *AMA PRA Category 1 Credits*™

Physicians must complete the meeting evaluation that is available both on the meeting app and sent via email.

To claim the 9.25 credits for MOC Self Assessment, questions will be provided at the end of each session and available via email or on the meeting app. Certificates will be digitally created upon successful completion of both actions.

Alternatively, you can visit www.westernvascularsociety.org for links on the annual meeting page.

All credit collection must be completed by December 17, 2022.

INSTRUCTIONS TO AUTHORS

Authors presenting papers are reminded that the presentation of the paper shall be limited to the following:

RAPID FIRE PRESENTATION
2 minutes presentation, 3 minutes floor discussion

MINI PRESENTATION
4 minutes presentation, 6 mins floor discussion

FULL PRESENTATION
8 minutes presentation, 2 minutes invited discussant, and 10 minutes floor discussion

INSTRUCTIONS TO AUTHORS

ROBERT HYE MEMORIAL BEST RESIDENT PRESENTATIONS

To honor the contribution of member Dr. Robert Hye, each year Western Vascular Society Program Chair elects judges to evaluate the best full presentation by a medical student or resident. There are three cash prizes $500, $250, and $100 and official commemorative certificates awarded at the final session of the meeting. In addition there is a certificate and $100 award for the best Rapid Fire Presentation. Hye award eligible presentations are designated on the scientific program.

FOUNDERS AWARD

The Western Vascular Society Founders Award recognizes the best paper presented at the annual meeting by a new member who is within three years of their acceptance to the Society. It is named for the original organizing committee that met in October of 1984 and established the Western Vascular Society. This group consisted of Drs. Wesley Moore, Victor Bernhard, Sterling Edwards, Jerry Goldstone, John Porter, Robert Rutherford, and D. Eugene Strandness. The first meeting of the Western Vascular Society was held in Laguna-Nigel, California from January 23 to 26, 1986. At that meeting, the organizing committee met as the Executive Council and approved bylaws for the new Society and accepted a proposed list of founding members from the Western region. The winner receives $1000 and a commemorative plaque.

During the 2018 WVS Business Meeting at the Four Seasons in Wailea, HI the membership voted to honor the founding members by creating this award. Criteria was established that the winner must be in the first few years of membership and be the presenter and first author of a full presentation.

2020 Winner Leigh Ann O'Banion, UCSF Fresno
2021 Winner Sharon Kiang, Loma Linda University Medical Center

INSTRUCTIONS TO AUTHORS

INVITED DISCUSSION

Two minutes and specifically critique the paper as presented. Visual aids may not be incorporated into the discussion. An electronic copy of the discussion is required to be submitted to the recorder.

MANUSCRIPTS

Authors of Full Presentations are REQUIRED to submit a manuscript of their presentation for possible publication in the Journal of Vascular Surgery Publications within one month of the Annual Meeting. The Editors of the Journal of Vascular Surgery Publications will determine the Journal in which accepted manuscripts will be published.

The guidelines for submission of your Manuscript(s) may be found on the Journal of Vascular Surgery Publications website www.editorialmanager.com/jvs. Please refer to the "Instructions for Authors." Once the manuscript is submitted to the Journal by email, please send a confirmation of submission to Matthew Mell, MD, at mwmell@ucdavis.edu.

SPONSOR ACKNOWLEDGEMENT

Western Vascular Society is grateful for the following companies for the educational grant support:

Cook Medical

Medtronic

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Western Vascular Society is grateful for the following companies for the exhibit support:

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BD

Cydar Medical

Endologix

Getinge

Penumbra

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SCHEDULE OF EVENTS

SATURDAY SEPTEMBER 17, 2022

11:00 AM – 7:00 PM	**REGISTRATION** 2nd floor Carson Hall Foyer, Victoria Conference Centre
2:00 PM – 4:00 PM	**EXECUTIVE COUNCIL MEETING** James Boardroom, Empress Hotel
4:00 PM – 5:00 PM	**EXHIBIT SET UP** Victoria Conference Centre, 2nd floor Carson Hall A
4:50 PM – 6:10 PM	**RAPID FIRE SESSION** Carson Hall BC *(all scientific sessions)* Omid Jazaeri, MD, Program Chair Benjamin Starnes, MD, Past President
6:00 PM – 7:30 PM	**CHAMPAGNE WELCOME RECEPTION** Carson Hall A
7:00 PM – 8:30 PM	**PAST PRESIDENTS DINNER** Library Room, Empress Hotel *(by invite only)*

SUNDAY SEPTEMBER 18, 2022

6:30 AM – 1:00 PM	**REGISTRATION** 2nd floor Carson Hall Foyer, Victoria Conference Centre
7:00 AM – 7:45 AM	**DEI BREAKFAST SESSION** Carson Hall BC, Scientific Session
7:00 AM – 11:45 AM	**EXHIBITS** Carson Hall A
7:45 AM – 8:00 AM	**CALL TO ORDER & ANNOUNCEMENTS** Carson Hall BC

SCHEDULE OF EVENTS continued

8:00 AM – 9:30 AM	**COMPANION BREAKFAST** Bengal Room, Empress Hotel
8:00 AM – 9:50 AM	**SCIENTIFIC SESSION I** PRESIDING: Vincent Rowe, MD, President Matthew Mell, MD, Recorder LeAnn Chavez, MD, DEI Chair
9:50 AM – 10:20 AM	**COFFEE BREAK WITH EDUCATIONAL EXHIBITORS** Carson Hall A
10:20 AM – 11:00 AM	**PRESIDENTIAL GUEST LECTURER** Gilbert Upchurch, MD Carson Hall BC
11:00 AM – 12:30 PM	**SCIENTIFIC SESSION II** PRESIDING: Vincent Rowe, MD, President Omid Jazaeri, MD, Program Chair Karen Woo, MD, PhD, Program Committee
12:30 PM – 12:45 PM	**SVS UPDATE** Joseph Mills, MD, President Elect SVS
1:00 PM – 5:00 PM	**BEAR MOUNTAIN GOLF TOURNAMENT** Departs from Empress Lobby
2:00 PM – 4:00 PM	**WHALE WATCHING TOUR** Departs from Empress Lobby
2:00 PM – 5:00 PM	**MOCK ORALS** Warren Chow, MD, Orientation Carson Hall BC
6:00 PM – 8:00 PM	**WESTERN FAMILY DINNER** Shaughnessy Ballroom, Empress Hotel

MONDAY, SEPTEMBER 19, 2022

6:30 AM – 1:00 PM	**REGISTRATION** 2nd floor Carson Hall Foyer, Victoria Conference Centre
7:00 AM – 8:00 AM	**BREAKFAST** Carson Hall A
7:00 AM – 11:45 AM	**EXHIBITS** Carson Hall A
7:40 AM – 9:20 AM	**SCIENTIFIC SESSION III** Carson Hall BC PRESIDING: Vincent Rowe, MD, President Elina Quiroga, MD, Program Committee Nii Kabu Kabutey, MD, DEI Committee
8:00 AM – 9:15 AM	**COMPANION BREAKFAST** Bengal Room, Empress Hotel
9:20 AM – 10:00 AM	**PRESIDENTIAL ADDRESS** Vincent Rowe, MD
10:00 AM – 10:30 AM	**COFFEE BREAK WITH EDUCATIONAL EXHIBITORS** Carson Hall A
10:30 AM – 11:50 AM	**SCIENTIFIC SESSION IV** PRESIDING: Vincent Rowe, MD, President Ahmed Abou-Zamzam, Jr. MD, Treasurer Jade Hiramoto, MD, Program Committee

SCHEDULE OF EVENTS continued

11:50 AM – 12:00 PM	**STRETCH BREAK**
12:00 PM – 12:30 PM	**WVS BUSINESS MEETING** Carson Hall BC *(members only)*
12:30 PM – 2:00 PM	**ROUND TABLE** **VSIG SYMPOSIUM**
1:00 PM – 5:00 PM	**TOUR OF BUTCHART GARDENS** Depart Empress Lobby
6:00 PM – 7:00 PM	**PRIVATE PRESIDENT'S RECEPTION** Library Room, Empress Hotel
7:00 PM – 9:00 PM	**PRESIDENTIAL BANQUET** Crystal Ballroom, Empress Hotel

SCHEDULE OF EVENTS continued

TUESDAY SEPT. 20, 2022

7:00 AM – 7:30 AM	**BREAKFAST WITH EXHIBITORS** Carson Hall A
7:00 AM – 11:45 AM	**EXHIBITS** Carson Hall A
7:30 AM – 9:00 AM	**SCIENTIFIC SESSION V** Carson Hall BC PRESIDING: Wei Zhou, MD, President Elect Niten Singh, MD, VSIG Chair Kenneth Ziegler, MD, DEI Committee
9:00 AM – 9:30 AM	**COFFEE BREAK WITH EDUCATIONAL EXHIBITORS** Carson Hall A
9:30 AM – 11:00 AM	**SCIENTIFIC SESSION VI** Carson Hall BC PRESIDING: Wei Zhou, MD, President Matthew Mell, MD, Recorder Ali Azizzadeh, MD, VSIG Committee, Membership Committee
11:00 AM – 11:30 AM	**AWARDS** Carson Hall BC
11:30 AM	**MEETING ADJOURNS**

SCIENTIFIC PROGRAM

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

SATURDAY SEPTEMBER 17TH

11:00 AM – 7:00 PM **REGISTRATION**

2:00 PM – 4:00 PM **EXECUTIVE COUNCIL MEETING**

4:50 PM – 6:10 PM **RAPID FIRE SESSION**
Moderated by Dr. Omid Jazaeri

4:50 PM – 5:00 PM **Introduction**
Past President Dr. Benjamin Starnes

5:00 - 5:05
RF1 - A UNIQUE BREAKTHROUGH MEANS OF STROKE PREVENTION ON AN EPIDEMIOLOGICAL SCALE BY USE OF A QUICK CAROTID SCAN
George Lavenson, MD, *Uniformed Services University*

5:05 - 5:10
RF2 - LIVING IN A FOOD DESERT IS ASSOCIATED WITH INCREASED 2-YEAR MAJOR AMPUTATION RISK AFTER REVASCULARIZATION FOR CHRONIC LIMB-THREATENING ISCHEMIA
Eric Smith, *University of California San Francisco*

5:10 - 5:15
RF3 - AORTIC SIZE INDEX ACCOUNTS FOR SEX-SPECIFIC DIFFERENCES IN ABDOMINAL AORTIC ANEURYSM DIAMETER AT THE TIME OF RUPTURE
Blake Murphy, MD, *University of Washington*

5:15 - 5:20
RF4 - IMPLEMENTATION OF A WORKPLACE-BASED ASSESSMENT TOOL AMONG VASCULAR SURGERY RESIDENCY AND FELLOWSHIP PROGRAMS
Cali Johnson, MD, *University of Utah*

5:20 - 5:25
RF5 - DYNAMIC CHANGES IN FRAILTY FOLLOWING PHYSICIAN-MODIFIED FENESTRATED BRANCHED ENDOVASCULAR REPAIR OF COMPLEX ABDOMINAL AND THORACOABDOMINAL AORTIC ANEURYSMS
Alyssa Pyun, MD, *Keck Medical Center, University of Southern California*

5:25 - 5:30
RF6 - DEFINING VASCULAR DESERTS TO DESCRIBE ACCESS TO CARE AND IDENTIFY SITES FOR TARGETED LIMB PRESERVATION OUTREACH
Kathryn DiLosa, MD, *University of California Davis*

5:30 - 5:35
RF7 - USE AND OUTCOMES OF THE VIABAHN VBX® BALLOON-EXPANDABLE COVERED STENT FOR FENESTRATIONS DURING COMPLEX ENDOVASCULAR AORTIC ANEURYSM REPAIR (EVAR)
Felipe L. Pavarino, MD, *University of Texas, Southwestern Medical Center*

5:35 - 5:40
RF8 - CO-MORBID DEPRESSION AND PSYCHO-SOCIAL FACTORS INCREASE NINETY-DAY READMISSIONS AFTER VASCULAR-RELATED LOWER EXTREMITY AMPUTATION
Elliott Orloff, *Keck Medical Center, University of Southern California*

5:40 - 5:45
RF9 - IMPACT OF HOSPITAL TRANSFER ON ACUTE LIMB ISCHEMIA OUTCOMES AND TIME TO REVASCULARIZATION
Meghan McGillivray, *University of British Columbia*

5:45 - 5:50
RF10 - SELECTION OF ANESTHETIC MODALITY FOR SURGICAL HEMODIALYSIS ACCESS CREATION: A MULTI-INSTITUTIONAL EXPERIENCE
Maria Valadez, MD, *Harbor UCLA Medical Center*

5:50 - 5:55
RF11 - VIRTUAL INTERVIEWS IN COVID-19 ERA: THE TRAINEE PERSPECTIVE
Jaclyn Milici, MD, *Hospital of the University of Pennsylvania*

5:55 - 6:00 - RF12
TRANSFEMORAL CAROTID ARTERY STENTING SHOULD BE AVOIDED IN CHRONIC KIDNEY DISEASE
Nallely Saldana-Ruiz, MD, *University of Washington*

6:00 - 6:05
RF13 - SIMPLIFYING A PREOPERATIVE RISK SCORING SYSTEM TO IMPROVE USEFULNESS IN PREDICTING MORTALITY AFTER RUPTURED ABDOMINAL AORTIC ANEURYSM REPAIR
Jake Hemingway, MD, *University of Washington*

6:05 - 6:10
RF14 - IMPROVING ACCESS TO SPECIALTY CARE USING VASCULAR SURGERY E-CONSULTS
Nikunj Donde, MD, *University of California Davis*

6:00 PM – 7:30 PM **TERUMO SPONSORED CHAMPAGNE WELCOME RECEPTION**

7:00 PM – 8:30 PM **PAST PRESIDENTS DINNER**
Invitational

Denotes Hye Resident Award Competition Eligible

SUNDAY SEPTEMBER 18TH

6:30 AM – 1:00 PM **REGISTRATION**

7:00 AM – 7:45 AM **COOK MEDICAL SPONSORED DEI BREAKFAST**
"Equal Pay for Equal Work"
JeniAnn Yi, MD
LeAnn Chavez, MD, DEI Chair
Nii Kabu Kabutey, MD, DEI Committee
Kenneth Ziegler, MD, DEI Committee

7:00 AM – 11:45 AM **EXHIBITS**

7:45 AM – 8:00 AM **CALL TO ORDER & ANNOUNCEMENTS**
President Dr. Vincent Rowe

8:00 AM – 9:50 AM **SCIENTIFIC SESSION I**
PRESIDING: Vincent Rowe, MD, President
Matthew Mell, MD, Recorder
LeAnn Chavez, MD, DEI Chair

8:00 - 8:20
1 - OVERHEAD ARM SUPPORT REDUCES RADIATION EXPOSURE DURING COMPLEX ENDOVASCULAR AORTIC REPAIR RHEAD AAIR
Amit Pujari, MD, *University of Washington*
Discussant: Kenneth Ziegler, MD, *University of Southern California*

8:20 - 8:30
2 - GENDER DISPARITY IN DEVELOPING A CONVOLUTIONAL NEURAL NETWORK SPECIFIC FOR THE IDENTIFICATION OF INFRARENAL ABDOMINAL AORTIC ANEURYSMS
Sharon Kiang, MD, *Loma Linda University Medical Center*

Denotes Hye Resident Award Competition Eligible

8:30 - 8:50
3 - UNDERSTANDING WHO BENEFITS FROM ENDOVASCULAR AORTIC REPAIR IN THOSE WITH CHRONIC KIDNEY DISEASE
Mitri Khoury, MD, *University of Texas, Southwestern Medical Center*
Discussant: Gale Tang, MD, *VA Puget Sound Health Care System*

8:50 - 9:00
4 - 20 YEARS OF FOLLOW UP AFTER EVAR: LOST AND FOUND
Lisa Smith, RN, *Minneapolis VAMC*

9:00 - 9:20
5 - MOST PRIVATELY INSURED PATIENTS DO NOT RECEIVE FEDERALLY RECOMMENDED ABDOMINAL AORTIC ANEURYSM SCREENING
Vy Ho, MD, *Stanford Health Care*
Discussant: Nikhil Kansal, MD, *Harbor UCLA*

9:20 - 9:30
6 - EFFECTS OF PRE-STENTING TARGET VESSELS ON OUTCOMES AFTER FENESTRATED- BRANCHED ENDOVASCULAR AORTIC ANEURYSM REPAIR (F-BEVAR)
Felipe L. Pavarino, MD, *University of Texas, Southwestern*

9:30 - 9:50
7 - REINTERVENTIONS AFTER PHYSICIAN-MODIFIED ENDOVASCULAR GRAFTS FOR TREATMENT OF JUXTARENAL AORTIC ANEURYSMS ARE NON-DETRIMENTAL TO LONG- TERM SURVIVAL
Ayumi Tachida, *University of Washington*
Discussant: Linda Reilly, MD, *UC San Francisco*

Denotes Hye Resident Award Competition Eligible

9:50 AM – 10:20 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

10:20 AM – 11:00 AM **PRESIDENTIAL GUEST LECTURER**
Dr. Gilbert Upchurch, *University of Florida*

11:00 AM – 12:30 PM **SCIENTIFIC SESSION II**
PRESIDING: Vincent Rowe, MD, President
Omid Jazaeri, MD, Program Chair
Karen Woo, MD, PhD, Program Committee

11:00 - 11:20
8 - ENDOVASCULAR INITIAL REVASCULARIZATION APPROACH PREDICTS LOWER RATES OF HEALING AND AMBULATION AFTER TRANSMETATARSAL AMPUTATION
Clara Gomez-Sanchez, MD, *UC San Francisco*
Discussant: Niren Angle, MD, *John Muir Health*

11:20 - 11:30
9 - REGIONAL VARIATION OF THE NATIONAL ABDOMINAL AORTIC ANEURYSM SCREENING PROGRAM IN THE VETERAN'S HEALTH ADMINISTRATION
Elizabeth George, MD, *Stanford Health Care*

11:30 - 11:50
10 - ANKLE BRACHIAL INDEX AND WOUND CLASSIFICATION TEACHING TO PROVIDERS AS PART OF A COMPREHENSIVE LIMB PRESERVATION OUTREACH PROGRAM
Kathryn DiLosa, MD, *University of California Davis*
Discussant: Brian Matteson, MD, *St. Lukes Medical Center*

Denotes Hye Resident Award Competition Eligible

11:50 - 12:00
11 - FIBER OPTIC REALSHAPE (FORS) IMAGING USING UPPER EXTREMITY AND TRANSFEMORAL ACCESS FOR FENESTRATED-BRANCHED ENDOVASCULAR AORTIC ANEURYSM REPAIR (F-BEVAR)
Felipe L. Pavarino, MD, *University of Texas, Southwestern*

12:00 - 12:20
12 - ASSESSMENT OF CLINICAL OUTCOMES FOLLOWING LOWER EXTREMITY BYPASS AND PERCUTANEOUS REVASCULARIZATION: SHOULD WE BE FOLLOWING ABIS OR ASKING OUR PATIENTS?
Teryn Holeman, MD, *University of Utah*
Discussant: Joseph Mills, MD, *Baylor College of Medicine*

12:20 - 12:30
13 - THE EMOTIONAL IMPACT AND COPING MECHANISMS FOLLOWING ADVERSE PATIENT EVENTS AMONG CANADIAN VASCULAR SURGEONS AND TRAINEES
Sally Choi, MD, *University of British Columbia*

12:30 PM – 12:45 PM **SVS UPDATE –** Joseph Mills, MD

1:00 PM – 5:00 PM **GOLF TOURNAMENT AT BEAR MOUNTAIN GOLF COURSE**

2:00 PM – 5:00 PM **WHALE WATCHING TOUR (preregistration required)**

2:00 PM – 5:00 PM **MOCK ORALS**

6:00 PM – 8:00 PM **WESTERN FAMILY DINNER**

MONDAY SEPTEMBER 19TH

6:30 AM – 1:00 PM **REGISTRATION**

7:00 AM – 8:00 AM **BREAKFAST**

7:00 AM – 11:45 AM **EXHIBITS**

7:40 AM – 9:20 AM **SCIENTIFIC SESSION III**
Presiding: Vincent Rowe, MD, President
Elina Quiroga, MD, Program Committee
Nii Kabu Kabutey, MD, DEI Committee

7:40 - 8:00
14 - AORTIC ARCH LATERALITY IN ABERRANT SUBCLAVIAN ARTERY AND KOMMERELL'S DIVERTICULUM: A MULTI-INSTITUTIONAL STUDY
Clare Moffatt, *David Geffen School of Medicine at UCLA*
Discussant: Sherene Shalhub, MD,
Oregon Health and Science University

8:00 - 8:10
15 - COMPARATIVE OUTCOMES OF PHYSICIAN-MODIFIED FENESTRATED BRANCHED ENDOVASCULAR REPAIR OF POST-DISSECTION AND DEGENERATIVE COMPLEX ABDOMINAL OR THORACOABDOMINAL AORTIC ANEURYSMS
Alexander Dibartolomeo, MD,
Keck Medical Center of University of Southern California

8:10 - 8:30
16 - UTILIZATION AND COMPLICATIONS OF THORACIC ENDOVASCULAR REPAIR IN PATIENTS WITH GENETIC AORTOPATHY
Reggie Nkansah, MD, *University of Washington*
Discussant: Ali Azzizadeh, MD, *Cedar Sinai Medical Center*

Denotes Hye Resident Award Competition Eligible

8:30 - 8:50
17 - COMPARISON OF TREATMENT AND OUTCOME OF BLUNT THORACIC AORTIC INJURY(BTAI) BASED ON SOCIETY OF VASCULAR SURGERY (SVS) AND UNIVERSITY OF WASHINGTON(UW) GRADINGRECOMMENDATIONS
Rafael Lozano, MD, *University of California Davis*
Discussant: Elina Quiroga, MD, *University of Washington*

8:50 - 9:00
18 - MACHINE-LEARNING TO RISK STRATIFY PATIENTS WITH AORTIC GRAFT INFECTION
Jayer Chung, MD, *Baylor College of Medicine*

9:00 - 9:20
19 - PATIENT-SPECIFIC COMPUTATIONAL FLOW SIMULATION REVEALS SIGNIFICANT DIFFERENCES IN PARAVISCERAL AORTIC HEMODYNAMICS BETWEEN FENESTRATED AND BRANCHED ENDOVASCULAR ANEURYSM REPAIR
Kenneth Tran, MD, *Stanford Health Care*
Discussant: Omid Jazaeri, MD, *HealthOne Denver*

9:20 AM – 10:00 AM **PRESIDENTIAL ADDRESS**
Dr. Vincent Rowe

10:00 AM – 10:30 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

10:30 AM – 11:50 AM **SCIENTIFIC SESSION IV**
Vincent Rowe, MD, President
Ahmed Abou-Zamzam, Jr. MD, Treasurer
Jade Hiramoto, MD, Program Committee

Denotes Hye Resident Award Competition Eligible

10:30 - 10:50
20 - RELATIONSHIP BETWEEN WIFI STAGE AND QUALITY OF LIFE AT THE TIME OF REVASCULARIZATION IN THE BEST-CLI TRIAL
Jeffrey Siracuse, MD, *The Boston University*
Discussant: Amani Politano, MD,
Oregon Health and Science University

10:50 - 11:00
21 - EARLY RESULTS OF PATIENT REPORTED OUTCOMES FOR PERIPHERAL VASCULAR INTERVENTIONS FOR CLAUDICATION
Scott Berman, MD, *Pima Heart and Vascular*


11:00 - 11:20
22 - THE SVS WIFI CLASSIFICATION DOES NOT PREDICT SUCCESSFUL HEALING FOLLOWING TRANSMETATARSAL AMPUTATION
Jake Hemingway, MD, *University of Washington*
Discussant: Manuel Garcia-Toca, MD, *Stanford Health Care*

11:20 - 11:30
23 - OUTCOMES OF ELECTIVE ENDOVASCULAR INTERVENTIONS FOR PERIPHERAL ARTERIAL OCCLUSIVE DISEASE PERFORMED IN HOSPITAL OUTPATIENT DEPARTMENTS VERSUS AMBULATORY SURGICAL CENTERS VERSUS OFFICE-BASED LABS
Christopher Chow, MD, *University of California San Diego*

11:30 - 11:50
24 - PRELIMINARY CLINICAL VALIDATION RESULTS OF A DEEP LEARNING APPROACH FOR ANKLE-BRACHIAL INDEX PREDICTION IN NON-COMPRESSIBLE TIBIAL VESSELS
Arash Fereydooni, MD, *Stanford Health Care*
Discussant: David Rigberg, MD,
David Geffen School of Medicine at UCLA


Denotes Hye Resident Award Competition Eligible

11:50 AM – 12:00 PM	**BREAK**
12:00 PM – 12:30 PM	**WVS BUSINESS MEETING**
12:30 PM – 2:30 PM	**Medtronic Sponsored** **VSIG ROUND TABLE** **LUNCHEON SYMPOSIUM** Saanich Room
1:00 PM – 5:00 PM	**BUTCHART GARDENS TOUR**
6:00 PM – 7:00 PM	**PRESIDENT'S RECEPTION** (by invitation) Library Room
7:00 PM – 9:00 PM	**PRESIDENTIAL BANQUET** **BLACK AND WHITE THEME** Crystal Ballroom

TUESDAY SEPTEMBER 20TH

7:00 AM – 7:30 AM **BREAKFAST WITH EXHIBITORS**

7:00 AM – 11:45 AM **EXHIBITS**

7:30 AM – 9:00 AM **SCIENTIFIC SESSION V**
Presiding: Wei Zhou, MD, President
Niten Singh, MD, VSIG Chairman
Kenneth Ziegler, MD, DEI Committee Chair

7:30 - 7:50
25 - ADDITION OF THE ILIAC ARTERY CALCIFICATION BURDEN SCORE IMPROVES THE VASCULAR QUALITY INITIATIVE MORTALITY PREDICTION MODEL IN PATIENTS WITH CHRONIC LIMB-THREATENING ISCHEMIA
Cindy Huynh, MD, *University of California San Francisco*
Discussant: Roy Fujitani, MD, *University of California Irvine*

7:50 - 8:00
26 - PRESENTATION AND MANAGEMENT OF SPLENIC ARTERIOPATHY IN PATIENTS WITH VASCULAR EHLERS DANLOS SYNDROME
Asmaa El-Ghazali, MD, *University of Washington*

8:00 - 8:20
27 - AUGMENTED INTELLIGENCE MAPS CAN IMPROVE INTRAOPERATIVE OUTCOMES
Rohini Patel, MD, *University of California San Diego*
Discussant: Elsie Ross, MD, *Stanford Health Care*

8:20 - 8:30 -
28 - PERCUTANEOUS THROMBECTOMY FOR ACUTELY OCCLUDED ARTERIOVENOUS DIALYSIS ACCESSES IS SAFE AND PROLONGS ACCESS FUNCTIONALITY
Claire Janssen, MD, *University of California Davis*

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

8:30 - 8:50
29 - ONE YEAR CLINICAL OUTCOMES OF POPLITEAL STENTING IN CHRONIC LIMB THREATENING ISCHEMIA
Jake Hemingway, MD, *University of Washington*
Discussant: Christian Ochoa, MD,
University of Southern California

8:50 - 9:00
30 - USE OF POLYGENIC RISK SCORES TO IMPROVE DETECTION OF PERIPHERAL ARTERY DISEASE: AN INSTITUTIONAL USE CASE
John Cabot, MD, *Stanford Health Care*

9:00 AM – 9:30 AM **COFFEE BREAK WITH EDUCATIONAL EXHIBITORS**

9:30 AM – 11:00 AM **SCIENTIFIC SESSION VI**
Presiding: Dr. Zhou and Dr. Mell
Wei Zhou, MD, President
Matthew Mell. MD, Recorder
Ali Azizzadeh, MD, Membership Chair

9:30 - 9:50
31 - IMPROVEMENT OF HEALTH INSURANCE AND OUTCOMES OF MEDICAID BENEFICIARIES WITH DIABETIC FOOT ULCERATIONS
Tze Woei Tan, MD, *University of Arizona*
Discussant: LeAnn Chavez, MD, *University of New Mexico*

9:50 - 10:00
32 - NEIGHBORHOOD DEPRIVATION TRENDS IN PATIENTS UNDERGOING CAROTID ENDARTERECTOMY
Sammy Siada, MD,
University of California San Francisco at Fresno

Denotes Hye Resident Award Competition Eligible

Denotes Founders Award Competition Eligible

10:00 - 10:20
33 - FRAILTY DOES NOT PREDICT WORSE OUTCOMES FOLLOWING LOWER EXTREMITY ANGIOGRAMS FOR LIMB ISCHEMIA IN NONAGENARIANS
Jaclyn DeRieux, MD, *Santa Barbara Cottage Hospital*
Discussant: Venita Chandra, MD, *Stanford Health Care*

10:20 - 10:30
34 - STRUCTURED DISCHARGE DOCUMENTATION REDUCES SEX-BASED DISPARITIES IN STATIN PRESCRIPTION IN VASCULAR SURGERY PATIENTS
Katherine Sanders, MD, *University of California San Francisco*

10:30 - 10:50
35 - POOR UTILIZATION OF PALLIATIVE CARE AMONGST MEDICARE PATIENTS WITH CHRONIC LIMB THREATENING ISCHEMIA
Mimmie Kwong, MD, *University of California Davis*
Discussant: Ahmed Abou-Zamzam, Jr. MD,
Loma Linda University

10:50 - 11:00
36 - INTRAVASCULAR LITHOTRIPSY FOR PLAQUE MODIFICATION IN TRANS-CAROTID ARTERY REVASCULARIZATION
Sally Schonefeld, MD, *Cedars-Sinai Medical Center*

11:00 AM – 11:30 AM **AWARDS**

11:30 AM **MEETING ADJOURNS**

 Denotes Hye Resident Award Competition Eligible

 Denotes Founders Award Competition Eligible

NOTES

SCIENTIFIC SESSION ABSTRACTS

SCIENTIFIC SESSION ABSTRACTS

1. Overhead Arm Support Reduces Radiation Exposure During Complex Endovascular Aortic Repair

Amit Pujari, Myra Ahmad, Matthew Sweet, Sara Zettervall
University of Washington, Seattle, WA, USA

Objectives: Complex endovascular aortic surgery is associated with increased fluoroscopic radiation exposure. Radiation dosage necessary for visualization is associated with the amount of tissue penetration required. Elevation of a patient's arms above their head during endovascular surgery allows for improved visualization. This study aims to determine the effect of arm elevation on radiation dose exposure.

Methods: All patients enrolled in a single institution, physician-sponsored IDE study for the endovascular treatment of thoracoabdominal aneurysms (F/BEVAR) were assessed from 2016-2022. The first 30 patients treated were excluded to account for the learning curve required with treatment. Patients treated after December 2020 were positioned with arms elevated above their head using an overhead arm support (OAS) (Figure 1). These patients were compared to those who underwent F/BEVAR prior to the practice change. Radiation dose, fluoroscopy time, and volume of contrast used were compared. A subgroup analysis was performed for patients with brachial access.

Results: 145 patients were included in the study, with 43 (30%) undergoing F/BEVAR with arms supported overhead. No differences were identified in age, BMI, aneurysm size, or history of prior aortic intervention between the groups with and without use of OAS. History of dissection (23% vs 7.8%, P=0.01) occurred more frequently among patients treated with their arms-up (Table 1). Arm elevation was associated with a significant reduction in mean radiation exposure (2261 vs 3100 mGy, P=.01) (Table 2). No difference was observed in fluoroscopy time or volume of contrast used between the two groups. Importantly, no patients experienced palsy of the brachial plexus. Fifty-five (38%) patients required brachial arterial access, limiting the ability to elevate both arms. In subgroup analysis for patients who did not require brachial access, the improvement in radiation exposure with arm elevation was significant (2159 vs. 3179 mGy, P<.01).

Conclusion: Elevation of a patient's arms above their head using OAS during F/BEVAR offers a low-cost, simple strategy that results in a 30% reduction in radiation exposure without added complication. This technique improves visualization and reduces radiation exposure for patients and physicians.

Figure 1

Intraoperative positioning of patients undergoing complex endovascular aortic surgery using overhead arm support (OAS).

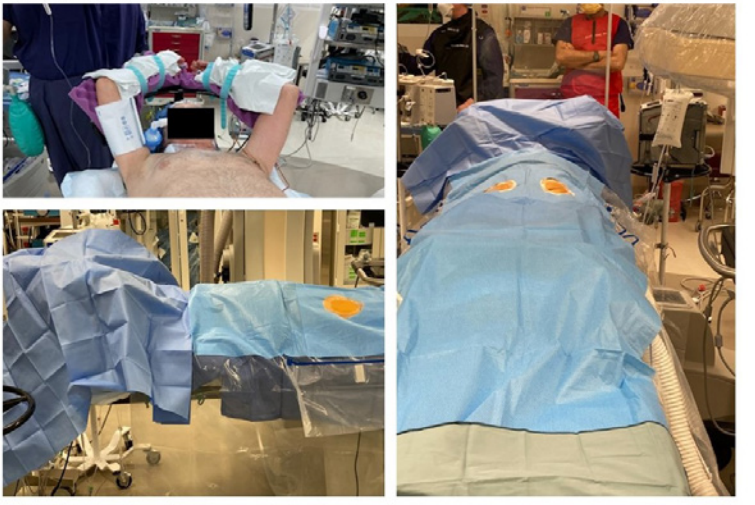


Table 1

Baseline characteristics of patients positioned with and without arm elevation during F/BEVAR[1].

	Arms Down (n = 102) Mean or Count (SD or percentage)	Arms Elevated (n = 43) Mean or Count (SD or percentage)	P-Value
Age	72 (7.5)	75 (7.4)	0.04
BMI[1]	26.7 (4.8)	25.9 (3.8)	0.33
Extent 4 TAAA[2]	42 (41%)	19 (44%)	0.74
Prior Aortic Intervention	55 (54%)	23 (54%)	0.96
Brachial Access	51 (50%)	4 (9.3%)	< 0.01
Urgent Indication	13 (13%)	9 (21%)	0.21
Dissection	8 (7.8%)	10 (23%)	< 0.01
Additional Aortic Grafts Placed during F/BEVAR[1]	87 (85%)	40 (93%)	0.20
Proximal TEVAR[1]	47 (46%)	16 (37%)	0.33
Distal Aortic Device	73 (72%)	36 (84%)	0.12

[1]Abbreviations: F/BEVAR, Fenestrated - Branched Endovascular Aortic Repair; BMI, Body Mass Index; TEVAR, Thoracic Endovascular Aortic Repair

[2]Thoracoabdominal Aortic Aneurysm classified as Crawford Extent 4 and including Pararenal Abdominal Aortic Aneurysms

Author Disclosures: A Pujari: Nothing to disclose, **M Ahmad**: Nothing to disclose, **M Sweet**: Nothing to disclose, **S Zettervall:** Nothing to disclose

2. Gender Disparity in Developing a Convolutional Neural Network Specific for the Identification of Infrarenal Abdominal Aortic Aneurysms

Sharon Kiang[1], Justin Camara[1], Alan Dardik[2], Jeffrey Siracuse[3], Roger Tomihama[1]
[1]*Loma Linda University Medical Center, Loma Linda, CA, USA,* [2]*Yale University School of Medicine, New Haven, CT, USA,* [3]*Boston University School of Medicine, MA, USA*

Background: To determine if gender training and testing factors affect the accuracy of a convolutional neural network (CNN) for infrarenal abdominal aortic aneurysms (AAA) identification on computed tomography angiogram (CTA) scans.

Method: From 2015 to 2020, a HIPAA-compliant, IRB–approved, retrospective study analyzed 400 abdominopelvic CTA scans. Utilizing a previously reported methodology to develop a foundational AAA-specific trained CNN, 6 new CNN models were created under varying gender training and testing conditions to assess overall accuracy: male-only training/male-only testing, female-only training/female-only testing, male-only training/all testing, female-only training/all testing, all training/male-only testing, all training/female-only testing. Model accuracy and AUC were analyzed and reported. Misjudgments were analyzed by review of heatmaps, via gradient weighted class activation, overlaid on CTA images.

Results: Similar to our previously reported custom CNN model for AAA on CTA images, five of six of the new gender-restricted training/testing CNN models also demonstrated high levels of sensitivities (96.6% - 99.1%), specificities (98.4% - 99.6%), and overall accuracies (98.0% - 99.1%). However, the gender model that was trained with female-only cases and tested on both male and female cases demonstrated a significantly reduced level of specificity (87.7%) and reduced overall accuracy (93.0%). Interestingly, the companion gender model (male-only cases and tested on both male and female cases) maintained a high level of specificity (99.5%) and overall accuracy (98.0%). A preliminary subanalysis demonstrates aneurysm size and mural thrombus appear to be factors in the misjudgment cases.

Conclusion: Preliminary analysis determined that female-only gender training has a reduced accuracy in the development of CNN for AAA identification on CT angiograms. Further investigation is needed to elucidate the reason for the gender disparity to rectify any future AI AAA modeling for real-world application and deployment.

Author Disclosures: S Kiang: Nothing to disclose, **J Camara:** Nothing to disclose, **A Dardik:** Nothing to disclose, **J Siracuse:** Nothing to disclose, **R Tomihama:** Nothing to disclose

3. Understanding Who Benefits From Endovascular Aortic Repair in Those With Chronic Kidney Disease

Mitri Khoury[1], Fred Weaver[2], Micah Thornton[1], Bala Ramanan[1], Shirling Tsai[1], Carlos Timaran[1], John Modrall[1]

[1]University of Texas, Southwestern Medical Center, Dallas, TX, USA, [2]University of Southern California, Los Angeles, CA, USA

Objectives: Endovascular aortic repair (EVAR) is the preferred method of repair for abdominal aortic aneurysms (AAAs). However, patients with advanced chronic kidney disease (CKD) are a high-risk group and it is unknown which CKD patients benefit from EVAR versus continued surveillance. The purpose of this study was to identify which advanced CKD patients may benefit from EVAR.

Methods: The VQI Database was utilized to identify elective EVARs for AAAs. CKD stages were categorized based on preoperative eGFR and dialysis status. Predicted one-year mortality of untreated AAAs was calculated by modifying a validated comorbidity score that predicts one-year mortality (Gagne Index) with the one-year aneurysm-related mortality without repair. The primary outcome was one-year mortality.

Results: A total of 34,926 patient met study criteria. There were differences in Gagne Indices among the varying classes of CKD (Table 1). Patients with CKD4 and CKD5 had the highest one-year mortality rates, followed by CKD3, which was significantly higher than those with CKD1 and CKD2 (Table 1). Amongst CKD patients (CKD 3-5), females had higher one-year mortality compared to males (9.6% versus 6.7%, P<.001). Patients with CKD4 had no differences between actual one-year mortality with EVAR and predicted one-year survival without EVAR across all AAA sizes (Table 2). Those with CKD5 had worse actual one-year survival with EVAR than predicted one-year survival without EVAR for AAAs <5.5cm (Table 2). CKD5 patients only experienced an actual mortality benefit with EVAR compared to predicted one-year mortality without EVAR for AAAs >7.0cm (Table 2).

Conclusions: The current data suggest that patients with CKD4 and 5 represent a high-risk group who may not benefit from EVAR utilizing traditional size criteria. Patients with advanced CKD and AAAs <5.5cm do not benefit from EVAR. In patients with CKD5, EVAR should be reserved for AAAs >7.0cm.

Table 1. Gagne index and 1-year mortality amongst the various chronic kidney disease (CKD) stages.

	CKD1 (n=8,183)	CKD2 (n=16,888)	CKD3 (n=8,746)	CKD4 (n=624)	CKD5 (n=484)	P-Value
Gagne Index#	1 [0-2][a]	1 [0-2][a]	3 [3-4][b]	4 [3-5][c]	2 [1-4][d]	<.001
1-Year Mortality	338 (4.1%)[a]	659 (3.9%)[a]	565 (6.5%)[b]	95 (15.2%)[c]	76 (15.7%)[c]	<.001

#Median [Interquartile range]
Each superscript letter denotes a column whose medians or proportions do not differ at the .05 level.

Table 2. Actual one-year mortality rates with endovascular aortic repair (EVAR) versus predicted one-year mortality rates without EVAR in those with chronic kidney disease (CKD) stages 4 and 5.

CKD Stage	AAA Size (cm)	N	Actual	Predicted	P-Value
CKD4	<5.5	244	11.1%	11.9%	.777
	5.5-5.9	175	14.3%	20.3%	.122
	6.0-6.9	144	18.1%	20.6%	.553
	≥7.0	61	27.9%	40.7%	.130
CKD5	<5.5	205	17.1%	7.9%	.004
	5.5-5.9	122	13.9%	16.1%	.594
	6.0-6.9	108	16.7%	16.0%	.854
	≥7.0	50	12.0%	34.9%	.005

Author Disclosures: M Khoury: Nothing to disclose, **F Weaver:** Nothing to disclose, **M Thornton:** Nothing to disclose, **B Ramanan:** Nothing to disclose, **S Tsai:** Nothing to disclose, **C Timaran:** Nothing to disclose, **J Modrall:** Nothing to disclose

4. 20 Years of Follow Up After Evar: Lost and Found

Lisa Smith[2], Jack Dogenes[1], Paul Orecchia[2], Derrick Green[2], Rebecca Brown[2], Daniel Ihnat[2]
[1]*University of Minnesota, Minneapolis, MN, USA,* [2]*Minneapolis VAMC, Minneapolis, MN, USA*

Background: Endovascular aortic aneurysm repair (EVAR) requires life-long follow up to evaluate for potential endograft failure. Compliance with recommended surveillance protocols is reported to range from 40-90%. Patients lost to follow up (LTF) are often characterized as compliant, partially or non-compliant. The literature lacks data on system issues responsible for LTF, recovery from LTF and the consequences of LTF. This study was designed to evaluate our own follow-up, evaluate the causes of LTF, the consequences and create solutions.

Methods: This is a single-institution retrospective longitudinal cohort analysis of patients who underwent elective EVAR from January 2001 to December 2021 for abdominal aortic aneurysms (AAA) or iliac aneurysms. Data collected includes patient demographics, follow-up, reasons for LTF, reasons for recovery of follow up, secondary interventions, aneurysm related mortality and survival. LTF was defined as greater than a 2 year gap in imaging surveillance.

Results: During the 20 year period, 912 patients underwent EVAR with a mean follow-up of 5.5 years. A total of 496 (54%) patients had complete follow up, and 416 (46%) had at least one 2 year gap in imaging (range 1-4 gaps). Gaps between surveillance imaging ranged from 2-11.7 years. Systems factors account for 82% LTF (Table 1). During follow-up, 199 died while LTF; 6 (3%) of these died from aneurysm related mortality. October 2019 we embarked on a mission to recapture patients LTF utilizing a nurse managed database to direct follow up and retrieve patients LTF. We were successful at recovering 90% of the 106 patients still living. Of the 95 patients recovered, 10% required secondary interventions for an enlarging aneurysm.

Conclusions: Our data, contrary to the literature, reveals a complex mixture of patient and systems factors that lead to LTF. Systems factors account for the majority of reasons that patients are LTF. A nurse managed prospective database is a safe and effective method to recall and maintain surveillance protocols. LTF remains a significant problem and is responsible for aneurysm related mortality.

Table 1. Reasons for patients experiencing >2-year imaging gap (Lost) and reasons for recovery (Found) over a 20-year period.

"Lost" (>2-years)	N	%	"Found"	N	%
Total Patient Factors	**64**	**13%**	**Total Patient Factors**	**3**	**1%**
Changed follow-up location	18	4%	Request follow-up	3	1%
Missed follow-up image/clinic appt	46	10%			
Total System Factors	**389**	**82%**	**Total System Factors**	**263**	**55%**
Co-managed care	12	3%	Recovered by primary	56	12%
Dropped by primary	46	10%	Recovered by vascular	32	7%
No clinic follow-up	174	37%	Follows outside VA	1	0%
No re-image ordered	104	22%	Emergency Room Presentation	11	2%
Imaging order expired	23	5%	Consult	62	13%
other vascular procedure eclipsed care	20	4%	Study	101	21%
scan acknowledged by other than vascular	10	2%			
Unknown Factors	**23**	**5%**	**Unknown Factors**	**11**	**2%**
Total	**476**	**100%**	**Total Recovered**	**277**	**58%**
			Died while LTF	**199**	**42%**

Author Disclosures: J Dogenes: Nothing to disclose, **L Smith:** Nothing to disclose, **P Orecchia**: Nothing to disclose, **D Green:** Nothing to disclose, **R Brown:** Nothing to disclose, **D Ihnat:** Nothing to disclose

5. Most Privately Insured Patients do not Receive Federally Recommended Abdominal Aortic Aneurysm Screening

Vy Ho[1], Kenneth Tran[1], Elizabeth George[1], Steven Asch[1], Jonathan Chen[2,3], Ronald Dalman[1], Jason Lee[1]

[1]Division of Vascular Surgery, Stanford University, Stanford, CA, USA, [2]Department of Medicine, Stanford University, Stanford, CA, USA, [3]Center for Biomedical Informatics Research, Stanford, CA, USA

Objectives: Since 2005, the United States Preventative Task Force (UPSTF) has recommended abdominal aortic aneurysm (AAA) ultrasound screening for 65- to 75-year-old male ever-smokers. Integrated health systems such as Kaiser Permanente and the Veterans Affairs (VA) healthcare system report 74-79% adherence, but compliance rates in the private sector are unknown.

Methods: The IBM Marketscan® Commercial and Medicare Supplemental databases (2006 -2017) were queried for male ever-smokers continuously enrolled from age 65 to 75. Exclusion criteria were previous history of abdominal aortic aneurysm, connective tissue disorder, and aortic surgery. Patients with abdominal computed tomographic or magnetic resonance imaging from ages 65 to 75 were also excluded. Screening was defined as a complete abdominal, retroperitoneal, or aortic ultrasound. A logistic mixed-effects model with state as a random intercept was used to identify patient characteristics associated with screening.

Results: Of 35,154 eligible patients, 13,612 (38.7%) underwent screening. Compliance varied by state, ranging from 24.4% in Minnesota to 51.6% in Montana ($p < 0.05$, Figure 1). Screening activity increased yearly, with 0.7% of screening activity occurring in 2008 versus 22.2% in 2016 (Figure 2, $p < 0.05$). In a logistic mixed-effects model adjusting for state as a random intercept, history of hypertension (OR 1.07, 95% CI [1.03 – 1.13]), coronary artery disease (OR 1.17, 95% CI [1.10, 1.22]), congestive heart failure (OR 1.14, 95% CI [1.01 – 1.22]), diabetes (OR 1.1, 95% CI [1.06 – 1.16]) and chronic kidney disease (OR 1.4 95% CI [1.24 – 1.53]) were associated with screening. Living outside of a census-designated metropolitan area was negatively associated with screening (OR 0.92, 95% CI [0.87 – 0.97]).

Conclusions: In a private claims database representing 250 million claimants, 38.7% of eligible patients received UPSTF-recommended AAA screening. Compliance was nearly half that of integrated health systems and was significantly lower for patients living outside of metropolitan areas. Efforts to improve early detection of AAA should include targeting non-metropolitan areas and modifying Medicare reimbursement and incentivization strategies to improve guideline adherence.

Figure 1. Heatmap of Screening Adherence by State

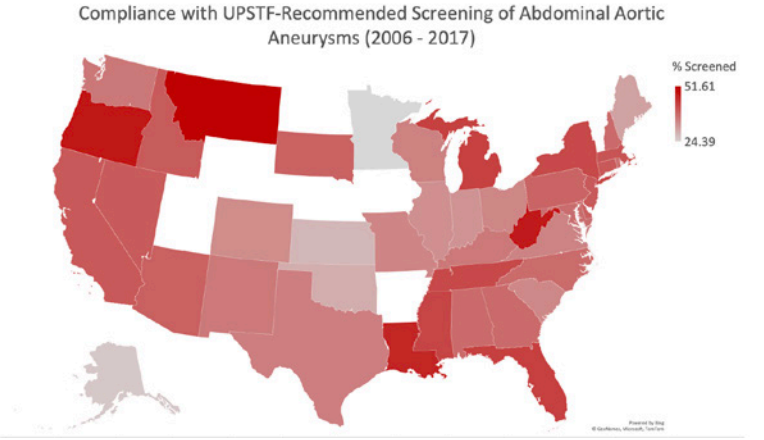


Figure 2. Distribution of AAA Screening Activity by Year

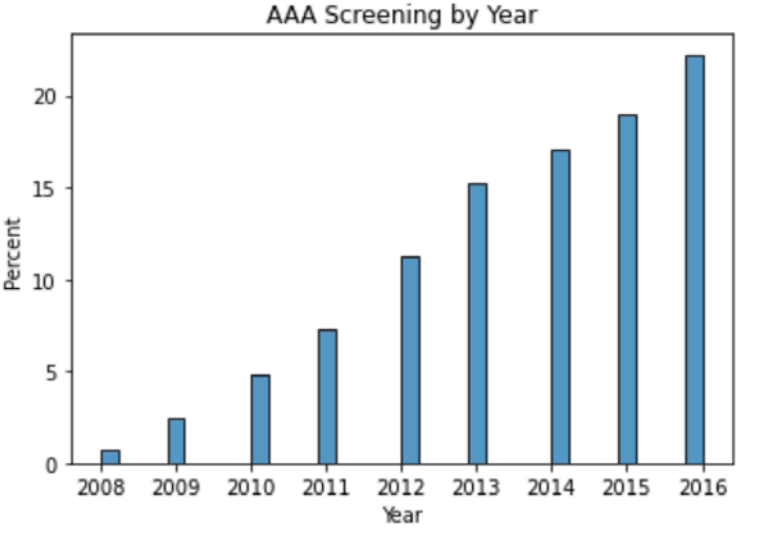


Table I. Patient Demographics

	Screened (N = 13612)	Not Screened (N = 21542)	P-value
Outside of Metropolitan Area	2860 (21.0%)	4860 (22.6%)	< 0.01
Medical History			
Hypertension	9387 (69.0%)	14159 (65.7%)	< 0.01
Coronary Artery Disease	4152 (30.5%)	5667 (35.7%)	< 0.01
Hyperlipidemia	9727 (71.5%)	15004 (69.6%)	< 0.01
Chronic Kidney Disease	784 (5.8%)	733 (3.4%)	< 0.01
Type 2 Diabetes Mellitus	4609 (33.9%)	6484 (30.0%)	< 0.01
Chronic Obstructive Pulmonary Disease	940 (6.9%)	1506 (7.0%)	< 0.01

Author Disclosures: V Ho: Nothing to disclose, **K Tran**: Nothing to disclose, **E George**: Nothing to disclose, **S Asch**: Nothing to disclose, **J Chen**: Nothing to disclose, **R Dalman**: Nothing to disclose, **J Lee:** Nothing to disclose

6. Effects of Pre-Stenting Target Vessels on Outcomes After Fenestrated-Branched Endovascular Aortic Aneurysm Repair (F-BEVAR)

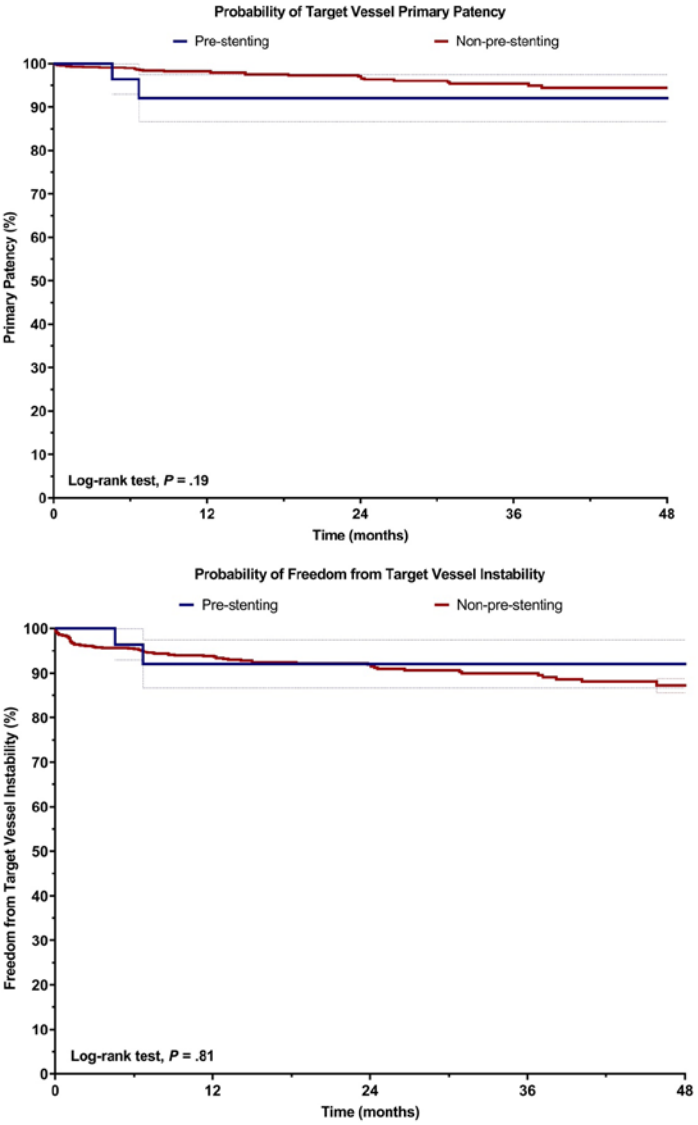
Felipe L. Pavarino, Jesus Porras-Colon, Alejandro Pizano, Carlos Timaran
University of Texas Southwestern Medical Center, Dallas, TX, USA

Background: Target vessels (TV) stenosis among patients with complex aortic aneurysms may result in branch instability after fenestrated/branched endovascular aortic aneurysm repair (F-BEVAR). Stenosis, dissection, or adverse anatomic features may hamper target vessel incorporation and prolong the operative time. Staged pre-stenting may facilitate TV preservation. The aim of the study was to assess the outcomes of target vessel pre-stenting prior to F-BEVAR.

Methods: Over a 7-year period, 304 patients underwent F-BEVAR at a single institution. Target vessels stenosis was defined as computed tomography angiography-based intraluminal diameter reduction >50%. Pre-stenting was performed for patients with stenosis, dissection or features that could result in TV loss or difficult catheterization or stenting during F-BEVAR. Endpoints included target vessel patency, target vessel instability (TVI) and operative time.

Results: Among 304 patients, 70 (23%) had significant TV stenosis. Staged pre-stenting was performed for 27 (8.9%) patients, including 3 celiac arteries (CA), 2 superior mesenteric arteries (SMA), and 28 renal arteries (RA). No target vessel loss occurred during staged pre-stenting. A total of 1099 non-pre-stented vessels were evaluated (243 CA, 290 SMA, 550 R/LRA, and 16 other vessel). Median F-BEVAR operative time was 297 minutes (interquartile range [IQR], 224-421) for the pre-stenting group and 289 (IQR, 245-355) for the non-pre-stenting group (P=.64). Median follow-up period was 33 months (IQR, 15-89). Primary patency rates for patients with and without staged pre-stenting at 12, 24, and 48 months were 92%, 92%, and 92%, and 98%, 97% and 94%, respectively (P=.19) (Fig 1). Freedom from TVI at 12, 24, and 48 months were 92%, 92%, and 92% for patients with staged pre-stenting and 94%, 92%, and 87% for those without pre-stenting, respectively (P=.82) (Fig 2). Pre-stenting did not affect primary patency (hazard ratio [HR], 4.4; 95% IC, 0.49-38) or TVI (HR, 0.85; 95% IC, 0.23-3.1).

Conclusions: Staged pre-stenting of target vessels prior to F-BEVAR is feasible and does not affect primary patency or freedom from TV instability. Patients with prior TV stenosis, dissection or other adverse features may benefit from staged pre-stenting.



Author Disclosures: F L Pavarino: Cook Medical – Consultant – Research support; WL Gore & Associates – Consultant – Research support, **J Porras-Colon:** Nothing to disclose, **A Pizano:** Nothing to disclose, **C Timaran:** Nothing to disclose

7. Reinterventions After Physician-Modified Endovascular Grafts for Treatment of Juxtarenal Aortic Aneurysms are Non-Detrimental to Long-Term Survival

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Objectives: Reintervention after endovascular aortic aneurysm repair (EVAR) is common. However, their frequency and impact on mortality after physician-modified endografts (PMEG) is unknown. This study aims to describe reinterventions after PMEG for treatment of juxtarenal aneurysms and their effect on survival.

Methods: Data from a prospective investigational device exemption clinical trial (Identifier #NCT01538056) from 2011 to 2022 were used. Reinterventions after PMEG were categorized as open or percutaneous and major or minor by Society for Vascular Surgery reporting standards and as high or low magnitude based on physiologic impact. Reinterventions were also categorized as early or late based on whether they occurred within one week of the index procedure. Survival was compared between patients who did and did not undergo reintervention and between reintervention subcategories.

Results:170 patients underwent PMEG, 50 (29%) of whom underwent a total of 91 reinterventions (mean reinterventions/patient = 1.8). Freedom from reintervention was 84% at 1 year and 72% at 5 years. Reinterventions were most often percutaneous (80%), minor (55%), and low magnitude (77%), and the most common reintervention was renal stenting (26%, Figure 1). There were 10 early reinterventions. Two aortic-related mortalities occurred after reintervention. There were no differences in survival between patients who underwent reintervention and those who did not (Figure 2A & Table I). However, survival differed based on the timing of reintervention (Figure 2B). After adjusted analysis, early reintervention was associated with an increased risk of mortality both compared to late reintervention (HR, 11.1, 95% CI, 2.7-47, P< .001) and no reintervention (HR, 5.2, 95% CI, 1.6-16.8, P<.01).

Conclusions: Reinterventions after PMEG were most commonly percutaneous, minor, and low magnitude procedures, and non-detrimental to long-term survival. However, early reinterventions were associated with increased mortality risk. These data suggest a modest frequency of reinterventions should be expected after PMEG, emphasizing the critical importance of lifelong surveillance.

Reintervention Type	Reinterventions	Interval to RI, months
Percutaneous	73 (80)	
Treatment of indwelling branch		
Renal stent/PTA	24 (26)	20.4 ± 17.2
Common iliac stent	12 (13)	10.5 ± 10.8
SMA stent/PTA	3 (3)	10.4 ± 9.5
Celiac stent/PTA	2 (2)	23.0 ± 29.0
Celiac lysis and stenting	1 (1)	65.9 ± NA
Renal branch embolization	1 (1)	0.00 ± NA
Diagnostic angiography	4 (4)	21.1 ± 18.3
Proximal or distal extension		
Embolization and limb extension	4 (4)	28.8 ± 15.2
TEVAR	2 (2)	34.5 ± 13.8
Aortic cuff	1 (1)	23.6 ± NA
Branched repair of Type 4 aneurysm	1 (1)	37.1 ± NA
Iliac branch device	1 (1)	59.3 ± NA
Iliac limb extension	1 (1)	0.03 ± NA
Treatment of type II endoleak		
Lumbar embolization	2 (2)	20.8 ± 9.2
Translumbar sac embolization	2 (2)	40.4 ± 13.3
IMA embolization	1 (1)	26.7 ± NA
External iliac stent	4 (4)	7.2 ± 13.3
Femoral stent	4 (4)	43.1 ± 28.0
Coil embolization of aorta	1 (1)	35.9 ± NA
Thrombolysis	1 (1)	3.4 ± NA
Thrombectomy	1 (1)	17.0 ± NA
Open	18 (20)	
Arterial		
Open femoral artery repair	4 (4)	7.8 ± 15.2
Femoral-femoral bypass	3 (3)	7.3 ± 8.5
Femoral-distal bypass	1 (1)	7.4 ± NA
Open repair of endoleak	1 (1)	49.0 ± NA
Open iliac aneurysm repair	1 (1)	42.3 ± NA
Evacuation of RP hematoma	2 (2)	21.2 ± 29.9
Laparotomy	2 (2)	0.08 ± 0.02
Abdominal closure	1 (1)	49.0 ± NA
Fasciotomy	1 (1)	0.03 ± NA
Femoral thromboendarterectomy	1 (1)	0.6 ± NA
Popliteal endarterectomy	1 (1)	19.8 ± NA

RI, reintervention; *NA*, not applicable; *PTA*, percutaneous transluminal angioplasty; *SMA*, superior mesenteric artery; *IMA*, inferior mesenteric artery; *TEVAR*, thoracic endovascular abdominal aortic aneurysm repair. Data presented as n (%) or mean ± standard deviation.

Figure 1. Summary of percutaneous and open reinterventions.

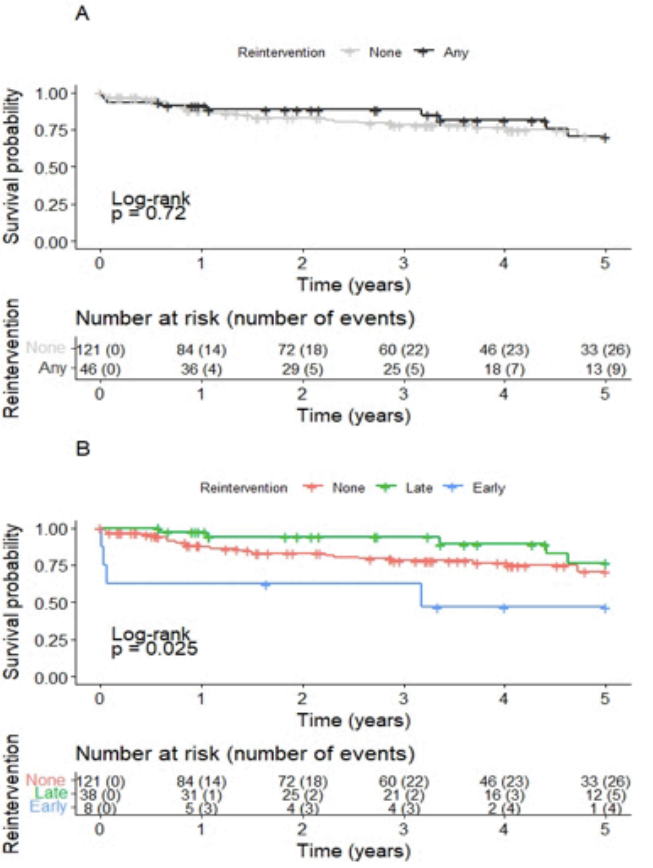

Fig 2A. Kaplan-Meier survival analysis comparing all patients who had undergone reintervention to those who had not out of the 167 patients who had undergone PMEG. Three patients who had rupture after PMEG were excluded from survival analyses.

Fig 2B. Kaplan-Meier survival analysis comparing patients who had undergone reintervention within one week of the index procedure, those who had undergone reintervention greater than one week after index procedure, and those who did not undergo reintervention.

Table I. Adjusted survival analysis for patients undergoing reintervention.

Factor	Number of patients (% of all patients)	Number of reinterventions (% of all reinterventions)	All-cause mortality HR (95% CI)*
Any reintervention	50 (29)	91 (100)	0.8 (0.4-1.7)
Early	8 (5)	10 (11)	**5.2 (1.6-16.8)**
Late	38 (22)	81 (89)	0.5 (0.2-1.2)
Major	22 (13)	41 (45)	1.5 (0.5-4.5)
Minor	35 (21)	50 (55)	0.5 (0.2-1.5)
High magnitude	13 (8)	21 (23)	1.0 (0.2-4.3)
Low magnitude	44 (26)	70 (77)	0.7 (0.3-1.8)
Open	12 (7)	16 (18)	1.0 (0.2-4.5)
Percutaneous	45 (26)	75 (82)	0.7 (0.3-1.8)

% may sum to >100 as some patients had multiple reinterventions across categories. Such patients were classified in the highest magnitude/impact category for survival analysis.
*Data presented as hazard ratio (95% confidence interval) compared to no reintervention in Cox regression models adjusted for age, sex, and comorbidities. Boldface represents statistical significance (P<.05).

Author Disclosures: A Tachida: Nothing to disclose, **N Stafforini**: Nothing to disclose, **N Singh**: Nothing to disclose, **B Starnes**: Nothing to disclose, **S Zettervall**: Nothing to disclose

8. Endovascular Initial Revascularization Approach Predicts Lower Rates of Healing and Ambulation After Transmetatarsal Amputation

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Objectives: Transmetatarsal amputation (TMA) represents a chance to maintain ambulatory function in patients with significant distal tissue compromise. Successful revascularization is key to optimizing limb salvage in patients with chronic limb threatening ischemia (CLTI). We hypothesize that CLTI patients have better healing and functional outcomes with initial open revascularization (OPEN) compared with endovascular (ENDO) when undergoing TMA.

Methods: Consecutive TMAs performed at three centers between 1/1/2008 and 12/31/2020 were retrospectively reviewed. Baseline characteristics including wound class, vascular studies, healing and ambulatory outcomes were collected. GLASS scoring was performed for 201 patients with catheter-based angiography available. Primary outcomes were TMA healing and community ambulation, with secondary outcomes of TMA healed at end of study and any ambulatory function postoperatively. Descriptive statistics, univariate, and multivariable analyses were performed.

Results: 346 TMAs were performed in 318 patients, 209 of whom had peripheral artery disease (PAD). Median follow up was 2.49 years. PAD patients had significantly lower rates of healing (63.6% vs. 77.3%, p=0.007). Revascularization was performed in 185 limbs with 102 treated ENDO and 83 OPEN.
Patients who underwent initial ENDO were significantly less likely to heal their TMA at all (54.9% vs. 75.9%, p=0.003) and less likely to remain healed at the end of study (49% vs 66.3%, p=0.02) (Table 1). Patients with GLASS stage 3 were significantly more likely to heal with OPEN (75% vs 45%, p=0.003) (Figure 1). Long term postoperative ambulation data was available for 72% of revascularized patients. ENDO was associated with lower likelihood of community ambulation after TMA (34.3% vs 56.6%, p=0.002). In multivariable analysis, OPEN was a significant predictor of healing (OR 2.8, p=0.007) and community ambulation (OR 2.9, p=0.001) (Table 2).

Conclusions: In patients with CLTI and significant tissue loss requiring TMA, initial OPEN approach to revascularization was associated with better healing and higher rates of ambulation than ENDO. The metabolic requirement to heal a TMA in CLTI patients may be better met by open revascularization.

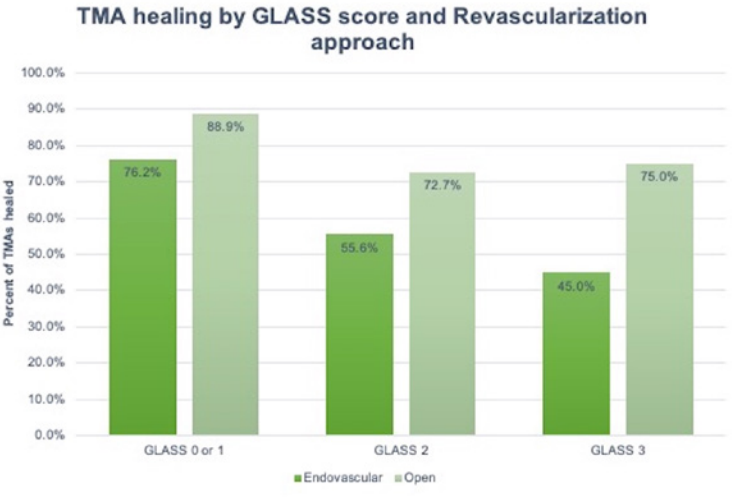

Table 1. Selected results in patients undergoing revascularization by initial approach. (* primary outcomes)

	All Revascularization patients (n=185)	Endovascular first (n=102)	Open first (n=83)	p-value
Median f/u (days)	798 (IQ 393-1544)	674.5 (IQ 142-1296)	972 (IQ 510-1915)	**0.008**
GLASS stage 3	92 (54.44%)	40 (41.24%)	52 (72.22%)	**<0.001**
WIfI stage 3 or 4	138 (96.5%)	79 (95.18%)	59 (98.33%)	0.311
*TMA healed during study	119 (64.32%)	56 (54.90%)	63 (75.90%)	**0.003**
TMA healed at end of study	105 (57.76%)	50 (49.02%)	55 (66.27%)	**0.019**
Major amputation	44 (23.78%)	27 (26.47%)	17 (20.48%)	0.341
Any ambulation after TMA	135 (72.97%)	65 (63.73%)	70 (84.34%)	**0.002**
*Community ambulation after TMA	82 (44.32%)	35 (34.31%)	47 (56.63%)	**0.002**
TMA healed with GLASS 3	57(61.96%)	18 (45%)	39 (75%)	**0.003**

Table 2. Results of multivariable analyses of the primary outcomes

TMA healing in PAD patients	Odds Ratio (CI)	P-value	Community ambulation after TMA	Odds Ratio (CI)	P-value
Age	0.98 (0.95-1.0)	0.29	Age	1 (0.98-1.03)	0.75
Active smoking	1.4 (0.55-3.5)	0.48	Female sex	1.8 (0.81-4.1)	0.14
On dialysis	0.51 (0.23-1.2)	0.1	BMI	1 (0.96-1.04)	0.95
GLASS infrapopliteal score 4	0.46 (0.21-1)	0.05	Prior stroke	0.75 (0.32-1.7)	0.48
Open initial approach	2.8 (1.3-5.9)	**0.007**	COPD	0.17 (0.04-0.65)	**0.01**
			Open initial approach	2.9 (1.5-5.7)	**0.001**

Author Disclosures: C Gomez-Sanchez: Nothing to disclose, **E Werlin:** Nothing to disclose, **T Sorrentino**: Nothing to disclose, **R El Khoury**: Nothing to disclose, **C Parks**: Nothing to disclose, **B Goodman**: Nothing to disclose, **M Dini**: Nothing to disclose, **J Iannuzzi**: Nothing to disclose, **A Reyzelman**: Nothing to disclose, **M Conte**: Nothing to disclose, **W Gasper**: Nothing to disclose

9. Regional Variation of the National Abdominal Aortic Aneurysm Screening Program in the Veteran's Health Administration

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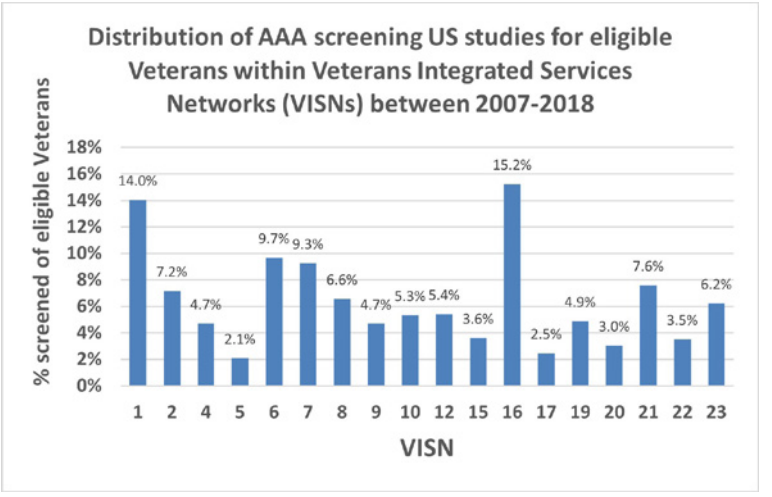
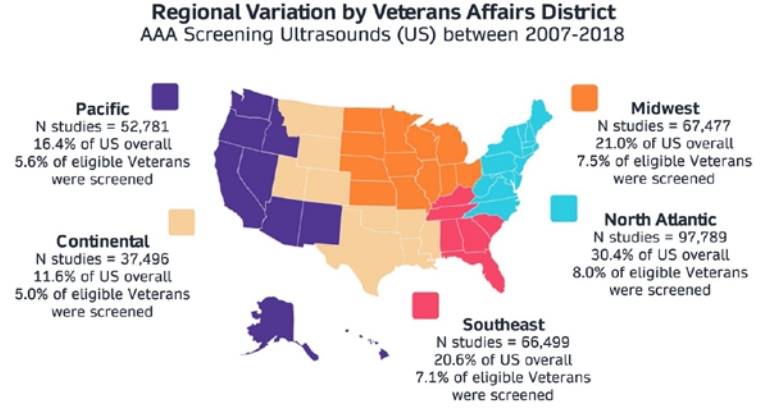
Background: In January 2007, the Veterans Health Administration (VHA) launched a national abdominal aortic aneurysm (AAA) screening program following the passage of the Screening Abdominal Aortic Aneurysms Efficiently (SAAVE) Act. Our objective was to describe and compare the ensuing geographic and temporal utilization trends for AAA screening in the VHA.

Methods: A national cohort of Veterans eligible for AAA screening was evaluated retrospectively to calculate annual overall and regional rates of AAA screening utilization. Veterans with a AAA screening study between 2007 and 2018 were identified using Current Procedural Terminology (CPT) codes G0389 and 76706. Proportions screened (unique Veterans screened per AAA screening eligible population) were compared across Veterans Integrated Service Networks (VISNs). Survival estimates were calculated after AAA diagnosis using multivariate Cox proportional hazards regression models adjusting for patient characteristics and comorbidities.

Results: Overall, 322,042 VA patients underwent AAA US screening with a AAA diagnosis incidence of 4.85% (15,449 Veterans). AAA screening increased over time within all geographic regions; however, the percentage screened among eligible Veterans varied significantly among VISNs (Figure 1) ($p < 0.001$). The greatest number of screening US studies were performed in the North Atlantic (30.4%) and the lowest in the Continental region (11.6%) ($p<.001$) (Figure 2). One-fifth (20.8%) of screening studies were disproportionately performed in only five VISNs (Upstate New York, Northern California, Atlanta, GA, Fayetteville, AR, and Orlando, FL). Patients diagnosed via AAA screening rather than incidentally experienced significantly lower 5-year mortality in the Midwestern [HR 0.80 (95% CI 0.66-0.98)] and North Atlantic [HR 0.81 (95% CI 0.67-0.97)] regions, the two regions with the highest percentage of patients screened.

Conclusions: In a nationwide analysis of VA patients, despite overall increased adoption longitudinally, the AAA screening program had substantial variation in utilization across regions and VISNs. Future directions include improving overall screening compliance, reducing center-level variation, and examining how AAA diagnosis via screening results in improved aneurysm-related mortality.





Author Disclosures: E George: Nothing to disclose, **N Itoga:** Nothing to disclose, **M Sgroi:** Nothing to disclose, **J Stern:** Nothing to disclose, **M Garcia-Toca:** Nothing to disclose

10. Ankle Brachial Index and Wound Classification Teaching to Providers as Part of a Comprehensive Limb Preservation Outreach Program

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Objectives: Utilization of evidence-based specialty guidelines is low in primary care settings. Early use of ankle brachial index (ABI) testing and a validated wound classification system allows prompt referral of patients for specialty care. We implemented a program to teach providers ABI testing and use of the Wound, Ischemia, and foot Infection (WIfI) classification tool. Here we report program outcomes.

Methods: Physicians and non-physicians from wound care centers, nursing and physician education programs, primary care offices, and federally qualified health centers (FQHCs) participated in educational modules on ABI testing and use of the WIfI tool. Pretest and posttest responses and intention to use content in the future were assessed with descriptive statistics.

Results: 101 subjects completed the ABI module, and 84 indicated their occupation (59 physicians, 25 non–physicians). 70 subjects completed the WIfI module (50 physicians, 20 non-physicians). Physicians had lower pre-test knowledge scores than non-physicians (mean score 7.9, 8.2 respectively). (Table 1) Both groups increased scores on the posttest (physicians 13.4, non-physicians 13.8, $p < 0.001$). Non-physicians in practice longer than 10 years at wound care centers had the lowest baseline knowledge scores, whereas physicians in practice over 10 years had the highest. In the ABI module, the largest knowledge gap included accurately calculating the ABI, followed by correct use of a Doppler, and management of incompressible vessels (Table 2). For the WIfI module, providers struggled to accurately score patients based upon wound stage. The greatest barriers to use of ABI testing were availability of trained personnel, followed by limited time for testing. Barriers to use of the WIfI tool for physicians included lack of time and national guideline support. For non-physicians, the most notable barrier was a lack of training.

Conclusions: Provider understanding of ABI and WIfI tools is limited in wound care centers, primary care offices, and FQHCs. Further barriers include lack of training in use of tools, limited potential for point of care testing reimbursement, and insufficient dissemination of WIfI guidelines. Such barriers discourage widespread adoption in primary care settings, leading to delayed diagnosis of arterial insufficiency.

Table 1: Baseline ABI knowledge based on years in practice and provider type			
Provider Type	**Years in Practice**	**% Participants**	**Pre-Test Mean (standard deviation)**
Non-Physician	1-3	59	7.80 (3.26)
	4-10	24	7.25 (2.06)
	>10	17	6.67 (3.06)
Physician	1-3	70	8.00 (2.23)
	4-10	8	7.00 (5.00)
	>10	22	9.44 (1.59)

Table 2: Pretest questions with >60% incorrect answers	
Question	**% Incorrect**
A 62-year-old man is being seen to evaluate leg pain associated with walking. You obtain the following brachial and tibial vessel pressures (mmHg). Right Brachial = 128, Left Brachial = 134, Right Dorsalis Pedal= 120, Right Posterior Tibial = 122, Left Dorsalis Pedal= 110, Left Posterior Tibial = 119 What is the ankle brachial index for the right lower extremity?	79%
Which of these is the suggested Doppler angle for obtaining arterial Doppler signals?	64%
While performing the ankle brachial index test, a patient's highest arm pressure is 134 but the tibial pressure is raised to over 220 and the Doppler signal can still be heard. Given the high ankle pressure, which is the most appropriate next step?	61%

Author Disclosures: K DiLosa: Nothing to disclose, **C Brown:** Nothing to disclose**, G Rajasekar:** Nothing to disclose, **M Nuno:** Nothing to disclose, **M Humphries:** Nothing to disclose

11. Fiber Optic Realshape (FORS) Imaging Using Upper Extremity and Transfemoral Access for Fenestrated-Branched Endovascular Aortic Aneurysm Repair (F-BEVAR)

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Background: Fiber Optic RealShape (FORS) technology allows real-time three-dimensional visualization of endovascular devices using light, thereby reducing radiation exposure. Current experience with FORS for fenestrated-branched endovascular aortic aneurysm repair (F-BEVAR) has mostly involved transfemoral (TF) access. The purpose of this study was to describe the feasibility of using upper extremity (UE) and TF access with FORS during F-BEVAR.

Methods: The technique is demonstrated in an 89-year-old male patient with multiple comorbidities and a type III thoracoabdominal aortic aneurysm. Dual fluoroscopy, intravascular ultrasound (IVUS), and 3D fusion overlay were used in addition to FORS. The docking base for the FORS system was fixed on the right side of the patient (Figure), providing sufficient wire length for target artery catheterization using TF or UE access. The technique to achieve target-vessels catheterization is described using the UE access. The time to accomplish these tasks were recorded, using the visualization of the FORS wire on the screen as start point and complete target cannulation as final point.

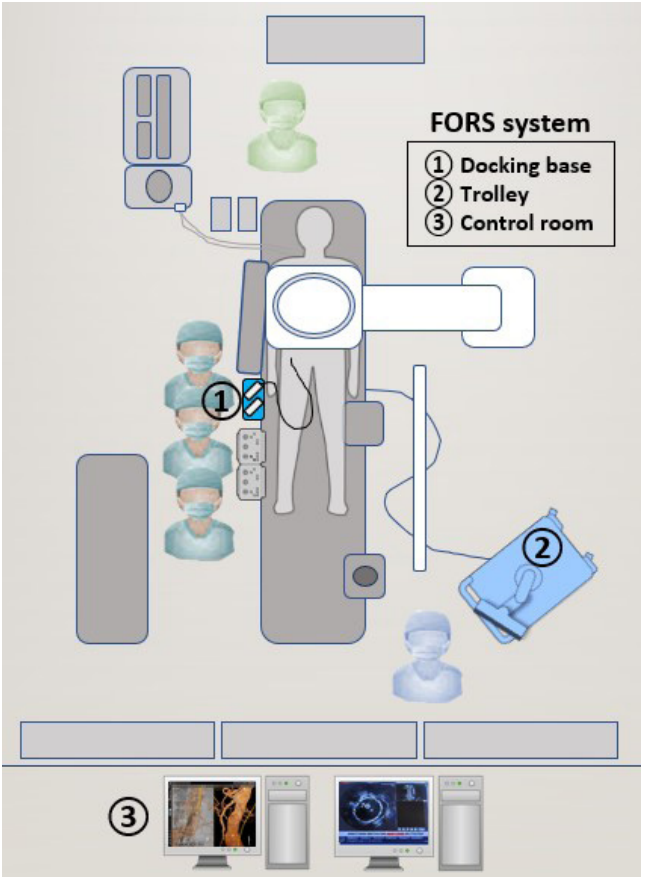
Results: Using bilateral femoral artery and right brachial artery access, the AltaTrack guidewire® (0.035" / 120cm working length) was connected and registered, with two angiographic projections (AP / RAO 30°). A fenestrated custom-made device with a preloaded delivery system, manufactured by Cook Medical Inc (Bloomington, IN, USA), was used. Target artery catheterizations were successfully accomplished in 23 minutes, requiring 4 minutes and 18 seconds of fluoroscopy time, 13.45 mGy of dose area product (DAP) and 0.13 Gycm2 of reference air kerma (RAK) (Table). At the end of the case, no complication and less radiation exposure were reported, using a total of 769.62 mGy for RAK, 77 Gycm2 for DAP, and 59 minutes and 6 seconds of total fluoroscopy time.

Conclusion: F-BEVAR with FORS technology using UE and TF access is feasible and facilitates target artery catheterization without the need of radiation. Further experience is required to demonstrate FORS benefits and applicability for F-BEVAR using both TF and UE access.

Table. Catheterization details using FORS technology during FEVAR.

Target	Artery access	RAK (mGy)	DAP (Gycm²)	Duration (min)	Fluoroscopy Time (sec)
Celiac	Right brachial	1.67	0.2	4	30
SMA	Right brachial	0	0	2	0
Left renal artery	Right brachial	0.54	0.1	3	6
Right renal artery	Right brachial	5.95	0.4	9	120
Contralateral Gate	LCFA	5.29	0.6	5	102

DAP, dose area product; LCFA, left common femoral artery; RAK, reference air kerma; SMA, superior mesenteric artery.



Author Disclosures: F L Pavarino: Cook Medical – Consultant – Research support; WL Gore & Associates – Consultant – Research support, **J Porras-Colon:** Nothing to disclose, **M S Gonzalez:** Nothing to disclose, **A Pizano:** Nothing to disclose, **M S Baig:** Nothing to disclose, **C Timaran:** Nothing to disclose

12. Assessment of Clinical Outcomes Following Lower Extremity Bypass and Percutaneous Revascularization: Should we be Following ABIs or Asking our Patients?

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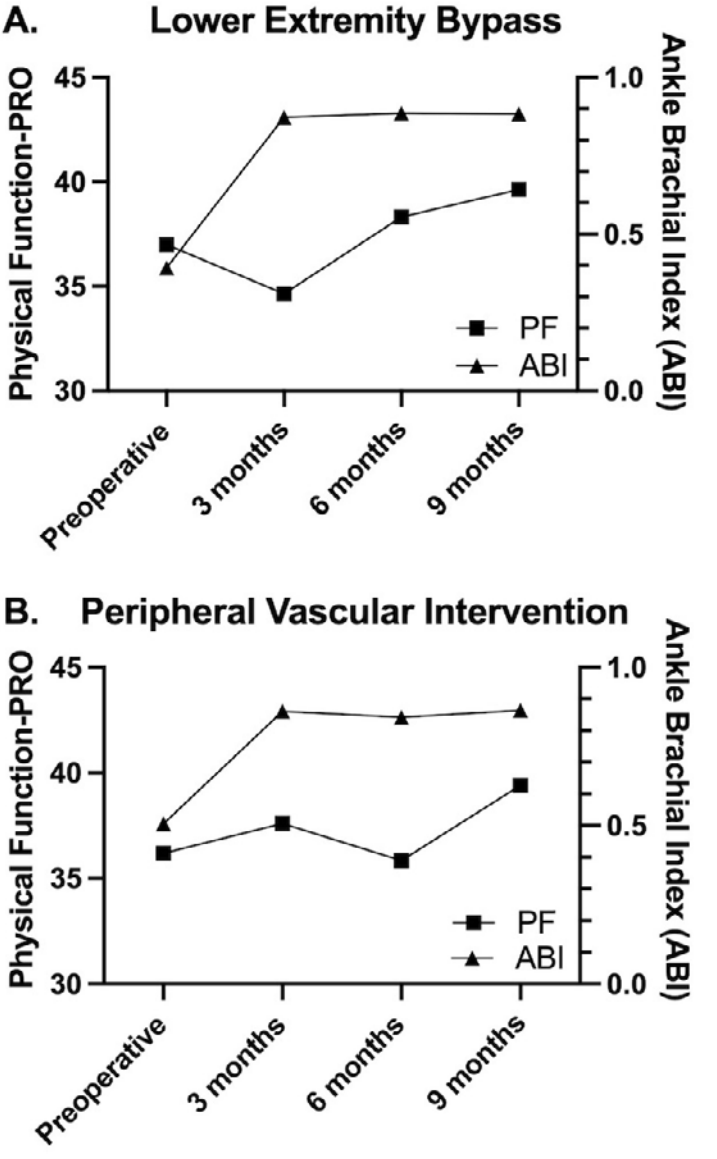
Objectives: Patients with peripheral arterial disease (PAD) undergo lower extremity bypass (LEB) and percutaneous vascular intervention (PVI) procedures to prevent limb loss as well as improve physical function. The success of revascularization has traditionally relied on assessing ankle brachial index (ABIs) but has not considered patient-reported outcomes (PROs). We aimed to determine how physical function PROs (PF-PROs) correlate with ABIs after LEB and PVI procedures.

Methods: We identified all patients undergoing elective supra-inguinal or infra-inguinal LEB and PVI procedures for PAD at a single academic center between 2016 to 2021 who had completed pre- and post-operative PF-PRO surveys and ABIs. Correlation coefficients and linear mixed effects with lag effects was used to evaluate the association between PF-PROs and ABI measures at follow-up timepoints up to 9-months (mo) after revascularization.

Results: 168 patients were identified (51% LEB and 49% PVI procedures). There was no difference in demographics between procedure type, although LEB patients had a significantly lower preoperative ABI (0.40-LEB vs. 0.51-PVI; p=0.02). 80% of patients had a significant 3-mo improvement in ABI (≥0.15) after revascularization, although this was larger for LEB (0.49 LEB vs. 0.36 PVI p=0.02). Postoperative PF-PROMs improved for all patients, but LEB had greater improvement than PVI at 6-mo (p=0.044, Fig A&B). While ABI and PF-PROs were not correlated at any timepoints, the 3-mo ABI value was associated with significant improvements in PF-PROs at 6- and 9-mo for both procedure types (p=0.05, p<0.001 respectively, Fig A&B).

Conclusions: While LEB and PVI procedures for PAD both result in immediate and sustained improvements in ABIs, it takes multiple months for PF-PROs to improve after revascularization. These results suggest that PROs should be used to provide a more comprehensive assessment of the degree LEB and PVI procedures impact patients' physical function.



Author Disclosures: T Holeman: Nothing to disclose, **J Hales:** Nothing to disclose, **Y Zhang:** Nothing to disclose, **B Brooke:** Nothing to disclose

13. The Emotional Impact and Coping Mechanisms Following Adverse Patient Events Among Canadian Vascular Surgeons and Trainees

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Background: Adverse events carry a significant psychological burden on the healthcare providers involved. Vascular surgeons may be particularly at risk of being "second victims" with the second high rate of burnout, the lowest level of career satisfaction, and the highest incidence of suicidal ideation among surgical subspecialties. This study's objective is to evaluate the emotional experiences, coping mechanisms, and support resources for Canadian vascular surgeons and trainees following an adverse patient event or a near miss.

Methods: This is a cross-sectional survey study of all Canadian Society for Vascular Surgery (CSVS) members from October to November 2021 with questions about their experiences with adverse events and about their perceptions on optimal support resources. A separate survey was also sent to all Canadian residency program directors asking about the existence of mentorship programs. Responses were analyzed.

Results: Sixty-six CSVS members responded to the survey. The majority (77%) had experiences with adverse events causing serious patient harm. The most common associated negative experiences included feelings of negativity towards oneself, general distress, and anxiety about potential for future errors (Table 1). Sixty-two percent of respondents felt determined to improve. The most common coping mechanism was seeking advice from a mentor or close colleague (Table 2). Peers (82%) and senior colleagues (59%) were the most preferred sources of support. Most of the respondents would reach out to a mentor if they had one, but 30% reported having no mentor or close colleague for support. Sixty percent of this group would use a peer support program if offered through a professional organization like the CSVS. A survey of all Canadian training programs yielded a 67% response rate and 67% reported having a formal mentorship program.

Conclusion: Adverse patient events and near misses have a serious negative impact on the lives of Canadian vascular surgeons and trainees. Peers and senior colleagues are the most desired sources for support, but this is not universally available. Organized efforts are needed to raise awareness in our vascular surgery community on the detrimental effects of adverse events and our mutual need for peer support.

Table 1. Emotional and behavioural experiences of Canadian vascular surgeon and trainees after adverse events.

Emotional and Behavioural Experiences	Total (n = 66)
Negative	
Feeling negative towards oneself	47 (71%)
Feeling generally distressed	38 (58%)
Feeling anxious about potential for future errors	34 (52%)
Reduced job satisfaction	24 (36%)
Difficulty sleeping	22 (33%)
Negatively affected personal life	16 (24%)
Positive	
Feeling determined to improve	41 (62%)
Value relationship with colleagues more	11 (17%)

Table 2. Coping mechanisms of Canadian vascular surgeon and trainees after adverse events.

Thoughts/Activity after Adverse Event	Total (n = 66)
Seek advice from mentor or close colleague	51 (77%)
Speak to your friends and family	32 (49%)
Exercise	30 (46%)
Positive reappraisal	17 (26%)
Criticizing or lecturing oneself	15 (23%)
Sleep	14 (21%)
Avoidance of certain procedures, situations, or patients	12 (18%)
Meditation/prayer	7 (11%)
Contact lawyer or CMPA	7 (11%)
Following policies and guidelines more accurately and closely	5 (8%)

Author Disclosures: T Yan: Nothing to disclose, **S Choi:** Nothing to disclose, **J Misskey:** Nothing to disclose, **J Chen:** Nothing to disclose

14. Aortic Arch Laterality in Aberrant Subclavian Artery and Kommerell's Diverticulum: A Multi-Institutional Study

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Objectives: Aberrant subclavian artery (ASA) with or without Kommerell's diverticulum (KD) is a rare but high-risk anatomic anomaly of the aortic arch that can cause dysphagia and/or life-threatening rupture. Patients with ASA/KD may have a left aortic arch (LAA) or less commonly, a right aortic arch (RAA).

Methods: Using the Vascular Low Frequency Disease Consortium methodology, a retrospective review was performed of patients ≥18 years old with surgical treatment of ASA/KD from 2000 to 2019 at 20 institutions. Characteristics and treatment outcomes of patients with LAA were compared to those with RAA.

Results: 173 patients with ASA with or without KD were identified; 144 patients had a LAA and 29 patients had a RAA (Table 1). Mean age at repair was 54.8 vs 60.5 years in RAA and LAA patients, respectively (p=0.07). More RAA patients underwent repair due to symptoms compared to those with LAA (79.3% vs. 52.8%, p=0.01). More patients with RAA presented with dysphagia (69.0% vs. 43.1%, p=0.01). Mean ASA/KD pre-operative diameter was 36.9 mm for RAA vs 30.4 mm for LAA (p=0.07). The most common type of repair in both groups was the hybrid open/endovascular approach (Table 2). Carotid-subclavian bypass with thoracic endovascular aortic stent and coil embolization was the most common approach to repair. Rates of intraoperative complications, death within 30 days, return to the operating room, symptom relief and endoleaks were not significantly different (Table 2). Of the 144 patients who had symptoms at the time of repair, symptom relief status was available for 95. In RAA, 9/21 (43%) had complete relief, 10/21 (48%) had partial relief and 10% had no change. In LAA, 33/74 (45%) had complete relief, 35/74 (47%) had partial relief, and 8% had no change (p=0.9).

Conclusions: Patients with RAA and ASA/KD are rare, compared to patients with LAA and ASA/KD. Patients with a RAA and ASA/KD presented more frequently with dysphagia, had symptoms as an indication for intervention, and underwent treatment at a younger age. Open and hybrid repair approaches appear to be equally effective in patients with ASA/KD, regardless of arch laterality.

Table 1: Patient Demographics by ASA Aortic Arch Laterality, N = 173
ASA = aberrant subclavian artery, KD = Kommerell's Diverticulum, CI = confidence interval

Variable	n (%), left arch N = 144	n (%), right arch N = 29	p-value
Median age at surgery	60.5	54.8	0.07
Male	78 (54.2)	18 (62.1)	0.43
Comorbidities			
Congestive Heart Failure	13 (9.0)	0 (0.0)	0.09
Prior aortic procedures	22 (15.3)	3 (10.3)	0.49
Concomitant arterial disease	49 (34.3)	10 (34.5)	0.98
KD present	84 (66.7)	22 (75.9)	0.37
Mean ASA/KD pre-operative diameter, mm (95% CI)	36.9 (33.0 – 40.7)	30.4 (24.3 – 36.4)	0.07
Indication for surgery			
Size of KD	55 (38.2)	12 (41.4)	0.75
Symptoms	76 (52.8)	23 (79.3)	0.01
Dysphagia	62 (43.1)	20 (69.0)	0.01

Table 2: Intra- and Post-Operative Characteristics and Outcomes by ASA Aortic Arch Laterality, N = 173
TEVAR = thoracic endovascular aortic repair, ASA = aberrant subclavian artery
*includes urgent/ruptured presentations

Variable	n (%), left arch N = 144	n (%), right arch N = 29	p-value
Operative technique			0.49
Open	31 (21.5)	9 (31.0)	
Hybrid	104 (72.2)	19 (65.5)	
Carotid-subclavian bypass + TEVAR	22 (15.2)	6 (23.1)	
Carotid-subclavian bypass + TEVAR + coil embolization origin ASA	38 (26.4)	6 (23.1)	
Subclavian-carotid transposition + TEVAR	15 (10.4)	3 (11.6)	
Other	29 (20.1)	2 (7.7)	
Endovascular	9 (6.3)	1 (3.45)	
Intra-operative complication*	17 (11.9)	2 (6.9)	0.43
Death within 30 days*	10 (7.0)	1 (3.9)	0.55
Post-operative endoleak	24 (17.3)	5 (19.2)	0.24

Author Disclosures: C Moffat: Nothing to disclose, **P Lawrence:** Nothing to disclose, **H Gelabert:** Nothing to disclose, **J Bath:** Nothing to disclose, **K Woo:** Nothing to disclose

15. Comparative Outcomes of Physician-Modified Fenestrated Branched Endovascular Repair of Post-Dissection and Degenerative Complex Abdominal or Thoracoabdominal Aortic Aneurysms

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Background: Fenestrated branched endovascular repair has become a favorable treatment strategy for patients with thoracoabdominal aortic aneurysms (TAAA) at high risk for open repair. In comparison to primary aneurysm, post-dissection aneurysmal degeneration can pose additional challenges for endovascular repair. The aim of this study is to compare the clinical outcomes of patients who underwent physician-modified fenestrated branched endovascular repair (PM-FBEVAR) for degenerative and post-dissection complex abdominal or TAAA.

Methods: A retrospective review of consecutive patients who underwent PM-FBEVAR from 2015 to 2021 at a single institution was performed. Intraoperative details, mortality, complications and reinterventions were compared between degenerative and post-dissection complex abdominal or TAAA. Data from this cohort were reported to the Food and Drug Administration, leading to approval of a physician-sponsored Investigational Device Exemption (G200159) for PM-FBEVAR.

Results: Of the 188 patient who underwent PM-FBEVAR, 31 had chronic aortic dissection and 157 had degenerative aneurysms. Patients with aortic dissection were younger, more likely to have prior aortic repair, and less likely to have coronary artery disease, tobacco use, chronic obstructive pulmonary disease and peripheral arterial disease. Technical success (90% vs 87%, P=0.70), intra-op complications, 30-day mortality (3.2% vs 5.7%, P=1) and major complications including spinal cord ischemia were not different between dissection vs degenerative aneurysm, respectively. During follow-up, aorta-related mortality and all-cause mortality were not statistically different between the groups (3.2% vs 5.7%, P=1.0; 9.7% vs 17%, P=0.42, respectively). Reintervention within 30 days was higher for the dissection group (35% vs 15%, P=0.01) while any reintervention during follow-up were not statistically different (45% vs 31%, P=0.11). For both groups, the most common reason for reintervention was endoleak.

Conclusions: PM-FBEVAR is a safe treatment option for post-dissection complex abdominal and thoracoabdominal aortic aneurysms with high technical success and low mortality. However, reinterventions were frequently required for endoleaks. Future studies will assess long-term durability.

Table 1. Patient demographics

	Dissection (N=31) N			Aneurysm (N=157) N		p-value
Age	59 (9)			76 (8.1)		<0.0001
Sex (male)	28	90%		109	69%	0.02
CAD	6	19%		64	41%	0.02
CHF	6	19%		30	19%	0.97
COPD	1	3%		36	23%	0.01
Tobacco	15	48 %		118	75%	0.002
PAD	0	0%		34	22%	0.002
TAAA Crawford Extent 2	18	58%		27	17%	<0.0001
Previous Aortic repair	26	84%		70	45%	<0.0001

Table 2. Outcomes

	Dissection (N=31) N			Aneurysm (N=157) N		p-value
Technical success	28	90%		137	87%	0.7
Fluoro time (min)	68.4 (41)			70.2		0.59
Contrast (cc)	134 (54)			128 (62)		0.31
Total target vessels per case	3.8 (0.7)			4.2 (0.9)		0.004
30-d aortic related mortality	1	3%		9	6%	1
30-d Reinterventions	11	35%		24	15%	0.01
Follow up (mean)	365			403		
Aortic related mortality	1	3%		9	6%	1
All-cause mortality	3	10%		27	17%	0.42
Any reintervention	14	45%		48	31%	0.11

Author Disclosures: A Dibartolomeo: Nothing to disclose, **K O'Donnell:** Nothing to disclose, **J Paige:** Nothing to disclose, **G Magee:** Nothing to disclose, **K Zeigler:** Nothing to disclose, **V Rowe:** Nothing to disclose, **F Weaver:** Nothing to disclose, **S Han:** Nothing to disclose

16. Utilization and Complications of Thoracic Endovascular Repair in Patients with Genetic Aortopathy

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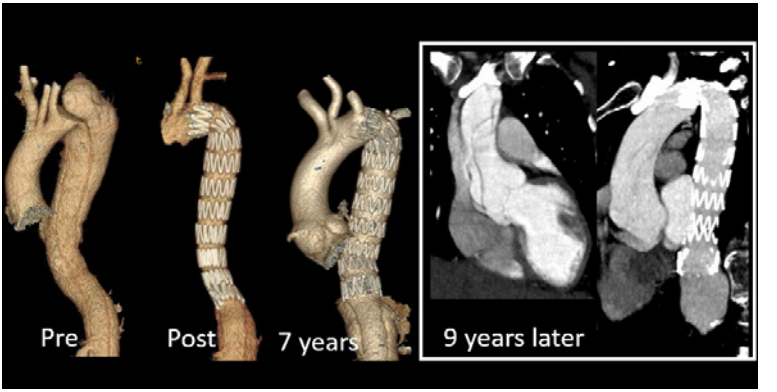
Objectives: The use of Thoracic Endovascular Repair (TEVAR) is contraindicated in patients with genetic aortopathy due to concerns for retrograde aortic dissection (RTAD), endoleaks, and aneurysmal degeneration. The aim of this study was to investigate the utilization of TEVAR and complications in a cohort of patients with genetic aortopathies.

Methods: This is a retrospective single system study of patients with genetic aortopathies treated with TEVAR. Genetic aortopathies included Marfan and Loeys Dietz syndromes (MFS, LDS), and non-syndromic heritable aortopathies due to smooth muscle cell ACTA2 and LOX pathogenic variants. Data abstracted included demographics, genetic testing results, operative details, and outcomes. The primary outcome was a composite RTAD, type Ia endoleak, and rupture in the treated aortic segment. Secondary outcomes included RTAD, type Ib endoleak, new distal entry tear, and all-cause and aortic related mortality.

Results: A total of 42 patients (mean age 44.2+14.6 years, 65% male, 65% White) met inclusion criteria (28 MFS, 7 LDS, 6 ACTA2, and 1 LOX) with 13 type A and 29 type B aortic dissections. Median follow up post TEVAR was 54.7 (range 0.2-200) months. Repair indications were aneurysm size (39.5%), aneurysm growth > 5mm in 6 months (30.2%), pain (16.2%), Malperfusion (4.6%), and other (11.6%). Carotid to subclavian transposition was performed in 28 patients. Proximal landing zone was previous Dacron arch repair (n=7, 17%), and antegrade during zone II arch repair (n=12, 29%), and native aortic arch (n=23, 54.7%). Among TEVAR in native aortic arch, the primary outcome occurred in 6 (26%) cases: 4 retrograde aortic dissections (17%) including one 9 years post TEVAR (Figure 1) and 2 (9%) type 1a endoleaks. Among the entire cohort, Type 1b endoleak occurred in 2 (5%) and new distal entry tear in 1 (2.3%) case treated with open surgical repair. All-cause mortality was 26% (n=11). Aortic related mortality was 16% (n=7) including 2 aortic ruptures.

Conclusion: This study offers real world data on circumstances in which TEVAR is being used in patients with genetic aortopathies and how these devices can be incorporated into a comprehensive aortic care plan for these patients.



Author Disclosures: R Nkansah: Nothing to disclose, **P Shibale:** Nothing to disclose, **A Menghini:** Nothing to disclose, **A Dhanekula:** Nothing to disclose, **C Burke:** Nothing to disclose, **S Zettervall:** Nothing to disclose, **M Sweet:** Nothing to disclose, **S Shalhub:** Nothing to disclose

17. Comparison of Treatment and Outcome of Blunt Thoracic Aortic Injury (Btai) Based on Society of Vascular Surgery (Svs) and University of Washington (Uw) Grading Recommendations

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Objectives: SVS recommendations for managing intimal (grade 1) blunt thoracic aortic injuries (BTAI) include observation and medical management. Proposed University of Washington (UW) revised criteria suggests that intimal injuries with ≥1 cm flap should be defined as moderate injury and treatment should be considered. We sought to compare SVS and UW BTAI criteria for BTAI and determine how discordance in grading affected treatment and outcome.

Methods: All patients admitted with a BTAI from 2011-2021 were reviewed. The EMR was reviewed for patient demographics, concomitant traumatic injuries, and details of BTAI management. Aortic injuries were graded with SVS and UW criteria through individual review of imaging. Treatment and outcomes were analyzed for discordance in grading and resulting management.
Results: Our cohort comprised 174 patients after excluding three who died upon arrival. Mean age was 46 ± 19 years, 68% were men, and median Injury Severity Score (ISS) was 34 (IQR 26- 45). Strong agreement was observed between the scoring systems (kappa=.87; TABLE). All patients with concordant grade 1 injuries (n=43) were observed. SVS grade 1/2 BTAI were reclassified in 9/52 (18.6%). Two (28.6%) SVS grade 2 BTAI injuries were downgraded by UW criteria; neither patient required repair. Nine (17%) SVS grade 1 BTAI were upgraded by UW criteria. Of these, five underwent repair and the remaining four were observed without sequalae. Overall mortality was 8.1% with no difference for concordant or discordant grades (8.0% vs. 9.1%, p=.99). No aneurysm related mortalities were observed. Follow up imaging was available for 78 (48.8%) of survivors at a median of 247 (IQR 77-549) days. Two patients unrepaired at the index hospitalization (SVS grade 3/UW grade 2) underwent successful delayed repairs. No patient observed for a minimal injury had BTAI progression or required treatment.

Conclusions: Evaluation of BTAI with the UW grading system may alter SVS grade 1 or 2 BTAI in nearly 20% of injuries. Upgraded injuries should prompt consideration for repair in the setting of flap progression or thromboembolic complications. Downgraded injuries suggest that treatment may be unnecessary. Clinical correlation and expertise continue to be vital to determine optimal management.

TABLE					
		SVS Grade			
		1	2	3	4
UW Grade	Mild	43	2	0	0
	Moderate	9	5	102	0
	Severe	0	0	0	13
Kappa=0.87					

Author Disclosures: R Lozano: Nothing to disclose, **M Schneck:** Nothing to disclose, **K DiLosa:** Nothing to disclose, **S Maximus:** Nothing to disclose, **R Callcut:** Nothing to disclose, **D Shatz:** Nothing to disclose, **M Mell:** Nothing to disclose

18. Machine-Learning to Risk Stratify Patients with Aortic Graft Infection

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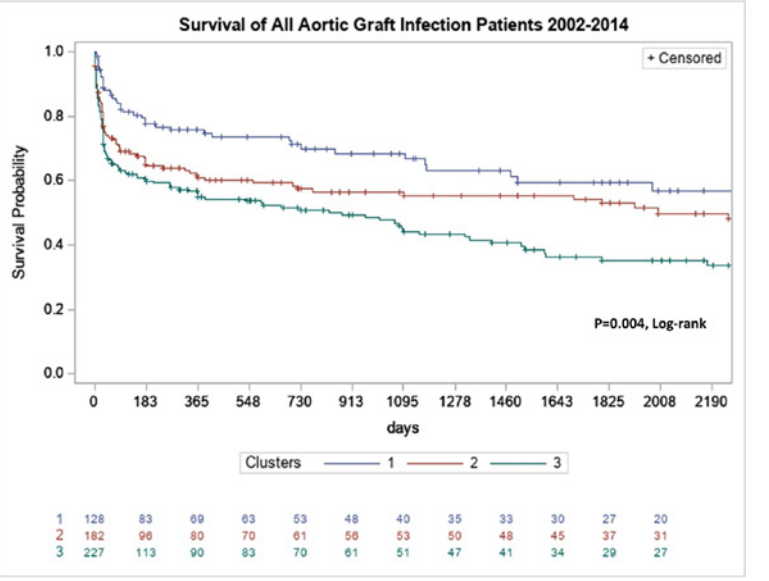
Background: Risk prediction in aortic graft infection (AGI) is stymied by heterogeneous presentations, treatments, and rarity of AGIs. We aim to identify patterns of comorbidities and treatments to predict mortality in AGI.

Methods: We studied a retrospective, multi-institutional cohort of AGIs from 2002-2014. We used K-means cluster analysis: a machine learning tool which groups patients by mortality rates based upon similarity of baseline demographics, medications, co-morbidities, cultured microbes, and management strategies (conservative, non-resectional (CNRT) versus resectional therapies; in-situ versus extra-anatomic revascularization (EAB); complete versus partial resection). Model fit was measured by the between sum of squares/ total sum of squares, which quantifies how much each cluster mean describes the variability in the entire population. Descriptive statistics and Kaplan-Meier (KM) analysis were used to describe each cluster.

Results: We collected 715 subjects (77% male, median age 69 years IQR 62, 76) from 37 institutions in 11 countries. Management strategies were: CNRT (75; 10.5%); in-situ bypass (359; 50.2%); EAB (191; 26.7%); endograft-only (10; 1.4%); and partial-graft excision (80 (11.2%). KM-estimated median survival was 1117 days (IQR 35, 3771). K-means cluster analysis revealed three distinct mortality clusters: cluster (C)1-33%; C2-45%; and C3-56%. The between sum of squares / total sum of squares was 82%. Median KM estimated survival (days) was: C1- 2621 (IQR 386, 4193); C2- 2000 (IQR 35, 3771); C3- 877 (IQR 30, 3960); Figure 1). C3 had the highest prevalence of AEF, diabetes mellitus (DM), tobacco abuse, myocardial infarction (MI), and presentation with fever/chills, and/or hemoptysis. Staphylococcus epidermidis, Streptococcus sp., and Escherichia coli were most frequent within C3. Among the patients undergoing CNRT, 68 (91%) were in C1. In-situ bypass patients (172; 47.9%) were mostly within C2. EAB (136; 71%) and partial graft excisions (56; 80%) were mostly within C3.

Conclusions: Our cluster analysis generated the first risk-stratification for AGI. Highest mortality was noted among C3 patients with a history of AEF, DM, tobacco abuse and MI who underwent EAB and/or partial graft resection. Prospective data will be required to externally validate our results.



Author Disclosures: J Chung: Penumbra Inc – Grant – Research; Becton Dickonson – Grant - Research, **U Parikh:** Nothing to disclose, **M Janko:** Nothing to disclose, **Q Zhang:** Nothing to disclose, **M Smeds:** Nothing to disclose**, J Bath:** Nothing to disclose, **P Lawrence:** Nothing to disclose, **K Woo:** Nothing to disclose

19. Patient-Specific Computational Flow Simulation Reveals Significant Differences in Paravisceral Aortic Hemodynamics Between Fenestrated and Branched Endovascular Aneurysm Repair

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Objectives: Endovascular aneurysm repair with four-vessel fenestrated (fEVAR) or branched (bEVAR) endografts currently represent the forefront of minimally invasive complex aortic aneurysm repair. This study sought to use patient-specific computational flow simulation (CFS) to assess differences in post-operative hemodynamic effects associated with fEVAR versus bEVAR.

Methods: Patients from two institutions who underwent four-vessel fEVAR with the Cook Zenith Fenestrated platform and bEVAR with the Jotec E-xtra Design platform were retrospectively selected. Patients in both cohorts were treated for paravisceral and Extent II-V thoracoabdominal aortic aneurysms. 3D finite element volume meshes were created from pre- and post-operative CTs. Boundary conditions were adjusted for body surface area, heart rate and blood pressure. Pulsatile flow simulations were performed with equivalent boundary conditions between pre- and post-operative states. Post-operative changes in hemodynamic parameters were compared between fEVAR and bEVAR groups.

Results: Patient-specific CFS was performed on 20 patients (10 bEVAR, 10 fEVAR) with a total of 80 target vessels (40 renal, 20 celiac, 20 SMA stents). bEVAR was associated with a decrease in renal artery peak flow rate (-5.2 vs +2.0%, p<.0001) and peak pressure (-3.4 vs +0.1%, p<.0001) compared to fEVAR. There were no significant differences in celiac or SMA perfusion metrics (p=.10-.27) between groups (Table). Time averaged wall shear stress (TAWSS) in the paravisceral aorta and branches also varied significantly depending on endograft configuration, with bEVAR associated with large post-operative increases in renal artery (+47.5 vs +13.5%, p=.002) and aortic (+200.1% vs -31.3%, p=.001) TAWSS compared to fEVAR (Figure 1). Streamline analysis revealed areas of hemodynamic abnormalities associated with branched renal grafts which adopt a "U-shaped" geometry, which may explain observed differences in post-operative changes in renal perfusion between bEVAR and fEVAR (Figure 2).

Conclusions: bEVAR may be associated with subtle decreases in renal perfusion and a large increase in aortic wall shear stress compared to fEVAR. CFS is a novel tool for quantifying and visualizing the unique patient-specific hemodynamic effect of different complex EVAR strategies.

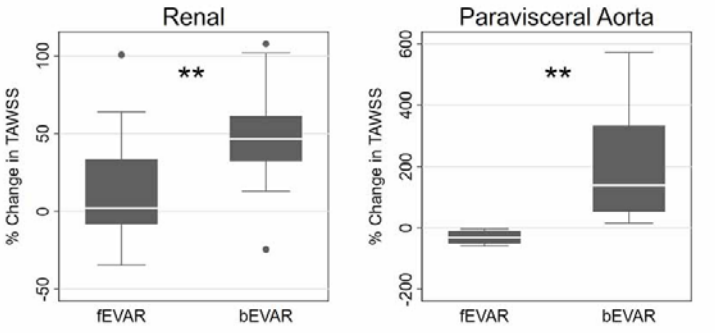

Figure 1 - Post operative changes in renal artery and paravisceral aortic time averaged wall shear stress (TAWSS) relative to pre-operative values. ** p< .01

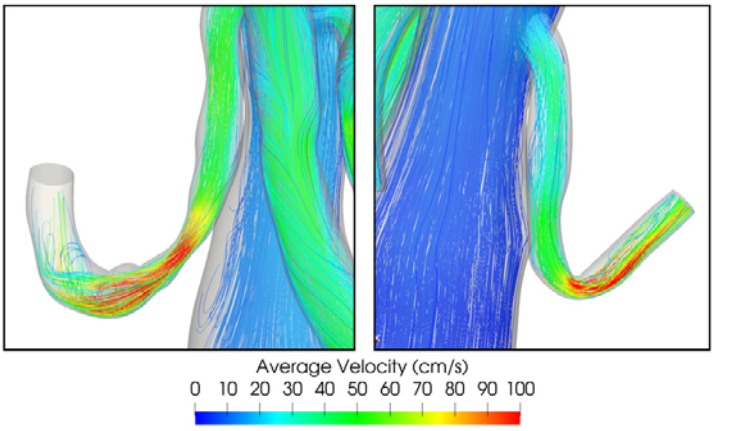

Figure 2 - Representative 3D streamline analysis on patients treated with bEVAR with renal branch stents adopting a "U-shaped" geometry. Abnormal flow hemodynamics demonstarted in red regions.

Table 1 – Differences in absolute and relative post-operative hemodynamic changes in aortic branches after fenestrated (fEVAR) and branched EVAR (bEVAR).

	fEVAR	bEVAR		fEVAR	bEVAR	
	Pre-Post Absolute Difference	Pre-Post Absolute Difference	p value	Pre-Post Relative Difference	Pre-Post Relative Difference	p value
Peak Branch Pressure	mmHg	mmHg		%	%	
Celiac Artery	-2.6 ± 6.6	1.2 ± 4.5	.15	-1.9 ± 4.8	1.1 ± 4.1	.15
Superior Mesenteric Artery	-1.9 ± 1.9	0.0 ± 3.9	.18	-1.4 ± 1.2	0.1 ± 3.5	.22
Renal Artery	1.3 ± 3.7	-4.0 ± 3.7	.0001	0.1 ± 2.6	-3.8 ± 3.1	<.0001
Peak Branch Flow Rate	ml/s	ml/s		%	%	
Celiac Artery	-2.2 ± 5.1	0.8 ± 3.7	.14	-6.6 ± 14.6	4.1 ± 13.1	.10
Superior Mesenteric Artery	-3.2 ± 2.3	-1.2 ± 4.4	.21	-7.1 ± 4.6	-2.7 ± 11.2	.27
Renal Artery	0.3 ± 0.6	-0.7 ± 0.8	<.0001	2.0 ± 4.7	-5.2 ± 5.2	<.0001

Author Disclosures: K Tran: Nothing to disclose, **S DeGlise**: Nothing to disclose, **C Deslarzes-Dubuis:** Nothing to disclose, **A Kaladji:** Nothing to disclose, **W Yang**: Nothing to disclose, **A Marsden**: Nothing to disclose, **J Lee**: Nothing to disclose

20. Relationship Between Wifi Stage and Quality of Life at the Time of Revascularization in the Best-Cli Trial

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Objectives: WIfI stage measures the extent of wounds, ischemia, and foot infection in patients with chronic limb threatening ischemia (CLI) and has been associated with risk of major amputation. Patients with CLI have impaired quality of life QoL which may be multifactorial in nature. We hypothesize that severity of limb threat (WIfI) is associated with QoL among patients with CLI undergoing revascularization.

Methods: The dataset of BEST-CLI, a prospective randomized trial comparing open and endovascular revascularization strategies, was queried for QOL outcomes at presentation for trial enrollment. QOL assessments included (1) Vascular Quality of Life (VasQOL), (2) SF-12, containing (a) physical (PCS-12) and (b) mental (MCS-12) components, as well as the (c) utility index score (SF-6D-R2) which incorporates physical, emotional, and mental wellbeing, and (3) EQ-5D. Multivariable analysis was used to identify independent associations with baseline QOL assessments.

Results: There were 1568 patients were analyzed of which 71.5% were male. WIfI distribution was 557 (35.5%) stage 4, 464 (29.6%) stage 3, 448 (28.6%) stage 2, and 99 (6.3%) stage 1 patients. Patients presenting with WIfi stage 4, compared to stages 1-3, were more often male (74.9% vs. 69.6%), with end stage renal disease (13.3% vs. 8.5%), and diabetes (83.6% vs. 60.2%), yet less often current smokers (38.0% vs. 49.5%) and independently ambulatory (43.2% vs. 61.5%) (P<.05 for all).
On multivariable analysis, WIfI stage 4, compared to stages 1-3, was associated with lower SF-12 MCS-12 (-2.43, 95% CI -3.73, -1.13, P<.001) and SF6D-R2 Utility index scores (-.02, 95% CI -.03-.01, P=.04). WIFi stage was not independently associated with baseline VasQOL, SF-12 PCS12, or EQ-5D assessment. Current opiate use, current or former smoking, and female sex were also independently associated with lower mental health component scores as well.

Conclusions: WIfI stage is independently associated with poorer quality of life due to mental rather than physical health in patients with CLI. Clinicians should be aware of the burden of mental stress borne by those with greatest limb impairment.

Author Disclosures: J Siracuse: Gore – Educational Grant to BU - PI, **V Rowe**: Nothing to disclose, **M Menard**: Nothing to disclose, **K Rosenfield**: Nothing to disclose, **M Conte**: Abbott – DSMB Board, **R Powell**: Nothing to disclose, **K Giles**: Nothing to disclose, **T Hamza**: Nothing to disclose, **M Strong**: Nothing to disclose, **C White**: Nothing to disclose, **N Choudhry**: Nothing to disclose, **A Farber:** Nothing to disclose

21. Early Results of Patient Reported Outcomes for Peripheral Vascular Interventions for Claudication

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Background: Outcome assessment for revascularization to treat claudication does not generally include an evaluation of the impact the treatment had on the patient's lifestyle. The objective of this study was to use patient reported outcomes (PRO) for patients with claudication undergoing peripheral vascular intervention (PVI) and determine if there is a relationship between PRO, ankle-brachial index (ABI) and clinical frailty score (CFS).

Methods: CFS, ABI and PRO data using the SF-6 claudication tool was prospectively collected for patients undergoing PVI for claudication between October 2019 and February 2022 using our VQI PVI module prior to intervention (PRE), at early follow-up (POM1) (4-6 weeks) and long-term follow-up (POY1) (9-21 months). PRO data was collected by administering the SF-6 survey to the patient at the time of their appointment at each interval by the clinical staff. Statistical comparisons between the PRE, POM1 and POY1 data were performed using t-tests and ANOVA.

Results: During the period of review, 378 patients underwent PVI for claudication, of which 62% were male and 38% female. No patient suffered a major complication or required amputation related to the index procedure or during the follow-up period. PRO data was collected prior to the intervention in 111 cases (30%). Data analysis revealed significantly greater PRO score at POM1 compared with PRE (13 ± 4 vs. 18 ± 5; $P < 0.0001$). POM1 ABI was significantly greater than that recorded at PRE (0.93 ± 0.14 vs. 0.68 ± 0.20; $P < 0.0001$) (Figure 1). CFS significantly improved (decreased in value) from PRE to POM1 (4 ± 1 vs. 3 ± 1; $P = 0.014$). Post hoc tests revealed PRO score to be significantly higher at POM1 compared to PRE (19 ± 5 vs. 13 ± 4; $P = 0.001$), and POY1 (18 ± 5) compared to PRE ($P = 0.0009$). There was no significant difference between PRO scores at POM1 and POY1 ($P = 0.642$) (Figure 2).

Conclusions: In this preliminary report of PRO for patients undergoing PVI for claudication, the patient's perception of a positive outcome of therapy correlated with improvement in ABI and CFS at one month and was sustained at one year. Further work is necessary to see if these outcomes are durable beyond 1 year follow-up and if integrating acquisition of PRO and CFS into clinical workflow can improve compliance with data collection validate these findings in a larger population.

Figure 1. Comparison of PRO and ABI at PRE and POM1

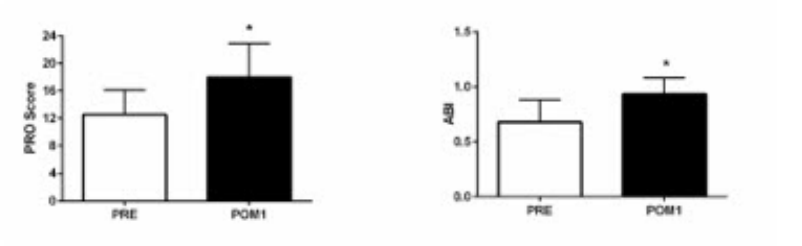
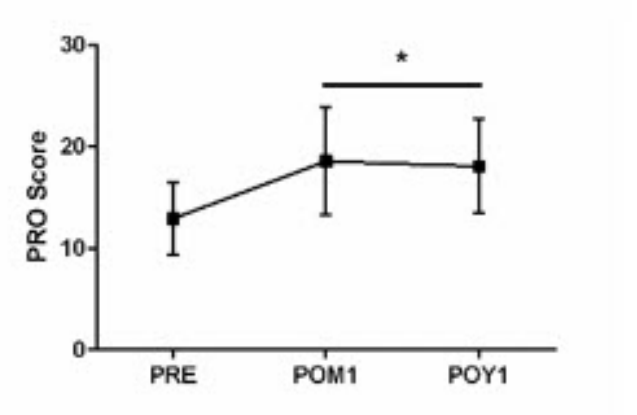


Figure 2. PRO comparison: PRE, POM1, POY1.



Author Disclosures: S Berman: Nothing to disclose, **M Berman:** Nothing to disclose, **L Leon**: Nothing to disclose, **J Pacanowski:** Nothing to disclose, **J Balderman:** Nothing to disclose, **B Mendoza:** Nothing to disclose, **J Sabat:** Nothing to disclose

22. The SVS Wifi Classification Does not Predict Successful Healing Following Transmetatarsal Amputation

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Objectives: The Society for Vascular Surgery WIfI (wound, ischemia, foot infection) classification has been shown to accurately predict limb salvage in chronic limb threatening ischemia (CLTI). However, its ability to predict limb salvage following transmetatarsal amputation (TMA) is unknown.

Method: A retrospective review of all CLTI patients undergoing TMAs at a single quaternary referral center between 1/2014 and 12/2019 was conducted. Our multidisciplinary limb preservation service includes a single surgical podiatrist who performs all TMAs within our institution. Baseline demographics including vascular disease history, procedural details, and outcomes were recorded. P values were calculated using Chi-Square testing.

Results: During the study period, 51 patients underwent 55 TMAs. The mean age was 62.7 (range 38-81), and 78% (40) of patients were male. The median WIfI stage was 4 on presentation. Endovascular revascularization alone was performed in 42% of patients, versus open revascularization in 11%, both in 38%, and neither in 9%. The 12-month major amputation rate was 33% (12 below knee, 6 above knee). Reasons for failure included primary failure of wound healing (10, 56%), infection (4, 22%), and secondary wound development after initial healing (4, 22%). Neither the WIfI stage (P=.66), Wound score (P=.32), or Ischemia score (P=.40) on presentation, nor the ischemia score post-revascularization (P=.29), were associated with subsequent major amputation. Additionally, there was no association seen between the need for major amputation following TMA and either the type of revascularization (P=.87), or the use of an endovascular-first approach (P=.15). An improvement in WIfI score following revascularization also did not predict TMA healing (P=.74).

Conclusion: The WIfI stage on presentation did not predict limb salvage following TMA. Excellent wound healing can be achieved following TMA despite advanced CLTI and a high WIfI stage, and therefore patients should not be precluded from attempted limb salvage based on the WIfI stage alone. Importantly, ischemia scores post-revascularization do not predict successful TMA healing, highlighting the need for further investigation into alternative non-invasive studies that may better predict TMA success.

Author Disclosures: J Hemingway: Nothing to disclose, **D Sims**: Nothing to disclose, **S Schwartz**: Nothing to disclose, **A Pujari**: Nothing to disclose, **J Fiorito:** Nothing to disclose, **N Singh**: Nothing to disclose

23. Outcomes of Elective Endovascular Interventions for Peripheral Arterial Occlusive Disease Performed in Hospital Outpatient Departments Versus Ambulatory Surgical Centers Versus Office-Based Labs

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Background: Practice patterns of peripheral vascular interventions (PVI) used to treat peripheral arterial occlusive disease (PAOD) have shifted from hospital outpatient departments (HOPD) to ambulatory surgical centers (ASC) and outpatient-based labs (OBL). The different procedural settings may influence how the PVI is performed and patient outcomes. This study aims to compare the intraprocedural details and postprocedural outcomes between the three different settings.

Methods: The VQI database was queried for all elective infrainguinal PVIs performed for PAOD between 2016 and 2021. The primary outcomes were unplanned hospital admissions, postprocedural medical complications, and access site complications. Secondary outcomes included types of devices used and rate of same admission subsequent treatment. Chi-square, ANOVA, and multivariate logistic regression were used to analyze the outcomes.

Results: A total of 66,095 patients (HOPD: 57,062 [86.3%], ASC: 4,591 [6.9%], OBL: 4,448 [6.7%]) were included in the study. Unplanned hospital admissions were similar across the three settings (HOPD:398 (0.7%), ASC:26 (0.6%), OBL:21 (0.5%), p=0.126), and there were no significant differences in cardiac, pulmonary and renal complications (Table 1). Access site complications occurred in less than 1.7% of all cases, regardless of setting, and were not different in HOPD vs. OBL (aOR: 0.98, 95% CI: 0.47 – 2.04, p= 0.964). However, access complications were significantly higher in OBL vs. ASC (aOR:3.73, 95% CI:1.72 – 8.09, p=0.001) and lower in ASC vs. HOPD (aOR: 0.27, 95% CI: 0.18 – 0.41, p<0.001). Patients treated in OBL were almost at a nine-fold increased risk of requiring subsequent treatment when compared with ASCs (aOR: 8.90, 95% CI: 2.66 – 29.85, p<0.001) and HOPDs (aOR:8.42, 95% CI: 4.67 – 15.18, p<0.001) (Figure 1). There was a 16-fold increase in the use of atherectomy devices in an OBL vs. HOPD setting (aOR: 16.80, 95% CI:11.79 – 23.94, p<0.001) and a 5-fold increase in an ASC vs HOPD setting (aOR: 5.37, 95% CI:2.47 – 11.65, p<0.001) (Figure 2).

Conclusions: Elective PVIs performed at any outpatient setting proved to be safe with similar rates of unplanned hospital admission, access and medical complications. Nonetheless, the increased use of atherectomy for OBL and ASC procedures warrants further evaluation.

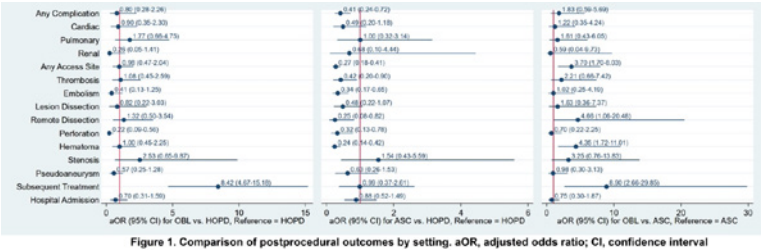

Figure 1. Comparison of postprocedural outcomes by setting. aOR, adjusted odds ratio; CI, confidence interval

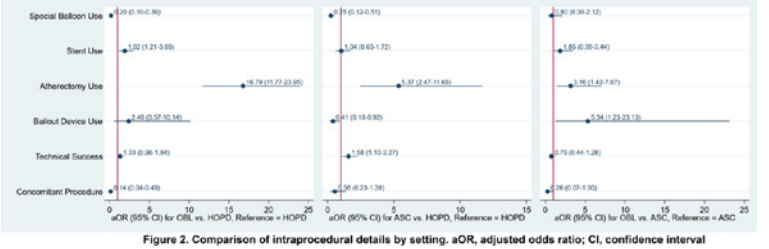

Figure 2. Comparison of intraprocedural details by setting. aOR, adjusted odds ratio; CI, confidence interval

Table 1: Univariate analysis of selected outcomes of patients receiving elective treatment for PAOD at ASC vs. OBL vs. HOPD

	HOPD n= 57,062 (86.3%)	ASC n= 4,591 (6.9%)	OBL n= 4,448 (6.7%)	*P* value
Atherectomy use	14,912 (26.40%)	3,038 (66.36%)	3,849 (86.63%)	< 0.001
Total devices per case	2.79 ± 1.60	3.17 ± 1.69	3.63 ± 1.89	< 0.001
Technical success	51,562 (92.34%)	4,302 (94.28%)	4,137 (93.34%)	< 0.001
Any complication	4,081 (7.20%)	144 (3.14%)	265 (5.96%)	< 0.001
Cardiac complication	165 (0.29%)	7 (0.15%)	11 (0.25%)	0.213
Pulmonary complication	33 (0.06%)	2 (0.04%)	4 (0.09%)	0.636
Renal complication	43 (0.08%)	2 (0.04%)	1 (0.02%)	0.338
Any access complication	915 (1.61%)	19 (0.41%)	74 (1.67%)	< 0.001
Subsequent procedure	302 (7.13%)	17 (6.64%)	107 (36.27%)	< 0.001
Hospital admission	398 (0.70%)	26 (0.57%)	21 (0.47%)	0.126

Author Disclosures: C Chow: Nothing to disclose, **M Malas:** Nothing to disclose, **A Mathlouthi:** Nothing to disclose, **S Zarrintan:** Nothing to disclose, **L Cajas-Monson:** Nothing to disclose, **J Siracuse:** Nothing to disclose

24. Preliminary Clinical Validation Results of a Deep Learning Approach for Ankle-Brachial Index Prediction in Non-Compressible Tibial Vessels

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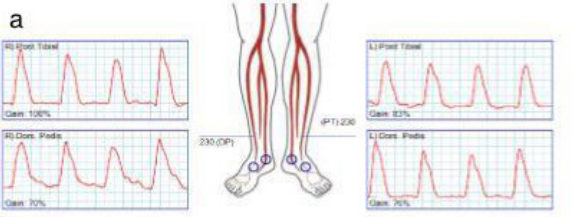
Objectives: The ankle-brachial index (ABI is limited by inability to derive accurate values in non-compressible tibial vessels due to falsely elevated readings. We present preliminary clinical testing results of a deep learning approach to predict ABI ranges directly from doppler sounds in patients with non-compressible tibial vessels with high accuracy and the goal of alleviating current limitations in ABI measurements.

Methods: A mobile data collection application was created to collect 4 second doppler audio recordings of during ABI exams. The vessel name and laterality were labeled along with phasicity to be used for testing (non-compressible samples were included). Files were then categorized according to ABI values into four clinically relevant categories: <0.5, 0.5-0.7, 0.7-0.9 and >0.9. A custom deep learning algorithm was constructed to extract features from doppler audio and enable the direct prediction of ABIs from the sound. The architecture follows the conversion of input sound into a visual spectrogram, enabling visual differentiation between the ABI prediction classes, followed by visual classification using a simple and standard 10-layer convolutional neural network (CNN).

Results: One-hundred-and-ten (110) audio recordings were collected for training. Seventy-three (73) recordings were collected for testing. Preliminary accuracy measures prove the ABI model accurate while validated across the test set, receiving a cumulative area under the curve of receiver operating characteristic (AUC-ROC) of 0.986 and F1-score of 0.906. The main purpose of such a model is to predict ABIs even in non-compressible tibial vessels. Fig. 1 shows an example of a prediction on a patient with non-compressible vessels, and the model predicted an ABI<0.5 which can be interpreted as concordant with the Monophasic waveform of the patient. Additional concordance of results in non-compressible patients are shown in Table 1.

Conclusions: We have demonstrated the feasibility of a deep learning algorithm to predict ABI ranges directly from doppler sounds, even in non-compressible tibial vessels. Further clinical validation is required to prove generalizability of the proposed system. Currently, the model is being further tested for integration within a mobile smartphone-based system.

a



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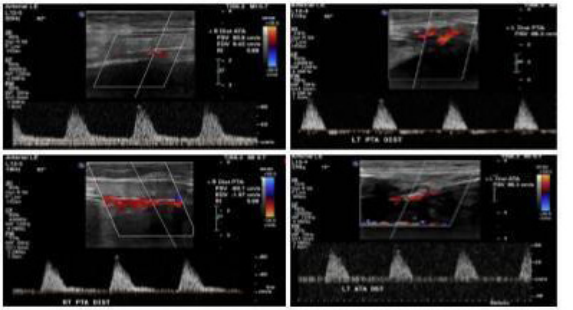

c

ABI Prediction: (confidence)		ABI Prediction: (confidence)	
Rt DP	ABI<0.5 (93%)	Lt DP	ABI<0.5 (95%)
Rt PT	ABI<0.5 (90%)	Lt PT	ABI<0.5 (97%)

Fig 1. Patient with diabetes mellitus and bilateral toe amputations, a) continuous doppler waveforms of non-compressible arteries and b) doppler ultrasound waveforms. c) Model ABI predictions

Non-compressible Recording Sample	ABI Prediction	Ground Truth Phasicity	Performance
1	0.5 - 0.7	Monophasic	concordant
2	0.5 - 0.7	Biphasic	concordant
3	0.7 - 0.9	Triphasic	concordant
4	> 0.9	Triphasic	concordant
5	0.5 - 0.7	Biphasic	concordant
6	< 0.5	Monophasic	concordant
7	> 0.9	Triphasic	concordant
8	< 0.5	Monophasic	concordant
9	0.5 - 0.7	Biphasic	concordant
10	0.7 - 0.9	Triphasic	concordant

Table 1. concordance of predicted ABI and ground truth phasicity in non-compressible vessels

Author Disclosures: A Rao: Nothing to disclose, **A Chaudhari**: Nothing to disclose, **K Battenfield:** Nothing to disclose, **A Fereydooni:** Nothing to disclose, **O Aalami:** Nothing to disclose

25. Addition of the Iliac Artery Calcification Burden Score Improves the Vascular Quality Initiative Mortality Prediction Model in Patients with Chronic Limb-Threatening Ischemia

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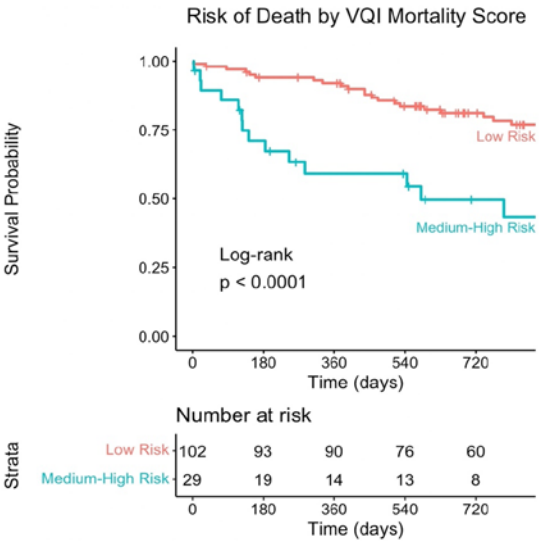
Objectives: Patients with chronic limb-threatening ischemia (CLTI) are at high risk for adverse limb outcomes and mortality. Using the Vascular Quality Initiative (VQI) prediction model to estimate mortality after revascularization can assist with clinical decision-making. We aimed to improve the discrimination of the 2-year VQI risk calculator by incorporating a common iliac artery (CIA) calcification score based on computed tomography (CT) scans.

Methods: This was a retrospective analysis of patients who underwent infrainguinal revascularization for CLTI from 1/2011 to 6/2020 and had a CT scan of the abdomen/pelvis 2 years before or up to 6 months after revascularization. CIA calcium morphology, circumference, and length were scored (Table 1). Bilateral scores were summed for the total calcium burden (CB) score, which was trichotomized (mild:0-15, moderate:16-19, severe:20-22). The VQI CLTI model was used to categorize patients as low-, medium-, or high-risk for mortality.

Results: 131 patients with mean age of 69±12 years were included in the study, and 86 (66%) were men. CB scores were mild in 52 (40%), moderate in 26 (20%) and severe in 53 (40%) patients. Older patients (p=0.0002) and those with coronary artery disease (p=0.06) had higher CB scores (Table 2). Patients with severe CB scores were more likely to undergo infrainguinal bypass compared to those with mild or moderate CB scores (p=0.006, Table 2). The 2-year VQI mortality risk was calculated to be low in 102 (78%), medium in 23 (18%) and high in 6 (4.6%) patients (Figure 1). In the "low-risk" VQI mortality subgroup, 46 (45%) patients had mild, 18 (18%) had moderate, and 38 (37%) had severe CB scores. In this "low-risk" VQI mortality subgroup, CB score further stratified the risk of mortality (Figure 2, p=0.04). Patients with severe CB scores had significantly higher risk of mortality compared to those with mild or moderate scores [HR 2.5 (1.2-5.1), p=0.01].

Conclusions: The VQI prediction model underestimates the risk of mortality after infrainguinal revascularization for CLTI in a large proportion of "low risk" patients. Adding the CB score into this risk calculator helped to identify those patients at increased risk of 2-year mortality in the VQI "low-risk" group and can be a useful adjunct in the preoperative risk stratification of these patients.


Risk of Death by VQI Mortality Score
Survival Probability
1.00
0.75
0.50
0.25
0.00
Low Risk
Medium-High Risk
Log-rank
p < 0.0001
0
180
360
540
720
Time (days)
Number at risk
Strata
Low Risk 102 93 90 76 60
Medium-High Risk 29 19 14 13 8
0
180
360
540
720
Time (days)

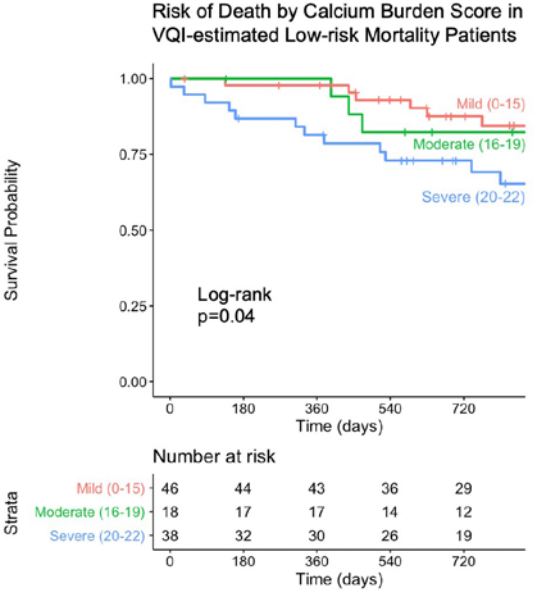

Risk of Death by Calcium Burden Score in
VQI-estimated Low-risk Mortality Patients
Survival Probability
1.00
0.75
0.50
0.25
0.00
Mild (0-15)
Moderate (16-19)
Severe (20-22)
Log-rank
p=0.04
0
180
360
540
720
Time (days)
Number at risk
Strata
Mild (0-15) 46 44 43 36 29
Moderate (16-19) 18 17 17 14 12
Severe (20-22) 38 32 30 26 19
0
180
360
540
720
Time (days)

Table 1. Components of common iliac artery calcification score. Scores from the left and right common iliac arteries were added together for the total calcium burden (CB) score.

Morphology Score	Definition	Circumference Score	Definition	Length Score	Definition
0	No calcifications	0	No calcifications	0	No calcifications
1	Calcifications £1mm maximal thickness	1	1-25%	1	1-25%
2	Calcifications 1-2mm maximal thickness	2	26-50%	2	26-50%
3	Calcifications with >2mm maximal thickness	3	51-75%	3	51-75%
		4	76-100%	4	76-100%

Table 2. Demographics of total cohort (n=131) and univariate correlations with common iliac calcification burden (CB) score.

	Total Cohort (n=131)	Univariate Correlations with Common Iliac Calcification Burden (CB) Score			
		CB Mild (0-15)	CB Moderate (16-19)	CB Severe (20-22)	p-value
Age (years)	68.8 12.1	63.6 11.2	70.9 13.0	72.9 + 10.7	0.0002
Male sex	86 (66%)	34 (65%)	15 (58%)	37 (70%)	0.57
Hypertension	105 (80%)	37 (71%)	23 (88%)	45 (85%)	0.1
Diabetes mellitus	79 (60%)	34 (65%)	19 (73%)	26 (49%)	0.08
End-stage renal disease	21 (16%)	7 (13%)	4 (15%)	10 (19%)	0.75
Coronary artery disease	62 (47%)	18 (35%)	14 (54%)	30 (57%)	0.06
Congestive heart failure	38 (29%)	12 (23%)	7 (27%)	19 (36%)	0.34
Infrainguinal re-vascularization: approach: Open bypass	48 (37%)	13 (25%)	7 (27%)	28 (53%)	0.006

Author Disclosures: C Huynh: Nothing to disclose, **I Liu:** Nothing to disclose, **R El Khoury**: Nothing to disclose, **H Braun**: Nothing to disclose, **M Conte**: Nothing to disclose, **J Hiramoto**: Nothing to disclose

26. Presentation and Management of Splenic Arteriopathy in Patients with Vascular Ehlers Danlos Syndrome

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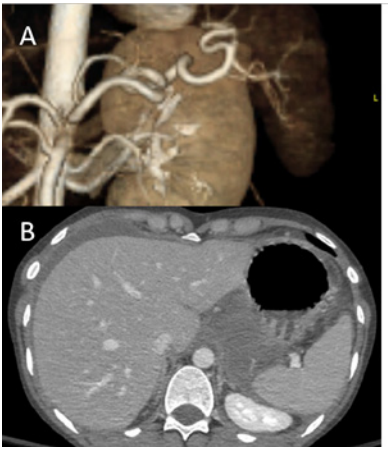
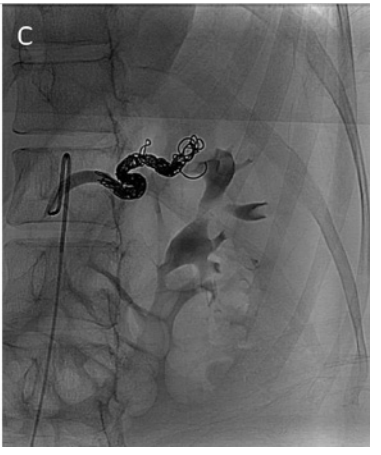
Background: Vascular Ehlers-Danlos Syndrome (VEDS) is rare and associated with arteriopathies. We investigate the presentation and management of splenic artery aneurysms in this population.

Methods: Cross-sectional analysis of 1547 individuals with genetically confirmed VEDS assembled by harmonizing data from VEDS Collaborative, UW Collagen Diagnostic Lab, and single center cohort. Patients were selected if they had splenic artery aneurysm, pseudoaneurysm, dissection, thrombosis, or rupture. Demographics, genetic variants, management, and outcomes were analyzed. Comparisons by rupture were made.

Results: A total of 88 patients presented between 1992 and 2021 with splenic arteriopathy (5% of the cohort, Mean age at diagnosis 37+11.1 years, 50% male). One third were diagnosed with VEDS prior to the splenic arteriopathy diagnosis and 17% were diagnosed post-mortem. Most had a positive family history (61%). Most had COL3A1 variants associated with minimal normal collagen production (75%), most commonly large amino-acid substitutions. Median follow up was 8.5 (IQR 0.9-14.7) years. Initial presentation was rupture in 47% and rupture overall was 51% (N=45). No major differences in VEDS related manifestations or genotype by rupture status (Table). Only 12 had size noted at median size of 12 (IQR 10.3-19.3) mm and "aneurysm" was documented in 39%. A total of 34 patients underwent 40 splenic artery interventions: 18 embolization (Figure), 21 open surgical, 10 splenectomies, 1 unknown procedure, and 5 more than one intervention. Open repair complications included arteriovenous fistula (n=1), intestinal or pancreatic injury (1 each), and four intraoperative death. There were no deaths or access site complications related to embolization. Four (23.5%) developed new splenic artery aneurysm in the remaining splenic artery post embolization. All-cause mortality was 35% (n=31) including 22 related to ruptured splenic arteries.

Conclusions: Splenic arteriopathy in VEDS is associated with variants that markedly disrupted type III collagen folding and frequently present and frequently present with rupture. Rupture and open repair is associated with high morbidity and mortality while embolization is associated with favorable outcomes. Long term follow up is indicated for secondary splenic arteriopathy.





N(%)/Mean±SD	Cohort (N=88)	Ruptured (N=45)	Un-ruptured (N=43)	p
Current Age	41.2±11.9	37.1±11.9	45.8±10.2	0.001
Age at VEDS diagnosis	35.5±11.9	33.7±12.2	37.2±11.5	0.199
Age at Splenic arteriopathy diagnosis	37±11.1	34.7±10.2	39.9±11.7	0.044
VEDS known before splenic arteriopathy diagnosed	22 (33.8)	6 (18.2)	16 (50)	0.007
Post mortem VEDS ascertainment	15 (17)	1 (2.3)	14 (31.1)	<.001
Patient is the proband	42 (47.7)	22 (48.9)	20 (46.5)	0.823
Family history	53 (61.6)	28 (63.6)	25 (59.5)	0.695
large amino acid substitution or exon skip	66 (75)	30 (69.8)	36 (80)	0.268
Characteristic facial features	28 (31.8)	14 (32.6)	14 (31.1)	0.884
thin or translucent skin	34 (38.6)	15 (33.3)	19 (44.2)	0.296
Easy bruising	35 (39.8)	22 (51.2)	13 (28.9)	0.033
Joint hyperextension	22 (25)	8 (17.8)	14 (32.6)	0.109
Hypertension	9 (10.2)	1 (2.2)	8 (18.6)	0.011
Diabetest Mellitus	5 (5.7)	0	5 (11.6)	0.019
Never smoker	20 (22.7)	6 (13.3)	14 (32.6)	0.031

Author Disclosures: A El-Ghazali: Nothing to disclose, **I Yuson:** Nothing to disclose, **S Wallace:** Nothing to disclose, **P Byers:** Nothing to disclose, **S Shalhub:** Nothing to disclose

27. Augmented Intelligence Maps Can Improve Intraoperative Outcomes

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Objectives: The endovascular treatment of complex aortic aneurysms has traditionally required increased operative time, radiation exposure, fluoroscopy time and contrast compared to simple aortic aneurysms. However, previous literature has shown that this minimally invasive approach improves patient morbidity and mortality compared to open repair. Surgical overlay software using augmented intelligence (AI) is a fast-developing area that was initiated at our institution in June 2019, and our study aims to show that use of this software can affect patient safety.

Methods: Patients with endovascular repair of complex aortic aneurysms at a tertiary care center from 2015-2021 were included in this retrospective review. Patients were stratified based on the use of intelligent maps, which are patient specific AI tools used in the operating room with real time fluoroscopic images. Outcomes included operative time, radiation exposure, fluoroscopy time, and contrast use. Linear regression models were used to evaluate the association between AI use and outcomes.

Results: Over the six-year study, 116 patients were included; 76 (65.5%) patients underwent procedures using AI while 40 (34.5%) did not use AI software (Table 1). Baseline characteristics were similar between the groups. Intraoperative outcomes revealed a decrease in radiation exposure, fluoroscopy time, operative time, and contrast in the AI group versus the non-AI group (Table 2). Furthermore, after adjusting for age, history of endovascular aortic repair, aneurysm size, aneurysm type, and AI use, there remained a significant decrease in operating room time, contrast used, radiation exposure, and fluoroscopy time in the AI group versus the non-AI group. There was no difference in 30-day postoperative complications, endoleak, reintervention or all-cause mortality.

Conclusions: This study demonstrates AI technology combined with intraoperative imaging can decrease radiation exposure, fluoroscopy time, and contrast use. Overall, the use of AI technology has led to improved safety for the patient and operating room team.

Table 1: Procedure Breakdown

	AI Used Intraop 76 (65.5%)	AI Not Used 40 (34.5%)
PMEG	46 (60.5)	29 (72.5)
Complex EVAR or Endoleak Treatment	24 (31.6)	10 (25)
TEVAR	6 (7.9)	1 (2.5)
PMEG: physician modified endograft; EVAR: endovascular aneurysm repair; TEVAR: thoracic endovascular aneurysm repair		

Table 2: Intraoperative Outcomes by Use of Augmented Intelligence (AI)

Mean ± SD	AI Used Intraop 76 (65.5%)	AI Not Used 40 (34.5%)	P Value
Radiation Exposure (mGy)	1955 ± 1256	3755 ± 3638	0.004
Fluoroscopy Time (minutes)	55.6 ± 39	86.9 ± 66	0.007
Operative Time (minutes)	255 ± 109	284 ± 154	0.294
Contrast (cc) 122 ± 59 199 ± 97			<0.0001

Author Disclosures: R Patel: Nothing to disclose, **A Lee**: Nothing to disclose, **J Hallsten:** Nothing to disclose, **J Lane:** Nothing to disclose, **A Barleben:** Nothing to disclose, **M Malas:** Nothing to disclose

28. Percutaneous Thrombectomy for Acutely Occluded Arteriovenous Dialysis Accesses is Safe and Prolongs Access Functionality

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Background: A large number of arteriovenous grafts (AVG) and arteriovenous fistulas (AVF) thrombose requiring intervention. Percutaneous thrombectomy may prolong access viability avoiding surgical revision or tunneled dialysis catheter use. We aim to evaluate outcomes of percutaneous thrombectomy to maintain AVF and AVG.

Method: We reviewed patients undergoing percutaneous thrombectomy for AVFs or AVGs at a single institution from September 2019 to February 2022. Outcomes were technical success (defined as angiographic resolution of occlusion and return of thrill), cannulation success, functional patency (defined as two-needle cannulation for two-thirds or more of all dialysis runs for 1 month), primary, primary-assisted and secondary patency rates at 30, 90, and 180 days. Patency rates were estimated with Kaplan-Meier Survival analysis.

Results: 55 failed AV accesses in 43 patients were studied. The cohort was 51.2% male (N=22) with a median age of 61 years (IQR: 51-73). Most accesses were AVG (N=50 [90.9%]) in the left upper extremity (N=44 [80.0%]). DM, CAD, CHF, atrial fibrillation, HLD and COPD were present in 62.8%, 23.3%, 27.9%, 13.9%, 34.9%, and 11.6% of the patients, respectively. The median follow-up time was 257.5 days (IQR: 61-470). Technical success was 94.3%. Cannulation success was 86.8%. All percutaneous thrombectomies performed were mechanical and done without tissue plasminogen activator use. Arterial angioplasty with and without stenting was performed in 3.6% and 9.1% of accesses and venous angioplasty with and without stenting was performed in 34.5% and 54.5% of accesses at first intervention, respectively. Reintervention was required in 70.9% of accesses (N=39), at a median time of 30.5 days (IQR: 12, 51). There was one complication (1.8%) (ulnar artery embolism) and no conversions to open (Table 1). At 30, 90, and 180 days, functional patency rates were 86.8% (95% CI: 74.2-93.5), 78.4% (95% CI: 64.3-87.4), and 67.5% (95% CI: 51.5-79.3), respectively (Table 2, Figure 1).

Conclusions: We show percutaneous thrombectomy is safe and effective at restoring flow to thrombosed AV accesses with 67.5% functionality at 180 days. We conclude percutaneous thrombectomy prolongs dialysis access functionality avoiding the subsequent need for tunneled catheter placement or creation of new access.

Table 1. Outcomes (Number of Accesses=55)

Outcome	N (%) or median (IQR)
Arterial intervention	
Angioplasty	5 (9.1)
Angioplasty + Stenting	2 (3.6)
Venous intervention	
Angioplasty	30 (54.5)
Angioplasty + Stenting	19 (34.5)
Central Stenosis	12 (22.2)
Technical Success	50 (94.3)
Cannulation Success	46 (86.8)
Reintervention after index thrombectomy	39 (70.9)
Second reintervention after index thrombectomy	22 (40.0%)
Total reinterventions	1 (0, 2)
Time to first reintervention, days	30.5 (12, 51)
Time to second reintervention, days	59 (37, 131)
Complications	1 (1.8)
Conversion to open	0 (0.0)
Office-Based Laboratory	8 (14.5)
Catheter use during reinterventions	4 (7.3)
Total access abandonment	22 (40.0)
Time to access abandonment, days	39.5 (16, 175.5)
All-cause mortality	3 (7.0)
Follow up time, days	257.5 (61, 470)

Table 2. Patency

	30-day		90-day		180-day	
Type of Patency	%	95% CI	%	95% CI	%	95% CI
Primary	52.6	38.4-65.0	28.8	16.8-42.0	21.6	11.1-34.4
Primary-Assisted	62.2	47.8-73.8	43.5	29.6-56.6	33.3	20.2-46.9
Secondary	86.8	74.2-93.5	78.4	64.3-87.4	67.5	51.5-79.3

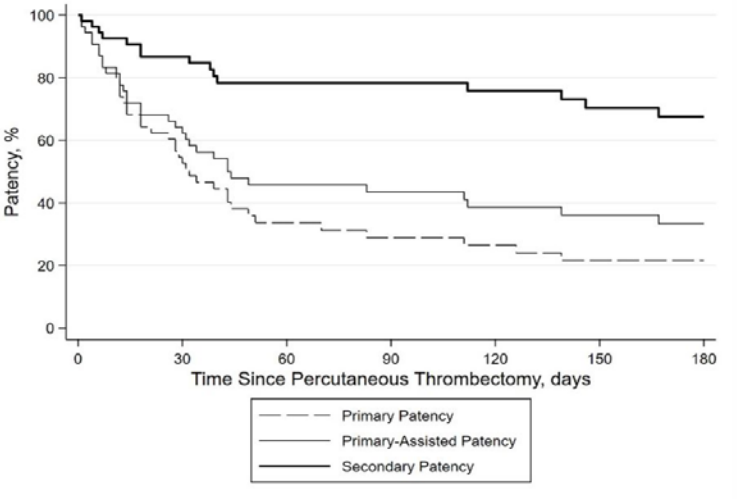

Figure 1: Primary, Primary-Assisted and Secondary Functional Patencies (Kaplan-Meier Survival Analysis)

Author Disclosures: C Janssen: Nothing to disclose, **S Zarrintan:** Nothing to disclose, **P Jadhav:** Nothing to disclose, **M Moghaddam:** Nothing to disclose, **L Cajas-Monson:** Nothing to disclose, **M Malas:** Nothing to disclose, **O Al-Nouri:** Nothing to disclose

29. One Year Clinical Outcomes of Popliteal Stenting in Chronic Limb Threatening Ischemia

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Objectives: While autogenous bypass to the below-knee popliteal artery remains the gold standard for behind and below knee (P2/P3 segment) popliteal disease in chronic limb threatening ischemia (CLTI), the modern CLTI patient is often not a candidate for bypass due to prohibitive comorbid conditions or inadequate conduit. While historically popliteal stenting has been avoided given concerns for poor durability, newer woven Nitinol stents promise improved flexibility and crush-resistance. However, their performance within the P2/P3 popliteal segments is unknown.

Methods: A retrospective review of all patients with CLTI undergoing endovascular intervention at a single institution from August 2017 to November 2020 were reviewed. Patients with CLTI undergoing self-expanding woven Nitinol bare metal stent placement within the popliteal artery were included.

Results: 64 patients with at least 1-month follow-up data were treated during the study period, with a median follow-up of 14.5 months. Demographics are listed in table I. 49% of patients presented with Stage 3-4 CLTI based on WIFI classification. 78% of patients had chronic total occlusions, with 85% of patients having TASC C/D disease. On average, 20 cm of the femoropopliteal segment was stented, with 74% of patients stented in the P2/P3 segments. Primary, primary-assisted, and secondary patency at 6-months was 85%, 87%, and 89%, respectively, versus 69%, 75%, and 81% at 12-months, respectively. Decreases in the WIFI score, wound size, and Rutherford classification were seen at 6 and 12-months (Figure 1). Wound healing at 6 and 12-months were 81% and 80%, respectively, and an improvement in Rutherford Classification, from 4-6 initially to less than 4, was 74% at 6 months and 70% at 12 months. At 12-months, freedom from major amputation was 92%, and freedom from MALE was 75%. 58% of patients were dead at 12-months, resulting in a 33% 12-month amputation free survival.

Conclusions: Given the high rate of clinical improvement, limb salvage, and 6 and 12-month primary and secondary patency rates, behind and below-knee popliteal stenting with woven Nitinol stents is a viable option in the management of modern CLTI, especially in patients with a limited life-expectancy who are not bypass candidates.

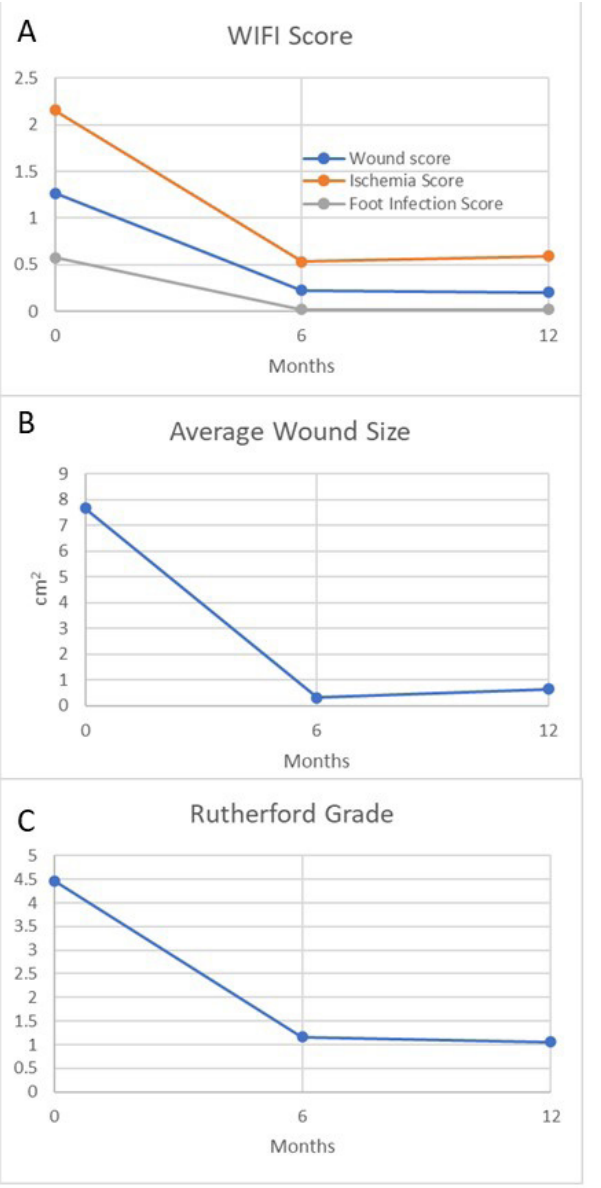

Figure 1: Initial, 6, and 12-month WIFI component scores (1A), wound sizes (1B), and Rutherford Classification (1C).

Demographics	Statistic
Male	57%
Age, mean	74
Body Mass Index, mean	33
Hypertension	94%
Hyperlipidemia	61%
Diabetes Mellitus	64%
Coronary Artery Disease	42%
Chronic Kidney Disease	49%
Chronic Obstructive Pulmonary Disease	30%
Congestive Heart Failure	33%
End Stage Renal Disease	6%
Smoking History	64%
Prior Interventions	
Previous endovascular intervention	45%
Previous open intervention	16%
Previous minor amputation	11%
Previous major amputation	5%
Previous debridement	29%
Preoperative Medications	
Anti-hypertensive	90%
Statin	75%
Aspirin	71%
Plavix	42%
Anticoagulation	28%
Oral Diabetic Medication	33%
Insulin	45%
Operative characteristics	
Length Stented, mean (cm)	20.2 cm
Occlusions	79%
Adjunctive Drug Coated Balloon Angioplasty	75%
Tibial Stenting	34%
Adjunctive Atherectomy	23%
Adjunctive Intravascular Lithotripsy	5%

Author Disclosures: J Hemingway: Nothing to disclose, **K Stephens:** Nothing to disclose, **M Smith:** Nothing to disclose, **N Singh:** Nothing to disclose, **J Rollo:** Nothing to disclose

30. Use of Polygenic Risk Scores to Improve Detection of Peripheral Artery Disease: An Institutional Use Case

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Background: Polygenic risk scores (PRS) provide a summary of an individual's genetic risk of disease. We have previously demonstrated that a PRS can improve classification of peripheral artery disease (PAD) in a large, retrospective cohort. The purpose of this study was to evaluate how well a PRS could improve detection of PAD in our own cohort of patients.

Methods: Using a manual chart review tool, we created a cohort of patients with and without PAD who had blood samples stored in an institutional Precision Health Biobank. Genotyping was conducted by Thermo Fischer, using the Axiom Precision Medicine Diversity Array. A classical logistic regression model solely using clinical risk factors for PAD was constructed. Using summary statistics from the Million Veteran's Program Genome Wide Association Study for PAD, we fit a PAD-specific PRS based on the weighted sum of risk alleles. Calculated PRS for each subject was then added to the clinical model to create a combined model. Model performance was measured using area under the curve (AUC). Net reclassification index (NRI) and Delong's Test of Significance were used to compare the clinical and combined model.

Results: In total, 278 subjects (52 cases and 226 controls), 155 male and 123 female, were included in this study. Typical clinical risk factors such as diabetes and coronary artery disease were highly associated with risk of PAD (Table 1). Our clinical model demonstrated an AUC of 0.90. Addition of PRS data resulted in a significant increase in model AUC to 0.91 (P = 0.02) (Figure 1). Moreover, the addition of PRS data resulted in an NRI of 0.07 (P = 0.04) (Table 2), with most reclassification occurring in those at intermediate-risk of disease (5-25% predicted risk).

Conclusion: The addition of patient-specific genetic data in the form of a PAD PRS significantly improved disease risk assessment compared to a clinical model alone, though both models performed quite well, even in this small cohort of patients. The PRS was most influential in reclassifying an important group of patients – those at intermediate risk. Incorporation of genetic data into PAD screening protocols may help clinicians identify and treat disease in a timelier fashion.

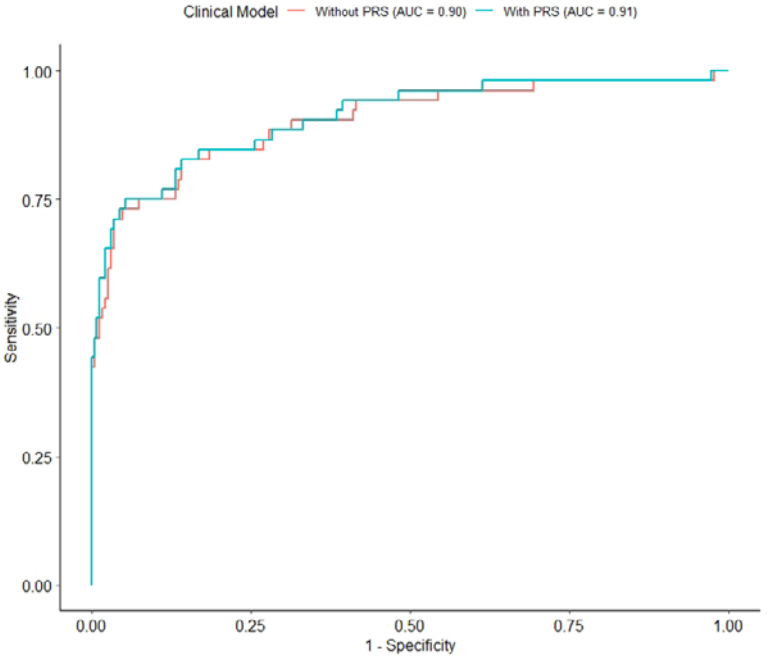

Table 1: Baseline characteristics considered by clinical model

Variable	No PAD(n=226)	PAD (n=52)	*p*-Value*
Age, mean (SD), years	70.38 (9.86)	68.44(9.48)	0.1919
Sex, male (%)	112 (49.56)	43 (82.69)	2.811×10^{-5}
BMI, mean (SD)	27.52 (5.59)	27.31(3.845)	0.7501
Diabetes, n (%)	30 (13.27)	21(40.38)	1.327×10^{-5}
Hyperlipidemia, n (%)	83(36.73)	27(51.92)	0.0624
Hypertension, n (%)	5 (2.21)	3 (5.77)	0.3558
Current Smoker, n (%)	57(25.22)	10(19.23)	0.4649
Coronary Artery Disease, n (%)	156(69.03)	50 (96.15)	1.178×10^{-4}
Heart Failure, n (%)	136 (60.18)	43(82.69)	0.0038
Cerebrovascular Disease, n (%)	179 (79.20)	49(94.23)	0.0191

*Students t-test used for continuous variables and chi-squared for categorical

Table 2: Net Reclassification Table

	Combined Model With PRS			
Initial Model	Low Risk (0-5%)	Intermediate Risk (5-25%)	High Risk (>25%)	Percent Reclassified
Low Risk (0-5%)	99	9	0	9%
Intermediate Risk (5-25%)	14	83	2	16%
High Risk (>25%)	0	2	69	3%
Net Reclassification Index				0.0694
p Value				0.044

Author Disclosures: I Ghanzouri: Nothing to disclose, **J Cabot:** Nothing to disclose, **I Lopez:** Nothing to disclose, **F Wang:** Nothing to disclose, **E Ross:** Nothing to disclose

31. Improvement of Health Insurance and Outcomes of Medicaid Beneficiaries with Diabetic Foot Ulcerations

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Objectives: Although suboptimal insurance status is linked with an increased risk of diabetes-related amputation, it is unclear how health insurance coverage improves the care and outcomes of patients with diabetic foot ulcerations (DFUs). The purpose of this study was to evaluate the outcomes of Medicaid beneficiaries with DFUs who had transitioned to commercial insurance.

Methods: The Pearl Diver all-payor insurance claims database was used to identify adult patients (>18 years) with a new DFU from 2010 to 2019. The study cohort included 8,814 Medicaid beneficiaries and at least three years of continuous enrollment after diagnosis of DFUs. Patients were stratified based on whether they had an improvement of insurance coverage from Medicaid to commercial insurance. Patients who transitioned from Medicaid to Medicare and other government-sponsored insurance during follow-up were excluded. We used logistic regression and Kaplan-Meier estimate to examine the association of insurance change (Medicaid to Commercial Insurance) and lower extremity amputation. Adjusted analysis was performed using propensity score matching (1:1 ratio).

Results: Among the 8,814 Medicaid beneficiaries with DFUs, 66% (n=5,809) had transitioned to commercial insurance coverage during follow-up. Overall major amputation rate was 3.1% (Transition to commercial: 2.6%, Medicaid: 3.2%, p<.05). Medicaid beneficiaries who gained commercial insurance had a 27% lower risk of major amputation (OR 0.75, 95% CI 0.56, 0.97, p=0.03) than continuous Medicaid coverage. In the propensity-matched cohort, adjusting for age, the Charlson comorbidities index, gender, chronic pulmonary disease, coronary artery disease, hypertension, depression, peripheral artery disease, renal failure, and smoking, Medicaid beneficiaries who had gained commercial insurance had a significant lower risk of major amputation (OR 0.65, 95% 0.22, 0.55, p=0.01).

Conclusion: Among Medicaid beneficiaries with DFUs, improvement in health insurance status from Medicaid to commercial health insurance is associated with reduced risk for diabetes-related amputations.

Author Disclosures: T W Tan: Nothing to disclose, **J Tolson:** Nothing to disclose, **J Arias**: Nothing to disclose, **C Weinkauf:** Nothing to disclose, **D Armstrong:** Nothing to disclose

32. Neighborhood Deprivation Trends in Patients Undergoing Carotid Endarterectomy

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Background: Residents of socioeconomically disadvantaged neighborhoods have higher rates of cardiovascular disease, increased healthcare resource utilization, and earlier death. The Area Deprivation Index (ADI) provides percentile rankings of neighborhoods by socioeconomic disadvantage and includes factors for income, education, employment and housing quality. The aim of this study is to evaluate the ADI in patients undergoing carotid endarterectomy (CEA) to elucidate its impact on post-operative outcomes.

Methods: A retrospective review was performed on all patients undergoing carotid endarterectomy from January 2011 to March 2018 at a tertiary-level, safety net hospital in Fresno, California. Primary outcomes of interest included age, gender, race, ADI, post-operative stroke, and death. A univariate analysis was performed to evaluate the association of post-operative stroke with ADI and race.

Results: A total of 851 patients met inclusion criteria of which 545 patients (64%) underwent CEA for asymptomatic disease and 196 patients (36%) for symptomatic disease. A total of 9 patients (1.1%) had a stroke within thirty days post-operatively and there was no difference in post-operative stroke rate between symptomatic and asymptomatic patients. Patients who suffered a post-operative stroke had a significantly higher national percentile ADI than those who did not (66.4% vs 44.9%, $p = 0.014$). Hispanic race ($p = 0.025$), African American race ($p = 0.001$) and increasing ADI were independent risk factors for stroke.

Conclusions: High ADI as well as Hispanic and African American race are independent predictors of post-operative stroke after CEA. This indicates that social determinants of health have a profound impact on post-operative outcomes of patients undergoing CEA which suggests that further exploration into modifiable factors within this realm are warranted in an effort to improve post-operative outcomes in socioeconomically disadvantaged populations.

Author Disclosures: S Siada: Nothing to disclose, **H Matheny:** Nothing to disclose, **Y Qumsiyeh:** Nothing to disclose, **K Eckroth-Bernard:** Nothing to disclose, **R Stern:** Nothing to disclose, **L A O'Banion:** Nothing to disclose

33. Frailty Does Not Predict Worse Outcomes Following Lower Extremity Angiograms for Limb Ischemia in Nonagenarians

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Objectives: Endovascular interventions are performed routinely with minimal risk in younger populations. The safety and efficacy of endovascular interventions in both frail and non-frail nonagenarians is understudied. We sought to examine whether increased frailty predicted outcomes following lower extremity (LE) interventions for acute limb ischemia (ALI) and chronic limb threatening ischemia (CLTI).

Methods: A retrospective review of all patients >90 years who underwent a LE angiogram for ALI or CLTI over a 12-year period at a single institution was performed. Primary outcomes were 30-day and 1-year major amputation and mortality rates. Patient demographics, complications, and target vessel revascularization (TVR) rates were reviewed. Frailty scores were calculated using the 11-factor modified frailty index (MFI-11).

Results: From 2009–2021, 76 patients (36% male) with a mean age of 93 (range, 90 to 102) underwent endovascular procedures for ALI (n=13) and CLTI (n=63). Thirty-day amputation and mortality rates were 6% and 8%, respectively. Patient demographics, preoperative functional status, and TVR rates were not different between patients who had early amputation (< 30 days) and those who achieved limb salvage.
Fifty-four patients (72%) had 1-year follow-up. There was a 27% mortality rate at one year, 33% of whom had an amputation. Of the patients alive (73%), one patient (3%) had an amputation. Patients with an early amputation had a significantly higher one-year mortality rate compared to those who did not (83% vs 19%; $p < .01$).
Based on a modified MFI-11 scoring, 59% of the population was considered frail (> 0.27). Frail patients did not have significantly different 30-day (limb salvage: 88% vs 91%, $p = 0.66$; mortality: 13% vs 7%, $p = 0.61$) or 1-year outcomes (limb salvage: 70% vs 89%, $p = 0.14$; mortality: 36% vs 26%, $p = 0.48$).

Conclusions: Endovascular procedures can be performed safely in nonagenarians with low mortality and high limb salvage rates. Patients with early amputation are at a significantly higher risk of death within one year. Frailty, as measured by a validated index, was not associated with worse early or late outcomes. When compared to immediate amputation, nonagenarian patients and their families should be counseled as to the benefit of a minimally invasive endovascular procedure.

Author Disclosures: J DeRieux: Nothing to disclose, **D Obed:** Nothing to disclose, **M Wang:** Nothing to disclose, **A Johnson:** Nothing to disclose, **M Paisley**: Nothing to disclose, **K Casey:** Nothing to disclose

34. Structured Discharge Documentation Reduces Sex-Based Disparities in Statin Prescription in Vascular Surgery Patients

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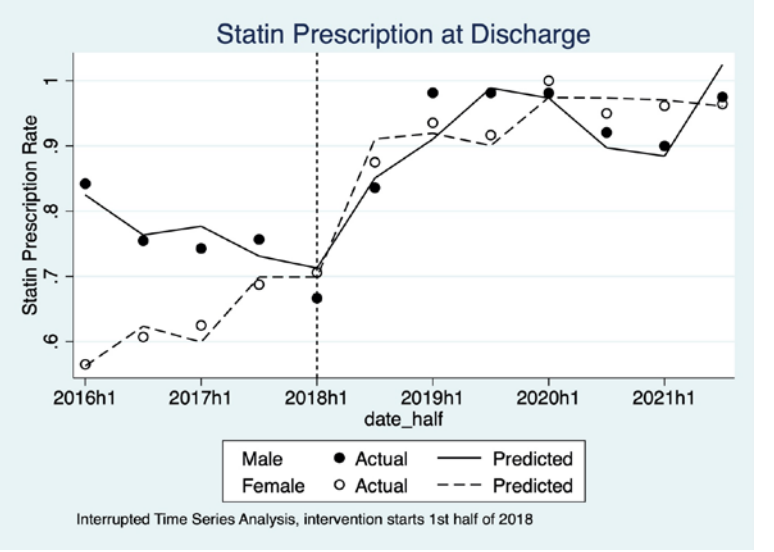
Background: Perioperative statin use has been shown to improve survival in vascular surgery patients. In 2018, the Northern California Vascular Study Group implemented a quality initiative focused on the use of a SmartText in the discharge summary. This study examined the initiative's impact on sex-based disparities in statin prescription. We hypothesized that structured discharge documentation (SDD) would decrease sex-based disparities in statin prescription.

Methods: A retrospective analysis was conducted using Vascular Quality Initiative (VQI) eligible cases at a single institution. Open or endovascular procedures in the abdominal aorta or lower extremity arteries from 2016 to 2021 were included. Bivariate analysis identified factors associated with statin use and sex. A multivariate logistic regression was performed with the endpoint of statin prescription at discharge. An interaction term assessed the differential impact of the initiative on both sexes. Analysis was then stratified by prior statin prescription. An interrupted time series (ITSA) analysis was used to evaluate the trend in statin prescription over time.

Results: Overall, 866 patients were included, including 292 (34%) females and 574 (66%) males. Prior to implementation, statins were prescribed in 77% of males and 62% of females ($p<0.01$). After, there was no statistically significant difference in statin prescription (91% in males vs. 92% in females, $p=0.68$). Female patients saw a larger improvement in the adjusted odds of statin prescription compared to male patients (OR 3.1, 95% CI 1.1-8.6, $p=0.04$). For patients not prescribed a statin pre-operatively, the rate of new statin prescription increased from 32% to 78%. In this group, female patients again saw an even larger improvement in the odds of being prescribed a statin at discharge (OR 6.4, 95% CI 1.8-22.7, $p<0.01$). ITSA demonstrated a sustained improvement in the rate of prescription for both sexes over time (Figure 1).

Conclusion: A simple, low-cost regional VQI-based quality improvement initiative eliminated sex-based disparities in statin prescription at a single institution. These findings highlight the meaningful impact of regional quality improvement projects. Future studies should examine the potential for SDD to improve patient outcomes.



Author Disclosures: K Sanders: Nothing to disclose, **J Nacario:** Nothing to disclose, **E Smith**: Nothing to disclose, **Z Matthay:** Nothing to disclose, **E Jaramillo:** Nothing to disclose, **E Lancaster:** Nothing to disclose, **J Hiramoto:** Nothing to disclose, **M Conte:** Nothing to disclose, **J Iannuzzi:** Nothing to disclose

35. Poor Utilization of Palliative Care Amongst Medicare Patients with Chronic Limb Threatening Ischemia

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Objectives: Patients with chronic limb threatening ischemia (CLTI) experience high annual mortality and would benefit from timely palliative care intervention. We sought to better characterize use of palliative care among CLTI patients in the Medicare population.

Methods: Using Medicare data from 2017-2018, we identified patients with CLTI, defined as two or more encounters with a CLTI diagnosis code. Palliative care evaluations were identified using ICD-10-CM Z51.5 "Encounter for palliative care." Time intervals between CLTI diagnosis, palliative consultation, and death or end of follow up were calculated. Associations between patient demographics, comorbidities, and palliative care consultation were assessed.

Results: A total of 12,133 Medicare enrollees with complete data were categorized as having CLTI. Of these, 7.4% (894) underwent a palliative care evaluation at a median of 170 (IQR 45 – 352) days from their CLTI diagnosis. Compared with those that did not undergo evaluation, palliative patients were more likely to be dual eligible for Medicaid (45.2% versus 38.1%, p<.001) and had more comorbid conditions (p<.001). After controlling for gender and race, age (OR 1.03; CI 1.02-1.04), dual eligibility (OR 1.40, CI 1.22-1.62), solid organ malignancy (OR 2.82; CI 1.92-4.14), hematologic malignancy (OR 2.24, CI 1.27-3.98), congestive heart failure (OR 1.44, CI 1.15-1.88), complicated diabetes (OR 1.35, CI 1.11-1.65), dementia (OR 1.32, CI 1.04-1.66), and severe renal failure (OR 1.56, CI 1.24-1.98) were independently associated with palliative care evaluation. During the mean follow up period of 410 (+/- 220) days, 16.9% (2044) of patients died at a mean of 268 (+/- 189) days after their CLTI diagnosis. Among patients that lived, only 3.2% (325) underwent palliative evaluation. Comparatively, 27.8% (569) of patients who died received palliative care at a median of 196 (IQR 55-362) days after their diagnosis and 15 (IQR 5-63) days prior to death.

Conclusions: Despite high mortality, palliative care services were rarely provided to Medicare patients with CLTI. Age, medical complexity, and income status may play a role in the decision to consult palliative care. When obtained, evaluations occurred closer to time of death than to time of CLTI diagnosis, suggesting misuse of palliative care as end-of-life care.

Author Disclosures: M Kwong: Nothing to disclose, **G Rajasekar:** Nothing to disclose, **M Nuno:** Nothing to disclose, **G Utter:** Nothing to disclose, **M Mell:** Nothing to disclose

36. Intravascular Lithotripsy for Plaque Modification in Trans-Carotid Artery Revascularization

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Background: Trans-carotid artery revascularization (TCAR) is an increasingly utilized treatment for carotid artery stenosis. Circumferential calcium remains a relative contraindication for TCAR. Intravascular lithotripsy (IVL) has shown utility in preparing calcific lesions prior to stenting. We present our initial experience with combination IVL and TCAR for the management of patients with circumferential calcium.

Method: From November 1, 2020 to March 1, 2022, 7 patients (4 men, 3 women, mean age 81) presented with symptomatic (n=3), asymptomatic recurrent (n=2) and asymptomatic de-novo (n=3) severe carotid artery stenosis with circumferential calcium. One patient had bilateral treatment. Two patients had a contralateral carotid occlusion, and one had history of contralateral cerebrovascular accident (CVA) with residual dysphagia. Intraoperative angiography was consistent with >90% stenosis and circumferential calcium burden in all cases. Under flow reversal with the Silk Road ENROUTE (Silk Road Medical, Sunnyvale, CA) system, a Shockwave (Shockwave Medical, Santa Clara, CA) balloon was placed across the lesion, inflated and pulsed between 30 and 120 cycles. The remainder of the procedure was completed in the standard fashion. In one case, IVL was performed after stenting. In all cases, no residual stenosis was noted on completion angiography. Flow reversal times ranged from 16-32 minutes.

Results: All patients tolerated the procedure well and discharged on the first post-operative day in 4 of 8 cases. Three patients stayed longer than 2 days: one for urinary retention, one for orthostatic hypotension, and one patient with a history of contralateral CVA with residual dysphagia was awaiting placement and had an episode of aspiration resulting in sepsis and death on post-operative day 5. Follow-up duplex imaging is available for 2 patients – 1 month postoperatively on 2 patients, and 16 months imaging on one of these patients – with no residual stenosis.

Conclusions: Intravascular lithotripsy is a promising solution for patients with circumferential calcium requiring carotid revascularization and are otherwise candidates for TCAR. This technique is safe and effective in our series. Further investigation and follow-up is ongoing to determine the utility and durability of this novel combination.

Author Disclosures: D Miles: Nothing to disclose, **S Schonefeld:** Nothing to disclose, **D Delgadillo:** Nothing to disclose, **C Arbabi:** Nothing to disclose, **D Baril:** Nothing to disclose, **N Gupta:** Nothing to disclose, **B Gewertz:** Nothing to disclose, **A Azizzadeh:** Nothing to disclose

NOTES

CONSTITUTION & BYLAWS

CONSTITUTION & BYLAWS

ARTICLE I – NAME

The name of this corporation is the Western Vascular Society (hereinafter the "Society").

ARTICLE II – PURPOSES

The purpose of the Society shall be: (1) to promote study and discussion of the art and science of vascular surgery;(2) to promote exchange of information among the membership; (3) to hold annual meetings; (4) to do and engage in any and all lawful activities that may be incidental or related to the foregoing and to have and exercise all powers and authority now or hereafter conferred upon not-for-profit corporations under the laws of the State of California.

Notwithstanding the foregoing, (1) no part of the Corporation's net earnings or assets shall inure to the benefit of any member, director, officer, or other person, except that the Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make other payments and distributions in furtherance of the purposes set forth above, and (b) the Corporation shall not carry on any activity not permitted to be carried on by an organization exempt from federal income tax under section 501 (c) (6) of the Internal Revenue Code of 1954, as amended (the "Code") or the corresponding provision of any further United States revenue statute.

ARTICLE III – MEMBERSHIP

1. The membership of this Society shall be limited to surgeons who practice primarily vascular surgery, who are in good standing in their community as judged by members of the Society. Candidates for membership shall be certified by the American Board of Surgery added Certification in Vascular Surgery or the Royal Canadian College of Surgeons Certificate of Special Competence in Vascular Surgery. In exceptional cases, the Membership Committee may elect to accept equivalent periods of training for formal certification.

2. Members shall be drawn from the Western states, provinces and the Pacific Rim. This will be defined as follows: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma,

Oregon, Utah, Washington, Wyoming, Alberta, British Columbia and the Pacific Rim.
Exception to this rule is in the case of any active duty military personnel who are welcome to membership regardless of their geographic location.

3. There shall be five types of members: active, senior, honorary, associate, and adjunct.

4. Active membership shall consist of the following members of the Organization plus subsequent individuals elected to membership by the Society. The total number of active members shall be limited to 160.

4a. Prospective members should have completed a minimum of one (1) years of practice after vascular surgery training before applying for membership.

4b. The prospective member should meet one or more of the following three (3) criteria in order to be considered for membership:
Excellence in Clinical Care – this can be reflected by letters from colleagues and collaborators, regional reputation, years in practice, peer-recognition awards (Chief of Staff, senior surgeon in group, HMO recognition award), service on peer-review organizations, case lists and outcomes, community involvement or participation in clinical trials.
Contributions to Vascular Science – this can be reflected by peer-review publications, non-profit or federal grant support, invited lectures, professorships, faculty appointments, invited publications, participation in clinical trials, device development, active participation in local/regional vascular societies or serving on hospital committees.
Contributions to Vascular Education – this can be reflected by teaching responsibilities at a vascular or general surgery training program, hospital grand rounds, seminars, proctorship of new vascular procedures or other lectureships.

5. Senior members shall consist of active members who have reached the age of sixty-five (65) or who for reasons of health or other just cause, the Council recommends for classification in this category. Senior members shall not be bound by requirements for attendance at meetings; however, working senior members shall continue to pay annual dues until such time as they have notified the Secretary-Treasurer that they have left active practice.

6. Honorary members of the Society shall consist of individuals who have made outstanding contributions in the field of vascular science. Honorary members shall not be bound by the requirements for attendance at meetings, shall have no voting privileges nor shall they be required to pay dues.

7. Associate members of the Society shall consist of those individuals who were previously active members but have moved out of the geographic limits of the Western Vascular Society. Associate members shall not be bound by the requirements for attendance at meetings nor shall they be required to pay dues.

8. Adjunct membership will be granted to those individuals who are not vascular surgeons but have made and continue to make meaningful contributions to the science and practice in the field of vascular disease. This category will include non-M.D.s who are working in the field of research. It will also include physicians who actively practice and publish in the field of non-surgical treatment of vascular diseases. Adjunct members shall not have voting privileges, be able to hold office, participate on standing committees, or be required to pay dues.

9. Prospective members should attend an annual meeting of the Western Vascular Society prior to submitting application for membership. The prospective member is encouraged to attend the annual meeting.

ARTICLE IV – SELECTION OF MEMBERS

Qualification for membership in the Society will be judged primarily upon evidence of a prospective member's scholarly contributions to the vascular surgery literature.

1. Active Members:
   a. Application forms for membership shall be available only by request of a sponsoring member and shall be provided by the Secretary-Treasurer.
   b. Application forms presenting the curriculum vitae of the candidates and signed by them and the sponsor shall be in the hands of the Secretary-Treasurer at least two (2) months before the Executive Session at which it is desired that the candidate be considered for election. Applications must be supported by a letter from the sponsor. Additional letters of recommendation from other members are desirable.

c. The Secretary-Treasurer shall send to the Chairman of the Membership Committee these applications with all pertinent data, including supporting letters, at least two (2) months before the annual meeting. The Membership Committee shall review the professional qualifications of the candidates.
d. The list of candidates with data concerning them shall be circulated by the Secretary-Treasurer to all members of the Society at least one (1) month before the annual meeting.
e. The Membership Committee shall meet prior to the annual meeting to review the applications and to make recommendation for membership. The Chairman of the Membership Committee shall meet with the Council for purposes of presenting recommendations of the Membership Committee for review by Council before presenting recommendations to the membership at large at the time of the annual meeting.
f. The names of Candidates recommended by the Council for election shall be submitted by the Secretary-Treasurer to the membership in the annual report at the Executive Session of the Society.
g. Election to membership shall be by secret ballot, by a three-fourths affirmative vote of the membership present and voting at the annual Executive Session.
h. A candidate who fails election at one meeting may be presented for re-consideration of membership at a subsequent meeting by repeating the above process.

2. Honorary members:
a. Any active or senior member may nominate an individual for membership. The name and brief description of the accomplishments of the nominee must be submitted to the Secretary-Treasurer at least six (6) months prior to the annual meeting for circulation to an Honorary Membership Committee, which consists of the three (3) past presidents on the Council.
b. The Honorary Membership Committee shall make its recommendations to the Council.
c. Following its deliberation, the Council may recommend that the candidate's name be submitted by the Secretary-Treasurer to the membership in the annual report presented at the Executive Session of the Society.

d. Election to membership shall be by secret ballot, by a three-fourths affirmative vote of the membership present and voting at the annual Executive Session.

3. Associate members:

a. Any member in good standing, who leaves the geographic area of the Western Vascular Society, may request transfer in status to associate membership. If a member fails to request such a transfer he/she will automatically be dropped from the membership roster.

4. Adjunct members:

a. The process of election shall be the same as for active members.

ARTICLE V – BOARD OF DIRECTORS ("COUNCIL")

1. The Board of Directors of the Society shall be called the Council.

2. The Council shall be composed of the President, the President-Elect, the Secretary-Treasurer, the Recorder, and the three (3) most recent available past presidents.

3. The Council shall be the governing body of the Society and shall have full power to manage and act on all affairs of the society except as follows:

a. It may not without the approval of the Society membership at an annual executive session alter the initiation fees or annual dues, or levy any assessments against the membership, except that it may, in individual cases, waive annual dues or assessments.

b. It may not amend the Articles of Incorporation or Bylaws.

c. It may neither elect new members nor alter the status of existing members, other than to apply the provisions of Article XI.

4. The President of the Society shall serve as Chairman of the Council and the Secretary-Treasurer of the Society as its Secretary.

5. Meetings of the Council shall be held at the call of the President of the Society, and each member of the Council must be notified in writing of the time and place of each such meeting.

6. The annual meeting of the Council shall precede the Executive Session of the Society membership.

7. A majority of the voting members of the Council shall constitute a quorum for the transaction of business. Voting can take place electronically via email or poll.

8. The act of a majority of the members of the Council present at a duly called meeting at which a quorum is present shall be the act of the Council, unless the act of a greater number of required by applicable statute, the Articles of Incorporation or these Bylaws.

9. Any action which is required by law or the Articles of Incorporation or these Bylaws to be taken at a meeting of the Council, or any other action which may be taken at a meeting of the Council, may be taken without a meeting if a consent in writing, setting forth the action taken, shall be signed by all the members of the Council entitled to vote with respect to the subject matter thereof. Any consent signed by all the members of the Council shall have the same force and effect as a unanimous vote of a duly called and constituted meeting of the Council.

ARTICLE VI – OFFICERS

1. The Officers of the Society shall be a President, a President-Elect, a Secretary-Treasurer, and a Recorder, all to be elected as provided in these Bylaws. Said officers shall serve ex-officio as voting members of the Council.

2. All Officers of the Society shall be elected for terms of one (1) year each. Secretary-Treasurer and Recorder both serve three (3) year terms. The President may not serve more than one (1) term.

3. Officers of the Society shall be nominated by the Nominating Committee that shall present the slate to the membership at the Executive Session of the annual meeting. Additional nominations may be made from the floor of the Executive Session each year.
The election shall take place at the Executive Session and election shall be by a majority of the votes cast.

4. The President shall preside at meetings of the Society and the Council, preserve order, regulate debates, announce results of elections, appoint committees not otherwise provided for, sign Certificates of Membership, and perform the duties of the President's office.

5. The President-Elect, in the absence or incapacity of the President, shall perform the duties of the President's office.

6. In the absence of both the President and the President-Elect, the Chair shall be taken by a Chairman Pro Tem, elected by such members of the Council as are present.

7. The Secretary-Treasurer shall ensure proper storage of the minutes of the meetings of the Society and Council, attest all official acts requiring certification; notify officers and members of their election; conduct correspondence; take charge of all papers not otherwise provided for. At least thirty (30) days but not more than forty (40) days prior to each annual or special meeting he shall ensure issue to all members of the Society a program of the forthcoming meeting. He/she shall compile a written report to be read at the annual Executive Session of the Society, in which shall be included a list of candidates proposed for membership, as approved by Council. He/she shall ensure receipt of all moneys and funds belonging to the Society; ensure payment of all bills; ensure rendering of bills for dues and assessments as soon as possible after the annual meeting; and report to the Council at each annual meeting the names of all members in arrears as to dues. He shall prepare a written report of the finances of the Society to be presented at the Council Meeting and at the Executive Meeting.

8. The Historian shall serve a five-year term and will be appointed by the President. It shall be the duty of the Historian to assemble and preserve the Archives of the Society for storage and reference. The archives shall consist of the roster of the members of the society since its inception and such photographs as are available. It shall be his/her duty to secure and file a photograph of each new member. At the request of the President, the Historian may be asked to provide an appropriate historical comment at either the executive session or the regular meeting. The records of the Western Vascular Society are preserved at the society headquarters and at the UCLA Medical Center by the archivist of the Louise Darling Library.

9. The Recorder shall ensure receipt of all papers and reports of discussions on papers presented before the Society. The Recorder, together with the Program Committee, shall ensure submission of manuscripts to the Journal of Vascular Surgery for publication.

ARTICLE VII – COMMITTEES

1. 1. Standing committees of the Society shall consist of a Membership Committee, a Nominating Committee, a Program Committee, a DEI Committee, a VSIG Committee and a Local Arrangements Committee for the annual meeting.

2. The Membership Committee shall consist of three (3) members who shall be appointed by the President to serve overlapping terms of three (3) years each. The Secretary-Treasurer shall be an ex officio member of the membership committee. The senior member in service on this Committee shall be the Chairman. Nominations to the Membership Committee shall be made by the Nominating Committee which shall present the slate to the membership at its annual business meeting. Election shall be by a majority of votes cast at the Executive Session. The functions of the Committee shall be to pass upon the professional and ethical qualifications of the applicants and to advise the membership of these recommendations.

3. The Nominating Committee shall consist of the three (3) most recent available past Presidents. The Committee shall be appointed by the President one (1) month before the annual meeting. Its function shall be to make up a slate of officers to be presented at the annual business meeting to the membership.

4. The Program Committee shall consist of four (4) members who shall be appointed by the President to serve overlapping terms of four (4) years each. The senior member in term of service on this Committee shall be the Chairman. The President, Secretary-Treasurer and Recorder shall be ex officio members of the Program Committee. The function of the Program Committee shall be to solicit presentations from members and other individuals and to make up the program for the annual meeting. The appointed members of the Program Committee shall serve as an advisory committee to act, with the Recorder, to ensure editorial review of the submitted manuscripts.

5. The Chairman of the Local Arrangements Committee for the annual meeting shall be appointed by the President and the members of the Committee shall be appointed by the Chairman. These individuals will consist of members resident in the general locality in which the annual meeting is to be held, together with the President, the Secretary-Treasurer, acting ex officio. The function of this Committee shall be the making of the general arrangements for the annual meeting.

6. The Council may from time to time establish such other Committees as it deems advisable. Each such Committee shall consist of such persons and shall have such duties and the Council upon establishment of the Committee from time to time may designate powers as thereafter. Unless otherwise provided by the Council, the President shall appoint the members of each such Committee.

7. Any vacancy occurring among the members of any elected Committee of the Society shall be filled by appointment by the President. The Appointee will serve until the next annual meeting of the Society membership.

ARTICLE VIII – MEETINGS

1. The annual meeting of the Society shall be held at a time and place to be determined by the Council at least one year in advance.

2. The Council shall meet on the day prior to the annual meeting, at a time and place designated by the President. The Chairmen of the Membership Committee, the Nominating Committee and the Local Arrangements Committee shall meet with the Council in an advisory capacity.

3. Twenty (20) voting members present in person shall constitute a quorum at a meeting of the membership.

4. The vote of a majority of the votes entitled to be cast by the members present at a duly called meeting at which a quorum is present shall be necessary for the adoption of any matter voted upon by the members, unless a greater proportion is required by the applicable statute, the Articles of Incorporation, or the Bylaws.

5. Members may not cast their votes by proxy. Voting can be done via electronic means.

6. The Executive Session of the Society, attendance at which shall be limited to active, senior and honorary members, shall be held at a time and place to be set by the President. The business of the Society shall be conducted at that time.

7. The scientific session of the annual meeting shall consist of original presentations of papers and the discussion of these papers. An active or senior member must be a participant, co-author or sponsor of each presentation selected.

8. Special meetings of the Society may be called at any time by the President. The President must call a special meeting whenever he is requested to do so in writing by ten (10) members of the Society in good standing.

9. Notice of any Executive Session of any annual or special meeting of the Society shall be given to each member of the Society not less than thirty (30) nor more than forty (40) days prior to the Executive Session by written or printed notice delivered personally or by mail, by or at the direction of the Council, the President or the Secretary -Treasurer. Such notice shall state the place, day and hour of the Executive Session and in the case of a special meeting shall also state the purpose or purposes for which the Executive Session is called.

10. The Council may, by majority vote, revoke the membership of any active member who shall have been absent from three (3) consecutive meetings of the Society without providing the Secretary-Treasurer with an acceptable written explanation of such absence. An active member shall receive a warning letter from the Secretary-Treasurer following two (2) consecutive unexcused absences from the annual meetings, and the Secretary-Treasurer shall, within thirty (30) days after revocation of any active membership pursuant to this section, send written notice of such action to the individual whose active membership has been so revoked. In addition, in order to emphasize the importance of scholarly participation, it shall be the requirement for each member to be a named author of at least one abstract during a four-year term or to be a named discussant of a paper selected for presentation. An active member shall receive a warning letter from the Secretary-Treasurer following three (3) consecutive years in which the member has failed to participate as described above. The Secretary-Treasurer shall, within thirty-(30) days after revocation of active membership pursuant to this section, send written notice of such action to the individual whose active membership has been so revoked. Any person whose active membership has been revoked by the Council pursuant to this section may, within six (6) months after such revocation, send to the Secretary-Treasurer a written request that the Council at its next meeting reconsider its decision. Such a request must be accompanied by a written statement for the reasons for the consistent absence or lack of participation from annual meetings of the Society. If the Council, upon reconsideration, determines by a majority vote that reinstatement is appropriate, the individual shall be

reinstated as an active member upon payment in full of any outstanding dues or other financial obligations to the Society, including any such obligations which may have arisen during the period in which the revocation was in effect.

11. The societies current President and Recorder will moderate the first Scientific Session of the Annual Meeting. The incoming President-Elect and current Recorder will moderate the final Scientific Session of the Annual Meeting. All other moderators for all other sessions will consist of and be chosen by the Program Committee.

ARTICLE IX – INVITED GUESTS

1. A member of the Society may invite one or more guest(s) to attend the Annual Meeting of the Society. Should a member wish to tender an invitation, formal request must be made to the Secretary-Treasurer to send a written invitation to the individual identified by the member. No guest will be admitted to the scientific sessions and/or social events without a formal or email invitation and active registration for the annual meeting.

2. The names of all guests attending the Annual Meeting shall be entered under a separate heading in the attendance list.

3. All invited guests shall be given the privilege of the floor by the President but shall not be present at the Executive Session.

ARTICLE X – FEES AND DUES

1. Initiation fees, dues and assessments shall be levied by the Council and approved by the membership at the annual Executive Session.

2. Any member of the Society in arrears as to dues for one (1) year shall be notified of that fact by the Secretary- Treasurer, by email and registered letter, which shall contain a copy of this Section 2. If the dues are not paid before the next annual Council meeting, or some reasonable explanation of the delinquency is not forthcoming, the name of the delinquent member shall be presented at the Council meeting and on a majority vote of the Council the name may be stricken from the membership list. The Council may reinstate the delinquent member upon payment of the dues in arrears.

ARTICLE XI – RESIGNATIONS AND DISCIPLINE

1. Resignation of members not in arrears as to dues may be accepted at any annual meeting of the Society by a majority vote of the members present.

2. Charges of unprofessional or unethical conduct may be brought against any member of the Society by a written complaint signed by three (3) members of the Society and delivered to the Secretary-Treasurer. The Council shall establish the rules governing disciplinary proceedings based upon such charges from time to time.

ARTICLE XII – PAPERS AND REPORTS

1. All papers and reports read before the Society shall be submitted to the Journal of Vascular Surgery prior to the time of their presentation at the Annual Meeting. The Recorder shall be responsible for ensuring the submission of these manuscripts.

2. No paper shall be submitted for publication as having been read before the Society unless it has been read before the Society. Remove this section.

3. Final submission of a manuscript to the JVS must be done within 2 months of the presentation at the annual meeting. The exception would be if the revisions suggested at the meeting required more time, in which case the request can be made for an extension. The penalty for no or late submission is ineligible abstract submission to the WVS for 1 year.

ARTICLE XIII – PROCEDURE

The proceedings of the Society shall be conducted under Roberts Rules of Order Newly Revised.

ARTICLE XIV – CERTIFICATE OF MEMBERSHIP

Every elected member of the Society shall be entitled to a Certificate of Membership signed by the President and the Secretary-Treasurer and bearing the seal of the Society.

ARTICLE XV – SEAL

This Society shall make, have, and use a seal bearing the name of the Society, the words "Corporate Seal, California," and such other device and description, as the Society shall deem proper.

ARTICLE XVI – NOTICE AND WAIVER OF NOTICE

1. Whenever, under applicable law, these Bylaws, or resolution of the Council, notice is required to be given to any member, Council member or Officer, such notice may be given in writing, by e-mail or standard mail, addressed to such member, Council member or Officer, at his or her address/electronic address as it appears on the records of the Society. Such mailed notice shall be deemed to be given when deposited in the United States Mail in a sealed envelope so addressed, with postage therein prepaid.

2. Whenever, under applicable law, these Bylaws, or resolution of the Council, any notice is required to be given, a waiver thereof in writing, signed by the person or persons entitled to such notice. Whether before or after the time stated therein, shall be deemed equivalent to the giving of such notice. In addition, the attendance of a member or Council member at any meeting shall constitute a waiver of notice of such meeting, except where an individual attend the meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened.

ARTICLE XVII – INDEMNIFICATION

1. To the full extent in accordance with the procedure prescribed by the General Not-For-Profit Corporation Act, the Society shall indemnify any and all members of the Council (which members shall hereinafter in this Article be referred to as "Directors") and any and all officers, employees, agents and representatives of the Society for certain expenses and other amounts paid in connection with legal proceedings in which any such person become involved by reason of their serving in any such capacity for the Society.

2. Upon specific authorization by the Council, the Society may purchase and maintain insurance on behalf of any or all Directors, Officers, employees, agents or representatives of the Society against any liability asserted against any such person and incurred in any such capacity, or arising out of the status of serving in any such capacity, whether or not the Society would have the power to indemnify them against such liability under the provisions of Section 1 of this Article.

ARTICLE XVIII – AMENDMENT

These Bylaws may be amended by a three-fourths vote of the members present and voting at a properly called and convened Executive Session at an Annual or Special Meeting of the Society, provided that the proposed Amendment has been submitted to the Secretary-Treasurer by at least three (3) voting members of the Society at least three (3) months prior to the Executive Session of the Society. The Secretary-Treasurer shall mail the proposed Amendment at least thirty (30) days prior to the Executive Session, accompanied by notice that such Amendment will be acted upon that Executive Session.

ARTICLE XIX – RULES AND REGULATIONS

The Society may enact from time to time rules and regulations that will govern the actions of the Society. Such Rules and Regulations shall be enacted, amended or deleted by a majority (>50%) vote of those attending the annual business meeting. Proposed rules and regulations require notification of the membership no less than 30 days prior to the annual meeting. Amendments to a proposed Rule and Regulation made at the time of the business meeting may be voted upon at the same business meeting and do not require an additional 30-day notification of members. All Rules and Regulations must be in conformity with the bylaws of the Society.

Amended September 2022

MEMBER UPDATE FORM

Help the Western Vascular Society keep your membership information current. We require an email address from all members for communication purposes, as well as your preferred mailing address.

Please return completed form: fax to the Administrative Office at 360-261-6077 or email at heather@surgicalcs.com.

MEMBER INFORMATION (REQUIRED FOR ALL MEMBERS)

NAME

INSTITUTION CITY STATE

EMAIL ADDRESS

MAILING INFORMATION

Preferred Mailing Address: ☐ Work ☐ Home

Please provide preferred mailing address below:

MAILING ADDRESS

MAILING ADDRESS CONTINUED

CITY STATE POSTAL CODE COUNTRY

DAYTIME TELEPHONE

Thank you!

CONTACT INFORMATION

SCS
SURGICAL
CONFERENCE
SOLUTIONS

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SPONSOR ACKNOWLEDGEMENT

Western Vascular Society is grateful for the
following companies for the educational grant support:

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following companies for the exhibit support:

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