Vascular Surgery in Times of Economic Pressure

Final Program

ANZSVS 2017 Conference
Friday 13 – Monday 16 October 2017
Crown Convention Centre, Perth, Australia

Platinum Sponsors:

www.vascularconference.com
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Welcome

It is my pleasure to welcome you on behalf of the organising committee to the 2017 Annual Meeting of the ANZ Society for Vascular Surgery here at the Crown Convention Centre at the shore of the beautiful Swan River. I would also like to extend a warm welcome to all participants of the Venous Symposium on Monday as well as to our nursing colleagues, whose program will run parallel over the weekend.

The conference theme “Vascular Surgery in Times of Economic Pressure” is meant to investigate an aspect of our profession, which has long been neglected as the global economic downturn continues to have an increasing impact on our health care systems. A part of the program aims to provide insights about the ethical, financial and clinical consequences of the increasing economic constraints and hopefully spark a vibrant discussion.

This year’s program is set to be as educational as entertaining. It will cover the whole spectrum of vascular surgery focusing on new research, clinical advances and current controversies. With Paul Bachoo, Sebastian Debus, Joseph Mills, Bijan Modarai, Akhilesh Sista, Jean-Paul de Vries and Anders Wanhainen, seven international speakers will be carrying the Conference together with experts from our society. Their widespread interests promise excitement in all sessions.

Despite venous work being a large part of our clinical practice it is often underrepresented in vascular meetings. Hence, an extra symposium on venous disorders will be held adjacent to the conference. It will deal with all aspects of venous pathology, superficial and deep. Unfortunately Mark Garcia had to withdraw at short notice for personal reasons. We are, however, extremely lucky that Rick de Graaf, a colleague at the forefront of venous intervention in Europe, is able to alter his commitments to come across to our Conference.

As delegates, it is your enthusiasm that makes a meeting thrive, so once again thank you for coming out west. Please enjoy the four days of science, education and networking at the ANZSVS 2017 Conference.

Yours sincerely,

Dr Carsten Ritter FRACS
Scientific Convener
on behalf of the organising committee
Organising Committee

**Vascular Program**
- Bernie Bourke FRACS
- Venu Bhamidipaty FRACS
- Anthony Freeman FRACS
- Andrew Hill FRACS
- Joe Hockley FRACS
- Carsten Ritter FRACS
- Patrik Tosenovsky FRACS

**Nursing Program**
- Lorraine Linacre
- Theresa O’Keefe
- Lucy Stopher
- Kara Hamilton (observer)
- Donna Gilleece (observer)

**ANZSVS Executive**

**Bernie Bourke FRACS**  President
**Andrew Hill FRACS**  President-Elect
**Thodur Vasudevan FRACS**  Chair, Board of Vascular Surgery
**Nick Boyne FRACS**  Finance / Membership
**Anthony Freeman FRACS**  Professional Development
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**Rob Fitridge FRACS**  Communications
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*Simplified compared to previous Zilver PTX pin-and-pull delivery system
**Engineering verification testing (accuracy test of +/-3mm; criteria met)
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Best Trainees Research Paper Prize

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The Best Trainee Research Prize is awarded to a Trainee of the Australian and New Zealand Society for Vascular Surgery for the best presentation delivered at the Conference. The recipient will be awarded $2,500 towards the cost of attending a local or international Vascular Surgery Scientific Meeting. The winner will be announced at the Conference dinner and subsequently a letter will be sent to the recipient.
### Exhibitors

<table>
<thead>
<tr>
<th>Pod No.</th>
<th>Company Name</th>
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<tbody>
<tr>
<td>1</td>
<td>Abbott Vascular</td>
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<td>2</td>
<td>Bard</td>
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<td>3</td>
<td>Integra</td>
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<td>Philips</td>
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<td>Sentry Medical</td>
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<td>Penumbra</td>
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<td>Hirudoid</td>
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<td>Toshiba Medical Systems ANZ P/L</td>
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<td>Acelity</td>
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<td>HARTMANN</td>
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<td>GETINGE</td>
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<td>13</td>
<td>Boston Scientific</td>
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<td>14</td>
<td>Biotronik</td>
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<td>15-16</td>
<td>Cook Medical</td>
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<td>17-18 W. L. Gore &amp; Associates</td>
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<td>Venosan WA</td>
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Company Profiles

**Cook Medical Australia**

Cook Medical Australia is dedicated to bold leadership in pioneering medical solutions to enhance patient care worldwide. Through research and development, manufacturing, and prioritising patients, Cook helps to create innovative healthcare treatments that can improve patient outcomes.

Cook Medical Australia manufactures two key product ranges specialising in IVF and endovascular repair and exports over 90 per cent to 64 countries. The products are manufactured in its Brisbane facility, which employs over 500 people.

The Australian operations also double as the headquarters for the Asia Pacific (APAC) region. Cook Medical Australia’s parent company is Cook Group—a family owned, privately held corporation. Since its inception Cook has always put patient needs and ethical business practices first. Today, the Cook Group has grown to 60 companies employing more than 12,000 people worldwide.

For more information, visit www.cookmedical.com, like our Facebook www.facebook.com/CookMedicalAUS, or follow @CookMedicalAPAC and @CookAPACmd on Twitter.

**Medtronic**

As a global leader in medical technology, services and solutions, Medtronic improves the health and lives of millions of people each year. We believe our deep clinical, therapeutic and economic expertise can help address the complex challenges — such as rising costs, aging populations, and the burden of chronic disease — faced by families and healthcare systems today. But, we can’t do it alone. That’s why we’re committed to partnering in new ways and developing powerful solutions that deliver better patient outcomes. Founded in 1949 as a medical repair company, we’re now among the world’s largest medical technology, services and solutions companies, employing more than 85,000 people worldwide, serving physicians, hospitals and patients in more than 160 countries. Join us in our commitment to take healthcare further, together. Learn more at Medtronic.com.au

**Gore**

At Gore, we have provided creative therapeutic solutions to complex medical problems for more than 35 years. During that time, more than 35 million innovative Gore Medical Devices have been implanted, saving and improving the quality of lives worldwide. Our extensive family of products includes vascular grafts, endovascular and interventional devices, surgical meshes for hernia and soft tissue reconstruction, staple line reinforcement materials, and sutures for use in vascular, cardiac, and general surgery. We are one of a select few companies to appear on all of the US “100 Best Companies to Work For” lists since the rankings debuted in 1984. For more information, visit www.goremedical.com

**Bard**

Bard Australia is a leading multinational developer, manufacturer, and marketer of innovative, life-enhancing medical technologies in the fields of Vascular, Urology, Oncology, and Surgical Specialties. Bard markets its products and services worldwide to hospitals, individual health care professionals, extended care facilities, and alternate site facilities. Bard pioneered the development of single-patient-use medical products for hospital procedures; today Bard key mission is to advance lives and is dedicated to pursuing technological innovations that offer superior clinical benefits while helping to reduce overall health care costs.

**Abbott**

Abbott is a global healthcare company devoted to improving life through the development of products and technologies that span the breadth of healthcare. With the recent acquisition of St. Jude Medical we now offer the most comprehensive set of solutions, including products and technologies in coronary, cardiac rhythm management, electrophysiology, heart failure, structural heart, vascular and endovascular. Our breadth and depth of industry-leading technologies, along with our combined team of experts, bring you end-to-end solutions and services. This means better care and a greater variety of contracting options exclusively focused on delivering increased value and efficiencies for our customers. With a portfolio of leading, science-based offerings in diagnostics, medical devices, nutritional and branded generic pharmaceuticals, Abbott serves people in more than 150 countries and employs approximately 74,000 people. Visit Abbott
Company Profiles (cont’d)

**BIOTRONIK**
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One of the world’s leading manufacturers of cardio and endovascular medical devices, BIOTRONIK is headquartered in Berlin, Germany, and in Bülach, Switzerland, and represented in over 100 countries by a global workforce of more than 5,600 employees. Since BIOTRONIK was founded in 1963, the company’s sole mission has been to save lives and to improve patients’ health and well being and manufacture products of the highest quality that save patients’ lives and improve their quality of life. From the very beginning, we have had a passion for developing and manufacturing the most precise and highest quality products on the market. We also play an important part in the prevention of cardiovascular disease through extensive research and development. We provide cutting-edge medical solutions, like the drug-coated balloon Passeo-18 Lux and self-expanding stent Pulsar-18, based on the latest technology and the most relevant research available. We help assess the challenges physicians face and then provide the best solution for Peripheral Intervention.

**Clearing the Clot.** The recent launch of the AngioJet™ ZelanteDVT™ Thrombectomy Catheter further solidifies our position as the market leader in catheter-based procedures to clear blood clots. We’re investing in new technologies and education to help advance DVT treatment, including ClearingtheClot.com, a website that helps inform patients about their treatment options.

**Embolisation Technologies.** Our broad range of Interlock™ fibred detectable coils allow for the effective treatment of trauma, aneurysms and venous insufficiency (such as pelvic congestion syndrome and varicoceles).

**Boston Scientific**
(Silver Sponsor)

As the global market leader in peripheral interventions, we offer the broadest portfolio of solutions for treating peripheral artery disease (PAD), deep vein and arterial thrombosis, embolisation and cancer. We’re dedicated to developing technologies that improve outcomes, cut costs and—most importantly—save the lives and limbs of more people in more places around the world.

**Delivering Meaningful Innovation**

Advancing the Treatment of PAD. We’re the only company to offer multiple drug-eluting technologies for treating PAD and recently received TGA approval for the ELUVIA™ Drug-Eluting Vascular Stent System. In clinical trials, ELUVIA showed one of the highest patency rates ever reported for a peripheral vascular device. We also offer a broad range of bare metal stents, guide wires and balloons for the treatment of lower limb PAD. The acquisition of the Jetstream™ atherectomy device also allows for the effective treatment of mixed morphology occlusions in femoral and popliteal arteries.

**Cordis.**
(Silver Sponsor)

Together, Cordis and Cardinal Health create an unmatched offering in the cardiovascular and broader medical device space. Already a leader in interventional cardiovascular technology, Cordis has combined with Cardinal Health to now offer high quality, daily-use products; reliable, trackable inventory and logistics; and deep analytic capabilities for a more comprehensive offering. Together, the companies bring unrivaled strengths to a global scale. Cordis will be the international engine for the combined venture with operations in countries around the world including Australia and New Zealand. This partnership uniquely positions Cardinal Health and Cordis to meet the evolving needs of more customers around the world. At a time of rapid evolution within healthcare, this makes the companies essential to care. In addition to this Cordis, Cardinal Health offers a broad range of products in the Endovascular market including brands such as SMART Control and SMARTFlex SFA and popliteal self expanding stents, PrecisePro Carotid stent, Outback Elite re-entry catheter and MynxGrip and ExoSeal vascular closure devices. In the coming months we are anticipating the launch of our EVAR device InCraft offering a low profile, customizable at point of implant option for the treatment of AAA.
Invited Speakers – Vascular

Professor Paul Bachoo
Aberdeen, UK

After attending schooling in London UK, Professor Paul Bachoo graduated from Leicester University Medical School 1987. From Leicester, he travelled up to Liverpool where he completed his basic surgical training. This was followed by further travels North to Scotland where examinations and research from the Royal College of Surgeons of Edinburgh & University of Aberdeen, Health Services Research Unit followed.

After completing his higher surgical training, Professor Bachoo took up his current Consultant Post in 2001 (shamefully without an Endovascular Fellowship). He has enjoyed setting up and developing both their current Endovenous and Endovascular Services and delivering their Fenestrated Programme along with colleagues in Interventional radiology.

As well as various research studies Professor Bachoo has had responsibility for Vascular Surgical Training both locally and nationally. In addition to his clinical service, he is currently the Deputy Associate Medical Director for Acute Services and Clinical Lead for our Regional AAA screening Programme.

Dr Jean-Paul de Vries
Nieuwegein, The Netherlands

Jean-Paul P.M. de Vries took his Ph.D. in 1994. From August 2003 he is the head of the department of Vascular Surgery of the St. Antonius Hospital Nieuwegein, a tertiary vascular referral centre, in the Netherlands.

He is one of the founders of the Dutch Endovascular Alliance (DEALL), a multicentre Dutch research platform to perform dedicated (endo) vascular research. Multiple randomized and non-randomized clinical trials are currently running in the DEALL focussing on endovascular peripheral interventions.

Another major field of research is optimizing imaging pre- and post-EVAR. His group developed new software to determine endograft apposition in the aortic neck and iliac arteries to detect subtle changes during follow-up and to prevent late EVAR failures.

Dr Sebastian Debus
Hamburg, Germany

Sebastian Debus is the chairman and professor of the vascular service of the University Hospital Eppendorf in Hamburg, Germany. His department is one of the biggest and busiest services in Germany treating over 1500 inpatients per year. It is also the home of the German Aortic Centre performing roughly 270 aortic interventions per year including endoluminal treatment of the aortic arch. With one of the major Marfan centres located at Eppendorf Hospital, Professor Debus takes a special interest managing their vascular complications. He has also established one of the largest interdisciplinary woundservices in Northern Germany.

Professor Debus is chairing multiple committees and societies. He is the past president of the German Society for Vascular Surgery and has been elected as the Secretary of the European Society of Vascular Surgery. His vision for his five year appointment is widening the focus from a solely operating vascular surgeon to a vascular specialist who is proficient in many other treatment options. He has also recently received a guest professorship at the Huazhong University of Science and Technology in China as well as the MAYO- Clinic in Rochester, USA.

Besides all his professional endeavours he is a keen soccer player and a gifted pianist.

He is in the frontiers of new developments in EVAR (European training centre at the St. Antonius Hospital and international proctor for EVAR) and minimal invasive interventions for peripheral arterial disease.

Besides, he is distinguished reviewer for the Journal of Vascular Surgery, reviewer of the European Journal of Vascular and Endovascular Surgery, Vascular, and JEVT.

He is member of the editorial boards of the JEVT, J. Cardiovasc Surg. and the EJVES. From 2009, he has been a councillor for Europe in the ISVS.

He published more than 280 peer review manuscripts, several book chapters for international vascular textbooks, edited a textbook with focus on EVAR, and is faculty member of multiple international vascular congresses.
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Booth 17 and 18
Invited Speakers – Vascular (cont’d)

Dr Joseph Mills
Houston, USA

Dr Joseph L. Mills, Sr., is Professor and Chief of the Division of Vascular Surgery and Endovascular Therapy in the Michael E. DeBakey Department of Surgery at the Baylor College of Medicine in Houston, Texas. He previously was professor and chief of Vascular Surgery at the University of Arizona College of Medicine in Tucson from 1994-2015, and was the Co-Director of the Southern Arizona Limb Salvage Alliance (SALSA). He has authored nearly 300 peer-reviewed journal articles and book chapters. Dr Mills is co-editor of Rutherford’s Vascular Surgery (7th and 8th editions) and “Comprehensive Vascular and Endovascular Surgery”, and editor “Management of Chronic Lower Limb Ischemia.” He is also the Vascular Surgery Section Editor for UpToDate. He has been the principal investigator for over 40 clinical trials. He is Past-President of the Peripheral Vascular Surgery Society and also served as Treasurer of the SVS, Chair of the SVS Distinguished Fellows Council, and Secretary-Treasurer of the Western Vascular Society. A Diplomate of the American Board of Surgery, Dr Mills is a director of the ABS, and the immediate past Chair of the Vascular Surgery Board (2010-2013). He is also Past-President of the Association of Program Directors in Vascular Surgery (APDVS), the Rocky Mountain Vascular Society and the Western Vascular Society. He was recently selected to serve a 6-year term on the Surgery RRC of the ACGME. In June 2015, he assumed a new leadership position as the Chief of the Division of Vascular Surgery and Endovascular Therapy in the Michael E. DeBakey Department of Surgery at the Baylor College of Medicine in Houston, Texas.

Dr Mills received both his bachelor’s and medical degrees cum laude from Georgetown University. He completed residency programs in general surgery at Wilford Hall USAF Medical Center (Lackland AFB), vascular surgery at Oregon Health Sciences University in Portland, and a Senior Endovascular Surgery Fellowship at Texas Tech University. He and his wife of 39 years, Margaret, are the proud parents of three sons, Joseph Jr, Daniel and Andrew; and grandparents of Edward Joseph Mills.

Dr Bijan Modarai
London, UK

Bijan Modarai qualified in medicine from Guy’s and St Thomas’ Hospital in 1998 and obtained a PhD in 2006. He completed his vascular surgical training in London and as a visiting Fellow at The Royal Prince Alfred Hospital in Sydney.

He was appointed as a Senior Lecturer and Consultant Vascular Surgeon at Guy’s and St Thomas’ Hospitals in 2012. Since then he has led a translational programme of vascular research, funded by the British Heart Foundation, producing over 50 high impact publications with several national/international prizes awarded to his research team. He was made Reader in Vascular Surgery in 2015 and appointed as a Hunterian Professor by The Royal College of Surgeons of England in 2016. In his role as lead for the complex endovascular aortic repair service at St Thomas’ he has introduced innovations that include endografting of the aortic arch and ascending aorta and investigated strategies to reduce radiation exposure during endovascular interventions.

Mr Modarai sits on the Councils of the British Society for Endovascular Therapy and The Society of Academic and Research Surgery. He examines for the Fellowship of European Board of Vascular Surgery.

Dr Akhilesh Sista
New York, USA

Dr Sista specializes in the endovascular treatment of venous thromboembolic disease (VTE). He is the Section Chief of the NYU-Langone Division of Vascular and Interventional Radiology and has a busy clinical inpatient and outpatient practice. He has significant experience with the morbidity and challenges associated with deep venous thrombosis (DVT) and pulmonary embolism (PE). He is recognized as a clinical expert in VTE, having given numerous invited talks at international meetings on the topic and served on national committees.

He has authored or co-authored more than 30 peer-reviewed publications, including clinical practice standards in the medical and radiologic literature. As the site Principal Investigator for the ATTRACT trial, the PERFECT registry and Principal Investigator of the RESPECT pulmonary embolism registry, he is involved in national and local research looking into improving outcomes for patients with VTE. His research is also translational, as
Invited Speakers – Vascular (cont’d)

he received grant funding from the Radiologic Society of North America to investigate the physiologic consequences of submassive pulmonary embolism in a porcine model with an eye towards optimizing the safety and efficacy of catheter-directed therapy for submassive PE patients.

He recently chaired a multi-disciplinary expert consensus panel, sponsored by the Society of Interventional Radiology Foundation, tasked with identifying research priorities for submassive pulmonary embolism.

Professor Anders Wanhainen
Uppsala, Sweden

Anders Wanhainen is a professor of surgery at Uppsala University, Sweden, which is the oldest centre of higher education in Scandinavia. He is the head of vascular department at the Uppsala University Hospital. As an active and highly prolific researcher his work has been extensively published in relevant journals. Currently he mentors several PhD students.

He has been involved in multiple multicentre studies. His latest research focus was on mycotic aneurysms as well as the feasibility of aneurysm screening programs.

He is active in the Swedish Society of Vascular Surgery and represents Sweden in the Council of the European Society of Vascular Surgery.

Sam Mellick Travelling Fellowship

The Australian and New Zealand Society for Vascular Surgery awards the Sam Mellick Travelling Fellowship each year at its annual scientific conference. The Fellowship has been awarded on four occasions to date and the recipients were Dr Simon Quinn who travelled to the 2013 ESVS meeting in Budapest, Dr Domenic Robinson who travelled to the 2014 Charing Cross International Symposium, Mr Charles Milne who utilised the funds for a six month Fellowship in France and Dr Nguyen travelled to Abano Terme in Italy to explore diabetic limb salvage.

The Sam Mellick Travelling Fellowship is awarded to a vascular surgeon who has recently obtained their Vascular Fellowship to provide support to undertake overseas travel to an international meeting. The Fellowship will once again be awarded at this year’s Vascular conference in October.

Previous recipients:
2012 Dr Simon Quinn FRACS
2013 Dr Domenic Robinson FRACS
2014 Mr Charles Milne FRACS
2015 Dr Tan Nguyen FRACS

Dr Andrew Bullen FRACS

Dr Andrew Bullen completed his vascular training at St George Hospital, Sydney in 2016 where he was awarded the Sam Mellick Travelling Fellowship. As part of the grant, he attended the Leipzig Interventional Course (LINC) in Germany and undertook an observership in the Leipzig district hospitals. Andrew is now working as a vascular and endovascular surgeon in Wollongong, NSW.

Of particular interest to Dr Bullen is the development of new biologic treatment options for reducing restenotic processes in arterial disease. Below the knee interventional strategies, angiosome revascularisation and drug elutting technologies are topical in this field. The course allowed discussions with interventionists from Europe and formed new research collaborations.

Attending the Leipzig District Hospitals offered Dr Bullen an invaluable exposure to new and advanced interventional techniques and complex peripheral vascular cases. He also gained insight into the structure of the angiology service, treatment and follow-up strategies.

Dr Bullen continues to develop his interest in novel biological technologies for below the knee treatments.
Final Program – Vascular

FRIDAY 13 OCTOBER

8:30am - 10:00am CURRENT AFFAIRS IN VASCULAR SURGERY
Grand Ballroom 2, Ground Level
Chairs: Doug Cavaye (Brisbane) and Abdul Maher (Sydney)

8:30am Welcome
Carsten Ritter (Perth)

8:38am Vascular surgery trends in Australia: 2001-2015: less open surgery, less limb loss and more endovascular intervention
VA001 Melissa Wright (Melbourne)

8:46am How can we make remote specialist service more (cost) effective?
Justin Roake (Christchurch)

8:54am The Swedes have already written it up – The dilemma of vascular research in our region and how we can change it
VA002 Jonathan Golledge (Townsville)

9:02am How can we spark the enthusiasm for vascular research in future generations?
Ian Spark (Adelaide)

9:10am Aortic aneurysm screening is efficient and cost effective
Anders Wanhainen (Uppsala, Sweden)

9:18am Aortic aneurysm screening is neither efficient nor cost effective
Paul Norman (Perth)

9:26am AAA as part of cardiovascular screening in New Zealand
Andrew Hill (Auckland)

9:34am A retrospective review of the female and male balance across Surgery
VA003 Samantha Peden (Sydney)

9:42am How can ANZSVS engage in introducing new technology?
Peter Subramaniam (Adelaide)

9:50am Discussion

10:00am - 10:30am MORNING TEA - FRIDAY
Grand Ballroom 1, Ground Level

10:30am - 12:30pm INNOVATION AND FUTURE CONCEPTS
Grand Ballroom 2, Ground Level
Chairs: Patrice Mwipatayi (Perth) and Venu Bhamidipaty (Auckland)

10:30am Keynote Lecture: Indications and implications of endoanchor use
VA004 Jean-Paul de Vries (Nieuwegein, The Netherlands)

10:42am Predicting complications of Type B aortic dissection with biomechanical modelling
Barry Doyle (Perth)

10:50am Experimental visualization of vascular structures using Microsoft HoloLens
VA005 Marco Horn (Luebeck, Germany)

10:58am The SPIDER graft – A new concept for TAA repair
Sebastian Debus (Hamburg, Germany)

11:06am Endovac treatment for graft infection
Anders Wanhainen (Uppsala, Sweden)

11:14am Lightweight Lead Aprons: The Emperor’s new clothes in the radiology suite?
VA006 Sanjana Kasthurirengan (Adelaide)

11:22am The effects of radiation exposure after endovascular intervention
Bijan Modarai (London, UK)

11:30am Should we refrain from operating on certain patients?
VA007 John Harris (Sydney)

11:38am Can we rationalise the use of consumables without compromising outcome?
Ravi Huilgol (Sydney)

11:46am Does additional information gained by IVUS justify the cost?
VA008 Ian Spark (Adelaide)

11:54am Ultrasound characteristics of aorto-iliac ulcers
Rachel Kee (Dunedin)

12:02pm Cost effectiveness of anticoagulation vs. catheter lysis
Sarah Aitken (Sydney)

12:10pm Discussion
## ClosureFast Long-term Study

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>VenaSeal™ System Closure Rate</th>
<th>ClosureFast™ Catheter Closure Rate</th>
<th>ClosureFast™ Catheter Long-term Study Closure Rate</th>
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<tbody>
<tr>
<td>1 Year</td>
<td>96.8%¹</td>
<td>95.9%¹</td>
<td>96.3%³</td>
</tr>
<tr>
<td>2 Years</td>
<td>94.3%²</td>
<td>94.0%²</td>
<td>94.5%³</td>
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<td>3 Years</td>
<td>Follow-up in progress</td>
<td>Follow-up in progress</td>
<td>92.6%³</td>
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<tr>
<td>5 Years</td>
<td>Follow-up in progress</td>
<td>Follow-up in progress</td>
<td>91.9%⁴</td>
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### References:
2. Internal data on file.

ClosureFast long-term data is shown for perspective only and not a head-to-head comparison with the VeClose trial.

### Important:
Please reference the Instructions For Use (IFU) for a complete listing of indications, contraindications, warnings and precautions, adverse effects and suggested procedure.
## Final Program – Vascular (cont’d)

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<thead>
<tr>
<th>Time</th>
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<tr>
<td>12:30pm - 1:30pm</td>
<td><strong>LUNCH - FRIDAY</strong>&lt;br&gt;Grand Ballroom 1, Ground Level</td>
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<tr>
<td>1:30pm - 3:00pm</td>
<td><strong>TRAINEES RESEARCH PAPERS</strong>&lt;br&gt;Grand Ballroom 2, Ground Level</td>
<td><strong>TRAINEES RESEARCH PAPERS</strong>&lt;br&gt;Grand Ballroom 2, Ground Level&lt;br&gt;Chairs: Anthony Freeman (Sydney) and Juanita Muller (Brisbane)&lt;br&gt;<em>The Trainee Research Paper Prize is proudly supported by GETINGE</em>&lt;br&gt;<strong>VA009</strong>&lt;br&gt;Samantha Peden (Sydney)</td>
</tr>
<tr>
<td>1:30pm</td>
<td>Improved patency of Supera stents for juxta-anastomotic stenosis with the use of computer fluid dynamic modelling&lt;br&gt;<strong>VA009</strong> Samantha Peden (Sydney)</td>
<td></td>
</tr>
<tr>
<td>1:40pm</td>
<td>Percutaneous access provides acceptable medium term results in endovascular repair of aortic pathology&lt;br&gt;<strong>VA010</strong> Keagan Werner-Gibbings (Melbourne)</td>
<td><strong>VA11</strong>&lt;br&gt;Emma Sim (Hobart)</td>
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<td>1:50pm</td>
<td>All cause mortality for Tasmanian patients with abdominal aortic aneurysms&lt;br&gt;<strong>VA011</strong> Emma Sim (Hobart)</td>
<td><strong>VA17</strong>&lt;br&gt;Muhammad Fahad Tariq Berlas (Karachi, Pakistan)</td>
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<tr>
<td>2:00pm</td>
<td>AngioJet peripheral thrombectomy in the treatment of venous thromboembolism: A single-centre Australian experience&lt;br&gt;<strong>VE001</strong> Vikram Iyer (Townsville)</td>
<td><strong>VA11</strong>&lt;br&gt;Emma Sim (Hobart)</td>
</tr>
<tr>
<td>2:10pm</td>
<td>Major amputation rates and outcomes for indigenous and non-indigenous adults in the Townsville region&lt;br&gt;<strong>VA012</strong> Samantha Peden (Sydney)</td>
<td><strong>VA04</strong>&lt;br&gt;Robert Tewksbury (Auckland)</td>
</tr>
<tr>
<td>2:20pm</td>
<td>The outcomes of patients with End Stage Renal Disease (ESRD) and Critical Limb Ischaemia (CLI)&lt;br&gt;<strong>VA013</strong> Irina Baimatova (Auckland)</td>
<td><strong>VA04</strong>&lt;br&gt;Robert Tewksbury (Auckland)</td>
</tr>
<tr>
<td>2:30pm</td>
<td>Outcomes of Nellix EVAS in favourable versus adverse anatomy&lt;br&gt;<strong>VA014</strong> Robert Tewksbury (Auckland)</td>
<td><strong>VA04</strong>&lt;br&gt;Robert Tewksbury (Auckland)</td>
</tr>
<tr>
<td>2:40pm</td>
<td>The development and validation of an Abdominal Aortic Aneurysm clinical decision aid tool&lt;br&gt;<strong>VA015</strong> Manar Khashram (Hamilton)</td>
<td><strong>VA04</strong>&lt;br&gt;Robert Tewksbury (Auckland)</td>
</tr>
<tr>
<td>2:50pm</td>
<td>Popliteal-Distal bypass surgery is a viable option in severe crural disease&lt;br&gt;<strong>VA016</strong> Simon Vun (Christchurch)</td>
<td><strong>VA04</strong>&lt;br&gt;Robert Tewksbury (Auckland)</td>
</tr>
<tr>
<td>3:00pm - 3:30pm</td>
<td><strong>AFTERNOON TEA - FRIDAY</strong>&lt;br&gt;Grand Ballroom 1, Ground Level</td>
<td></td>
</tr>
</tbody>
</table>
4:58pm  Interdisciplinary considerations and decision making in extremity trauma  
Tim Wagner (Melbourne)

5:06pm  Dealing with a mass casualty situation  
John Swinnen (Sydney)

5:14pm  Discussion

5:30pm - 6:30pm  WELCOME RECEPTION  
Grand Ballroom 1, Ground Level

SATURDAY 14 OCTOBER

8:30am - 10:00am  ANZSYS SESSION  
Grand Ballroom 2, Ground Level  
Chairs: Bernie Bourke (Gosford) and Michael Grigg (Melbourne)

8:30am  Keynote Lecture: Management of the Marfan patient  
Sebastian Debus (Hamburg, Germany)

8:42am  Cost-spiral and optimal care – The ethicist’s view  
Peter O’Leary (Perth)

8:50am  Cost-spiral and optimal care – The surgeon’s view  
Doug Cavaye (Brisbane)

8:58am  The future development of the public healthcare systems  
David Gillespie (Perth)

9:06am  The future development of the private healthcare system  
Jade Furness (Perth)

9:14am  Similar systems, different challenges? The situation in New Zealand  
Thodur Vasudevan (Hamilton)

9:22am  And this is what the health economist says  
Richard Norman (Perth)

9:30am  How healthcare will look like in the future and its impact onto our society  
Michael Grigg (Melbourne)

9:38am  Learn from each other in the time of crisis – Introduction of the ‘Australian model’ of service provision in Scotland  
Paul Bachoo (Aberdeen, UK)

9:46am  Discussion

10:00am - 10:30am  MORNING TEA - SATURDAY  
Grand Ballroom 1, Ground Level

10:30am - 12:30pm  AORTIC SURGERY  
Grand Ballroom 2, Ground Level  
Chairs: Phil Colman (Newcastle) and Catherine Thoo (Sydney)

10:30am  Keynote Lecture: Aortic interventions and spinal ischemia  
Bijan Modarai (London, UK)

10:42am  Athero-occlusive disease is associated with reduced abdominal aortic aneurysm growth  
Evan Matthews (Townsville)

10:50am  The natural history of aorto-iliac ulcers: Presentation, growth and outcomes  
Rachel Kee (Dunedin)

10:58am  There is an endo solution for everything. Is open AAA repair obsolete?  
Allan Kruger (Brisbane)

11:06am  Fast track pathways for open AAA repair  
Sebastian Debus (Hamburg, Germany)

11:14am  The fate of the internal iliac arteries matters  
Nick Boyne (Brisbane)

11:22am  WA early experience with the GORE EXCLUDER iliac branch device for common iliac aneurysm  
Kishore Sieunarine (Perth)

11:30am  One procedure many ways to follow up: EVAR surveillance – How, how long and how often?  
Peter Milne (Melbourne)

11:38am  Secondary interventions to rescue failed EVARs  
Jean-Paul de Vries (Nieuwegein, The Netherlands)
Final Program – Vascular (cont’d)

11:46am Type 2 endoleaks – Glue them, coil them, leave them
Rick de Graaf (Maastricht, The Netherlands)

11:54am Ch- EVAR – Which are valid indications?
VA024 Jean-Paul de Vries (Nieuwegein, The Netherlands)

12:02pm Keynote Lecture: What really does happen to those unfavourable necks after endoluminal repair?
Paul Bachoo (Aberdeen, UK)

12:14pm Discussion

12:30pm - 1:30pm LUNCH - SATURDAY
Grand Ballroom 1, Ground Level

12:30pm - 1:30pm LUNCHTIME SYMPOSIUM: ADDING ANCHOR’S ANDATHERECTOMY TO THE VASCULAR ARMAMENTARIUM
Grand Ballroom 2, Ground Level
Chair: Patrice Mwipatayi (Perth)
Proudly supported by Medtronic

Where to anchor and why? How to fix challenging anatomies using an endovascular anastomosis: A case-based approach
Jean-Paul de Vries (Nieuwegein, The Netherlands)

Why Hawk and why now? An Australian experience with directional atherectomy
Vikram Puttaswamy (Sydney)

Discussion

1:30pm - 3:00pm CHALLENGE THE EXPERTS
Grand Ballroom 2, Ground Level
Chairs: Bernie Bourke (Gosford) and Carsten Ritter (Perth)

Each presenter is allocated four minutes to present the case with 7 minutes for panel discussion.

Panellists: Joseph Mills (Houston, USA), Sebastian Debus (Hamburg, Germany), Paul Bachoo (Aberdeen, UK), Michael Grigg (Melbourne) and Andrew Hill (Auckland)

1:30pm Neck lump: A tongue in cheek matter
Zaid Shamsi (Karachi, Pakistan)

1:41pm Blocked like a drain, helped by the brain
Ellen Hardy (Gosford)

1:52pm Didn’t want that bypass anyway
Ming Yi (Melbourne)

2:03pm Healing the heel from hell
Victor Bourke (Sydney)

Panellists: Bijan Modarai (London, UK), Anders Wanhainen (Uppsala, Sweden), Jean-Paul de Vries (Nieuwegein, The Netherlands), John Crozier (Sydney) and Ian Spark (Adelaide)

2:14pm The EVAR pancake
Emma Sim (Hobart)

2:25pm Getting into a flap over gut ischaemia
Robert Tewksbury (Auckland)

2:36pm No legs, no neck, no access
Ellen Hardy (Gosford)

2:47pm An inconvenient rupture
Vikram Iyer (Townsville)

3:00pm - 3:30pm AFTERNOON TEA - SATURDAY
Grand Ballroom 1, Ground Level

3:30pm - 5:30pm PERIPHERAL VASCULAR DISEASE
Grand Ballroom 2, Ground Level
Chairs: Robert Fitridge (Adelaide) and Sarah Aitken (Sydney)

3:30pm Global guidelines for Severe Limb Ischaemia part one
Joseph Mills (Houston, USA)

3:38pm Global guidelines for Severe Limb Ischaemia part two
Robert Fitridge (Adelaide)

3:46pm Long SFA occlusions – One year results of the RAPID trial
Jean-Paul de Vries (Nieuwegein, The Netherlands)

3:54pm Paediatric vascular surgery
Joseph Mills (Houston, USA)

4:02pm How to treat in-stent stenosis
Phillip Puckridge (Adelaide)
4:10pm Atherectomy devices – Just a gimmick or true value
Vikram Puttaswamy (Sydney)

4:18pm What is the role for drug eluting balloons below the knee?
Thomas Daly (Sydney)

4:26pm Angiosomes – Only theory or practical benefit?
Mark Jackson (Gold Coast)

4:34pm Aorto-iliac reconstruction with the AFX stent
Phillip Puckridge (Adelaide)

4:42pm The sense and nonsense of surveillance for peripheral revascularisation
Peter Bray (Perth)

4:50pm Dusk or dawn – The role of bypass grafting in an endo- first world
Paul Bachoo (Aberdeen, UK)

4:58pm One-year results of a multicenter randomised controlled trial comparing the heparin-bonded endoluminal bypass to the venous femoropopliteal bypass
Laurens van Walraven (Friesland, The Netherlands)

5:06pm Discussion

5:30pm - 6:30pm ANZSVS ANNUAL BUSINESS MEETING
Grand Ballroom 2, Ground Level

7:00pm - 10:30pm CONFERENCE DINNER (TICKETED EVENT)
Astral 1, Ground Level

SUNDAY 15 OCTOBER

8:38am Predictors of peri-procedural outcomes of carotid artery stenting: Real world experience
Patrice Mwipatayi (Perth)

8:46am CAS – How and when to deal with in-stent stenosis
Marek Garbowski (Perth)

8:54am Common ‘Furphies’ used to make carotid surgery and stenting outcomes look similar when they are not
Anne Abbott (Melbourne)

9:02am The sense and nonsense of carotid surveillance
Jason Chuen (Melbourne)

9:10am Do or don’t do them – Are we consistent with the neurologists?
Darshan Ghia (Perth)

9:18am The dizzy patient referral – Is there vertebrobasilar insufficiency and does vascular play a role in management?
Victor Bourke (Sydney)

9:26am Near-infrared spectroscopy (NIRS) as predictor for shunt need during carotid endarterectomy
David Lindstrom (Stockholm, Sweden)

9:34am Cerebral monitoring during CEA – Best practice or unnecessary ballast?
Bernie Bourke (Gosford)

9:42am Discussion

10:00am - 10:30am MORNING TEA - SUNDAY
Grand Ballroom 1, Ground Level

10:30am - 12:30pm DIABETIC FOOT (Combined with: Nursing)
Grand Ballroom 2, Ground Level
Chairs: Kurian Mylankal (Adelaide) and M. Eileen Walsh (Toledo, USA)

10:30am Keynote Lecture: Contemporary management of the diabetic foot
Joseph Mills (Houston, USA)

10:42am Investigations in diabetics – What actually makes sense
Robert Fitridge (Adelaide)
Final Program – Vascular (cont’d)

10:50am - 1:30pm
Interventions to the pedal arch – Genius or madness?
Patrice Mwipatayi (Perth)

10:58am - 1:42pm
The one stop shop to avoid the chop: Building a multidisciplinary foot unit
Emma Hamilton (Perth)

11:06am - 1:50pm
Is there a role for hyperbaric oxygen therapy in the treatment of the diabetic foot?
Ian Gawthrope (Perth)

11:14am - 1:58pm
Is endo first the right approach for limb threatening ischemia?
Joseph Mills (Houston, USA)

11:22am - 2:06pm
Charcot’s vs. osteomyelitis – Do we need radiology or nuclear medicine?
Natalie Falkner (Perth)

11:30am - 2:14pm
How to heal the heel?
Venu Bhamidipaty (Auckland)

11:38am - 2:22pm
Just put them on T azocin…or not?
Rationalising our antibiotic management
Laurens Manning (Perth)

11:46am - 2:30pm
Measuring locomotor performance in people with lower limb amputation
Caroline E Roffman (Perth)

12:02pm - 3:00pm
Factors associated with Diabetic Foot Unit (DFU) readmissions in a metropolitan Melbourne hospital
Andrew Chong (Melbourne)

12:10pm - 3:30pm
Discussion

12:30pm - 1:30pm
LUNCH - SUNDAY
Grand Ballroom 1, Ground Level

12:30pm - 3:00pm
BOARD OF VASCULAR SURGERY SUPERVISORS MEETING
Botanical 4, Lower Level

1:30pm - 3:00pm
VENOUS PATHOLOGIES
Grand Ballroom 2, Ground Level
Chairs: Stephen Baker (Perth) and Parminder Chandhok (Auckland)

Keynote Lecture: Current evidence for interventional management of DVTs
Akhilesh Sista (New York, USA)

It’s not all the same – Cost and effectiveness of the four pillars in VV management: RFA, EVLA, sclerotherapy and open
Paul Bachoo (Aberdeen, UK)

Development and economic benefit of a nurse delivered varicose vein service
Ben Cooper (Aberdeen, UK)

Is there a role for GSV sparing surgery?
Mark Malouf (Sydney)

Varicose veins management – How are the new kids on the block performing?
Claire Campbell (Melbourne)

Endovascular deep venous valve reconstruction
Andrew Hill (Auckland)

Cava filters – Where do they go and why are they there in the first place
John Ferguson (Perth)

Discussion

AFTERNOON TEA - SUNDAY
Grand Ballroom 1, Ground Level

RENAL ACCESS
(Combined with: Nursing)
Grand Ballroom 2, Ground Level
Chairs: Joe Hockley (Perth) and Susan Monaro (Sydney)

Fistulas: One size fits all?
Ashley Irish (Perth)

Integrated dialysis systems: Maximising benefits, minimising cost and complications
John Swinnen (Sydney)
Designed to help you deliver a durable repair.

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Final Program – Vascular (cont’d)

3:46pm Renal access in Samoa
Juanita Muller (Brisbane) VA052P Are skip incisions better than long incision for single stage basilic transposition fistula?
Fareed Shaikh (Karachi, Pakistan)

3:54pm Outcomes of Flixine grafts for AVF
Bulang He (Perth) VA090P Rare complication of a common injury: Large pseudoaneurysm of the axillary artery post shoulder dislocation
Sascha Reimann (Woolloongabba)

4:02pm New innovations in renal access
Richard Bond (Perth) VA111P Xenoprosthetic grafts provide a safe, cost effective treatment for mycotic aneurysms and infected aortic grafts
Robert Brightwell (Norfolk, UK)

4:10pm Randomised multicentre blinded study on DEB in native fistulas
John Swinnen (Sydney) VA101P The burden of Peripheral Arterial Disease in Australian Aboriginal peoples living in Central Australia: targeted detection in the Indigenous Adult Health Assessment required.
Brenton Earl (Adelaide)

4:18pm Vascular access: What evidence is there?
Monique Sandford (Perth) VA047P A sticky situation: Chylous ascites and lipiodol
Jason Diab (Port Macquarie)

4:26pm Management of complex central vein stenosis
Patrice Mwipatayi (Perth) VA060P Comparative Patency of One-stage and Two-stage Brachiobasilic Arteriovenous Fistulae: A Systematic Review and Meta-analysis
Ian Wee (Sydney)

4:34pm AVG and AVF complications: aneurysms, pseudoaneurysms, bleeding
Kishore Sieunarine (Perth) VA107P Thrombectomy of the Forearm Arteries Relieves Pain Following Traumatic Thrombosis; A Case Series
Jarryd Solomon (Melbourne)

4:42pm SUIT – Renal access in Karachi
John Swinnen (Sydney) VA104P The effect of residual clot and stenosis post-recanalisation of thrombosed dialysis access on patency duration
Eu Jhin Loh (Canberra)

5:00pm Forced maturation of the arteriovenous fistula using adjuvant stent placement
Anoosha Aslam (Sydney) VA096P Surgical management of carotid body tumours: A single centre 25-year experience
Eu Jhin Loh (Canberra)

5:06pm Distal radial artery waveform analysis – A novel predictor of outcomes in Radio-cephalic Arteriovenous Fistulas
Mark Jackson (Gold Coast) VA097P Surgical management of mangled extremity – primary amputation vs. limb salvage: A systematic review of the current scoring system
Eu Jhin Loh (Canberra)

5:14pm Discussion

POSTERS PRESENTATION
These posters may be viewed on the screens in the Exhibition area.

VA063P Duodeno-iliac fistula secondary to ingested toothpick
Timothy Shiraev (Canberra)

VA094P Segmental Arterial Mediolysis – a rare cause of intra-abdominal haemorrhage
Timothy Shiraev (Canberra)
Endovascular treatment of subclavian vein injury with a covered stent
Kejia Wang (Sydney)

A novel treatment for bilateral internal mammary artery aneurysms
Dinuksha De Silva (Sydney)

Microbiology and Management of EVAR infections
Katherine Garnham (Brisbane)

The association of peripheral arterial disease with abdominal aortic aneurysm growth: A systematic review and meta-analysis
Evan Matthews (Townsville)

A Systematic Review of Transcatheter Aortic Valve Implantation via Carotid Artery Access
Ian Wee (Sydney)

Safety of low, fixed dose heparin in peripheral arterial endovascular intervention
Jarryd Solomon (Melbourne)

3D Printing in Preoperative Planning for Complex Aortic Endovascular Surgery
Andrew Wen Zhi Woo (Melbourne)

Real world results of Zilver PTX in the femoropopliteal artery
Kejia Wang (Sydney)

A systematic review and meta-analysis of the association between C-reactive protein and major cardiovascular events in patients with peripheral artery disease.
Tejas Pratap Singh (Townsville)

Single versus dual antiplatelet therapy (DAPT) in patients undergoing carotid endarterectomy (CEA): a single-centre experience
Raevin Ravindra (Melbourne)

Our institutions’s experience with Endoanchors for endovascular radial fixation of stent grafts
Alison McGill (Brisbane)

The Nav CARS EVAR Project – Experimental Set up for Navigated Contrast Agent and Radiation Sparing Endovascular Aortic Repair
Marco Horn (Luebeck, Germany)

3-D Modeling (Rapid Prototyping) of the Abdominal Aorta for Experimental Endovascular Navigation
Marco Horn (Luebeck, Germany)

Has the introduction of Electronic Medical Records improved the completion rates of discharge summaries? A retrospective chart analysis
Sascha Reimann (Woolloongabba)

How Carotid Stenosis Guidelines Can be Improved to Save Lives and Reduce Health Costs
Anne Abbott (Melbourne)

The introduction of Electronic Medical Records improves the quality of admission documentation
Sascha Reimann (Woolloongabba)

Complex supra-aortic occlusive disease: A challenging case
Sascha Reimann (Woolloongabba)

Intra-operative techniques to prevent Dialysis Access Associated Steal Syndrome (DASS) in high risk population undergoing surgery for hemodialysis access; a systematic review
Fareed Shaikh (Karachi, Pakistan)

Penumbra Indigo™ aspiration thrombectomy for treatment of endotrash
Scott Fleming (Perth)

Impact of a Vascular Specialty Guide on the Oncall Registrar’s ability to provide a Vascular Service
Omar Mansour (Cairns)

Light and Mirrors: The role of Optical Coherence Tomography in Peripheral Vascular Intervention
Samantha Peden (Sydney)
| VA087P | Penumbra Indigo™ aspiration thrombectomy versus catheter directed thrombolysis for treatment of acute leg ischaemia: A retrospective review of a single unit’s experience  
Scott Fleming (Perth) |
| VA080P | Obstructive jaundice with right upper quadrant pain: Think Hepatic Artery Aneurysm  
Hani Saeed (Melbourne) |
| VA058P | Cavall Wall injury: an IVC filter complication  
Hani Saeed (Melbourne) |
| VA089P | Prevalence of Varicella Zoster Virus in Patients Suspected of Having Giant Cell (Temporal) Arteritis – Interim Results from the Giant Cell Arteritis and PET Scan (GAPS) Cohort  
Anthony Sammel (Sydney) |
| VA039P | Internal jugular vein aneurysm in a man. An atypical cause of neck mass  
Rebecca Reardon (Lismore) |
| VA081P | Occlusion balloon catheter use in complex elective surgery – a Waikato Hospital experience  
Katherine Hulme (Hamilton) |
| VA103P | The distribution of vascular disease in suspected Giant Cell Arteritis (GCA) patients as detected by Positron Emission Tomography (PET)-CT: Interim results from the Giant Cell Arteritis and PET Scan (GAPS) study  
Anthony Sammel (Sydney) |
| VA057P | Case report: REMEMBERING THE BASICS Iatrogenic injury to Superficial femoral artery (SFA) mistaken as Great Saphenous vein (GSV)  
Farhina Salahuddin (Karachi, Pakistan) |
| VA065P | Endovascular treatment of aortoiliac occlusive disease using a unibody aortic endograft  
Keija Wang (Sydney) |
Sascha Reimann (Woolloongabba) |
| VA069P | High Patency Rates Following Directional Atherectomy For Infringuinal Arterial Disease  
Gurfateh Sandhu (Sydney) |
| VA099P | Testicular Infarction: a rare complication post EVAR  
Vidy Seenarain (Perth) |
| VA088P | Perioperative Antiplatelet Use in Vascular Surgery  
Amelia Russell (Melbourne) |
| VA055P | Case report: A novel approach to proximal graft sealing in fenestrated endovascular aneurysm repair  
Caitlin MacLeod (Aberdeen, UK) |
| VA043P | A Case of Recurrent Spontaneous Haemorrhage: Polyarteritis Nodosa  
Scarlett Olasope (Wellington) |
| VA046P | A Rare Cause of Hand Ischaemia  
Scarlett Olasope (Wellington) |
| VA051P | Applying of hybrid operations in treatment of patients with critical limb ischemia  
Jakhongir Matmuradov (Uzbekistan) |
| VA092P | Renal transplantation: In-hours versus After-hours operating  
Hani Saeed (Melbourne) |
| VA050P | Aortic Dissections: The Alfred experience  
Hani Saeed (Melbourne) |
| VA045P | A rare case of Multiple Mycotic Aneurysms secondary to MSSA Bacteraemia  
Kishan Liyanage (Melbourne) |
Need for Improvement; Medical treatment of patients with arterial disease; Results of a prospective registry
Mina Guirgis (Perth)

6 Fenestration EVAR
Diane Hildebrand (Aberdeen, UK)

Late outcomes of endovascular aneurysm repair in challenging neck morphology based on experience from the GREAT C3 registry
Diane Hildebrand (Aberdeen, UK)

Excessive Cost of ovarian vein embolization: Opportunity to rationalize technique and reduce cost
Mina Guirgis (Perth)

Case report: endovascular repair of external iliac artery pseudoaneurysm after failure of hip prosthesis
Ellen Hardy (Gosford)

Long-term follow-up of subclavian artery stenting: A single surgeons experience
Matthew Trinder (Perth)

Patients re-presenting after EVAR in the Australasian Vascular Audit (AVA) 2010-2016
Ellen Hardy (Gosford)

Innovative technique to explant for type 1a endoleak
Noel Ramdwar (Melbourne)

Cerebral reperfusion syndrome after carotid-subclavian bypass
Ellen Hardy (Gosford)

Use of 3D printed models for preoperative rehearsal to improve operative outcomes prior to complicated aortic surgery
Jason Toniolo (Melbourne)

Case report: Open repair of giant tibio-peroneal trunk aneurysm
Ellen Hardy (Gosford)

Are the cost benefits of Telehealth medicine matched by clinical outcomes: A study of renal access surveillance outcomes.
Cassandra Jeavons (Brisbane)

Treatment of abdominal aortic aneurysms with the low profile Ovation Abdominal Stent-Graft System
Matthew Trinder (Perth)

Lack of an association between neutrophil-lymphocyte ratio and prognosis in arteriovenous fistulas
Beatrice Kuang (Adelaide)

Open Juxtarenal Aortic Aneurysm Repair: A tertiary centre experience in New Zealand
Prakash Balakrishnan (Wellington)

Correlation of histopathology and the symptomatic status of carotid stenosis
Irwin Mohan (Sydney)

Outcomes for endovascular repair of traumatic thoracic aortic aneurysms; A single centre experience
Sharon Hong (Sydney)

Surgical Turnaround Time: A Tertiary Versus General Hospital Comparison
James Dimmer (Perth)

Outcomes of a Multi-disciplinary Diabetes Foot Service
Julia Firth (Melbourne)

The Current Landscape of 3D Printing in Endovascular Intervention
Jasamine Coles-Black (Melbourne)

Pilot Study: Near-Infra Red Imaging of the Microvenous Network
Kari Clifford (Dunedin)

Ultrasound guided foam sclerotherapy: Does size matter?
Jason Toniolo (Melbourne)
The Sheri Sandison Encouragement Award: Proudly supported by Hartmann

The Best Presenter Prize: Proudly supported by Molnlycke

Invited Speaker

**Professor M. Eileen Walsh**
Toledo, USA

Eileen Walsh served on the writing committee for the 2016 The American Heart Association/American College of Cardiology Guidelines on the Management of Patients with Lower Extremity Peripheral Artery Disease. Eileen is a Professor at the College of Nursing, University of Toledo, Toledo, Ohio. She spent 20 years of her nursing career at the Jobst Vascular Institute with noteworthy accomplishments in developing a Vascular Rehabilitation Program and in serving as a steering committee member for national clinical trial such as PARTNERS and CLEVER. Her career spans more than 30 years of practice, education, and research with patients in cardiovascular inpatient, outpatient, specialty clinics, and rehabilitation settings. Eileen is a past president of the Society for Vascular Nursing and a recipient of the Jeanne Doyle Award, the most prestigious vascular nursing award. She serves on the editorial board for the Journal of Vascular Nursing and a reviewer for Rehabilitation Nursing Journal and Heart and Lung. Eileen was a co-editor of the first Core Curriculum for Vascular Nursing and serves on the American Nurses Association Content Expert Panel for Certification as a Cardiovascular Nurse. She presents at numerous local, regional, national, and international vascular conferences and has authored several manuscripts on cardiovascular topics.

FRIDAY 13 OCTOBER

5:30pm - 6:30pm  **WELCOME RECEPTION**
Grand Ballroom 1, Ground Level

SATURDAY 14 OCTOBER

8:30am - 10:00am  **EVIDENCE BASED CARE AND THE ECONOMIC PRESSURES IMPACTING CARE**
Botanical 2 / 3, Lower Level
Chairs: Lorraine Linacre (Perth) and Lucy Stopher (Perth)

8:30am  Welcome address
Lucy Stopher (Perth)

8:35am  Keynote address: Applying evidence-based guidelines for lower Extremity peripheral artery disease
NU001  M. Eileen Walsh (Toledo, USA)

9:05am  Perioperative diabetes management: A best practice implementation project
NU002  Tanghua Chen (Sydney)

9:15am  Abdominal Aortic Aneurysm (AAA) screening – Outcomes and learnings from a 12 month pilot
NU003  Frank Guerriero (Adelaide)

9:25am  Amputation in Australia and New Zealand: An analysis of 20,669 cases from the Australasian Vascular Audit database
NU004  Guilherme Pena (Adelaide)

9:35am  Role of exercise in patients with peripheral artery disease: Evidence-based guidelines
NU005  M. Eileen Walsh (Toledo, USA)

9:45am  Outcomes of open lower limb arterial surgery in New South Wales
NU006  Sarah Aitken (Sydney)

9:55am  Discussion

10:00am - 10:30am  **MORNING TEA - SATURDAY**
Grand Ballroom 1, Ground Level
Final Program – Nursing (cont’d)

10:30am - 12:30pm **NURSING WORKSHOP**

ASSESSMENT AND MANAGEMENT OF THE PATIENT WITH PERIPHERAL ARTERIAL DISEASE
Botanical 2 / 3, Lower Level

Introductory address on best evidence for PAD management
M. Eileen WALSH (Toledo, USA)

Station 1: Aboriginal outreach programs
Moorditj Djena Team (WA)

Station 2: Non-invasive arterial assessment
M. Eileen Walsh (Toledo, USA)

Station 3: How to offload an orthotist perspective

Station 4: Tabletop angiogram demonstration
Cook Medical

1:30pm Improving the prevention of pressure injuries in the high risk foot
Joanna Scheepers (Perth)

1:45pm Patient perspective on living with a venous leg ulcer
Lorraine Linacre (Perth)

2:00pm Patient perspective on diabetic foot ulcers and amputation
Lucy Stopher (Perth)

2:15pm Experiencing chaos: Patient and family experiences of hospitalisation for CLI-related amputation
Susan Monaro (Sydney)

2:30pm Mindful care: Enhancing the patient and family experience of major amputation
Jana Pinkova (Sydney)

2:45pm Discussion

3:00pm - 3:30pm **AFTERNOON TEA - SATURDAY**
Grand Ballroom 1, Ground Level

3:30pm - 5:30pm **NURSING WORKSHOP**
MANAGEMENT AND PREVENTION OF VENOUS LEG ULCERS
Botanical 2 / 3, Lower Level

Overview of venous leg ulcer management workshop
Lorraine Linacre (Perth)

Station 1: Venous ablation and sclerotherapy
Patrik Tosenovsky (Perth)

Station 2: Tabletop venoseal demonstration
Medtronic

Station 3: Compression bandaging options and techniques
Lorraine Linacre (Perth)

Station 4: Fundamental sonography criteria in venous studies
Marilyn Zelesco (Perth)

7:00pm - 10:30pm **CONFERENCE DINNER (TICKETED EVENT)**
Astral 1, Ground Level
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Location</th>
<th>Chair</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30am</td>
<td>COMPLEX WOUND CARE</td>
<td>NU009 Stuart Walker (Hobart)</td>
<td>Botanical 2 / 3, Lower Level</td>
<td>Chair: Frank Guerriero (Adelaide)</td>
<td>A randomised trial of negative pressure wound dressings for lower limb amputations</td>
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<tr>
<td>8:40am</td>
<td>Minimising pain at dressing changes reduces the need for theatre time</td>
<td>NU010 Karen Nixey (Hamilton)</td>
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<tr>
<td>8:50am</td>
<td>Extracorporeal Shockwave in the treatment of venous ulceration:</td>
<td>NU011 Ben Cooper (Aberdeen, UK)</td>
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<tr>
<td>9:00am</td>
<td>An integrated model of wound prevention and management across the</td>
<td>NU012 Grace Manjoro (Sydney)</td>
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<tr>
<td>9:10am</td>
<td>Review of currently available scoring systems in diabetic foot ulceration</td>
<td>NU013 Simon Joseph (Perth)</td>
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<td>9:20am</td>
<td>Management of diabetes related foot disease: The current Australian</td>
<td>NU014 Molly Gilfillan (Perth)</td>
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<tr>
<td>9:30am</td>
<td>Near Infrared Spectroscopy in the assessment and management of diabetic foot ulcers</td>
<td>NU015 Simon Joseph (Perth)</td>
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<tr>
<td>9:40am</td>
<td>The Multidisciplinary Diabetic Foot Unit as a means to economising</td>
<td>NU016 Molly Gilfillan (Perth)</td>
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<tr>
<td>10:00am</td>
<td>MORNING TEA - SUNDAY</td>
<td>Grand Ballroom 1, Ground Level</td>
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<tr>
<td>10:30am</td>
<td>Keynote Lecture: Contemporary management of the diabetic foot</td>
<td>Joseph Mills (Houston, USA)</td>
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<tr>
<td>10:40am</td>
<td>Investigations in diabetics –</td>
<td>Robert Fitridge (Adelaide)</td>
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<td>10:50am</td>
<td>Interventions to the pedal arch –</td>
<td>Patrice Mwipatayi (Perth)</td>
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<tr>
<td>11:00am</td>
<td>The one stop shop to avoid the chop: Building a multidisciplinary foot</td>
<td>Emma Hamilton (Perth)</td>
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<tr>
<td>11:10am</td>
<td>Is there a role for hyperbaric oxygen therapy in the treatment of the</td>
<td>Ian Gawthrope (Perth)</td>
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<tr>
<td>11:20am</td>
<td>Is endo first the right approach for limb threatening ischemia?</td>
<td>Joseph Mills (Houston, USA)</td>
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<tr>
<td>11:30am</td>
<td>Charcot’s vs. osteomyelitis – Do we need radiology or nuclear medicine?</td>
<td>Natalie Falkner (Perth)</td>
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<td>11:40am</td>
<td>How to heal the heel?</td>
<td>Venu Bhamidipaty (Auckland)</td>
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<tr>
<td>11:50am</td>
<td>Just put them on Tazocin…or not? Rationalising our antibiotic</td>
<td>Laurens Manning (Perth)</td>
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<tr>
<td>12:00am</td>
<td>Measuring locomotor performance in people with lower limb amputation</td>
<td>Caroline E Roffman (Perth)</td>
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<tr>
<td>12:10am</td>
<td>The performance of the Dopplex Ability device in assessing lower limb</td>
<td>Sam Taylor (Dunedin)</td>
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<tr>
<td>12:20pm</td>
<td>Factors associated with Diabetic Foot Unit (DFU) readmissions in a</td>
<td>Andrew Chong (Melbourne)</td>
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<tr>
<td>12:30pm</td>
<td>Discussion</td>
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Friday 13 – Monday 16 October 2017
Crown Convention Centre, Perth, Australia
Final Program – Nursing (cont’d)

1:30pm - 3:00pm  
**ANZSVN AGM**  
Botanical 2 / 3, Lower Level  
Chairs: T anghua Chen (Sydney) and Theresa O’Keefe (Brisbane)  
President’s address  
ANZSVN Treasurer report  
ANZSVN Membership Officer report  
ANZSVN website report  
ANZSVN newsletter report  
State reports  
ANZSVN Committee election  
ANZSVN Awards

3:00pm - 3:30pm  
**AFTERNOON TEA - SUNDAY**  
Grand Ballroom 1, Ground Level

3:30pm - 5:30pm  
**RENAL ACCESS**  
(Combined with: Vascular)  
Grand Ballroom 2, Ground Level  
Chairs: Joe Hockley (Perth) and Susan Monaro (Sydney)

3:30pm  
Fistulas: One size fits all?  
Ashley Irish (Perth)

3:38pm  
Integrated dialysis systems: Maximising benefits, minimising cost and complications  
John Swinnen (Sydney)

3:46pm  
Renal access in Samoa  
Juanita Muller (Brisbane)

3:54pm  
Outcomes of Flixine grafts for AVF  
Bulang He (Perth)

4:02pm  
New innovations in renal access  
Richard Bond (Perth)

4:10pm  
Randomised multicentre blinded study on DEB in native fistulas  
John Swinnen (Sydney)

4:18pm  
Vascular access: What evidence is there?  
Monique Sandford (Perth)

4:26pm  
Management of complex central vein stenosis  
Patrice Mwipatayi (Perth)

4:34pm  
AVG and AVF complications: aneurysms, pseudoaneurysms, bleeding  
Kishore Sieunarine (Perth)

4:42pm  
SUIT – Renal access in Karachi  
John Swinnen (Sydney)

4:50pm  
Forced maturation of the arteriovenous fistula using adjuvant stent placement  
Anoosha Aslam (Sydney)

4:58pm  
Distal radial artery waveform analysis – A novel predictor of outcomes in Radiocephalic Arteriovenous Fistulas  
Mark Jackson (Gold Coast)

5:06pm  
Snuffbox Arteriovenous Fistula: A Western Australian surgeon’s experience  
Marwan Idrees (Perth)

5:14pm  
Discussion

**POSTERS PRESENTATION**

*These posters may be viewed on the screens in the Exhibition area.*

**NU017P**  
Experiences from First Multicenter Introduction of the Society of Vascular Surgery (SVS) Wound-Ischemia-Foot-Infection (WIfI) classification system in Australasia  
Nedal Katib (Sydney)
ENHANCE OUTCOMES AND DURABILITY WITH VASCULAR SURGERY INNOVATIONS

ENDURANT™ II/IIS AAA Stent Graft System
Designed to conform to the natural tortuosity of the vessel
Low profile, hydrophilic delivery coating to enhance access and tackability.

HELI-FX™ EndoAnchor™ System
Enhance durability to the level of a surgical anastomosis and address concerns for future complications.

Medtronic Australasia Pty Ltd, 5 Alma Road, Macquarie Park NSW 2113
Abstracts

VA001
VASCULAR SURGERY TRENDS IN AUSTRALIA: 2001-2015: LESS OPEN SURGERY, LESS LIMB LOSS AND MORE ENDOVASCULAR INTERVENTION
Melissa Wright and Ravi Huilgol
University of Notre Dame Australia, NSW

Purpose
Peripheral arterial disease (PAD) is a marker of severe systemic atherosclerosis, associated with high cardiovascular morbidity. PAD prevalence in Australia is currently poorly characterised. The risk factor profile for PAD is changing with the growing ageing population, increasing diabetes rates & decline in smoking prevalence in Australia. PAD management is also changing with endovascular techniques becoming more widely used & more advanced, replacing open arterial bypass surgery & reducing the need for limb amputation. The trends in PAD prevalence and surgical management have implications for preventative medicine, the Australian health system & vascular surgery. We report & analyse trends in Australian surgical intervention for PAD between 2001-2015

Methodology
Data was collected from the National Hospital Morbidity Database which records hospital admissions by ICD-10 procedural item codes. Item codes for lower limb endovascular procedures, open arterial bypass & lower limb amputations (minor & major) between 2001-2015 were extracted. Results were population & age-adjusted using census information from the Australian Bureau of Statistics to further analyse changes in intervention rates

Results
The national per capita (100,000 population, aged ≥45years) volume of endovascular procedures have increased 90%, open bypass rates have decreased 70%, major amputations have decreased 65% & minor amputations have risen 14% between 2001-2015. The most remarkable changes were in the ≥85years cohort, with endovascular procedures per capita increasing 187%; coinciding with both open bypass & major amputations decreasing by 73% between 2001-2015. Per capita minor amputations increased the most in the 45-54 year-olds with a rise of 57% between 2001-2015.

Conclusion
Between 2001-2015 endovascular interventions & minor lower limb amputations have increased per capita in patients ≥45 years. In contrast, both open LER & major lower limb amputation rates are declining.

VA002
THE SWEDES HAVE ALREADY WRITTEN IT UP - THE DILEMMA OF VASCULAR RESEARCH IN OUR REGION AND HOW WE CAN CHANGE IT
Jonathan Golledge
James Cook University, QLD

This presentation discussed some of the challenges of undertaking vascular research in Australia and New Zealand. The talk also considers potential ways research can be encouraged within the vascular surgery community in Australia and New Zealand.

VA003
A RETROSPECTIVE REVIEW OF THE FEMALE AND MALE BALANCE ACROSS SURGERY
Samantha Peden, Jonathan Golledge and Vikram Iyer
The Townsville Hospital, QLD

Purpose
The balance of female and male trainees in surgical specialties has not clearly been defined within Australia. Furthermore, comparisons between Australia and other nations have not been conducted with reference to gender balance in the surgical workforce. The purpose of this review is to provide an overview of the changing demographics within Surgical Specialties both within Australia and abroad.

Methodology
A literature search was performed to identify data from the Royal Australian College of Surgeons Surgical Activities reports from 2004 to 2015. Physician numbers and gender distribution was also obtained from the Association of American Medical Colleges Physician Specialty Data Book. A comparison was made using Australasian Data from 2004 to 2015 with gender breakdown of Surgical Trainees across all Surgical Specialties.

Results
From 2004 to 2015 the total number of Surgical Specialty Trainees was 13127. Of these 3130 were female. There has been an increase in the number of female trainees across this time with a mean percentage of female trainees from 2004-2010 inclusive being 20.6% and percentage of female trainees from 2011-2015 inclusive being 27.1%. Data from the United States of America shows similar trends.
Conclusion
This study has identified the ongoing trends in gender balance across the surgical subspecialties in Australia as well as overseas. Ongoing disparity in female representation in all surgical specialties is evident but the impact this has on workforce planning and patient management has not been identified.

VA004
KEYNOTE LECTURE: INDICATIONS AND IMPLICATIONS OF ENDOANCHOR USE
Jean-Paul De Vries
St. Antonius Hospital, Utrecht, Netherlands

Challenging aortic neck characteristics (short, conical, angulated, calcium and thrombus rich) will increase the risk for acute seal failures during endovascular aortic repair (EVAR). Moreover, they may cause late complications like type IA endoleaks and migration.

In the global ANCHOR registry the use of EndoAnchors has been proven to increase technical success in short, angulated and conical necks (prophylactic group) as well in the treatment of acute or late type IA endoleaks (therapeutic group). Pre-procedural planning is essential to maximize the outcome of EndoAnchor treatment and to avoid misdeployment. Calcium and thrombus burden >2 mm thickness and undersized endografts (gap between endograft and aortic wall >2 mm) are risk factors for EndoAnchor failure.

In this lecture the most important results of the global ANCHOR registry (prophylactic and therapeutic groups) will be summarized and tips and tricks will be provided for technical good outcome when using the Heli-Fx EndoAnchor Securement System.

VA005
EXPERIMENTAL VISUALIZATION OF VASCULAR STRUCTURES USING MICROSOFT HOLOLENS
Marco Horn, Floris Ernst, Erik Stahlberg, Jan-Peter Goltz, Marcus Wiedner and Markus Kleemann
University Medical Center Luebeck, Schleswig-Holstein, Germany

Purpose
Over the last two decades, endovascular therapy has become an integral part of vascular surgery. While endovascular techniques are improving, the imaging during the procedure is still dependent on contrast agents and X-Rays with their known disadvantages.

Methodology
We report the development of a real-time navigation software, which allows a three-dimensional view of the vascular system without any need of radiation. We used a vascular phantom model (Blue phantom FAST Trauma Full Torso Ultrasound Training Model) and an augmented reality (AR) headset (Microsoft HoloLens) to display the vascular structures in the field of view of the surgeon. Using simple landmark-based surface registration of a CT scan and marching cubes segmentation of the vessel tree, it is straightforward to visualize both the surface and the vessels in the AR display. Using a magnetic tracking system (i.e. AURORA, Northern Digital Inc.) it is possible to also display the position and orientation of a catheter inside the vessels.

Results
Our preliminary results of the virtual real time navigation in endovascular procedures are promising. The presented technique allows a three-dimensional holographic view of the vascular system without any need of radiation. Using extrinsic landmark-based calibrations, the virtual objects are precisely aligned with the real world, resulting in a convincing holographic illusion. The prototype also offers the possibility of intervention planning and simulation, which in turn will lead to a reduced learning curve and therefore increased patient safety.

Conclusion
The integration of Augmented Reality into endovascular procedures improve intraoperative visualization and may leads to an exact placement of guide-wires, catheters and stents with reduced amounts of contrast agents and reduced exposure to radiation.

VA006
LIGHTWEIGHT LEAD APRONS: THE EMPEROR’S NEW CLOTHES IN THE RADIOLOGY SUITE?
Sanjana Kasthurirengan, Chris Boyd and Joe Dawson
Royal Adelaide Hospital, SA

Purpose
Lead is the benchmark material used in radiation protection garments worn during procedures such as angiography. It’s main disadvantage is weight, leading to potential fatigue and chronic musculoskeletal conditions. This has driven development of lightweight aprons containing less, or no lead, which are promoted by manufacturers as an equally effective, or superior, substitute. The aim of this study was to determine if lightweight aprons are as effective as that claimed by manufacturers.
Methodology
Fifteen protective garments were tested encompassing 5 manufactures and 9 different materials. The front and back panels of each apron were tested for radiation transmission by direct broad beam geometry at 100kVp, and corresponding lead equivalence (LE/mmPb) was calculated. ‘Real-world’ protection against scattered radiation was then determined using a Perspex phantom as an angiogram simulation. A scatter paddle detector was placed inside each apron corresponding to the position of the operator’s chest.

Results
80% of aprons failed Australasian labelling standards. Direct beam testing revealed median front panel protection of 0.48mmPb LE (IQR 0.38-0.84) with 50% of the front and 80% of the back panels performing worse than the stated protection. Regarding scatter radiation at 50kVp, 47% of aprons were below legal minimum LE (0.25mmPb) and 87% below the recommended minimal LE for angiography use (0.35mmPb). The energy of the emitted X-rays significantly influenced scatter protection, with a median LE at 70kVp of 0.53mmPB (IQR 0.42-0.62) dropping to 0.26mmPb (IQR 0.21-0.3) at 50kVp (p<0.0001).

Conclusion
A significant number of aprons fail to provide adequate information regarding protection, due to confusing, absent or incomplete labelling. Manufacturers use LE to describe radiation protection in lightweight aprons, but many garments actually fail to provide the protection that is expected, and should be demanded, by healthcare providers working with radiation.

VA007
SHOULD WE REFRAIN FROM OPERATING ON CERTAIN PATIENTS?
John Harris
University of Sydney, NSW

Vascular surgeons, after experiencing an adverse outcome, must question whether the intervention they advised their patient to have was truly warranted. Was that thoracoabdominal aneurysm really posing sufficient risk to justify the paraplegia that occurred? Did the cost of the multiple stents inserted in the superficial femoral artery warrant the brief relief of claudication that followed?

The pattern of vascular surgery currently practiced has changed over the last decade, partly due to the development endovascular methods of treatment however there has been little advance in our basic understanding of the disease processes that we treat. Lumbar sympathectomy, aortorenal bypass, femoropopliteal bypass and open resection of abdominal aortic aneurysms are now infrequently performed. Twenty years hence it will be interesting to see which of today’s procedures are still performed. Ian Harris’s observations on the lack of evidence supporting the continued use of currently performed procedures, which includes vascular operations, is a sobering read (Harris I. Surgery, the ultimate placebo. New South Publishing 2016).

The contemporary vascular surgeon needs to make the fairest choice for the patient’s benefit while faced with an ageing population with co-morbidities including diabetes, obesity and dementia. That choice is compounded by multiple new devices with commercial pressure to try the latest. Ultimately, the choice to operate or not operate will depend increasingly on the vascular surgeon’s ethical judgement, insight into their own abilities and better science to assess outcomes.

VA008
ULTRASOUND CHARACTERISTICS OF AORTO-ILIAC ULCERS
Rachel Kee, Judy Norrish, Gerry Hill, Greg Jones and Andre Van Rij
University of Otago, Otago, New Zealand

Purpose
Abdominal aorto-iliac ulcers (AAUs), previously described in the literature as abdominal penetrating aortic ulcers (aPAUs), are considered to be atherosclerotic plaques that ulcerate into the aortic wall and weaken it, eventually penetrating the wall with lethal consequences. In the past these were rarely diagnosed, but now with CT scanning, they are increasingly recognised. Despite this, there are no reports of their appearance on ultrasound (US). This study describes the US appearances of a series of AAUs and compares these with the corresponding appearances on CT.

Methodology
Forty AAUs were identified through the Otago Vascular Diagnostics Laboratory in the last 5 years. These were diagnosed either on CT or US imaging. All 40 AAUs had both forms of imaging. These images were compared, both to confirm the diagnosis and to describe the discriminating features.

Results
On US, AAUs were readily identified, and was 95% specific and 88% sensitive in detecting CT confirmed AAUs. Asymmetry was observed in 95% of cases with US and 100% of cases with CT (p=0.16) Similarly, a localised
ulceration was noted in 82.5% of cases with US and 95% of cases with CT (p=0.04). Shelves at the neck of the ulcer were seen in 82.5% of cases with US and 77.5% of cases with CT (p=0.26).

Calcification and flow within the ulcer were not so readily demonstrated on US. Calcification was observed in 15% of cases with US and 87.5% with CT (p=0.03), whilst flow into the AAU was seen in 57.5% of cases with US and 90% of cases with CT (p=0.16).

US underestimated AAU size compared to CT in the majority of cases (74.1%). On average, US measurement of maximum cross-sectional AAU diameter was smaller compared to CT, over the same 3-month period (35.4 ± 11.4mm vs 37.3 ± 11.2mm p=0.25).

Conclusion
This study represents the largest cohort of AAUs reported in one centre describing US features. The majority of AAUs can be reliably detected by ultrasound and are suitable for surveillance.

VA009
IMPROVED PATENCY OF SUPERA STENTS FOR JUXTA-ANASTOMOTIC STENOSIS WITH THE USE OF COMPUTER FLUID DYNAMIC MODELLING
Samantha Peden, Shannon Thomas and Victor Chan
Prince of Wales Hospital Sydney, NSW

Purpose
Juxta-anastomotic stenosis (JXAS) is a common problem for arteriovenous fistula maturation and patency. The determination of flow dynamics for optimal patency has not clearly been identified for this cohort of patients. The purpose of this review is to demonstrate the improved patency of Supera stents in the setting of JXAS with the assistance of engineer-developed computer fluid dynamic modelling.

Methodology
Computer Fluid Dynamic (CFD) was used to determine an ideal fluid geometry of an arteriovenous fistula anastomosis. Patented 3D real time fistula sonography was used to demonstrate ideal shape anastomotic formation after insertion of a supera stent in the stenosed juxta-anastomosis. We then performed a clinical study to determine if placing a supera stent in a stenosed AVF juxta-anastomosis resulted in improved primary patency. A retrospective single centre cohort study was performed on patient with JXAS stenosis receiving a Supera stent, with follow up out to 6 months. 28 patients were identified within the Prince of Wales Hospital renal access clinic with juxta-anastomotic stenosis.

Results
From February 2014 to April 2016, 28 patients underwent juxta-anastomotic stenting with Supera. The patients were aged between 40 to 84, 75% of which had previously undergone endovascular intervention for AVF stenosis and 71% of which had previously had anastomotic intervention. The average follow up post JXAS stenting with Supera was six months. Primary patency of the Supera stent was 92.9%. Access circuit primary patency was 64.2%. Assisted Supera and access circuit patency was 100% and secondary patency in the two circuits that thrombosed was 100%.

Conclusion
This study has outlined the potential role of computer fluid dynamic modelling to predict endovascular device performance. Ongoing longer term analysis is required to determine reliability of fluid models to assist with AVF maturation and patency rates.

VA010
PERCUTANEOUS ACCESS PROVIDES ACCEPTABLE MEDIUM TERM RESULTS IN ENDOVASCULAR REPAIR OF AORTIC PATHOLOGY
Keagan Werner-Gibbins, Rick Jiang, Ming Yee and Yew-Ming Kuan
Monash Health, VIC

Purpose
Percutaneous endovascular repair of aortic pathology utilising the Perclose Proglide closure system (Abbot) has gained traction as a viable alternative to open carterial exposure for vessel access. Numerous studies have demonstrated the short-term feasibility of this approach. There is paucity of data describing long-term results of this method.

Methodology
A retrospective review was undertaken of all endovascular aortic procedures performed at Monash Health from inception in 2009 until today. Demographic details and operative factors were recorded. Follow up records were analysed to elucidate the medium term clinical outcomes of this method of access. Presence of claudication, critical limb ischaemia and any subsequent procedures on these vessels were recorded. Follow up access vessel imaging was not routinely instituted on this cohort of patients.

Results
226 patients underwent endovascular treatment of aortic pathology during this time period. Uneventful Proglide deployment occurred in 94% of patients, 4 patients underwent an immediate procedure to repair access
vessels, 4 patients died while in hospital. In the follow up period, 8% of patients reported symptoms of claudication requiring a further revascularisation procedure; of these 4% were directly attributable to Proglide related complications.

Conclusion
Endovascular access for treatment of aortic pathology has been demonstrated to be a feasible method of vessel access. Questions remain about long-term effects on the access vessels and possible resultant clinical pathology. This study confirms that PEVAR provides acceptable medium term results with minimal clinical sequelae. This reaffirms the utility of this approach in the endovascular management of aortic disease.

VA011
ALL CAUSE MORTALITY FOR TASMANIAN PATIENTS WITH ABDOMINAL AORTIC ANEURYSMS

Emma Sim and Stuart Walker
Royal Hobart Hospital, TAS

Purpose
The recent publication of long-term data for abdominal aortic aneurysms (AAA) managed with endovascular (EVAR) versus open repair (OR) has raised questions regarding the all-cause mortality for patients with AAA. Our objective was to compare all-cause mortality between patients with AAA who underwent EVAR, OR and non-operative management for small (<5.5cm) and large (≥5.5cm) aneurysms.

Methods
An observational study was conducted using a prospectively maintained database of patients presenting electively with AAA in Tasmania, Australia from 2000 to 2017. All deaths during this period were identified from a state mortality database and the cause of death determined from the medical records.

Results
Of 1029 patients with AAA, 341 had EVAR, 127 had OR, 413 had small AAA that did not required intervention and 141 had large AAA but were managed non-operatively. 415 patients died but cause of death was unable to be determined for 197 patients. Of the remaining 218 patients, 67 underwent EVAR, 41 underwent open repair, 73 patients had small, non-operative AAA and 36 had large AAA without operation. Aneurysm-related mortality occurred in 39 patients with the majority occurring in the large, non-operative group (38.4%). Aneurysm rupture was the most common cause of death for large, non-operative AAA compared with malignancy for small AAA and EVAR patients. 35.8% of EVAR deaths were attributable to cancer and 45.8% of those were due to lung carcinoma.

Conclusion
In this observational study, abdominal rupture was the predominant cause of death for patients were large untreated AAA whereas patients with small AAA were nine times more likely to die from non-aneurysmal causes rather than AAA. Majority of deaths for all Tasmanian patients with AAA were due to malignancy, with lung carcinoma accounting for 39% of all cancer deaths.

VA012
MAJOR AMPUTATION RATES AND OUTCOMES FOR INDIGENOUS AND NON-INDIGENOUS ADULTS IN THE TOWNSVILLE REGION

Samantha Peden, Vikram Iyer, Jonathan Golledge, Ammarah Tahir, Ramesh Velu, Joseph Moxon and Yvonne Caret-James
Townsville Hospital, QLD

Background
Indigenous people are at high risk of complications from diabetes, end stage renal failure (ESRF) and peripheral artery disease (PAD), including major limb amputation. However, data regarding the incidence and outcome for patients undergoing major amputations is limited within Australia. This study aimed to assess the incidence and outcome for Indigenous and Non-Indigenous adults undergoing major amputations during a sixteen-year period in a tertiary hospital in Townsville, North Queensland.

Methods
This was a retrospective study assessing all patients who underwent a major amputation at The Townsville Hospital between 1999 and 2015. Mortality rates were estimated using Kaplan Meier analysis and compared using log rank test and Cox Proportional Hazard analysis.

Results
A total of 371 major amputations occurred at the Townsville Hospital between 1999 and 2015. 67 amputations occurred in Indigenous patients and 304 occurred in non-indigenous patients. Indigenous patients were more likely to have diabetes (indigenous 84%, non indigenous 48%, p<0.001) and underwent amputations at a younger mean age (indigenous 55.72±12.82, non-indigenous 63.3±17.06, p<0.001). The estimated rate of major amputations per 100,000 people were 301 and 67 for Indigenous and non-indigenous populations in the region, respectively. Mortality rates 24 months after major amputation were estimated as 7.9 and 34.3% in
Indigenous and non-indigenous patients, respectively, p=0.007. After adjusted for age, sex, diabetes, hypertension, ischemic heart disease and ESRF, Indigenous status was not significantly associated with mortality (Hazard ratio 1.21, 95% CI 0.78-1.87).

Conclusion
This study suggests that there are high rates of major amputation within the Indigenous population in North Queensland. These patients are at high risk of subsequent mortality due to associated co-morbidities.

VA013
THE OUTCOMES OF PATIENTS WITH END STAGE RENAL DISEASE (ESRD) AND CRITICAL LIMB ISCHAEMIA (CLI)
Irina Baimatova, Nedal Katib, Nick Cross and Manar Khashram
Christchurch, Canterbury, New Zealand

Purpose
The prevalence Chronic Kidney Disease (CKD) is increasing worldwide, including an increase in End Stage Renal Disease (ESRD) requiring renal replacement. Critical Limb Ischaemia (CLI), poor glycaemic control and peripheral neuropathy all contribute to poor wound healing, increased infections and amputation rates in ESRD patients.

This study aims to compare outcomes of CLI in patients with and without ESRD, and perform a subgroup analysis of ESRF patients according to their dialysis type, HD and PD patients.

Methodology
A retrospective review of all patients with critical limb ischaemia (CLI) and end stage renal disease (ESRD) between 01/01/2011 and 01/01/2016 across two centres in New Zealand. Patients were identified using the AVA/departmental databases and admission lists, then cross referenced to identify those with CLI and ESRD. The patient records were manually reviewed, and data collected on demographics, comorbidities, number of interventions and limb savage data. Consecutive patients with a normal serum creatinine (<150) that presented to the vascular department in 2011, were used as controls.

Results
173 patients were included in the analysis; 52 HD patients, 37 PD patients and 84 controls. There were 281 interventions observed in the HD group, 55 in the PD group and 204 in the control group. There was a 65% amputation rate in the HD group, 54% in the PD group and 15% in the control group. The 1 year mortality was 29% HD, 42% PD and 27% in the control group.

Conclusion
In conclusion, the overall outcome of patients with ESRF and CLI was poor. There was a significant difference between patients with HD and PD dialysis in number of interventions received, amputation rates and 1 year mortality.

VA014
OUTCOMES OF NELLIX EVAS IN FAVOURABLE VERSUS ADVERSE ANATOMY
Robert Tewksbury, Andrew Hill, Andrew Holden and Jaap Ottevanger
Auckland City Hospital, Auckland, New Zealand

Purpose
To review the results of the Nellix device for endovascular aneurysm sealing (EVAS) in patients with both suitable and unfavourable anatomy according to the company’s revised Instructions for Use (IFU).

Methodology
A retrospective analysis of consecutive patients treated with the Nellix endoprosthesis at a single centre was performed. Patients were categorized based on pre-operative computed tomography angiogram (CTA) findings and the presence of ancillary procedures. Follow up CTA was performed at 1, 6, 12, 24 and 36-month time intervals where applicable. These were reviewed at a multi-disciplinary vascular meeting where sac measurements and complications were reported.

Results
From November 2012 to May 2016 139 patients, median age 71 years (+/-17 years), with abdominal aortic aneurysm (AAA) diameter 62.5cm (+/-2.5cm), underwent Nellix EVAS with a median follow up of 24 months (range 0-36 months). 37% of procedures were deemed within IFU. The primary outcome was procedural success and freedom from rupture, endoleak, sac expansion > 5mm, and re-intervention. Primary outcome at 12 and 24 months were 91.6% and 82.4% respectively. There were no significant differences in primary outcome between the IFU groups at either 12 months (p=0.28) or 24 months (p=0.49). Within the follow up period there were five Type 1 endoleaks in the on-IFU group and twelve in the off-IFU group (p=0.25). There were no Type 2 endoleaks. Five aneurysm-related mortalities were reported in the off-IFU group, versus two in the on-IFU group (p=0.33). Furthermore, five ruptures post EVAS occurred.

Conclusion
Outcomes of the Nellix EVAS endoprosthesis are encouraging, even in cases of unfavourable anatomy. There was a higher occurrence of type 1 endoleak and
aneurysm related mortality when used off-IFU, however, this was not statistically significant. The increasing incidence of complications over time highlights the importance of continued surveillance in all patients treated with the Nellix endoprosthesis.

VA015
THE DEVELOPMENT AND VALIDATION OF AN ABDOMINAL AORTIC ANEURYSM CLINICAL DECISION AID TOOL
Manar Khashram, Giorgi Kvzhinadze, Ziad Khashram, Jonathan Williman, Gregory Jones and Justin Roake
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The ongoing risk of AAA-related death, uncertainty of aneurysm expansion and rupture, and the background mortality risk from other causes make AAA management ideal for predictive modeling. While there are ample tools that can predict 30-day mortality, models that predict medium-to long-term survival (>2 years) are lacking in the literature.

Aims
To develop and validate a clinical decision tool to aid in AAA management.

Methods
A discrete event simulation model was developed to micro-simulate the probability of death for a patient with an AAA undergoing repair or without a repair. Data inputs to simulate the natural history of AAA were derived from the published literature. The impact of patient risk-factors and comorbidities on survival were quantified from systematic reviews. The decision model requires patient demographics, AAA diameter and comorbidities and predicted survival is calculated.

A New Zealand-based dataset of patients that underwent AAA repair and a cohort of patients with small AAA under regular surveillance with at least 5-year follow-up were used for validating the model.

Results
Twenty-one patients (22 limbs) with Rutherford 4-6 ischemia (tissue loss=19) were managed with distal bypass during the study period. Median age 74 (69-79), male 18/21, diabetic 18/21, renal failure 6/21. Eighteen had clinically significant ischemia despite prior crural angioplasty. Most bypasses were constructed with non-reversed GSV between the below knee popliteal artery and the posterior tibial, dorsalis pedis or plantar arteries. Patients underwent an ultrasound surveillance program with intervention performed when graft-threatening criteria were met. At six, 12, and 24 months, primary patency was 43%, 31% and 31% respectively. At 36 months, assisted-primary patency was 56%, amputation-free survival 68%, and survival 88%.

Conclusion
The modern approach to clinically significant ischaemia employs endovascular intervention as first line, however not all patients will have long-term resolution. This

Conclusions
The AAA clinical decision tool has the ability to accurately predict the 5-year survival of patients with an AAA. This tool can be used during clinical decision making to better inform clinicians and patients of long-term outcomes. Further validation studies in a wider AAA population are required to test the broader clinical utility of this AAA clinical decision tool.

VA016
POPLITEAL-DISTAL BYPASS SURGERY IS A VIABLE OPTION IN SEVERE CRURAL DISEASE
Simon Yun, Sajith Senadeera and Adib Khanafer
Christchurch Hospital, Canterbury, New Zealand

Purpose
An aging population and increasing prevalence of diabetes and renal failure are likely to increase the rate of critical limb ischemia (CLI) due to severe crural disease. Whilst crural angioplasty is a minimally invasive means to achieve limb salvage in patients with critical limb ischemia, its durability and technical limitations mean that there is still a role for distal bypass. The aim of this study was to assess the outcomes following distal bypass surgery.

Methodology
We conducted a single surgeon audit of patients undergoing bypass to an ankle or pedal artery between May 2012 and March 2017 at Christchurch Hospital. Pre-operative characteristics were evaluated and primary patency, assisted-primary patency, amputation-free survival and survival endpoints were assessed by Kaplan-Meier analysis.

Results
Twenty-one patients (22 limbs) with Rutherford 4-6 ischemia (tissue loss=19) were managed with distal bypass during the study period. Median age 74 (69-79), male 18/21, diabetic 18/21, renal failure 6/21. Eighteen had clinically significant ischemia despite prior crural angioplasty. Most bypasses were constructed with non-reversed GSV between the below knee popliteal artery and the posterior tibial, dorsalis pedis or plantar arteries. Patients underwent an ultrasound surveillance program with intervention performed when graft-threatening criteria were met. At six, 12, and 24 months, primary patency was 43%, 31% and 31% respectively. At 36 months, assisted-primary patency was 56%, amputation-free survival 68%, and survival 88%.

Conclusion
The modern approach to clinically significant ischaemia employs endovascular intervention as first line, however not all patients will have long-term resolution. This
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study highlights the ongoing necessity for distal bypass surgery for the purpose of limb salvage in patients whom endovascular revascularisation has failed.

**VA017**

**MANAGING INFECTED PSEUDO ANEURYSMS IN IV DRUG ABUSERS - A CHALLENGING PROBLEM FOR THE VASCULAR SURGEON OF THE DEVELOPING WORLD**

Muhammad Fahad Tariq Berlas, Farhina Salahuddin, Waryam Panhwar, Najam Rajper and Zulfiqar Ali Shaheed Mohtarma Benazir Bhutto Trauma Center, Karachi, Sindh, Pakistan

**Background**

With the ever so increasing use of illicit drugs certain areas in the developing world have now an endemic state of IV drug abuse. The vascular surgeon is faced to deal with the potentially fatal complication of infected pseudo aneurysm in these patients. We are presenting our case series of 23 patients with infected pseudo aneurysm managed in a short period of one year.

**Method**

Retrospective analysis of 23 IV drug abuser patients with infected pseudo aneurysm managed from June 2016 to May 2017. The variables observed are demographic data, clinical presentation, management and outcome.

**Results**

Twenty three patients, intravenous drug abusers with infected pseudo aneurysms were included in the study. All were male with mean age of 32 years. Among these patients 70% were seropositive for HCV. 18 patients (78.2%) had femoral artery involvement and the remaining 5 patients (22.8%) had brachial artery pseudoaneurysms. At presentation 52% were already ruptured.

Ligation of the artery and excision of pseudoaneurysm with debridement was done in all cases. 20% case also had an arteriovenous fistulous communication found per operatively for which ligation of the artery, disconnection of the fistulous communication and ligation of involved veins was done with no attempt of vascular reconstruction. Three (13%) patients required primary amputation at the time of initial surgery due to non-viable limb at presentation all at above knee level.

Postoperatively 16 (69.5%) patients had an uneventful recovery, one (4.3%) patient developed dry gangrene of little toe requiring digit amputation. Three (13%) patients had neurological symptoms. There was no case related mortality.

**Conclusion**

Ligation and excision of pseudoaneurysm with debridement is a safe and effective procedure in iv drug abuser patients with infected pseudoaneurysm and done timely can be life saving.

Key Words: Pseudoaneurysm, IV drug abuser, Excision, Ligation, Arteriovenous fistulous communication

**VA018**

**ATHERO-OCCLUSIVE DISEASE IS ASSOCIATED WITH REDUCED ABDOMINAL AORTIC ANEURYSM GROWTH**

Evan Matthews, Georgina Anderson, Jenna Pinchbeck, Sophie Rowbotham, Rhondda Jones, Jason Jenkins, Ronald Dalman, Jan Lindeman, Christopher Reid, Bernie Bourke, Michael Bourke, Rob Fitridge, Paul Norman, Rene Jaeggi, Joseph Moxon and Jonathan Golledge

**James Cook University, QLD**

**Background**

The role of atherosclerosis in abdominal aortic aneurysm (AAA) pathogenesis is controversial. The aim of this study was to assess the association of athero-occlusive disease (AOD) with the growth rate of small AAAs.

**Method**

Patients with small AAAs that initially measured 30-55mm in maximum orthogonal diameter were followed with at least two computerised tomography angiogram (CTA) scans of the abdominal aorta performed 12 and/or 24 months apart. AOD was defined by a previous diagnosis of coronary heart disease (CHD) or peripheral arterial disease (PAD) or an ankle-brachial pressure index <0.9. Maximum orthogonal AAA diameter was centrally read from CTA scans by a single observer who was blinded to the diagnosis of AOD and had established excellent intra-observer repeatability. Linear mixed effects modelling was used to compare AAA growth rates between patients that did and did not have concurrent AOD.

**Results**

One hundred and nine patients met the entry criteria for this study. The mean follow up time was 19.9 months. Sixty-five patients had AOD, of which 26 had only CHD, 25 only PAD and 14 both CHD and PAD. In multivariate analysis patients with AOD were found to have reduced AAA growth compared with non-AOD controls (1.2mm/yr Vs 1.9mm/yr, P=0.005). A similar reduction in AAA growth rate was also found in patients with only CHD (1.2mm/yr Vs 1.9mm/yr, P=0.024) and only PAD (1.1mm/yr Vs 1.9mm/yr, P=0.016) when compared with non-AOD controls. Statin prescription was not associated with significantly reduced AAA growth (Statin 1.3mm/yr Vs No Statin 1.7mm/yr, P=0.141).
Conclusion
This study suggests AAA growth in patients with AOD is slower than in patients without overt AOD. These findings suggest that the prognosis for AAAs may differ depending on the driving mechanisms for their development with potential implications for the targeted development of medical therapies to reduce AAA growth.

VA019
THE NATURAL HISTORY OF AORTO-ILIAC ULCERS: PRESENTATION, GROWTH AND OUTCOMES
Rachel Kee, Gerry Hill, Judy Norrish, Greg Jones, Matthew Versteeg and Andre Van Rij
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Purpose
Abdominal aorto-iliac ulcers (AAUs), previously described as abdominal penetrating aortic ulcers (aPAUs) are atherosclerotic plaques that ulcerate into the aortic wall and weaken it, leading to aortic dilatations that may rupture. Previously these were assumed to have more lethal consequences than fusiform abdominal aortic aneurysms (AAAs), and should be managed differently. More recent studies suggest that this may not be the case.

This study presents the features of AAUs observed in our clinic with the purpose of defining clinical features, growth and outcomes in comparison with typical AAAs.

Methodology
Forty-two patients with CT or US diagnosed AAUs were identified and monitored in our clinic over the last five years. AAU size, growth and outcomes were characterised.

A cohort of 1296 patients with known fusiform AAAs were compared for clinical characteristics and growth rates.

Results
Demographically, there were several differences between patients with AAUs and fusiform AAAs. Significantly higher rates of clinically treated hypertension (80.95% vs 60.48% p=0.007), hyperlipidaemia (66.67% vs 50.56% p=0.04) and diabetes (21.95% vs 11.45% p=0.05) were observed in the AAU cohort compared to the AAA cohort.

The maximum aortic diameter for the AAU cohort was smaller compared to the AAA cohort (41.18 ± 10.30mm vs 54.90 ± 16.3mm) p<0.001. Smaller growth rates were also observed in the AAU cohort compared to the AAA cohort (1.47 ± 1.68mm/yr vs 2.60 ± 3.62mm/yr) p=0.002.

The majority of AAU cases were initially asymptomatic (92.85%) and were under surveillance during the study period (73.81%). A diagnosis of rupture was noted in one AAU case (2.38%). Rapid expansion of the AAU was noted in two cases (4.76%).

Conclusion
One of the largest single centre AAU cohorts has been presented. The lethality of AAUs is not as high as previously thought, with the majority of AAUs able to be managed expectantly. However, AAUs may be predecessors to aneurysms that rupture.

VA020
THERE IS AN ENDO SOLUTION FOR EVERYTHING. IS OPEN AAA REPAIR OBSOLETE?
Allan Kruger
RBWH, QLD

There has been a significant shift in the treatment of Abdominal Aortic Aneurysm (AAA) repair since 1991 when Parodi et al first publicised endovascular AAA treatment. Now 70% of all aortic aneurysm repairs in Australia are attempted endoluminally (EVR). This seismic change has seen the role of open aortic repair (OAR) questioned almost to the point of frank shock that this ancient technique is still offered to patients. Trainee cases of open repair continue to fall with many newly accredited vascular surgeons under confident performing open repair and thus not unexpectedly further favoring EVR. While perioperative data leans to EVR, long-term follow up continues to point out the significant failure rates, radiation risks, increased re-intervention rates and higher ongoing rupture rates of EVR over OAR. Open aortic aneurysm techniques should continue to be performed for appropriate patients, with trainees exposed to open aortic surgery even if only to repair a failed EVR.

VA021
WA EARLY EXPERIENCE WITH THE GORE EXCLUDER ILIAC BRANCH DEVICE FOR COMMON ILLIAC ANEURYSM
Kishore Sieunarine, Steve Baker, Rick Bond, Marek Garbowski, Joe Hockley, Shirley Jansen, Stefan Ponosh, Carsten Ritter and Patrik Tosenovsky
Royal Perth Hospital, WA

Background
The aim of this study is to assess the safety and the short-term results of endovascular treatment of common iliac artery (CIA) aneurysms using the new GORE EXCLUDER iliac branch endoprosthesis (IBE) device which has its own internal iliac extension branch and is very flexible.

Methods
The study is a retrospective with prospective follow-up nonrandomized, single-arm Multiinstitution evaluation. Patients with a CIA aneurysm without or with aortic aneurysm underwent endovascular treatment with the...
Abstracts (cont’d)

Gore IBE were included. Anatomic and procedural data were collected. Computed tomography angiography (CTA) was performed within the 30 days after the procedure and at 6 month and then yearly.

Results
From May 2015 to June 2017, 25 patients with aneurysmal CIA (mean age 73 years old) underwent consecutive endovascular treatment with the Gore IBE. The Mean followup was 13months. The CIA aneurysm (mean diameter 43.2 mm, range 28 to 54) treated with the Gore IBE was associated with an abdominal aortic aneurysm (AAA) in 15 patients. CIA aneurysm was bilateral in 12 patients. Internal iliac artery embolization was performed in 9 patients. Technical success rate of the Gore IBE implantation was 100% with a median fluoroscopy time of 55 min (range 29-78) and median contrast load of 245 mL (range 157-270). No perioperative endograft complications were observed. Median length of stay was 4 days (range 3-7). Branch patency was seen in 24/25 patients at 1 month and 18/19 patients at 6 month. One patient needed further balloon expandable stenting in internal and external iliac orifices for stenoses. All CIA aneurysms were excluded without type Ib or type III endoleak.

Conclusions
The technical success and short-term results demonstrate encouraging results and clinical benefits of the new GORE EXCLUDER IBE. A prospective Western Australia Registry is in progress to provide longer follow-up as this is needed to assess midterm and long-term results.

VA022
ONE PROCEDURE MANY WAYS TO FOLLOW UP: EVAR SURVEILLANCE - HOW, HOW LONG AND HOW OFTEN?
Peter Milne
Royal Melbourne Hospital, VIC

Peter Y. Milne, FRACS,FRCS,FACS. Royal Melbourne Hospital
From 1994 I have implanted a large variety of repair devices in aneurysms of the aorta ranging from trauma in the descending aorta to many thoracic, abdominal and complex visceral segment lesions. Total procedures now exceed 1200.

Over this extended period a planned follow up strategy has developed. The first decade revealed a paucity of follow up in the public sector and average numbers in the private practice. This problem has been solved by computer recall.

Facts
Type II endoleaks do rupture.
Type I endoleaks are very dangerous.
Different Models of prosthesis have a vastly different failure rate.
Aneurysm repair by any method requires follow up until revision is excluded by death or infirmity.

Shrinkage around a prosthesis equals a cure but follow up 4-5 yrl. Iliacs, Popliteals & Thoracic vessels need this.

If aneurysm size reduction is documented then follow up becomes less frequent until apposition to the prosthesis is documented. ( 2 yrl. is the usual interval)

Facts
The majority of endoleaks are visible with ultrasound except for the very obese. (Sonographer dependant)
CT plain is adequate for TAA repairs.

Results
Stable size or shrinking aneurysms do not require contrast studies.
Type 2 endoleaks can be followed for considerable time and sometimes self seal or become stable.
Type 1 leaks require intervention in a timely fashion.

Enlarging Type 2 leaks require imaging with CTA then intervention.

Conclusion
The current challenge is to stop early contrast imaging and give “tincture of time” to procedure noted endoleaks.

Ultrasound is cheap and efficient and adequate for most abdominal prostheses. Limited non contrast CT is adequate for thoracic lesions.

VA023
SECONDARY INTERVENTIONS TO RESCUE FAILED EVARS
Jean-Paul De Vries
St. Antonius Hospital, Utrecht, Netherlands

The yearly reintervention rate to rescue failed EVARs is around 3-5%. Main reasons to reintervene are:
1. Occlusion of the endograft or native iliac arteries.
2. Type IA endoleak. 3. Migration. 4. Type IA endoleak and migration. 5. Type III, IB and II endoleak.

The majority of reinterventions can be performed by endovascular means, but are associated with substantial morbidity and mortality. For instance, 30-day morbidity rate regarding thrombolysis to treat endograft occlusion is >10%.
In this lecture the most important endovascular treatment options are highlighted to treat migration and type IA endoleaks like the use of EndoAnchors, EndoAnchors combined with proximal cuffs, proximal cuffs with chimney stentgrafts, and fenestrated proximal revisions. Literature is reviewed and the pros and cons of all the techniques will be discussed.

Open surgery may be a valid alternative to rescue failed EVAR in good surgical candidates.

Moreover, outcomes after endovascular reinterventions are summarized. The 2 years reintervention free survival rate after endovascular reintervention to rescue a failed EVAR is <60%. This emphasizes the importance of performing the primary AAA repair without any concessions to avoid the risk for reinterventions.

VA025
LONG SFA OCCLUSIONS - ONE YEAR RESULTS OF THE RAPID TRIAL
Jean-Paul De Vries
St. Antonius Hospital, Utrecht, Netherlands

Background
Restenosis remains a major drawback of endovascular treatment of the superficial femoral artery. Paclitaxel eluting balloons (PEB) may reduce restenosis, but data in intermediate (5-15cm) and long (>15cm) superficial femoral artery (SFA) lesions are scarce. In this trial the Legflow® PEB with primary stenting has been compared to plain old balloon angioplasty (POBA) with primary stenting in patients with intermediate and long SFA lesions.

Methods and results
In this multicenter, patient-blinded trial, 160 patients with intermittent claudication, ischemic rest pain, ulcers or tissue loss due to intermediate or long SFA lesions were randomized (1:1) between PEB+stent or POBA+stent.

Primary efficacy endpoint was primary patency, defined as absence of binary restenosis on duplex ultrasound (PSVR <2.4). Baseline patient and lesion characteristics were similar between groups. Mean SFA lesion length and percentage of occlusions for PEB and POBA groups were 15.5 ± 7.2 vs 15.6 ± 7.2 cm (P=0.998), and 75.7% vs 71.1% (P=0.577), respectively. Short-term results demonstrate no significant difference at 12 months in primary patency rates between the two groups (intention to treat 68.3% (PEB) versus 62.0% (POBA); P=0.900; per protocol 74.7% (PEB) versus 62.0% (POBA); P=0.273). Clinically driven target lesion revascularization (CD-TLR) rates were 17.0% vs 22.2% (P=0.277).

Conclusion
In this prospective multicenter randomized trial, there were no statistically significant differences at 12 months regarding primary and secondary patency rates, as well as clinically driven TLR between the Legflow® PEB+stent group and the POBA+stent group. The majority of patients in both groups suffered from long-segment SFA occlusions.

VA024
CH- EVAR - WHICH ARE VALID INDICATIONS?
Jean-Paul De Vries
St. Antonius Hospital, Utrecht, Netherlands

Different treatment options for juxtarenal aortic aneurysms exist. Besides open surgery, fenestrated endovascular repair (FEVAR) is well-known and mid-term results are good regarding patency of the endograft and the target visceral arteries. However, the risk for reinterventions post FEVAR is substantial (around 20% at 2 years follow-up). Moreover, FEVAR is expensive and the waiting time to manufacture the custom made devices is up to 7-8 weeks. A good alternative is the use of endovascular aortic repair with the use of one or two chimney stentgrafts (CHEVAR) for one of both renal arteries.

When choosing CHEVAR it is essential to aim for a juxtarenal seal zone of at least 15 mm. Moreover, the use of the Endurant stentgraft (Medtronic, Santa Rosa, CA) combined with a balloon expandable chimney stentgraft is strongly advised to maximize outcomes. The endograft should be oversized by 30% regarding the juxtarenal aortic diameter. Subclavian artery or axillary artery access is mandatory and long occlusion of the vertebral artery should be avoided. A dedicated endovascular team (one physician at the groins and one at the upper extremity) should perform these CHEVAR procedures with thorough knowledge of the essential endovascular steps.

In this lecture a review of the current CHEVAR literature will be provided as well as the criteria to perform this technique inside IFU.
Abstracts (cont’d)

VA026
AORTO-ILIAC RECONSTRUCTION WITH THE AFx STENT
Phillip Puckridge, Yew Toh Wong, Nadia Wise, Conor Marron and Ian Spark
Flinders Medical Centre, SA

Purpose
Endovascular techniques have reduced the need for aorto-bifemoral bypass in the treatment of aorto-iliac occlusive disease (AIOD). To date endovascular management has not been specifically tailored to the anatomy of the bifurcation and surgical treatment has higher risk. In AIOD the AFx unibody stent is uniquely designed to facilitate endovascular management and aorto-iliac reconstruction. There is limited evidence available regarding its efficacy but shows promise.

Methodology
A prospective series of 11 patients from September 2016 to June 2017 were studied at Flinders Medical Centre. Patients underwent aorto-iliac reconstruction with the AFx stent in combination with treatment of external iliac and femoral disease as required.

Results
The patient’s demographics were typical of patients with peripheral arterial disease and mean age was 70 (55-87), with 45% treated for claudication and 55% for critical limb ischaemia. 9 patients had TASC D lesions, and 4 patients had simultaneous femoral endarterectomy. There was 100% technical success. Mean LOS was 2.7 days. Mortality at 30 days was 0%, with 9% morbidity. Rutherford class improved by ≥3 levels in 81%. Early follow up shows 100% patency at 3 months.

Conclusion
Early experience using the AFx stent for aorto-iliac reconstruction demonstrates it is safe and feasible.

VA027
ONE-YEAR RESULTS OF A MULTICENTER RANDOMISED CONTROLLED TRIAL COMPARING THE HEPARIN-BOND ENDOLUMINAL BYPASS TO THE VENOUS FEMOROPOPLITEAL BYPASS
Laurens Van Walraven, Michel Reijnen, Clark Zeebregts and Wilbert Fritchy
Antonius Ziekenhuis Sneek, Friesland, Netherlands

Background
Endovascular treatment is rapidly gaining acceptance for long occlusive lesions in the superficial femoral artery (SFA). Nevertheless, the venous femoropopliteal bypass is still recommended as the first treatment option for complex lesions in the guidelines. The use of a heparin-bonded ePTFE covered stent has been related in case series to outcomes comparable to bypass surgery.

Method
A randomized controlled trial was performed to compare the venous femoropopliteal bypass with the heparin-bonded ePTFE covered stent for SFA occlusive disease. Data were analyzed on an intention to treat analysis.

Results
A total of 125 patients were treated; 62 in the surgical group and 63 in the endoluminal group. Baseline characteristics and anatomical data were similar except for the diameter of the patent popliteal artery that was slightly larger in the surgical arm (5.6 ± 1.0 mm vs. 5.2 ± 0.8 mm, P = 0.012). Patients were treated for critical limb ischemia (CLI) in 38.1% and 32.2% in the surgical and endoluminal arm, respectively. Mean lesion length was 23 cm in both groups and the majority of lesions were TASC-II D lesions (81.7% and 75.0%, respectively). The morbidity was significantly lower in the endoluminal group, as was hospitalization time (6.0±4.4 days vs. 3.7±3.4 days, p = 0.002). There were no significant differences in Rutherford category between groups at any time point. At 30-days patients in the endoluminal group showed a larger improvement in Quality of Life (QOL) scores compared to the surgical group. At one year, these differences had largely disappeared. Through 1 year there were no differences in primary, assisted-primary and secondary patency and target lesion revascularization between groups. The limb salvage rate was 100% in both arms.

Conclusion
The endoluminal bypass, using the heparin-bonded endograft, is related to less morbidity, and faster recovery and improvement in QOL while there are no differences in patency rates compared to the venous femoropopliteal bypass.

VA028
THE FUTURE OF CAROTID ARTERY STENTING FOR VASCULAR SURGEONS
David Mcclure
Geelong Vascular Service, VIC

Initial enthusiasm that carotid artery stenting (CAS) would replace open endarterectomy for management of carotid plaque disease has been tempered by large multi-centre randomised control trials that called its widespread application into question. It has become apparent, however, that CAS has a defined role in
management of carotid disease, particularly in those patients with a hostile neck for whom carotid intervention is considered appropriate. It clearly deserves a place in the armamentarium of the Endovascular Surgeon.

Critical to providing acceptable treatment outcomes is a safe skill base. This is achieved by

- appropriately mentored training that is of sufficient number and outcome to meet criteria for training recognition, such as those set by the Conjoint Committee for the Recognition of Training in Peripheral Endovascular Therapy (CCOPET), and
- a sufficient case volume to maintain outcomes that meet accepted standards of modern practice.

The challenge is to provide training opportunities in CAS both to the Vascular Trainee and to the consultant Surgeon wishing to add it to their treatment quiver, and to create an environment where carotid stenting numbers can be maintained at a sufficient level in skilled hands.

VA029
COMMON ‘FURPHIES’ USED TO MAKE CAROTID SURGERY AND STENTING OUTCOMES LOOK SIMILAR WHEN THEY ARE NOT
Anne Abbott
Monash University, VIC

Purpose
To expose common ‘furphies’ (flawed interpretations of randomised trial results) that are used to underestimate the excess risk of stroke or death, with or without myocardial infarction, associated with carotid angioplasty/stenting (CAS) compared to carotid endarterectomy (CEA).

Methodology
A review of original research articles regarding randomised trials of CEA versus CAS and guidelines for patients with asymptomatic or symptomatic carotid artery stenosis.

Results
Four major flawed interpretations of randomised trial results were identified. These were published in the highest impact scientific medical journals and led to under-estimation of the hazards of CAS: i. Leaving out the 30-day peri-procedural risk of stroke or death in procedural comparisons; ii. Using the 30-day peri-procedural risk of clinically defined myocardial infarction in underpowered comparisons in attempt to counter the statistically significant excess stroke risk associated with CAS. In fact, peri-procedural strokes were overall 4.3 times more common in the relevant randomised trials than peri-procedural myocardial infarctions and most of these strokes (66%) were associated with stenting; iii. Using underpowered calculations to compare only the most severe and fatal strokes associated with the procedures; iv. Comparing the post-procedural prevalence of any cause of disability, and of any severity, which is very high in both CEA and CAS treated patients. Such comparisons only statistically camouflage the excess stroke-caused-disability associated with CAS.

Conclusion
There are flawed interpretations of randomised trial results in the ‘highest impact’ scientific medical literature. These encourage the use of CAS when there is no evidence of patient benefit and only evidence of excessive patient risk and waste of health care resources.

Main Reference
Abbott A. Critical issues that need to be addressed to improve outcomes for patients with carotid stenosis. Angiology. 2016;67:420-426

VA030
THE DIZZY PATIENT REFERRAL - IS THERE VERTEBROBASILAR INSUFFICIENCY AND DOES VASCULAR PLAY A ROLE IN MANAGEMENT?
Victor Bourke and BM Bourke
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Dizziness is a common but often vague and imprecise symptom. Most such presentations will not relate to vertebrobasilar insufficiency (VBI). Less than a quarter of patients referred for “general” symptoms such as vertigo, pre-syncope and light-headedness will have atheromatous plaques on duplex scanning.

Episodic vertigo triggered by head motion is often due to benign paroxysmal positional vertigo and can usually be diagnosed by Dix-Halpike manoeuvre. Vascular surgeons have a role in directing patients to appropriate specialists (neurologist or otolaryngologist) so that inappropriate therapy or medication is not used. Likewise vertigo with hearing loss suggests Meniere disease and vertigo occurring without trigger movement may suggest vestibular neuritis both again requiring appropriate specialist referral (rather than dismissing as “normal duplex scan.”)

However compression of the extracranial vertebral artery (VA) can occur with head rotation and this can be seen on duplex scanning (DS), occurring in 5% of cases of a series of 1108 patients. Only some of these are asymptomatic however and in those SPECT scanning can demonstrate decreased cerebral perfusion of the hindbrain during rotation. Bow Hunters Syndrome is characterised by VBI caused by rotational VA occlusion during head movement;
it can be diagnosed on DS and although rare is important to diagnose as it can be treated surgically with relief of disabling symptoms and removing a cause of posterior circulation stroke.

DU has an obvious role in the diagnosis of subclavian stenosis and steal in both the ipsilateral VA and internal mammary artery if the latter has been used for coronary bypass. DU also has a role in surveillance after intervention for steal, in detecting VA stenosis prior to consideration of stenting for relief of posterior circulation ischaemia and in the diagnosis of VA dissection. Other modalities to diagnose VBI will also be discussed.

VA031
NEAR-INFRARED SPECTROSCOPY (NIRS) AS PREDICTOR FOR SHUNT NEED DURING CAROTID ENDARTERECTOMY

Magnus Jonsson, Peter Gillgren, Anders Wanhainen, Khatereh Djavani Gidlund and David Lindstrom
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Purpose
Approximately 10-15% of patients undergoing endarterectomy require shunt, and in a shunt-all policy 85-90% of the patients are thus shunted unnecessarily. Near-infrared spectroscopy (NIRS) monitors cerebral oxygenation (rSO2). The aim of the study was to evaluate NIRS and stump pressure to determine selective shunting during CEA.

Methodology
Between 2013 and 2016, patients from two hospitals in Sweden undergoing CEA under local anaesthesia were included. A shunt was used only if the patient developed neurological symptoms. Foresight® oximeter was used for rSO2 measurement and compared to stump pressure. Sensitivity, specificity, positive and negative predictive values were calculated with corresponding 95% confidence intervals. Hanley and McNeil’s method was used to compare ROC curves for NIRS and SP.

Results
185 patients were included, mostly symptomatics (84%). Twenty patients (10.8%) developed neurological symptoms during clamping. Regional SO2 on the ipsilateral side registered by NIRS decreased more in the group that developed neurological symptoms than in the group that did not: 15±7% versus 4±6% (p<0.01). With a relative decrease in NIRS saturation of -9%, sensitivity was 95% (95%CI 76-99); and specificity 81% (95%CI 74-86) to predict ischemic symptoms during carotid clamping.

Using stump pressure ≤ 50mmHg as cut-off value for predicting symptoms, the sensitivity was 85% (95%CI 64-95) and specificity 54% (95%CI 46-61). The ROC curves for NIRS and SP were not significantly different (p=0.097).

Neurologic deterioration during carotid clamping was detected in one patient with a ΔrSO2 ≥ 9%, compared to three patients with a SP >50mmHg.

Conclusion
NIRS allows non-invasive monitoring of cerebral oxygenation during CEA, with high sensitivity and acceptable specificity in predicting the need for shunting, which makes it an attractive alternative to stump pressure.

VA032
CEREBRAL MONITORING DURING CEA – BEST PRACTICE OR UNNECESSARY BALLAST?

Bernie Bourke and Victor Bourke
Central Coast, NSW

The topic begs a surrogate question which will be explored and discussed: Are shunts necessary during CEA?

If the answer is “no” monitoring is not required and the procedure can be done under general anaesthesia (GA). If however local anaesthesia (LA) is chosen (for reasons other than for cerebral monitoring) 5-10% will be forced to convert to GA to control fitting, patient confusion or patient movement. Routine non shunting can be criticised because: placing a shunt in the setting of severe cerebral ischaemia has been shown to decrease stroke rate; minimising ischaemic time by shunting theoretically reduces cerebral ischaemia/reperfusion risk and therefore decreases the risk of this mechanism of peri operative cerebral haemorrhage; low blood flow velocity in the cerebral artery may impair clearance of emboli generated from a proximal lesion, subsequently facilitating the onset of ischemia caused by embolism to poorly perfused areas of the brain; low blood flow velocity in the MCA correlates with the development of DWI-characterized postoperative cerebral ischemic lesions related to generation of microemboli during carotid dissection in CEA.

If the answer is “yes” and routine shunting is chosen then cerebral monitoring is not required. However this leads to the unnecessary use of shunts in over 90% subjecting this 90% to the possible complications: cerebral embolisation during dissection and shunt insertion, vessel trauma causing postoperative embolism or carotid occlusion; cerebral ischaemia if the shunt is not working; other non cerebral complications of the use of shunts.
Pulsar-18

SES

PP 74.3%
fTLR 92.6%

BIOLFLEX PEACE¹
12-month rate

SES + DCB

PP 94.1%
fTLR 94.1%

DEBAS²
12-month rate

Passeo-18 Lux

DCB

PP 82.1%
fTLR 94.0%

BIOLUX P-III³
12-month rate

DCB + SES

PP 89.3%
fTLR 93.7%

BIOLUX 4EVER⁴
12-month rate

All components are compatible down to 4F.

¹ Lichtenberg M. Presented at LINC 2017, 12-month interim
² Mwipatayi P. Presented at LINC 2016
³ Keirse K. Presented at LINC 2017, 12-month interim
⁴ Bosiers M. Presented at LINC 2017, 12-month interim

PP = Primary Patency
fTLR = freedom from Target Lesion Revascularization for BIOLFLEX PEACE and BIOLUX 4EVER, freedom from clinically driven TLR for BIOLUX P-III and DEBAS

BIOTRONIK Australia Pty Ltd, Level 4, Building 2, 20 Bridge Street, Pymble NSW 2073.
If the answer is “yes” and selective shunting is chosen, monitoring is required. The merits of the various methods used to guide selective shunt usage will be discussed and the merits or otherwise of GA versus LA will also be discussed. The author will present his answers to the above questions and his reasons.

VA033
MEASURING LOCOMOTOR PERFORMANCE IN PEOPLE WITH LOWER LIMB AMPUTATION
Caroline E Roffman, John Buchanan and Garry T Allison
Curtin University & Royal Perth Hospital, WA

Purpose
To determine if locomotor tests assessed during rehabilitation could identify people at high risk of prosthetic non-use at 12 months post-discharge.

Methodology
Medical records of 201 consecutive participants with lower limb amputation from Royal Perth Hospital were abstracted for 10m walk (10MWT), timed up and go (TUGT), 6 minute walk (6MWT) and four square step (FSST) tests and descriptive variables. Participants were interviewed at median 1.5 (IQR, 1.2 to 2.2) years post-discharge and classified as prosthetic users or non-users. Receiver operator characteristic curves were generated to determine performance measure thresholds and relative risk (RR) for prosthetic non-use.

Results
At 12 months post-discharge 18% (36) of participants were prosthetic non-users. Performance measure thresholds and RR of prosthetic non-use (95% CI) were:
- 10MWT: If speed was < 0.44 ms\(^{-1}\) (Area Under the Curve (AUC) = 0.743), RR of non-use = 2.76 (CI, 1.83 to 3.79, p < .0001).
- 6MWT: If distance was < 191 m (AUC = 0.788), RR of non-use = 2.84 (CI, 2.05 to 3.48, p < .0001).
- TUGT: If time was > 21.4s (AUC = 0.796), RR of non-use = 3.17 (CI, 2.17 to 4.14, p < .0001).
- FSST: If time was > 36.6s (AUC = 0.762), RR of non-use = 2.76 (CI, 1.99 to 3.39, p < .0001). Only 25% of the total cohort could perform this test.

Conclusion
Locomotor performance during rehabilitation may identify future risk of prosthetic non-use. Validation is warranted.

Acknowledgements: ISPO Australia Research Grant

References

VA034
THE PERFORMANCE OF THE DOPPLEX ABILITY DEVICE IN ASSESSING LOWER LIMB ANKLE-BRACHIAL INDEX AND PULSE VOLUME RECORDINGS
Sam Taylor, Rebecca Millen, Kate Thomas, Gerry Hill, Andre Van Rij and Jo Krysa
Dept. of Surgical Sciences, University of Otago, Dunedin, New Zealand

Purpose
Ankle-brachial index (ABI) and pulse volume recordings (PVR) are non-invasive tests of lower limb artery patency, aiding in the diagnosis of peripheral arterial disease (PAD). The Dopplex Ability (Huntleigh Diagnostics, UK) is a new automated device designed to measure ABI and PVR simultaneously, with no requirement for a continuous wave Doppler probe or a skilled operator. This provides an opportunity for screening patients for PAD in the community. We aimed to compare the accuracy of Dopplex to our standard clinical Parks Flo-Lab system (Parks Electronics, USA), which calculates ABIs using Doppler technology and PVRs using volume plethysmography.

Methodology
ABIs and PVRs were assessed in 66 patients (n = 129 lower limbs) attending the Otago Vascular Diagnostics Laboratory using the Dopplex and the standard Parks Flo-Lab in a randomised order. We compared the arm/ankle blood pressures (BP), ABIs and PVRs between both methods. Acceptable accuracy of the Dopplex was defined as within 10% of the Parks Flo-Lab values. PVRs were graded by two blinded observers using a standard 4-point scale. Statistical analysis was performed using correlation analysis, Bland-Altman analysis and paired t-tests. Statistical significance was set as p < 0.05.

Results
Correlation between the two methods was poor for arm/ankle BP, and ABIs (R2 values 0.42, 0.21 and 0.17 respectively). Dopplex arm/ankle BP recordings were accurate 78% and 49% of the time, while ABI accuracy was 40%. In lower limbs with severely reduced ABIs (≤ 0.40), Dopplex overestimated ABI values by 1.9 - 3.2-fold. PVR grading was equivalent in 66% of lower limbs.

Conclusion
The accuracy of the Dopplex’s ABI/PVR measurements in a clinical setting is poor, and may lead to false negative findings in patients at risk of developing ischemic lower limb complications. Its utility in the community as a screening tool for PAD is not justified, and a further review of the device is suggested.
VA035  
FACTORS ASSOCIATED WITH DIABETIC FOOT UNIT (DFU) READMISSIONS IN A METROPOLITAN MELBOURNE HOSPITAL  
Andrew Chong, Karen Van, Justin Bradley, Jennifer Wong and MingYii  
Monash Health, VIC  

Introduction  
Diabetes-related foot complications result in significant morbidity and mortality. Data around readmissions in this population show patients who present with one diabetic foot problem often present again. Such data resulted in unplanned readmission rates of up to 40%.1  

Purpose  
To determine the rate and factors associated with readmission in a dedicated Australian metropolitan DFU.  

Methods  
A retrospective review of all DFU patients admitted between January 2015 and December 2016 at a tertiary referral centre was conducted. Demographics and clinical characteristics were collected and compared between patients readmitted within 6 weeks of discharge and those who were not. Multivariate analysis was performed to identify risk factors that pre-disposed to re-admission.  

Results  
340 patients were included in the study, with a readmission rate of 15.6% (n=53). 70% (n=42) of readmissions were unplanned. 28.5% of these unplanned readmissions occurred within the first week of discharge. More than half of readmissions were related to infection (53.3%), wound dehiscence (6.7%) and ischaemia (3.3%). 43% of readmissions had a history of amputation compared to 28% in the non-readmission group. A greater proportion of wounds were in the forefoot for readmitted patients (81.7% vs 65.6%). 54.8% of unplanned readmissions had an amputation during their index admission.  

Conclusion  
To our knowledge, this is the first dedicated DFU audit looking at readmission rates. The majority of re-admissions were unplanned. The most common cause for readmission was infection, with a small proportion secondary to wound dehiscence. Unplanned readmissions occur most frequently in the week post discharge. Factors contributing to readmission include forefoot wounds and history of amputation.  

References  

VA036  
FORCED MATURATION OF THE ARTERIOVENOUS FISTULA USING ADJUVANT STENT PLACEMENT  
Shannon Thomas, Anoosha Aslam and John Swinnen  
Prince of Wales/ Westmead Hospitals Sydney, NSW  

Purpose  
Arteriovenous fistula (avf) maturation remains a difficult problem to overcome in the creation of vascular access for haemodialysis. Primary maturation rates of 60-70% remain the most commonly reported outcome, with the remaining immature avfs abandoned. We performed adjuvant stenting of these early avfs that had failed to mature, utilizing nitinol stent insertion in the diminutive/absent useable segment.  

Methodology  
We performed a retrospective review of patients who underwent forced maturation of their avf at westmead and prince of Wales hospital. Long term outcomes including avf patency, thrombosis rate and rate of re-intervention were analyzed.  

Results  
51 patients presented between 2008 and 2016 with immaturity of their arteriovenous fistula. These fistulae were salvaged with bare nitinol stents placed in the useable segment, allowing for the connection of the inflow and outflow segments of the avf by a large subcutaneous channel which could then be immediately used for dialysis. The mean time from creation of avf to placement of stents was 134 days. The primary avf patency rate at 1, 6 and 12 months was 96%, 75% and 84% respectively. 8% of fistulae thrombosed per year however they were all easily salvaged with balloon angioplasty and further stent placement. A mean reintervention rate of 68% per year was observed to maintain the avf patency.  

Conclusion  
Forced maturation of the avf using adjuvant nitinol stents allows for universal maturation of the arteriovenous fistula, thus reducing the need for alternative haemodialysis access.
VA037  
DISTAL RADIAL ARTERY WAVEFORM ANALYSIS - A NOVEL PREDICTOR OF OUTCOMES IN RADIO-CEPHALIC ARTERIOVENOUS FISTULAS  
Lucy Guazzo, Mark Jackson and David Baker  
Gold Coast University Hospital, QLD  

Introduction  
Better understanding of ultrasound-derived parameters indicative of poorly functioning or failing radio-cephalic arteriovenous fistulas (RCAVFs) allows for appropriate surveillance and expedient intervention. The waveform of the radial artery distal to the arteriovenous anastomosis has never previously been investigated for its diagnostic role in fistula function and outcomes. This study investigates distal radial artery waveform, along with other ultrasound-derived characteristics, as predictors of future intervention.  

Methodology  
222 duplex ultrasounds of RCVFs performed between 2010 and 2017 were retrospectively reviewed. Fistulas were characterized as clinically functional or dysfunctional. Ultrasound derived estimates of "bulk-flow" through brachial and radial arteries, absolute minimum luminal diameter and distal radial waveform were recorded. The distal radial waveform was classified as occluded, partial steal, retrograde or antegrade flow. Review of medical records determined if the fistula required future intervention.  

Results  
Cox regression analysis determined an antegrade waveform in the distal radial artery was a significant predictor of need for future intervention (P=0.001). Its significance was found to be independent of fistula "bulk flow". Receiver-operator curves (ROC) found a brachial flow of 476.5ml/min or greater (sensitivity 94%, specificity 73%) and radial flow of 436ml/min or greater (sensitivity 75%, specificity 82%) to differentiate between clinically functional and dysfunctional fistulas. Flow below these cutoffs in either the brachial or radial artery was also found to be a strong prognosticator of need for further intervention (P < 0.001).  

Conclusion  
Antegrade flow in the distal radial artery, along with radial and brachial “bulk flow”, are powerful predictors of RCAF outcomes. We propose that an antegrade waveform signifies a hemodynamically significant stenosis distally, leading to preferential flow through the hand and poor fistula function.  

VA038  
SNUFFBOX ARTERIOVENOUS FISTULA: A WESTERN AUSTRALIAN SURGEON’S EXPERIENCE  
Marwan Idrees, Tishanthan Pathmarajah and Kishore Sieunarine  
Midland Public Hospital, WA  

Introduction  
The arteriovenous fistula (AVF) is the main vascular access for patients with chronic renal failure on hemodialysis. (CARI Guidelines) Snuff box AVF (SN AVF) is the most distal native anastomosis possible to obtain hemodialysis access. SN AVF in current literature has patency rates ranging from 80-95% in 1 month, decreasing down to 36.3%-45% at 5 years.  

Objective  
We evaluated the outcome of snuff box fistula formation in Western Australia. Outcomes involved patency rates (primary and secondary), complication rates and feasibility of a more proximal AVF if snuffbox fistula fails.  

Methods  
A retrospective patients’ review of outcome of all patients who underwent snuffbox fistula formation during 9 years (2007-2016), performed by our surgeon (K.S).  

Results  
89 SN AVF were identified, 9 were lost to follow up in the first 3 months post formation, reasons included (missing data, death or renal transplant). Of the 81 SN AVF remaining, 59(73.7%) were patent at 1 month post operatively, 14(17.5%) remained patent at 24 months. Average preoperative artery diameters was 3.04mm (1.5-5.5) and average preoperative vein diameter was 3.12mm (1.7-6.5). Most of the fistulas were formed under a local anesthetic procedure (84%).  

Primary patency rate was 20%(16), secondary patency rate was 36%. 33%(14) of failed SN AVF had the feasibility of performing another forearm radiocephalic fistula.  

Conclusion  
The patency rates result from our case series were not in keeping with the literature and therefore we recommend consideration of SN AVF formation for all patients who require long term hemodialysis access who meet the Clinical, technical and anatomical criteria of good caliber vessels with a good palpable radial artery pulse to perform adequate snuffbox fistula.
VA039P
INTERNAL JUGULAR VEIN ANEURYSM IN A MAN. AN ATYPICAL CAUSE OF NECK MASS
Rebecca Reardon and Anthony Leslie
Lismore Base Hospital, NSW

Internal jugular vein aneurysms are very uncommon in comparison to arterial aneurysms, more uncommonly do venous aneurysms cause neck pain. These masses are normally demonstrated on coughing or when performing a valsava maneuver. The gold standard investigation is a Doppler ultrasound to confirm the vascular mass. For cosmetic purposes or when the aneurysm becomes symptomatic, surgical excision is performed. This is a case report of a 80 year old man with a symptomatic internal jugular aneurysm which was successfully excised.

VA040P
3-D MODELING (RAPID PROTOTYPING) OF THE ABDOMINAL AORTA FOR EXPERIMENTAL ENDOVASCULAR NAVIGATION
Marco Horn, Sarah Matthiensen, Jan-Peter Goltz, Nils Papenberg, Mark Schenk, Dennis Wendt, Marcus Wiedner and Markus Kleemann
University Hospital Lübeck, Schleswig-Holstein, Germany

Background
Endovascular Aortic Repair (EVAR) shows medical benefits compared to open surgery. With increasing clinical expertise and medical technology advanced treatment of even complex aneurysms are feasible by endovascular methods. Implementation of 3D-navigation in EVAR should reduce contrast medium and radiation dose of the procedure (Nav-CARS EVAR).

Methods
Before clinical application, 3-D navigation is examined in an experimental setting to verify the accuracy and feasibility, as well as basic system integration. For the transmission of experimental data into clinical practice there is as much as possible realistic environment necessary. For this challenge we produced patient-specific vascular models of the abdominal aorta by rapid prototyping in cooperation with Fraunhofer Research Institution for Marine Biotechnology (EMB). The most advanced 3D-printing techniques are available for EMB’s lab device development.

Results
First step is made by segmentation on the basis of CT-angiogram of a patient with abdominal aortic aneurysm. Second, the patient-specific aortic model is manufactured by rapid prototyping using the „poly jet technology“(3D-printing). In this technique, multiple layers of a photopolymer (acrylic resin) are successively added and the desired model shape is cured by UV light. As a 3rd step follows the post-processing of the aortic model which means the removal of the support material in multiple steps (manually, sodium hydroxide, water quench). The placement of aortic stents into the produced realistic vascular model is then simulated under fluoroscopy in the last step. Due to the special properties of the used materials, this can be realized without contrast agent pump.

Conclusion
Rapid Prototyping of the abdominal aorta allows experimental investigations on the 3D navigation of EVAR. The experience of system integration and measurements for accuracy are essential to further development of endovascular 3D navigation.

VA041P
3D PRINTING IN PREOPERATIVE PLANNING FOR COMPLEX AORTIC ENDOVASCULAR SURGERY
Andrew Wen Zhi Woo, Mayo Theivendran and Jason Chuen
Austin Health, VIC

Purpose
Medical imaging is inherently limited by trying to represent three-dimensional (3D) relationships on two-dimensional (2D) computer monitors (1). 3D printing provides a physical tactile representation and may improve visualisation of the underlying anatomy, for example in teaching anatomy (2). Our study aims to explore how patient care could be enhanced with 3D printing as an adjunct to medical imaging in complex aortic endovascular surgery.

Methodology
Five patients with complex vascular anatomy were identified to have 3D models produced as part of their care. After obtaining informed consent patient CT data were converted into stereolithographic (STL) files using (Mimics Medical 19.0 & Mimics 3Matic 16.0, Materialise, Belgium). The models were subsequently printed using a Makerbot Replicator 2X using ABS filament and a Formlabs Form 2 stereolithography (SLA) printer using clear resin. The 3D printed models were used as an additional visualisation tool alongside medical imaging to help determine a patient’s suitability for surgery and plan the surgery if deemed suitable. The operative approach and suitability for surgery was modified in select cases following appreciation of 3D printed anatomy.
Abstracts (cont’d)

Results
Of the five patients selected, one had a change of operative plan, one was deemed unsuitable for surgery and three experienced no change.

Conclusion
3D printing can provide additional appreciation of anatomy which supports surgical decision making in complex endovascular intervention.

References


VA042P
6 FENESTRATION EVAR
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Aberdeen Royal Infirmary, Aberdeen, United Kingdom (Great Britain)

Introduction
We report the successful implantation of a 6 fenestration EVAR (FEVAR) Anaconda Vascutek graft in a male patient with 6 months follow up. To our knowledge this is the first case in which a fenestrated graft from any manufacturer has been customised to successfully support 6 essential target vessels.

Case report
A 72 year old male was found to have an abdominal aortic aneurysm (AAA) on ultrasound imaging carried out during investigations for haematuria, the cause of which was as benign prostatic hypertrophy. His co-morbidities include hypertension, hyperlipidaemia, and diabetes mellitus type II. He is an ex-smoker with a BMI of 26.9kg/m2. Initial CT imaging identified a juxtarenal AAA, 77mm AP diameter, with three right and two left renal arteries, extending to the aortic bifurcation.

Procedure
Following multidisciplinary discussions a decision was made to proceed to FEVAR. The plan involved selective sacrifice of a small lower pole right renal artery and stenting of the coeliac axis, superior mesenteric artery, and two renal arteries on each side with a six-vessel fenestration Anaconda Vascutek device. Arterial access for the procedure was established by means of open vertical groin incisions to the common femoral arteries, and a left infraclavicular incision to access the proximal axillary artery. By standard means the Anaconda device was successfully implanted though the right common femoral artery. Atrium covered stents were used in the coeliac trunk (7 mm x 22 mm), the superior mesenteric artery (9 mm x 38 mm), the upper pole renal arteries (5 mm x 22mm), and the lower pole renal arteries (6 mm x 22 mm). The completion angiogram demonstrated no endoleaks with patency of all of the stented vessels.

Follow-up
CT angiograms at 1 and 6 months show no endoleaks with patency of all stented vessels. Renal function is maintained to pre-operative levels.

Conclusion
This novel case requires ongoing surveillance to ensure longevity but shows positive early results.

VA043P
A CASE OF RECURRENT SPONTANEOUS HAEMORRHAGE: POLYARTERITIS NODOSA
Scarlett Olasope and Robert Ma
Wellington Vascular Service, Wellington, New Zealand

A 56 year old woman presents with excruciating abdominal pain and hypertension. The patient has a history of polyarteritis nodosa with known gastrointestinal involvement, including previous partial liver infarction, an occluded coeliac axis and a superior mesenteric artery aneurysm.

Whilst undergoing evaluation, the patient mobilised briefly and upon doing so became hypotensive, pale and diaphoretic. Following rigorous fluid resuscitation, a CT angiogram was performed which revealed new microaneurysmal disease arising from the superior mesenteric artery, a large volume haematoma and active extravasation.

Given the patient’s known coeliac axis occlusion and haemodynamic instability, the patient proceeded to an open laparotomy. This revealed extensive haematoma and active arterial bleeding from both aneurysmal and normal calibre segments of the superior mesenteric artery. The small and large bowel were found to be viable. Haemostasis was achieved with oversewing of the bleeding vessels. A planned relook laparotomy was performed the following day which confirmed cessation of bleeding.
The patient initially progressed well before developing further abdominal pain 4 days later in association with a short period of hypertension. A subsequent CT angiogram confirmed a new pseudoaneurysm arising from the right colic branch of the SMA with active extravasation. The patient proceeded to angiography at which time partial stenting of the right colic artery pseudoaneurysm was successful. However, following this, the SMA became occluded. Thrombectomy was attempted though no thrombus was able to be extracted, giving the impression that the SMA had dissected following placement of the initial stent. Three further partial stents were placed along the SMA with recovery of patent flow.

This case illustrates a life-threatening complication of this rare necrotising vasculitis. We present key features of this case and discuss the salient management issues.

**VA044P**  
**A NOVEL TREATMENT FOR BILATERAL INTERNAL MAMMARY ARTERY ANEURYSMS**  
Dinuksha De Silva, Kejia Wang and Vikram Puttaswamy  
Vascular Surgery, Royal North Shore Hospital, NSW

**Introduction**

True aneurysm of the internal mammary artery (IMA) is a rare pathology, most often reported in association with connective tissue disorders or vasculitis. Early cases in the literature have been treated with thoracotomy and ligation. More recent reports describe endovascular management with coils, which can be costly due to the number of coils required to achieve successful embolisation. We describe hybrid treatment of a patient with bilateral IMA aneurysms with both coils and microvascular plugs.

**Case Report**

A 32 year old male was incidentally discovered to have bilateral true IMA aneurysms on CT angiography at a tertiary centre in Sydney. This is on a background of Stanford Type A aortic dissection, atraumatic subdural haemorrhage and bilateral vertebral artery dissections, with no formal genetic diagnosis. The patient underwent sequential, elective, prophylactic treatment for the aneurysms 2 weeks apart. The right IMA contained a 10mm aneurysm and was treated first with three EV3 coils and a microvascular plug (MVP). The left IMA contained 2 aneurysms 5.8mm and 7.7mm in diameter. Eight EV3 coils were utilised to pack the outflow and both sacs, with an MVP microvascular plug deployed at the inflow to the proximal sac. Completion angiography at the conclusion of both procedures confirmed exclusion of flow into the aneurysms bilaterally, and 3 month follow up imaging demonstrates ongoing exclusion of IMA flow.

**Conclusion**

We report the first case of bilateral IMA aneurysms treated successfully with both endovascular coils and plugs, thereby limiting the costs associated with coil embolisation alone.

**VA045P**  
**A RARE CASE OF MULTIPLE MYCOTIC ANEURYSMS SECONDARY TO MSSA BACTERAEMIA**  
Kishan Liyanage, Jitendra Jain, Korana Musicki and Timothy Wagner  
Royal Melbourne Hospital, VIC

Microbial arteritis is the infection of normal or atherosclerotic vessels through the haematogenous spread of bacteria into the vessel wall causing weakening, instability and focal dilatation (aneurysm). This is a serious clinical condition associated with significant morbidity and mortality with the most common causative organisms being Staphylococcus aureus and Salmonella species.

We present a case of a 74 year old female with six discrete aneurysms of her aortic arch and thoraco-abdominal aorta secondary to MSSA bacteraemia caused by bilateral parotiditis. The patient had been diagnosed with bacteraemia 2 months prior and had suffered multiple other complications including septic emboli to the brain, knee, and cervical spine. Post discharge with intravenous antibiotics (rifampicin and fusidic acid), she re-presented with atypical chest and back pain with a widened mediastinum on chest X-ray. An urgent CTA was performed which revealed several saccular mycotic aneurysms at different levels of her aorta. The spectrum of antibiotic cover was broadened and a PET-CT was organised in an attempt to characterise the acuity of the aneurysms for operative planning. The most active aneurysm at T9-T10 was managed by a thoracic endovascular aortic repair (TEVAR), which was followed up a week later with a carotid arch debranching procedure and another TEVAR as she developed recurrent laryngeal nerve compression despite optimal antimicrobial cover. The final stage of her surgical reconstruction was expedited when the patient developed worsening back and abdominal pain requiring semi-emergent open aortic reconstruction with visceral debranching and re-anastomosis. During the immediate post-operative recovery, the patient developed progressive metabolic acidosis secondary to liver failure and subsequent multi-organ impairment leading to death.

This case describes a rare instance of a patient with multiple simultaneously infective and pathological mycotic aortic aneurysms posing a challenging operative and management dilemma.
Abstracts (cont’d)

VA046P
A RARE CAUSE OF HAND ISCHAEMIA
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Wellington Vascular Service, Wellington, New Zealand

A 61 year old mechanic presented with critical left hand ischaemia. The patient, who was right hand dominant, reported the use of vibratory tools, but denied possible repetitive trauma associated with hypothenar hammer syndrome.

The patient had a prior history of four vessel coronary bypass graft surgery which had necessitated harvest of the left radial artery for use as a graft vessel. He also had a history of hypertension and hypercholesterolaemia, though denied active smoking and did not have diabetes.

Angiography demonstrated no inflow atherosclerotic disease burden with sudden occlusion of the ulnar artery at the wrist and an associated small aneurysm. Distally there was reconstitution of the radial artery at the snuff box by collateral vessels. Investigations for vasculitides were negative. Occupational associated hand-arm vibration syndrome was considered a potential cause for the unusual pattern of vascular disease in this patient.

A brachial-radial artery bypass graft was performed with resolution of symptoms.

We present key features of the case and discuss the diagnostic features of hand arm-vibration syndrome.

VA047P
A STICKY SITUATION: CHYLOUS ASCITES AND LIPIODOL
Jason Diab and John Gan
Div. of Vascular Surgery, Port Macquarie Base Hospital, NSW

Introduction
Chylous ascites is a rare complication after abdominal surgeries like an abdominal aortic aneurysm (AAA) repair. It has a high morality leading to electrolyte derangement, malnutrition and infection. Fortunately enough in most cases, conservative treatment is successful and often resolves. However, in some circumstances preoperative imaging of lymph leakage and surgery may need to be considered if the course is not progressing.

We herein report a case of a 67 year old man who developed massive chylous ascites [2 – 4L/day] after an open AAA repair over 7 years ago whereby conservative measures failed over two months. Lipiodol and lymphangiography were utilized to control the lymph leakage with a good outcome.

We performed a literature review on the management of chylous ascites when conservative measures failed and lipiodol and lymphangiography were utilised. A series of case reports have been drawing much attention with the use of lipiodol. In this case, we monitored conservatively for 60 days with reluctance to consider surgical intervention that would involve preoperative localization and ligation of lymph channels in a gentleman not fit for surgery. We therefore utilized lipiodol once all conservative measures had failed.

Results
Lipiodol was infiltrated with lymphangiography with results showing a 50% decrease in output in the first week. A repeat CT scan showed inflammatory response sealing the lymphatic vessels. Conservative measures were continued with a slow re introduction of a low fat diet and liquids.

Conclusion
In cases that are not responding to conservative measures and patients not fit for surgery, the use of lymphangiography and lipiodol is an alternative effective measure for management of chylous ascites. It has the added benefit of being diagnostic and therapeutic that are refractory to conservative approaches thereby avoiding open surgical intervention.

VA048P
A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE ASSOCIATION BETWEEN C-REACTIVE PROTEIN AND MAJOR CARDIOVASCULAR EVENTS IN PATIENTS WITH PERIPHERAL ARTERY DISEASE.
Tejas Pratap Singh, Dylan R Morris, Samuel Smith, Joseph V Moxon and Jonathan Golledge
Townsville Hospital, Townsville, QLD

Purpose
Patients with peripheral artery disease (PAD) are at substantial risk of cardiovascular events. There is interest in using blood markers, such as C-reactive protein (CRP), to monitor prognosis and treatment efficacy in PAD patients. The aim of this meta-analysis was to assess the association between CRP and major cardiovascular events in PAD patients.

Methodology
Studies evaluating the association between CRP and cardiovascular events (myocardial infarction, stroke, cardiac revascularisation and mortality) were identified using MEDLINE and the Cochrane library. Studies that did not include participants with PAD, measure CRP or follow-up patients for cardiovascular events were excluded. Meta-analyses of published adjusted hazard ratios (HR) were
Results
A total of 16 studies involving 5,041 PAD patients met the inclusion criteria for the systematic review. Eight studies were specifically included in the meta-analyses. Summary effect estimates were reported as HR comparing higher vs lower quantiles, and HR per unit increase in CRP. PAD patients with higher CRP had significantly greater risk of major cardiovascular events compared to those with lower CRP (HR=2.26 [95% confidence intervals, CI, 1.65-3.09], p<0.001). The HR for major cardiovascular events was 1.38 (95% CI 1.16-1.63, p<0.001), per unit increase in logeCRP.

Conclusions
Our findings suggest that high circulating CRP is predictive of major cardiovascular events in PAD patients.

VA049P
A SYSTEMATIC REVIEW OF TRANSCATHETER AORTIC VALVE IMPLANTATION VIA CAROTID ARTERY ACCESS
Ian Wee, Thomas Stonier, Michael Harrison and Andrew Choong
Faculty of Medicine, University of New South Wales, NSW

Purpose
The carotid artery is a novel access route for transcatheter aortic valve implantation (TAVI), especially useful in patients unsuitable for traditional access routes including transfemoral, subclavian, transapical, and aortic. This systematic review summarises the evidence for its efficacy and safety.

Methodology
A systematic review was conducted as per the Preferred Reporting Instructions for Systematic Reviews and Meta-analysis (PRISMA) guidelines utilizing five electronic databases.

Results
There were 21 studies identified, including 7 prospective cohort studies, 2 retrospective cohort studies, 3 case series, and 8 case reports. Data on 392 patients (mean age 79.4 years) was extracted including pre-operative work-up, technical procedure details, and outcomes.

There were 7 perioperative deaths, 18 further deaths within 30 days, 15 incidences of transient ischemic attack, 1 incidence of myocardial infarction, 4 incidences of stroke, no incidence of carotid access site complications. 2 patients died of infection, 1 patient required new dialysis, 1 patient had a self-resolved intraoperative dissection, 4 patients had prosthetic embolization, 7 had second implantation, 4 had cardiac tamponade due to left ventricular wire perforation. Follow-up to 1 year showed 19 further deaths, but overall symptomatic and echocardiographic improvement in line with those seen in transfemoral TAVI.

Conclusion
The available data on transcarotid TAVI show comparable technical feasibility with other traditional access routes, representing a viable alternative. A low number of patients, heterogeneous clinical endpoints and relatively short follow-up periods limit formal meta-analysis and firmer conclusions.

VA050P
AORTIC DISSECTIONS: THE ALFRED EXPERIENCE
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Background
Conventional treatment for uncomplicated type B aortic dissection is with best medical management, focusing on tight blood pressure control. Our study looks at outcomes for these patients at a major Australian tertiary vascular centre.

Methods
Data was collected and preliminary analysed performed for patients with type B aortic dissection presenting to the Alfred Hospital, Melbourne, between 2003 and 2016. Patients are characterised as having uncomplicated or complicated dissections. Best medical management is defined as strict blood pressure control (systolic BP <100-120mmHg) and monitoring. Intervention was reserved for those who presented with, or progressed to develop complications (organ malperfusion, aneurysmal dilatation and/or rupture). Primary outcome measure is all-cause mortality (aorta-related death). Secondary outcome variables include progression to intervention (open or endovascular repair).

Results
49 patients were identified, of which 15 patients required intervention for complicated dissection. 34 patients were treated with BMT for uncomplicated dissection. 8 patients in the BMT arm progressed to require intervention for complications occurring at greater than 2 weeks. Mean follow-up was 2 years with 4 aorta-related deaths (2 in each arm).
Conclusion
These results are in line with current international data. At present, BMT remains a validated method for management of uncomplicated type B dissections. There is emerging literature looking at the role of early intervention. We await with interest the results of large randomised trials with long-term follow-up.

VA051P
APPLYING OF HYBRID OPERATIONS IN TREATMENT OF PATIENTS WITH CRITICAL LIMB ISCHEMIA
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Aim of work
Improve the results of treatment the patients with critical limb ischemia (CLI) by applying hybrid surgical interventions.

Material and methods
There were 23 patients (17 male, 6 female) at the age of 62±4,7 years with CLI in Vascular Surgical Department of Tashkent Medical Academy’s Clinic within the period 2014-2016 year. We applied reconstruction of femoral artery with angioplasty of iliac arteries in 8 (34,7%) patients, reconstruction of femoral artery with angioplasty and stenting of iliac arteries in 6 (26%) patients. In 9 (39,1%) patients reconstruction of femoral artery was combined with angioplasty of popliteal and tibial arteries.

Results
Indicators of successful hybrid operations were regress of absence of pain in rest, increasing of painless walking distance, granulations of the ulcers and increasing of regional systolic pressure (RSP) and ankle-brachial index (ABI).

After applied hybrid interventions on ilea-femoral segment, positive clinical pattern was achieved in 12 (52,1%) patients. No high amputation were needed in this group. In 9 (39,1%) patients after hybrid operations of shin arteries satisfactory results were approached, 1 (4,3%) of them was undergone to high amputation. Initial ABI of these patients was 0,26±0,04, on 3-4 day after intervention became 0,53±0,2 (p<0,05).

In early postoperative period in 1 (4,3%) patient was developed an acute myocardial infarction with fatality. A reconstruction site thrombosis detected in 1 (4,3%) patient. Reduction of clinical symptoms of CLI as decreasing of functional class of limb ischemia up to IIa - IIb stage was noted in 18 (78,2%) patients. Average period of observation is 10 ± 2 months.

Conclusion
Applying of hybrid surgical interventions on CLI combined with adequate antiaggregant therapy is an effective modern method of surgical treatment of patients with multistaged stenotic and occlusive lesions of limb ischemia, which leads to regression of ischemia and prolongs the period of limbs preservation.

VA052P
ARE SKIP INCISIONS BETTER THAN LONG INCISION FOR SINGLE STAGE BASILIC TRANSPOSITION FISTULA?
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Purpose
End stage renal disease is an important health delinquent. Although basilic vein transposition via long incision technique is a renowned technique but it is not free from wound related complications. Whereas skip incision technique is thought to have lower wound related complications but to the best of our knowledge never compared with long incision technique. So we conducted this study to compare both techniques.

Material & Methods
This was a retrospective cohort study. Based on our inclusion criteria, we included 162 patients who underwent basilic vein transposition AVF (115 in long and 47 in skip incision group) from January 2011 till December 2015 at Aga Khan University, Pakistan. ERC approval was taken. SPSS 19 was used. Wound related complications, maturation time, duration of surgery and primary patency at a follow up of 12 months were recorded.

Results
Both the groups were comparable regarding baseline variables. Incidence proportion of wound infection, hematoma and dehiscence was higher in long incision group, however it was statistically insignificant. Primary patency at 12 months in skip vs long incision group was 87.2% vs. 73.9% (p-value:0.12). The Mean maturation time for fistula was 52 +/- 10 days and 54 +/- 10 days in Skip and Long incision group respectively(p-value :0.30). Duration of surgery was comparable in both.

Conclusion
Although skip technique does not have significant benefit over long technique based on these results, but it is a valid alternative. RCT is required to better differentiate between these two.

Keywords: Skip incision, primary patency, wound infection.
360° Drug Delivery With No Metal Left Behind
**VA053P**

**ARE THE COST BENEFITS OF TELEHEALTH MEDICINE MATCHED BY CLINICAL OUTCOMES: A STUDY OF RENAL ACCESS SURVEILLANCE OUTCOMES.**

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*Royal Brisbane and Women's Hospital, QLD*

**Purpose**

To assess the economic benefits of telehealth renal access surveillance.

Ormis data was collated to compare the rates of fistuloplasty against rates of AVF complications before and after commencing telehealth surveillance in a rural Queensland population. To quantify the economic benefits of telehealth in renal access surveillance, and subjectively assess telehealth program success by surveying renal access co-ordinators.

**Method**

Ormis data was compiled for preventative intervention and complication intervention for the three years prior to initiation of telehealth consults and three years after. Data was also sort form rural hospital cost centres, and a survey completed by renal access co-ordinators at rural sites.

**Findings**

Telehealth showed significant economic benefit, with increased rates of preventative intervention and decreased complications in a rural Queensland population.

**VA054P**

**CASE REPORT: ENDOVASCULAR REPAIR OF EXTERNAL ILIAC ARTERY PSEUDOANEURYSM AFTER FAILURE OF HIP PROSTHESIS**

Ellen Hardy, Tariq Cachalia and Victor Bourke

*Gosford Hospital, NSW*

**Introduction**

Hip arthroplasty has been associated with iatrogenic vascular injury. This usually occurs intra-operatively, particularly during revision surgery. Late complication from migration of implanted prostheses is less commonly reported. These are rare but potentially life and limb threatening complications. This describes successful emergency endovascular treatment of an external iliac pseudoaneurysm secondary to migration of acetabular components of hip prosthesis.

**Presentation**

An 82 year old female presented with two months of progressive right hip and proximal thigh pain with loss of mobility, three years after elective total right hip replacement for osteoarthritis. Initial examination found shortened right leg and cool right foot with absent pedal pulses. X-ray showed fracture of the acetabular component of prosthesis, with protrusion through pelvic side wall. Non-contrast CT showed peri-prosthetic and iliac muscle haematoma. Subsequent CT with arterial and venous phase contrast revealed external iliac artery pseudoaneurysm, adjacent to migrated prosthetic screw tip. Repeat examination found palpable iliac aneurysm with perfused foot. The patient proceeded emergently to theatre for repair of pseudoaneurysm. This was successfully excluded using Viabahn stent graft. Post operatively patient had a warm perfused foot with palpable dorsalis pedis pulse and absence of palpable iliac aneurysm. The patient subsequently underwent revision arthroplasty with custom made acetabular implant.

**Conclusion**

Endovascular techniques can be successfully employed in the treatment of vascular injuries arising as complications of hip arthroplasty.

**VA055P**

**CASE REPORT: A NOVEL APPROACH TO PROXIMAL GRAFT SEALING IN FENESTRATED ENDOVASCULAR ANEURYSM REPAIR**

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**Background**

Endovascular aneurysm repair is a well-established alternative to open surgery for treatment of abdominal aortic aneurysms (AAAs), the indications for which may be further expanded by the use of fenestrated grafts (FEVAR). We report the successful deployment of an aortic tube graft within the descending thoracic aorta to create a proximal landing zone for a 4-fenestration graft.

**Case Report**

A comorbid 74 year old man was identified to have an AAA on ultrasound whilst undergoing investigations for haematuria. CT angiogram demonstrated a 73mm AP diameter juxta renal AAA with atherosclerotic ulceration of the visceral segment at the left renal origin and the level of the coeliac axis. Bilaterally the common iliac arteries were ectatic at 21mm. The potential proximal landing zone for a 4-fenestration Anaconda graft was deemed insufficiently healthy to guarantee adequate sealing. Thus it was planned that a Medtronic Endurant II aortic graft would be deployed within the distal thoracic aorta to create a satisfactory landing zone.
On the day of the procedure the patient was given renal protection in accordance with hospital protocol. Vertical groin incisions provided access to the common femoral arteries and the aortic tube graft was landed in the descending thoracic aorta, followed by deployment of the 4-fenestration Anaconda graft. Atrium covered stents were used for the renal arteries, coeliac trunk and superior mesenteric artery. Placement of Anaconda flared iliac limb grafts concluded the procedure. Completion angiogram demonstrated all stented vessels to be patent with no visible endoleaks. The patient had a largely uneventful recovery, and was discharged home on day eight postoperatively. His renal function remained reasonably stable throughout his inpatient stay and is presently normal. CT angiogram at one month post-procedure showed continued graft patency with no endoleak.

Conclusion
This report represents a novel approach to sealing, and extends the options available for AAA repair.

**VA056P**
CASE REPORT: OPEN REPAIR OF GIANT TIBIO-PERONEAL TRUNK ANEURYSM
Ellen Hardy
Gosford Hospital, NSW

Introduction
Tibio-peroneal trunk aneurysm has only rarely been recorded in the literature, with nine documented cases of true aneurysms of this artery. This describes the successful open repair of a giant tibio-peroneal trunk aneurysm.

Presentation
A 66 year old lady was admitted with a 6.19cm x 5.29cm aneurysm of her left tibio-peroneal trunk. She also had a 2cm saccular aneurysm of her left popliteal artery, and anterior tibial artery occlusion. She was an ex-smoker, having quit 50 years prior to presentation. There was no history of leg trauma. Through a medial infragenicular approach the aneurysm was exposed. The posterior tibial and peroneal arteries were exposed in the mid-calf. A reversed long saphenous vein graft was anastomosed end-to-end to the proximal tibio-peroneal trunk and to the peroneal artery. The posterior tibial artery was ligated. Dorsalis pedis and posterior tibial pulses were palpable at discharge.

Conclusion
This describes the successful open repair of a complex presentation of true tibio-peroneal trunk aneurysm, a rare pathology.

**VA057P**
CASE REPORT: REMEMBERING THE BASICS IATROGENIC INJURY TO SUPERFICIAL FEMORAL ARTERY (SFA) MISTAKEN AS GREAT SAPHENOUS VEIN (GSV)
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Introduction
Iatrogenic arterial injury during varicose vein surgery is a rare but potentially limb threatening complication. We are presenting a case, referred to our center of iatrogenic injury to SFA during GSV stripping.

Case Presentation
28 year gentleman underwent Trendelenburg operation for varicose veins treatment involving his right leg. The surgeon misidentified the SFA as GSV, divided the artery and passed the stripper down the artery, failure of the stripper to appear distally alerted the surgeon who then identified the injury to the artery and repaired the artery with interrupted prolene. Fortunately, the limb remained viable with a segment of contused SFA on angiogram. Patient was managed with anticoagulants and did not require immediate vascular reconstruction.

Conclusion
Femoral artery injuries during GSV stripping are unusual occurrences. However this case made us realize that may be remembering the simple basics such as knowledge of anatomy and variations, adherence to principles of dissection and meticulous technique can prevent such a mishap from occurring.

Key Words
Trendelenburg Operation, Varicose Vein, Misidentified, Anticoagulants

**VA058P**
CAVAL WALL INJURY: AN IVC FILTER COMPLICATION
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Injury to the inferior vena cava (IVC) is a rare but serious complication of retrievable IVC filters. Here we present a case of a 35-year-old male who sustained a caval wall injury during IVC filter removal.

Our patient had undergone placement of an IVC filter (Cook platinum filter) 19 months prior following multitrauma, with an unstable cervical fractures and associated epidural haematoma. He had ultimately recovered from his injuries after prolonged hospitalisation.
and participation in a rehabilitation program. He had then not attended a planned appointment to facilitate retrieval of his filter, and was ultimately not brought forward for this procedure until 19 months from the date of placement. Initial attempt at removal was unsuccessful due to significant clot burden. Oral anticoagulation was started and the procedure was delayed. He subsequently underwent filter retrieval 3 months later. The procedure was technically difficult and associated with haemodynamic compromise. Cavography showed injury to the wall of the IVC with contrast extravasation into the retroperitoneal space at the infrarenal IVC. A CODA balloon was inflated in the IVC and subsequent cavography showed no evidence of ongoing extravasation. The patient was kept in hospital for monitoring and subsequently discharged on long-term anticoagulation.

Trauma appears to be one of the strongest risk factors for venous thromboembolism, with documented incidence ranging up to 58 percent depending on patient demographics, nature of trauma, method of detection, and type of prophylaxis used. As a result, the use of retrievable IVC filters has steadily increased to include use in patients following trauma without documented evidence of VTE. This case highlights the potential for such injury to occur, the ability to manage such injury non-operatively and the need for follow-up of all patients who undergo placement of these devices.

**VA059P**

**CEREBRAL REPERFUSION SYNDROME AFTER CAROTID-SUBCLAVIAN BYPASS**

Ellen Hardy and Bernard Bourke

Gosford Hospital, NSW

**Purpose**

To describe a new syndrome of cerebral reperfusion occurring after carotid-subclavian bypass.

**Methodology**

The case histories, examination and radiological findings of two patients are reviewed. These are discussed in relation to current understanding cerebral reperfusion syndrome subsequent to other revascularisation surgeries.

**Results**

Cerebral reperfusion syndrome is a well-documented complication of carotid revascularisation. There are no described cases occurring after carotid-subclavian bypass. Two female patients re-presented with headache after carotid-subclavian bypass for subclavian steal syndrome. One of these patients had CT findings of sub-arachnoid haemorrhage. Both patients recovered with inpatient anti-hypertensive therapy and observation.

**Conclusion**

These two cases demonstrate clinical and radiological findings consistent with current understanding of the pathophysiology of cerebral reperfusion syndrome. Whilst this syndrome is a recognised complication of carotid revascularisation, this has not been previously described as a complication of carotid-subclavian bypass.

**VA060P**

**COMPARATIVE PATENCY OF ONE-STAGE AND TWO-STAGE BRACHIOBASILIC ARTERIOVENOUS FISTULAE: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Background**

Long term patency of arteriovenous fistulae is critical for haemodialysis vascular access. We compared the efficacy of a one-stage versus two-stage approach to brachiobasilic arteriovenous fistulae (BB AVF) creation by primarily investigating primary and secondary patency rates.

**Methods**

This review was performed as per the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines. Searches were performed on five electronic databases. Risk of bias and quality assessment scores were both performed.

**Results**

The systematic search revealed a total of 242 publications for possible inclusions. On the basis of title and abstract review, 3 randomized controlled trials, and 8 case-cohort series fitted our inclusion criteria. Only 7 studies were reviewed after Quality Assessment Scores. The overall patency was higher for two-stage, trending towards statistical significance (RR=1.17, 95%CI 0.94-1.46). Both one-year (RR=1.43, 95%CI 0.70-2.93 and two-year secondary patency rates (RR=1.31, 95%CI 0.75-2.31) were higher in two-stage. Overall, complication rates were higher in one-stage procedures (RR=1.15, 95%CI 0.89-1.49). Haematoma (RR=1.28, 95%CI 0.65-2.52), and thrombosis rates (RR=2.11, 95%CI 0.94-4.74) were higher in one-stage, while pseudoaneurysm rates were higher in two-stage (RR=0.49, 95%CI 0.17-1.38). Complication rates of steal syndrome (RR=0.88, 95%CI 0.35-2.22), infection (RR=1.20, 95%CI 0.53-2.71), venous hypertension (RR=1.07, 95%CI 0.23-4.98), and stenosis (RR=0.98, 95%CI 0.49-1.95), were not statistically significant.
Conclusion
We have been able to compare one-stage versus two-stage BBAVF procedures where larger RCTs do not exist. Overall patency was higher in two-stage, approaching statistical significance. Complication rates were higher in one-stage. The lack of statistical significance is likely due to poor sample size and heterogeneity. There needs to be larger RCTs with proper design and methodology for a firm conclusion.

VA061P
COMPLEX SUPRA-AORTIC OCCLUSIVE DISEASE: A CHALLENGING CASE
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Introduction
Takayasu Arteritis (TA) is a rare, chronic large-vessel inflammatory disease of unknown etiology, often affecting the aorta and its major branches. Stenosis, occlusions and/or the formation of aneurysms can result in neurological and functional disability. TA is primarily treated by pharmacological therapy; however revascularisation procedures may be necessary to improve organ perfusion. Evidenced based practice regarding the criteria for surgical intervention remains unclear. We present a case report of a patient with severe symptoms secondary to supra-aortic occlusive disease from TA, and the challenges associated with peri-operative management.

Case illustration
A previously well 39 year old Vietnamese female presented with a 4 month history of progressively worsening symptoms of postural dizziness and recurrent episodes of syncope, resulting in the inability to ambulate. Furthermore, she experienced severe frontal headache, jaw claudication and visual disturbance. A Computed Tomography Angiography (CTa) of the head, neck and chest revealed widespread aortic disease. Her brachiocephalic, left carotid and subclavian artery were occluded, with trickle flow through the distal end of the right carotid artery. An aorto-uni-carotid bypass was performed using a 6mm Dacron graft.

Conclusion
The natural history and prognosis of Takayasu Arteritis is poorly defined. Surgical treatment of symptomatic TA is effective however not without risks of complication. A multi-disciplinary approach to diagnosis and management is essential.

References
Abstracts (cont’d)

VA063P
DUODENO-ILIAC FISTULA SECONDARY TO INGESTED TOOTHPICK

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Aortoenteric fistulae (AEF) are uncommon, with a published incidence of 0.04 – 1.6%. Primary AEF, that is in patients without previous vascular reconstruction, occurs typically in those with aneurysmal aortic disease. Whilst conventional treatment consists of debridement of contaminated tissue with in situ or extra-anatomic revascularization, stent graft repair is gaining popularity, and we sought to add to the literature with this unusual presentation. We present a case of duodeno-iliac fistula secondary to toothpick ingestion, treated with an endovascular stent graft as a permanent vascular reconstruction, with subsequent omental patching of the duodenal lesion. We propose that primary endovascular treatment is a viable long-term option for primary AEFs, with long-term antimicrobial prophylaxis on a case-by-case basis.

VA064P
ENDOVASCULAR TREATMENT OF A RUPTURED MYCOTIC INFRARENAL ABDOMINAL AORTIC ANEURYSM: A CHALLENGING CASE.

Sascha Reimann, Juaniuta Muller and Andrew Cartmill
Princess Alexandra Hospital, QLD

Introduction
Mycotic aortic aneurysms are an uncommon but lifethreatening condition. Endovascular devices have revolutionised the treatment of aortic aneurysms. However, endovascular approaches to mycotic aneurysms are a controversial alternative to conventional open repair. The main disadvantages include the infected tissue not being removed, infection of endoprosthesis and devices not being suitable due to anatomical limitations. We describe a case involving a surgeon modified fenestrated endograft to treat a suprarenal mycotic aneurysm and the challenges that arise from perioperative management.

Case Presentation
We present a 67-year-old male with a contained rupture of a mycotic supra-aortic abdominal aneurysm on a background of immunosuppression for a previous renal transplant, successfully treated with a surgeon-modified fenestrated endograft.

Conclusion
Management of mycotic aortic aneurysms remain a challenging issue. Although open repair is the gold standard, endovascular approach is feasible with acceptable short to mid term results, particularly in patients who have multiple co-morbidities. Long-term antibiotic therapy and follow up is necessary, as well as the possible need for secondary open repair in selected cases.

References

VA065P
ENDOVASCULAR TREATMENT OF AORTOILIAC OCCLUSIVE DISEASE USING A UNIBODY AORTIC ENDOGRAFT

Kejia Wang, Shreya Mehta, Guru Sandhu and Vikram Puttaswamy
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Purpose
Endovascular treatment options for aortoiliac occlusive disease (AIOD) typically lead to alteration of the aortic bifurcation such that future up and over access for lower limb revascularisation is precluded. The AFX unibody aortic graft solves this issue but evidence of its use in AIOD is limited as the device was designed for aneurysmal disease. We present our case series on this new technique of treating AIOD.

Methods
We reviewed the prospectively collected data of patients with AIOD treated with the AFX graft. Demographics, disease characteristics, operative details, postoperative length of stay and complications were recorded. Follow up occurred at 1, 3 and 6 months and is ongoing.

Results
Eight patients with AIOD were treated using the AFX graft between November 2016 and May 2017. The mean age was 71 for 5 males and 3 females. Four patients were claudicants, 3 were treated for critical limb ischaemia and 1 patient was treated as part of concurrent aneurysmal disease. Technical success was 100%. One patient who was treated semi-urgently for critical ischaemia was discharged after 17 days due to ongoing symptomatic infrainguinal disease; the remaining patients were discharged within 4 days of their procedure. There were no major adverse events observed during their hospital stays. Preliminary follow up at a mean of 4 months show a primary patency and freedom from target lesion revascularisation of 100%.
Conclusion
Our preliminary data demonstrates excellent short term safety and efficacy of the AFX graft in the treatment of AIOD. Important advantages of this off-label technique including its ease of deployment as well as preservation of the natural aortic bifurcation warrants further studies looking especially at long term outcomes.

**VA066P**
ENDOVASCULAR TREATMENT OF SUBCLAVIAN VEIN INJURY WITH A COVERED STENT
Kejia Wang, Dinuksha De Silva and Michael Neale
Royal North Shore Hospital, NSW

Introduction
Acute venous injury has traditionally been managed with open surgical techniques, haemostatic packing or conservative treatment. Few reports have described endovascular management; we describe the first known case of iatrogenic subclavian vein injury treated with a covered stent.

Case report
A 38 year old male presented for extraction and re-implantation of a malfunctioning right ventricular defibrillator lead after having a syncopal episode. His defibrillator device was inserted 3 years prior for idiopathic non-ischaemic cardiomyopathy with associated occasional runs of ventricular fibrillation. The lead was retracted via a left infraclavicular incision and met significant resistance at the subclavian vein entry site. There was immediate torrential bleeding from the subclavian vein on lead extraction, which did not improve after 30 minutes of tight gauze packing. Given the amount of haemorrhage, a vascular surgeon was consulted and a decision made for endovascular repair. Venous access was obtained via the left basilic vein and a 12 French long sheath was inserted after sequential dilatation. Venogram did not reveal active extravasation while packing was in place, but allowed sizing of the proximal subclavian vein at 13mm. A 13mm x 50mm Viabahn covered stent was deployed across the approximate location of the defect and post dilated to 12.8mm. On inspection into the wound after pack removal, the Viabahn stent was visible through a large 1cm defect in the subclavian vein with no active extravasation. The patient went on to have a right ventricular lead inserted via the contralateral side. Follow up at 4 weeks revealed normal venous flows with no stenosis or extravasation at the stent.

Conclusion
Although infrequently described, endovascular covered stent treatment of venous injury is a viable option, especially in difficult anatomical locations or in the presence of substantial haemorrhage.

**VA067P**
EXCESSIVE COST OF OVARIAN VEIN EMBOLIZATION: OPPORTUNITY TO RATIONALIZE TECHNIQUE AND REDUCE COST
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Joondalup Health Campus, WA

Introduction
Recurrent varicose veins and pelvic congestion syndrome can be due to incompetent ovarian veins. Treatment is mainly by embolization usually coils. This is a simple procedure and can be used as a a procedure to assess for endovascular cost variation. The variety of embolic material used can vary widely in price with no evidence that the outcomes are different with each device. We performed a retrospective study on ovarian vein embolisation in one institution to analyse the material cost.

Methods
A retrospective study of all cases over a two year period. The operation details especially the number and type of coils used per case was recorded and analysed. The cost for each coil used in the cases were obtained from the company.

Results
There were 20 cases and three different coils were used. The coils were detachable 0.018. All cases were successfully embolised. The number of coils were total 177, average 9 (range from 3 to 31). The total cost was 199,200 dollars with a median cost of 4875(range 2250-39000dollars).

Conclusion
The cost of this procedure is excessive and provides an ideal opportunity to assess the number and type of coils to assist in reducing the cost of this procedure. This can be used as a template for other costly endovascular procedures.
HAS THE INTRODUCTION OF ELECTRONIC MEDICAL RECORDS IMPROVED THE COMPLETION RATES OF DISCHARGE SUMMARIES? A RETROSPECTIVE CHART ANALYSIS

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Princess Alexandra Hospital, QLD

Objective
Accurate clinical handover upon a patient’s discharge from hospital is essential in order to minimize the risk of adverse outcomes and ensure continuity of care. The aim of this study is to determine if the discharge summary (DS) completion rates within our Vascular Surgical Department have improved since the introduction of the Electronic Medical Records (EMR) at the Princess Alexandra Hospital.

Methods
Discharge summary completion records for the vascular surgery department at the Princess Alexandra Hospital were reviewed 12 months prior to the introduction of EMR, and 12 months after (between 01/12/2014 – 01/12/2016).

Results
A total of 2275 discharge summaries were included in the study. DS before and after EMR implementation were similar in admission types and discharge destinations. DS completion rate within 48 hours of discharge statistically changed, from 81.2% pre-EMR to 76.5% post-EMR (p<0.05).

Conclusion
This study highlights the importance of continuity of patient care through the completion of discharge summaries, as the use of EMR has not improved the timeliness of completion rates. However, a learning curve associated with the implementation of a new electronic records system may have impacted our results.

References:

HIGH PATENCY RATES FOLLOWING DIRECTIONAL ATERECTOMY FOR INFRAINGUINAL ARTERIAL DISEASE

Gurfateh Sandhu, Shreya Mehta, Kejia Wang and Vikram Puttaswamy
Royal North Shore Hospital, NSW

Introduction
Directional atherectomy is rapidly gaining popularity in the treatment of peripheral vascular disease. Few studies of its use have been published from Australian centres. We present a single centre experience of real world patients with infrainguinal arterial disease treated using directional atherectomy.

Methods
We conducted a single arm, prospective study on patients with symptomatic infrainguinal arterial disease requiring intervention with the Turboshark or HawkOne devices. All patients received distal Spyder filters; the majority of atherectomised lesions were treated with drug-coated balloons (DCB). Patients were followed up postoperatively at regular intervals with clinical review and duplex ultrasound.

Results
Sixty-four lower limbs in 55 patients were treated with a technical success rate of 100%. The mean age was 79 and 55% of patients were female. Early follow up at a mean of 2 months show a primary patency of 86% and freedom from target lesion revascularisation of 84%. Aside from 1 mortality of unrelated cause, no other major adverse events were recorded in this period.

Conclusion
Our preliminary data shows excellent early patency of vessels treated with atherectomy and DCB. Long term outcomes following this technique and analysis of patient, lesion and procedural details will allow us to better delineate key factors that contribute to primary patency.
VA070P
HOW CAROTID STENOSIS GUIDELINES CAN BE IMPROVED TO SAVE LIVES AND REDUCE HEALTH COSTS
Anne Abbott
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Purpose
We systematically compared and appraised contemporary guidelines regarding routine management of asymptomatic (ACS) and symptomatic (SCS) carotid artery stenosis.

Methodology
A systematic search for guideline recommendations regarding carotid endarterectomy (CEA) and/or carotid angioplasty/stenting (CAS) in any language between January 2008 and January 2015. We selected only the latest guideline per writing group. Each guideline was independently analysed by 2-6 authors.

Results
34 eligible guidelines were identified from 23 different regions/countries in 6 languages. For patients with $\approx 50$-$99\%$ average-CEA-risk ACS, 96% of guidelines with CEA recommendations endorsed CEA (recommended it should or may be provided). Meanwhile, 63% of relevant guidelines endorsed CAS, 30% opposed CAS and 4% (one) endorsed medical treatment alone. For ACS patients considered high-CEA-risk due to various reasons, including severe comorbidities, CAS was endorsed in 48% of relevant guidelines.

For patients with moderate ($\approx 50$-$69\%$) or severe ($70$-$99\%$) average-CEA-risk SCS, all thirty-one (100%) guidelines with CEA recommendations endorsed CEA. Depending on stenosis degree, 46% and 57% of guidelines, respectively, with CAS recommendations endorsed CAS. Meanwhile, 24% and 27%, respectively, opposed CAS. For SCS patients considered at high-CEA-risk due to various reasons, including severe comorbidities, CAS was endorsed in 84% of relevant guidelines.

Guideline procedural recommendations were not limited to subgroups who benefited in past randomised trials, were based on randomisation that occurred 23-36 years ago, rarely reflected medical treatment improvements, often understated potential CAS hazards and ranked only randomised trial data as best (even if it was outdated or otherwise inadequate).

Conclusion
Our results demonstrate many ways in which guidelines can be improved for patient benefit and for reduced waste of health resources.

Reference
• Abbott et al. Stroke. 2015;46:3288-3301

VA071P
IMPACT OF A VASCULAR SPECIALTY GUIDE ON THE ONCALL REGISTRAR’S ABILITY TO PROVIDE A VASCULAR SERVICE
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Vascular Surgery Unit, Cairns Hospital, QLD

Introduction
Although vascular skills are important to general surgeons, vascular surgery is a separate specialty, and therefore, there may be an erosion of vascular skills acquired by general surgical trainees. Specialist vascular registrar on-call cover is not universal in Queensland hospitals. A general surgery registrar usually fills the on-call cover, who may have limited experience in the specialty. There is also a lack of confidence and perceived competence in providing the service by the registrar. The use of a specialty specific guide booklet covering common presentations and their management can improve the provision of service.

Methods
Rotating registrars in surgery who cover vascular on call completed ratings on a likert-scale questionnaire on their confidence and perceived competence in covering vascular emergency consultations. A focused Vascular Emergency presentations booklet with approach, assessment and management protocols was provided to the registrars. The questionnaire was administered after exposure to the guide.

Results
Twelve pre vocational doctors completed the pre questionnaires and of those 9 completed the post questionnaire. The interest in and exposure to vascular surgery was variable among respondents. There was significant improvement in confidence (100% post exposure) to vascular emergency consultations and perceived confidence (80% post exposure) in dealing with them.

Conclusions
Surgical specialties at some sites do not always have dedicated and experienced registrars to provide the services to emergency consultations. The backfill registrar on-call may have limited experience in vascular assessment, diagnosis and initial management. The provision of a guide for the on-call registrar in vascular presentations can improve the approach, confidence and competence of the registrar ensuring optimal care for the complex vascular patient.
VA072P
INNOVATIVE TECHNIQUE TO EXPLANT FOR TYPE 1A ENDOLEAK
Noel Ramdwar, Nathaniel Chiang and Jason Chuen
The Austin Hospital, Department of Vascular Surgery, VIC

Open management techniques for Type-1a endoleak include periaortic banding and complete explantation of the endograft; the latter remains extremely challenging.

A 67-year-old gentleman with Type-1a endoleak from distal graft migration of the main body presented with sac enlargement. Following pre-operative risk assessment, the patient opted for open repair. The upper margin of the bare stent was at the level of the upper renal artery.

The infra-mesocolic aorta was exposed uneventfully. Following suprarenal and distal aortic clamp, aneurysm sac was opened and the main body stent fabric divided 3cm below the covered segment. This proximal segment along with the bare struts were extracted using techniques previously described by applying serial cinching, syringe constraint and wire-cutters. The distal endograft was left intact. A polyester tube graft was anastomosed to the juxtarenal aorta after which the proximal clamp was transferred to the grafted segment.

In this technique the remaining proximal end of the endograft main body was again cinched with 0-silk controlled by an infant nasogastric tube. The polyester graft was shortened to ensure a minimum 5cm overlap between the polyester and the endograft. The polyester graft was everted to allow the endograft to be placed proximally. The polyester graft was unsleeved and the cinching sutures were released to redeploy the endograft within the polyester graft ensuring adequate oversizing. This technique was repeated without difficulty to ensure ideal deployment position. The overlap zone was reinforced with nylon tape and polyester at multiple levels. The remainder of the operation was unremarkable. Patient was discharged on day 10 having suffered renal impairment from suprarenal clamping.

This alternative technique is a viable option that reduces issues from additional anastomoses, such as graft bleeding, operative time and associated comorbidities. Intra-operative and follow-up images will be presented.

VA073P
INTRA-OPTERATIVE TECHNIQUES TO PREVENT DIALYSIS ACCESS ASSOCIATED STEAL SYNDROME (DASS) IN HIGH RISK POPULATION UNDERGOING SURGERY FOR HEMODIALYSIS ACCESS; A SYSTEMATIC REVIEW
Fareed Shaikh, Nadeem Siddiqui, Ziad Sophie, Fathima Rizniya, Amna Riaz and Noman Shahzad
Aga Khan University, Sindh, Pakistan

Purpose
Dialysis access-associated steal syndrome (DASS) is the most concerning complication after hemodialysis access. It’s incidence is reported up to 10%. Sufficient literature is available on treatment of DASS, but only few strategies have been defined to prevent this. This systematic review was conducted to find out optimal intra-operative techniques to prevent DASS in high risk population.

Methodology
This systematic review is registered with PROSPERO (2017:CARD42017060804). It was conducted in 2017 at Department of Surgery, Aga Khan University Hospital, Karachi. Search engines used were Pubmed, Google Scholar, Cochrane and CINAHUL. It included all types of studies mentioning intra-operative techniques to prevent DASS in high risk population (Female>60 years, D.M., Peripheral arterial disease and previous DASS) undergoing Hemodialysis access creation. Un-published literature, animal studies and those not reported in English were excluded.

Results
Using search terms, we retrieved 125 studies, out of those six met the inclusion criteria. Four were retrospective case series while two were case reports. The largest sample size was 32 in one of the series. All but one study had AV access creation on arm. Intra-operative technique described is variable. “Proximalization of arterial inflow” was described in three, “prophylactic DRIL” in two whereas “Extension technique” was used in one study to prevent DASS. Only one patient out of these studies developed DASS at a follow-up of 07-42 months.

Conclusion
There is no concrete evidence to recommend any one procedure to prevent DASS, however proximalization of inflow is most commonly reported with promising results. Better evidence is required to substantiate this finding.

Key words
Prophylactic techniques, High risk population, Dialysis access associated steal syndrome (DASS).
VA074P
LACK OF AN ASSOCIATION BETWEEN NEUTROPHIL-LYMPHOCYTE RATIO AND PROGNOSIS IN ARTERIOVENOUS FISTULAS
Beatrice Kuang, Jordan Li, Chris Horwood, Kim Torpey, Paul Hakendorf and Ian Spark
Flinders Medical Centre, SA

Purpose
Arteriovenous fistulas are recommended as the gold standard for vascular access however, the suitability for arteriovenous fistula formation is influenced by patient prognosis. Alternative vascular access offers the advantage of earlier use and may be preferable for patients with poor prognosis where only short term access is required. The neutrophil-lymphocyte ratio (NLR) has been suggested to be a marker for predicting mortality in multiple interventions. The study aimed to investigate NLR is as prognostic marker for morbidity and mortality following arteriovenous fistula formation.

Methodology
All patients admitted to a single institution for an arteriovenous fistula formation were identified retrospectively over a 4 year period starting from January 2010. Patient demographics, comorbidities, complications and mortality were documented. The white blood count and differential cell count at admission was recorded with NLR subsequently calculated. Overall patient mortality was studied as the primary outcome.

Results
196 patients were identified with a median age of 67 (Interquartile range [IQR], 58-77) and monitored for 2 years. Survival at 1 year was 88% and 2 years was 76%. Median NLR in the patient was 3.87. Elevated NLR did not show an increased mortality for all ages at 1 year (P=0.61) and 2 years (p=0.76) and patients greater than 65 years old at 1 year (P=0.95) and 2 years (p=0.75).

Conclusion
Our data suggests that NLR does not add prognostic value to in identifying preoperative arteriovenous fistula formation patients with an unfavourable prognosis.

VA075P
LATE OUTCOMES OF ENDOVASCULAR ANEURYSM REPAIR IN CHALLENGING NECK MORPHOLOGY BASED ON EXPERIENCE FROM THE GREAT C3 REGISTRY
Diane Hildebrand, Paul Bachoo, Hannah O’Neill, Caitlin Macleod and Ben Cooper
Aberdeen Royal Infirmary, Aberdeen, United Kingdom (Great Britain)

Aim
The aim of this paper was to evaluate long term outcome of the Gore EXCLUDER AAA Endoprosthesis featuring the C3 Delivery System in subjects with aortic neck anatomy outwith instructions for use (IFU).

Materials and Methods
Individual patient data was prospectively collected and analysed from the Global Registry for Endovascular Aortic Treatment (GREAT). For each subject a minimum data set was collected containing demographic, pre/intra- and postoperative variables. Main outcome measures were mortality, cerebrovascular event, paraplegia / paraparesis / spinal cord ischaemia and re-intervention up to 6 years follow up.

In this study, outside IFU was defined as aortic neck length <15mm and/or aortic neck angle >60 degrees.

Results
A total of 400 subjects (86.7% male, mean age 73.9 years) were identified. Primary pathology was AAA in 94.5%, ruptured AAA 1.5%, common iliac aneurysm 3.3%, internal iliac aneurysm 0.3% and others 0.5%. 399 devices were implanted with 68 subjects undergoing EVAR outwith IFU. These 68 subjects (17%) were from 11 recruiting sites. Of these subjects, 47% had neck length <15mm, 79% had neck angulation > 60°, and 21% had both neck length < 15mm and neck angulation > 60°. The median follow up was 1098 days (range 0 – 2089 days). At 6 years follow up was 1098 days (range 0 – 2089 days). 64% of these patients sustained an adverse event or required a re-intervention (23.5% re-intervention). This compared reasonably with subjects without challenging neck morphology (30.6% sustained and adverse event, and 13.3% required a re-intervention). There was no significant difference seen in endoleaks which were identified in 13.2% of challenging anatomy subjects treated outwith IFU, and 8.2% of others. However, type 1a endoleaks were significantly more common in the outside of IFU group (7.4% v 0.6%, p<0.05).

Conclusion
At median follow up of 3 years (max 6 years) adverse events and re-interventions are more commonly associated in extreme anatomy.
VA076P
LIGHT AND MIRRORS: THE ROLE OF OPTICAL COHERENCE TOMOGRAPHY IN PERIPHERAL VASCULAR INTERVENTION
Samantha Peden, Shannon Thomas and Ramon Varcoe
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Purpose
Optical Coherence Tomography (OCT) is an established form of medical imaging which utilises broad bandwidth light and image reflection to produce high resolution, cross sectional images of biological tissue. Angiographic imaging of peripheral vascular disease is 2-dimensional and limited in the ability to define plaque morphology and micro-structure of atherosclerotic disease. The use of OCT is well established in coronary and retinal disease but there is limited experience to dictate its use in peripheral and carotid artery occlusive disease. Ours was an observational pilot study designed to give insights into the strengths and weaknesses of the modality used within those applications.

Methodology
OCT images in suitable patients undergoing endovascular intervention within the carotid (n=7) or peripheral (n=4) arterial circulation were generated using the Dragonfly OPTIS St Jude Medical system. The three-dimensional high resolution images were analysed using the OPTIS Integrated Computer System. The OCT images included internal carotid (n=7), common carotid (n=7), superficial femoral (n=2), popliteal (n=2) and tibial disease (n=2).

Results
Eight patients and eleven OCT images of pre and post intervention were generated over a twelve-month period. Stent apposition, plaque morphology and atherosclerotic characteristics were examined through the high resolution images created by OCT. The image results gave several insights into the disease process and the intervention including adequate stent sizing and wall apposition, plaque morphology and finer anatomical detail of atherosclerotic lesions.

Conclusion
OCT may have a role in peripheral vascular intervention through accurate high-resolution cross-sectional imaging. Expanding the use of OCT guidance to percutaneous carotid and lower extremity revascularisation has the potential to give additional information that may improve endovascular intervention.

VA077P
LONG-TERM FOLLOW-UP OF SUBCLAVIAN ARTERY STENTING: A SINGLE SURGEON’S EXPERIENCE
Matthew Trinder, Nishath Altaf and Patrice Mwipatayi
Vascular Surgery, Royal Perth Hospital, WA

Purpose
To review the immediate and long-term results for primary subclavian artery stenting

Methodology
We performed a retrospective case series of 37 consecutive patients that underwent subclavian artery stenting by a single surgeon in Western Australia. The procedures were performed across three hospitals including Royal Perth Hospital, Joondalup Health Campus and Hollywood Private Hospital. A majority of the data was recorded prospectively and stored within a secure database. Routine outcomes and complications were recorded.

Results
The mean age of patients was 68.51 (SD 10.07) and a majority were female (56.8%). The most common indications for intervention were symptomatic subclavian steal syndrome (86.5%), vertebra-basilar insufficiency (7.8%) and upper limb claudication (5.7%). All 37 patients had a stenosis of >70% and 16% of the patients had an occluded subclavian artery at the time of procedure. Puncture sites were brachial artery (24.3%), common femoral artery (CFA) (18.9%) and combined CFA/brachial (56.7%). Covered stents (62.2%) were most commonly used and bare metal stents (24.3%), and a combination stents (13.5%) were used less frequently. Technical success was 100% and clinical success was 97.3% at 30-day follow-up, without death or strokes. Restenosis-free survival was 100%, 94.6%, 94.6%, 94.6% and 94.6% at 30 days, 6, 12, 24 and 48 months respectively. There were two deaths from unrelated conditions at two years.

Conclusion
Endovascular stenting of subclavian stenosis and occlusion is safe and effective in experienced hands. Long-term follow-up has shown good technical and clinical outcomes and should be considered as first line treatment in patient with subclavian artery occlusive disease.
Refined from experience in over 700,000 cases worldwide, today's AngioJet System offers the reliable and predictable performance needed to treat a wide range of thrombotic occlusions – including clots from vessels as small as 1.5 mm to the largest clot burdens in iliofemoral veins.

1 The PEARL Registry: Endovascular Management of Deep Vein Thrombosis with Rheolytic Thrombectomy: Final Report of the Prospective Multicenter PEARL (Peripheral Use of AngioJet Rheolytic Thrombectomy with a Variety of Catheter Lengths) Registry. Mark J. Garcia, MD, MS; Robert Lookstein, MD; Rahul Malhotra, MD; Ali Amen, MD, RVT; Lawrence R. Bitz, MD; Daniel A. Leung, MD; Eugene J. Simone, MD; Peter A. Soukas, MD

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Abstracts (cont’d)

**VA078P**
**MICROBIOLOGY AND MANAGEMENT OF EVAR INFECTIONS**

Katherine Garnham  
*Royal Brisbane and Women’s Hospital, QLD*

**Purpose**  
To define the microbiology and optimal management of EVAR infections.

**Methodology**  
Comprehensive literature review of 48 relevant publications, including 144 published cases with identified pathogens. Reviews relating to optimal antimicrobial and surgical management with long term outcomes were analysed.

**Results**  
68-71% of all published cases in the past 20 years identified a bacterial pathogen. 55 different bacterial pathogens were identified in 144 published cases. Microbiologic aetiology did not change with time from surgery to identification of infection. Fungal involvement occurred 10% of the time and was not linked to presence of aortoenteric fistulae.

Management was optimised if a bacterial pathogen was identified, and included 2-6 weeks of intravenous antimicrobial therapy. There did not appear to be a difference in outcomes with 2 weeks versus 6 weeks of intravenous therapy. Oral antimicrobial therapy could safely be finite if all indwelling graft material was removed.

Rates of relapse or recurrence of infection whilst taking antimicrobials were up to 50% if graft material was retained.

**Conclusion**  
Microbiological diagnosis on blood cultures taken prior to administration of broad spectrum antimicrobials, or from deep intraoperative samples is vital to direct therapy. There is no evidence for empiric anti fungal therapy.

The removal of prosthetic material is associated with cure with a finite course of intravenous and oral antimicrobial therapy.

If graft material is retained, high reported relapse rates warrant close short and long term monitoring. Life long antimicrobials do not appear to alter this risk.

Further studies specifically evaluating outcomes in patients with EVAR infections receiving treatment and post treatment would be invaluable. Given the low incidence, data gathering may will be best achieved with multi-site registries.

**VA079P**
**NEED FOR IMPROVEMENT; MEDICAL TREATMENT OF PATIENTS WITH ARTERIAL DISEASE; RESULTS OF A PROSPECTIVE REGISTRY**

Kishore Sieunarine, Mina Guirgis, Stephanie Wake and Amy Ward  
*Royal Perth Hospital, WA*

**Purpose**  
Medical therapy in primary and secondary management is essential for patients with both occlusive and aneurysmal vascular disease. Antilipid, antihypertensive and antithrombotic agents significantly reduce disease morbidity and mortality from cardiovascular events before and after interventions. There are reports of relatively low percentages of patients receiving triple cardiovascular therapy (50-70% antiplatelet, 44-50% statins, 50-54% antihypertensive drug1).

The present study examined the use of the medications in patients with peripheral vascular (PVD), carotid and abdominal aortic aneurysm (AAA) disease referred to a vascular surgeons practice.

**Methodology**  
Patients referred to one surgeon between March 2015 and May 2017 were included in the study. Medical histories including medication, specifically antiplatelet and antilipid agents, were collected and confirmed prospectively at the time of consultation.

**Results**  
Data from 1417 patients was collected and analysed. The primary diagnosis was PVD 68%, Carotid disease 14% and aortic aneurysm 18%. Antiplatelet agents were prescribed and used by 65% of PVD, 78% of carotid and 52% of aneurysmal patients. Antilipid agents were prescribed and used by 71% of PVD, 82% of carotid and 66% of aneurysmal patients.

**Conclusion**  
This study shows disappointingly that patients are still inadequately treated. Vascular surgeons should play a leading role in the monitoring and maintenance of risk factor management to the required targets. Vascular surgeons need to ensure that relevant medications are introduced and / or maintained to ensure best results for conservative outcomes of vascular and endovascular interventions.

**References**  
**VA080P**

**OBSTRUCTIVE JAUNDICE WITH RIGHT UPPER QUADRANT PAIN: THINK HEPATIC ARTERY ANEURYSM**

Hani Saeed, Kenneth Buxey, Charles Milne and Geoffrey Cox

Alfred Hospital, VIC

Occurrence of haemobilia secondary to ruptured aneurysm of the hepatic artery remains uncommon. Quinke’s triad (right upper quadrant pain, jaundice and upper gastrointestinal bleeding) is seen in a small number of patients diagnosed with haemobilia. Here we present a case of haemobilia and Quinke’s triad secondary to hepatic artery aneurysm.

An 83-year-old man referred with acute onset right upper quadrant pain in context of having undergone elective coil embolization of a common hepatic artery aneurysm 5 months prior. Computed tomography and selective mesenteric angiography confirmed rupture of aneurysm into the biliary tree via fistulous connection between the two structures, fulfilling the criteria for Quinke’s triad. Coil embolization was performed to exclude the aneurysm, followed by laparoscopic cholecystectomy.

The majority of hepatic artery aneurysms are asymptomatic. When symptoms are present, they commonly present with right upper quadrant and epigastric pain, gastrointestinal haemorrhage or haemobilia, and obstructive jaundice. Only about 10% of cases of haemobilia are secondary to a ruptured hepatic aneurysm. All symptomatic aneurysms, and asymptomatic aneurysms exceeding 2cm in diameter, are considered for operative repair.

The specific approach depends on the size and location of the aneurysm, patient age, and comorbidities. Percutaneous transcatheter embolization techniques are usually preferred, with open surgical procedures being reserved for cases unresolved by interventional procedures. This case represents a rare case of haemobilia secondary to hepatic artery aneurysm. Our patient was successfully treated with coil embolization followed by laparoscopy.

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**VA081P**

**OCCLUSION BALLOON CATHETER USE IN COMPLEX ELECTIVE SURGERY – A WAIKATO HOSPITAL EXPERIENCE**

Katherine Hulme, Thodur Vasudevan and Manar Khashram

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Introduction

Occlusion balloon catheters (OBC) have previously been used to expand vascular prostheses and in uncontrollable traumatic haemorrhage. A newer use is prophylactic placement as part of a surgical strategy to reduce blood pressure (BP) or bleeding during complex or high-risk surgery.

BP manipulation during surgery has traditionally been performed with medications, such as adenosine, or with rapid ventricular pacing when an even lower BP is required. As an alternative, the internal jugular (IJV) or femoral vein (FV) can be accessed pre-emptively and the catheter strategically positioned. For complex endovascular procedures, especially in the arch and ascending aorta, the balloon can be inflated, at times of particular risk. A similar technique with the catheter can be used to control bleeding either at times when bleeding occurs (a back-up plan) or pre-emptively.

Method

We describe our experience at Waikato Hospital where this technique has been successfully employed.

Results

The Cook Coda balloon occlusion technique was used in seven patients between 2012 and 2017. On four occasions the technique was used during nephrectomy where the tumour extended into the inferior vena cava (IVC). In these cases the OBC was inserted via the right IJV and placed at the level distal to the hepatic veins. Twice the technique was used to reduce the blood pressure while an endograft was deployed in the ascending aorta. The OBC was positioned at the junction of the IVC and right atrium in these cases. In our final case, the OBC was used prophylactically for bleeding in a complex retroperitoneal tumour. It was inserted into the right FV and inflated after a tear in the IVC occurred due to adhesion of the tumour. It successfully minimized blood loss and assisted in repair of the tear.

Conclusion

OBC provide another tool in the vascular surgeon’s toolbox. We have shown that the technique can be used safely and effectively. Their potential in elective multidisciplinary surgery continues to expand.
Abstracts (cont’d)

VA082P
OPEN JUXTARENAL AORTIC ANEURYSM REPAIR: A TERTIARY CENTRE EXPERIENCE IN NEW ZEALAND
Prakash Balakrishnan, Georges Tinaw, Lupe Taumoepeau, Dilip Naik, Kes Wickremesekera and Richard Evans
Wellington Hospital, Wellington, New Zealand

Purpose
To review early & late outcomes of patients undergoing elective open juxtarenal AAA repair in a major NZ tertiary hospital. To evaluate the success rate of these repairs in an elective setting.

Methodology
A retrospective analysis of all elective patients who had open juxtarenal AAA repair between January 2000 and December 2016. These data were retrieved & identified using the Australian Vascular Audit (AVA) and local ORSOS hospital audit, including a review of hospital medical records. Data were collected & tabulated for age, gender, aneurysm size, cross-clamp time, blood loss, co-morbidities, post op complications & mortality rates.

Exclusion criteria was mycotic aneurysms, re-do surgery, ruptured aneurysms & aortoenteric fistula repairs.

Results
The mean age of patients, including the ratio of male:female predisposition. Co-morbidities & risk factors were identified which included cardiovascular factors, renal problems and BMI. Important intra-operative prognostic factors such as cross clamp time & blood loss were measured. Early & late post operative complications were evaluated. Average length of stay in hospital & 30 day mortality were also studied.

Conclusion
Open repairs in our unit was successful with a low post operative mortality rate. Incidence of major complications post operatively were minimal when performed in a well-established tertiary vascular centre.

VA083P
OUR INSTITUTION’S EXPERIENCE WITH ENDOANCHORS FOR ENDOVASCULAR RADIAL FIXATION OF STENT GRaFTS
Alison Mcgill, Danella Favot and Simon Quinn
Royal Brisbane and Women's Hospital, QLD

Purpose
The purpose of this poster is to describe our experience with the Medtronic Endoanchors, a system for providing radial fixation at the proximal end of EVAR grafts.

Methodology
We have a series of 5 patients who required treatment of infrarenal aortic aneurysms. Two of these patients had type 1 endoleaks. Two patients had difficult anatomy with a short landing zone and required augmented radial fixation in their primary procedure. These patients were considered unsuitable for open AAA repair. One patient had late EVAR graft migration treated with endoanchors and a proximal Aortic Endovascular cuff. All 5 patients were treated with the Medtronic Altus Heli-FX endoanchors.

Results
All 5 patients had successful exclusion of their aneurysm sacs. The two patients treated for type 1 endoleaks had successful resolution of their endoleaks. There were no post-operative aortic complications.

Conclusion
This series shows a range of uses for Medtronic Endoanchor system for treatment of complex aortic cases.

VA084P
OUTCOMES FOR ENDOVASCULAR REPAIR OF TRAUMATIC THORACIC AORTIC ANEURYSMS; A SINGLE CENTRE EXPERIENCE
Sharon Hong, Raffi Qasabian and Alison Burnett
Royal Prince Alfred, NSW

Purpose
Traumatic Aortic Transections (TAT) is the second highest cause of mortality in major trauma with an estimated overall mortality of greater than 90%. We aim to retrospectively review the use of Thoracic Endovascular Aortic Repair with stent grafting (TEVAR) in the treatment of traumatic thoracic aortic transections within a single centre.

Methodology
13 patients (12 male, 1 female) treated from September 2003 to March 2014 with a median age of 41 (age range 20 – 67). Cook Zenith device used in two patients, Cook TX2 (2), Gore TAG (2), Gore C3 (1), Medtronic Talent (4) and Medtronic Valiant (2). One intervention was performed in a dedicated Hybrid Operating Suite (HOS).

Results
Six grafts were deployed covering the left subclavian, four partially covering and three distal to the origin. One brachial artery false aneurysm was noted, requiring operative repair and no deaths occurred within 30 days. One covered subclavian developed subclavian steal syndrome 8 years post intervention, requiring a carotid-subclavian bypass.
Conclusion

TEVAR for traumatic thoracic aortic transections has now become the standard in treatment algorithms for major trauma. This is associated with the increasing variety of devices and techniques available for various anatomical considerations, increasing familiarity with endovascular techniques and institutional systems configured for emergent endovascular intervention.

VA085P

PATIENTS RE-PRESENTING AFTER EVAR IN THE AUSTRALASIAN VASCULAR AUDIT (AVA) 2010-2016

Ellen Hardy, Bernard Bourke and Barry Beiles
Gosford Hospital, NSW

Purpose
To identify patterns of re-presentation for patients undergoing EVAR in Australia and New Zealand between 2010 and 2016.

Methodology
A list of all patients undergoing EVAR between 2010 and 2016 was extracted from the AVA. This was then compared with all entries in the AVA to find re-presentations subsequent to index EVAR. Entries occurring prior to index EVAR were not included in analysis.

Results
There were 11,097 EVAR entries in the AVA from 2010 to 2016. This formed a cohort of patients, of which 3046 had another operation entered in the AVA. 1542 of these entries document surgeries that occurred subsequent to the index EVAR. Of these there were 171 re-presentations for further EVAR and 1371 entries for other subsequent operations including treatment of endoleak, femoro-femoral bypass graft, axillo-femoral bypass graft, fasciotomy, thrombectomy, extension of graft, stenting of graft, endarterectomy, and treatment of peripheral aneurysmal disease.

Conclusion
13.8 per cent of patients who underwent EVAR in Australia and New Zealand between 2010 and 2016 went on to have further operations recorded in the AVA. These include operations for complications of EVAR and operations for other vascular pathology. This study describes re-presentation for operation in patients who have had EVAR as captured in AVA data.

VA086P

PENUMBRA INDIGO™ ASPIRATION THROMBECTOMY FOR TREATMENT OF ENDOTRASH

Scott Fleming, Ricky Kwok, John Ferguson, Jonathan Tibballs, Shaun Samuelson, Sanjay Nadkarni, Joseph Hockley and Shirley Jansen
Sir Charles Gairdner Hospital, Perth, WA

Purpose
Atheromatous embolisation (or “endotrash”) from peripheral endovascular intervention can carry significant morbidity and mortality. Percutaneous aspiration thrombectomy (PAT) can obviate the need for thrombolysis by using endovascular suction.

Penumbra Indigo™ PAT was recently approved in the US for use in the peripheral vasculature. Small early studies suggest efficacy in retrieving emboli and short-length thrombus. We review our experience with Indigo™ PAT for the treatment of endotrash encountered during endovascular lower limb revascularisation.

Methodology
Retrospective review between August 2015 and March 2017. Outcomes were technical success, limb salvage, 30-day morbidity and mortality, length of stay, and cost of disposables.

Results
Eight patients (9 limbs) were included: mean age 59.3 years, 67% male, 56% diabetic, 33% smokers, 33% treated hypertensives. All were being treated for critical limb ischaemia with resultant endotrash impeding in-line flow to the foot, necessitating treatment of the endotrash. 100% technical success and limb salvage rate was achieved with no recorded complications or 30-day mortality. Average length of stay was 2.8 days. Average cost of disposables was $3294.

Conclusions
Our promising Indigo™ PAT experience suggests that this can be effective technology in treating endotrash complications of endovascular procedures in the peripheral vasculature with minimal morbidity and mortality.
VA087P
PENUMBRA INDIGO™ ASPIRATION THROMBECTOMY VERSUS CATHETER DIRECTED THROMBOLYSIS FOR TREATMENT OF ACUTE LEG ISCHAEMIA: A RETROSPECTIVE REVIEW OF A SINGLE UNIT’S EXPERIENCE
Scott Fleming, Ricky Kwok, Kenneth Chan, Jonathan Tibballs, Shaun Samuelson, John Ferguson, Sanjay Nadkarni, Joseph Hockley and Shirley Jansen
Sir Charles Gairdner Hospital, WA

Purpose
Acute limb ischaemia is an emergent diagnosis requiring timely treatment for limb salvage. Open surgery and endovascular options each have potential significant complications. Percutaneous aspiration thrombectomy (PAT) uses endovascular suction to remove thrombus, avoiding thrombolysis and its potential complications. We review our unit’s experience with Penumbra Indigo™ PAT for acute lower leg ischaemia, comparing outcomes and costs against catheter-directed thrombolysis (CDT).

Methodology
Retrospective review of patients treated endovascularly between January 2015 and January 2017. Endpoints included technical success, lower limb salvage, 30-day complications and procedural costs.

Results
11 patients were treated with primary PAT. Technical success was achieved with PAT in 6 patients (55%); the remaining 5 were successful with adjunctive CDT. There was one 30-day complication of groin haematoma, in a patient who underwent adjunctive CDT.

23 patients were treated with primary CDT. Technical success was achieved with CDT in 21 patients (91%); the remaining patients had manual aspiration of residual thrombus with syringe and catheter. 30-day complications included 5 groin/retroperitoneal bleeds/haematoma and 1 death from intracranial haemorrhage.

Limb salvage was attained in all patients. There was no significant differences in procedural costs.

Conclusion
All PAT patients had flow restoration and limb salvage with less complications than CDT. An Indigo™ PAT first approach in patients with acute leg ischaemia undergoing endovascular treatment can reduce utilisation of CDT and possibly reduce complications, and has no clinical or economic disadvantage.

VA088P
PERIOPERATIVE ANTIPLATELET USE IN VASCULAR SURGERY
Amelia Russell and Jason Chuen
Austin Health, VIC

Purpose
Patients undergoing vascular surgery risk two major groups of adverse outcomes: thrombotic complications, and bleeding complications. Antiplatelet therapy (APT) is commonly recommended in these patients. Traditionally, APT is ceased 7-10 days before any surgical procedure to minimise bleeding complications. However, surgery creates a prothrombotic state. Patients are more likely to suffer a thrombotic event, including myocardial infarction or stroke, during the perioperative period. Surgeons and anaesthetists often need to make decisions about APT based on their clinical expertise, in the absence of robust statistical evidence. It is unclear what either common or best practice might be. This study examines current treatment patterns at a tertiary university hospital and compares them to all available guidelines.

Methodology
A retrospective cohort study was performed on all patients admitted to the vascular surgery unit at Austin Health, Melbourne, January–December 2016. Inclusion criteria were any preadmission antiplatelet agent, including aspirin, clopidogrel, dipyridamole, prasugrel and ticagrelor; and undergoing a vascular surgical procedure in 2016. Patient demographics, surgical procedures, and any interruption of antiplatelet therapy was recorded, including agent type, dose, and length of cessation pre- and post-operatively.

Results
The majority of patients continue their antiplatelet agents pre- and post-operatively. There are variations in practice according to procedure and agent. Clopidogrel is more likely to be interrupted, and is withheld longer pre- and post-operatively. It is common for antiplatelet therapy, including aspirin, to be withheld the day of surgery.

Conclusion
Vascular surgery at Austin Health is generally not an indication for interruption of antiplatelet therapy. Evidence supporting either continuation or cessation is underwhelming, but consensus opinion and practice is moving toward uninterrupted treatment.
**VA089P**
PREVALENCE OF VARICELLA ZOSTER VIRUS IN PATIENTS SUSPECTED OF HAVING GIANT CELL (TEMPORAL) ARTERITIS – INTERIM RESULTS FROM THE GIANT CELL ARTERITIS AND PET SCAN (GAPS) COHORT

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**Purpose**
Recent studies have suggested that varicella zoster virus (VZV) may play a causative role in giant cell arteritis (GCA). This is based on high reported rates of VZV antigen in temporal artery biopsy (TAB) specimens. The finding has not been replicated in other cohorts nor validated against clinical and serological markers of infection.

**Methodology**
We conducted a cohort study of patients suspected of having GCA who were proceeding to TAB. Patients were clinically assessed for VZV infection and commenced on high-dose corticosteroids while awaiting biopsy. Biopsies were stained using a mouse derived antibody against VZV antigen and reported by two experienced, blinded immunohistochemistry researchers. VZV serology was assessed using the DiaSorin Liason XL assay. Patients were surveyed a minimum of one month post-enrolment regarding the development of zoster compatible infection.

**Results**
Between July 2016 and April 2017, 24 patients with suspected GCA underwent a TAB and were included in this study. 17 (71%) were female and the mean age was 68. 23 (96%) had a headache and nine (38%) had visual disturbance. Seven (29%) had inflammatory changes on TAB; four with mural inflammation and three with periadventitial small vessel vasculitis (SVV). 11 (46%) patients were assessed as having definite or probable GCA at two-week clinical follow-up. At the time of enrolment, no patients had symptoms or signs consistent with active herpes zoster. A single patient with periadventitial SVV developed herpes zoster prior to one month follow-up. All 24 biopsies stained negative for VZV antigen by immunohistochemistry. Of the 23 patients who had VZV serology, all tested negative for IgM. 21 (91%) patients were VZV IgG positive consistent with past exposure.

**Conclusion**
We did not detect VZV antigen in TAB specimens. No patients had positive VZV IgM serology. Only one patient developed herpes zoster on short-term follow-up. The results do not support a link between VZV and GCA.

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**VA090P**
RARE COMPLICATION OF A COMMON INJURY: LARGE PSEUDOANEURYSM OF THE AXILLARY ARTERY POST SHOULDER DISLOCATION

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**Introduction**
Traumatic pseudoaneurysm of the axillary artery is a rare complication from a shoulder dislocation. Previously, open surgical repair was the most reliable option for this type of pathology, with high morbidity rates reported in the literature. However, endovascular therapy is now the favoured approach to treat axillary artery pseudoaneuerysms. Greater clinical awareness of vascular trauma following shoulder dislocations can prevent serious complications. The aim of this case review is to present the diagnostic challenges and overall management of patients who present with a traumatic pseudoaneuerysm of the axillary artery.

**Case Presentation**
An 83-year-old male presented to a neighbouring hospital after he was found by his wife to be spontaneously bleeding from his axilla. He was noted to have had an anterior shoulder dislocation 3 months earlier resulting in a brachial plexus injury. A CT angiogram of the chest revealed a large 12cm pseudoaneurysm from the 1st part of the left axillary artery. He was transferred to our facility and subsequently taken to the hybrid operating theatre for further management of his vascular injury. The left brachial artery was used to facilitate retrograde vascular access to the axillary artery and a 6x10 Viabahn covered stent (WL Gore & Associates, Flagstaff, AZ, USA) was deployed. A completion angiogram confirmed successful exclusion of the pseudoaneurysm.

**Conclusion**
Endovascular repair is a reliable approach to treat axillary artery pseudoaneuerysms. Traumatic injury of the axillary artery following a shoulder dislocation is a rare complication and requires early recognition and management to prevent severe consequences.
VA091P
REAL WORLD RESULTS OF ZILVER PTX IN THE FEMOROPOPITEAL ARTERY
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Purpose
To evaluate the efficacy of the Zilver PTX paclitaxel-eluting stent in treatment of superficial femoral (SFA) and popliteal artery disease in a ‘real world’ ageing population. Recent studies have shown mixed results in this demographic.

Methodology
Single arm prospective trial assessing the outcome of 100 legs in 70 consecutive patients with SFA or popliteal artery disease treated with the Zilver PTX stent. Patients were followed up at regular intervals with clinical and ultrasound assessment for 12 months. A high proportion of lesions (47%) were restenotic lesions with the majority being in-stent restenosis. Average lesion length was 17cm. The mean age was 79 and 44% of patients were male.

Results
Technical success was achieved in all cases with no major perioperative complications. Primary patency (failure defined by a primary systolic velocity >240ms or need for reintervention) was maintained in 52% of cases at 12 months. Freedom from clinically driven target lesion revascularization (TLR) was 63% at 12 months. There was no significant difference in the primary patency or TLR rates between de novo and restenotic lesions. Based on more limited follow up data at 24 months, there was no decline in the trend of primary patency (50%) or freedom from TLR (62%).

Conclusion
The efficacy of Zilver PTX in the treatment of SFA and popliteal artery disease is less ideal in an ageing population with longer, more complex lesions. In this group, consideration of other devices and revascularization techniques may be necessary.

VA092P
RENAL TRANSPLANTATION: IN-HOURS VERSUS AFTER-HOURS OPERATING
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Background
The timing of surgery has been noted to influence renal transplantation outcomes with several studies demonstrating worse outcomes associated with overnight surgery. Contributing factors to explain such outcomes include provider fatigue and lack of available resources. The aim of this study is to determine whether renal transplant graft outcomes are influenced by surgical timing (start time 1800 to 0700), donor organ features and cold ischaemic time (CIT).

Methods
A retrospective review of prospectively maintained patient charts of deceased donor renal transplantations between 2010 and 2015 identified 101 renal transplantations. Mean age was 53.5 years old and mean CIT was 12.5 hours. Two-thirds of patients (65%) were operated afterhours with the mean length of stay being 10 days. Complications were classified according to the Clavian Dindo Classification. Delayed graft function was defined as the requirement for renal replacement therapy within the first week post renal transplantation.

Results
Overall graft survival rate at one year was 90%. Afterhours operating was associated with a higher risk of long term complications such as ureteric strictures, lymphocoele, renal artery stenosis and rejection requiring operative intervention (OR 4.03, 95%CI 1.21 to 13.4, p-value 0.023). There was a greater percentage reduction in creatinine in the in-hours group versus after-hours group (83% versus 71%, p-value 0.024). After adjusting for CIT, there was no evidence that afterhours operating was associated with short-term complications (p-value 0.89), delayed graft function (p-value 0.237) and graft failure at 1-year (p-value 0.412).

Conclusion
The data suggests that afterhours operating is associated with a higher risk of long term surgical complications and smaller reduction in creatinine at 1-year post transplant when compared to daytime operating.
VA093P
SAFETY OF LOW, FIXED DOSE HEPARIN IN PERIPHERAL ARTERIAL ENDOVASCULAR INTERVENTION
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Background
Heparin use is ubiquitous during peripheral vascular intervention (PVI), yet no guidelines for optimal dosing exist. Increasing evidence from the coronary and peripheral fields indicate that lower doses have a favourable risk profile. We sought to establish the efficacy of low, fixed dose heparin during PVI.

Methods
20 consecutive adult patients undergoing angiography and peripheral intervention were enrolled prospectively and given fixed doses of 2,500 or 3,500 units of heparin dependent on surgeon preference. All patients underwent iliac, femoral or popliteal intervention. Activated clotting time (ACT) was measured in all patients immediately pre-heparinisation, 3 minutes after administration, at completion of study, and at removal of access sheath if significantly delayed after completion of procedure. This was a pilot study designed to demonstrate safety and feasibility of the described methods. Primary end-points were the achievement of a therapeutic ACT defined as >200, bleeding complications including puncture site haematoma, false aneurysm, or transfusion requirement, and thromboembolic complications.

Results
All 20 patients achieved therapeutic ACTs immediately after heparin administration. No haemorrhagic or thromboembolic end-points were recorded in either group. There was a trend toward more rapid and complete normalization of the ACT in patients receiving the lower heparin dose of 2,500 units.

Conclusions
Low, fixed doses of heparin achieve therapeutic anti-coagulation in patients undergoing PVI and may decrease haemorrhagic complications when compared with higher fixed doses or weight based dosing protocols. Further large scale studies are required to establish the statistical significance of these findings.

VA094P
SEGMENTAL ARTERIAL MEDIOLYSIS – A RARE CAUSE OF INTRA-ABDOMINAL HAEOMORRHAGE
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Segmental arterial mediolysis (SAM) is a rare, non-atherosclerotic, non-inflammatory arteriopathy, more commonly seen in the elderly. Although the pathogenesis is unknown, lysis of the medial wall results in dissection and fusiform aneurysms, not dissimilar to fibromuscular dysplasia. We present a case of SAM in a 36 year old female, presenting as recurrent spontaneous haemorrhage in a young patient with multiple arterial aneurysms of the abdominal viscera and extra-cranial vasculature. We seek to raise awareness of this potentially lethal differential diagnosis for visceral aneurysms, and outline the gold standard imaging modalities for diagnosis and management.

VA095P
SINGLE VERSUS DUAL ANTIPLATELET THERAPY (DAPT) IN PATIENTS UNDERGOING CAROTID ENDARTERECTOMY (CEA): A SINGLE-CENTRE EXPERIENCE
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Purpose
Cerebrovascular events following carotid endarterectomy (CEA) remains at 2-7%. Despite evidence that antiplatelet therapies reduce the risk of occlusive vascular events, no clear consensus exists regarding the perioperative use of these drugs. This study reviews the use of single and DAPT in patients undergoing CEA at a tertiary metropolitan hospital.

Methodology
All patients undergoing CEA at Austin Health from 2010 to 2017 were identified. Patient demographics, operation details, indications for surgery, comorbidities, medications and complications were extracted from electronic records. Patients with prior ipsilateral CEA or carotid stent, concurrent procedures, preoperative clopidogrel or therapeutic anti-coagulation and thrombolysis within 14 days for acute ischaemic stroke were excluded. Primary endpoints were mortality and stroke, while secondary endpoints included transient ischaemic attack (TIA), major bleeding, neck haematoma, and myocardial infarction (MI) within 30 days.
Results
227 cases were identified, 138 cases met the study criteria. Median age was 72 years, 73% were male. 85.5% were symptomatic, with 66% emergency procedures. 88% were under GA with 55% shunted. Only 4% had DAPT post-operatively and none had complications. The complications in the single antiplatelet (Aspirin) group included major bleeding (3%), MI (3%), stroke (2%), TIA (2%), and neck hematomas (1.4%). Interestingly, amongst the 75 patients excluded due to pre-op clopidogrel, 13.3% had complications.

Conclusion
Predominantly, a single agent (Aspirin) was used in post CEA patients in our unit. Risk of complications was not increased in patients with DAPT however the sample size was small.

VA096P
SURGICAL MANAGEMENT OF CAROTID BODY TUMOURS: A SINGLE CENTRE 25-YEAR EXPERIENCE
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Background
Paragangliomas of the neck are rare, with most common form being the carotid body tumour (CBT). Although CBTs are rare tumours, diagnosed with incidence of about 1:30,000 in the general population, they account for >50% of head and neck paragangliomas. Surgical excision remains the only curative treatment. The objective of our study was to assess the short and long-term outcome for patients treated with surgical resection of carotid body tumour (CBT) in our institution and analyse the Shamblin’s classification in predicting post-surgical morbidity.

Methods
We retrospectively analysed all consecutive patients who underwent surgical CBT resection at the Canberra Hospital between January 1992 and December 2016. Clinical, operative, pathological and outcomes were recorded and analysed.

Results
A total of thirty-four consecutive patients (thirteen males; mean age of 48 years) with 34 CBT operations were recorded during the period. A non-tender neck mass was the presenting complain in 88%. Ten CBTs (29.4%) were Shamblin class I, fourteen (41.2%) were class II and ten (29.4%) were class III. Four operations required vascular resection and reconstruction. All 34 cases achieved complete resection. Complications included three major strokes, 4 cases temporary nerve palsies and were more likely to occur in tumors of larger volume. All patients have been followed-up postoperatively for a mean of 11 years. The Shamblin classification was a significant predictor of operative time, blood loss and difficulty of resection, but could not predict postoperative complication.

Conclusion
This cohort showed that the Shamblin classification was significant in predicting technical difficulties but could not predict occurrence of complications. Early resection of carotid body tumours should be undertaken to minimise the risk of neural injury, which increases with tumour size. Mandatory lifelong follow-up is essential in these cases.

VA097P
SURGICAL MANAGEMENT OF MANGLED EXTREMITY - PRIMARY AMPUTATION VS. LIMB SALVAGE: A SYSTEMATIC REVIEW OF THE CURRENT SCORING SYSTEM
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The Canberra Hospital, ACT

Background
In recent times, a lot of new reconstructive techniques were developed for the treatment of mangled lower extremity. However failed attempt to limb salvage is related to high risk of mortality for the patient. Several scoring systems were developed to establish guidelines for the decision to amputate or salvage the limb. However, there was no consensus about the reliability of these scores in the literature.

Methods
We focused our attention on the most used score system out there in clinical practice. The search terms used included mangled lower extremity, Mangled Extremity Severity Score (MESS), Predictive Salvage Index (PSI), Limb Salvage Index (LSI) and Nerve Injury, Ischaemia, Soft-Tissue Injury, Skeletal Injury, Shock and Age of Patient (NISSSA) scores. A systematic review of 5 electronic databases (Cochrane, PubMed, Ovid, Scopus, Google Scholar) was performed as per the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. We included studies published in English in the last 30 years, minimum cases in study of 15 and minimum follow up period of one year.

Results
A total of 289 articles were identified but only 17 studies met our search criteria. The most used score system in the literature is the MESS. Few results were shown using the other severity scores. MESS seems to be the most accurate in predicting successful limb salvage compared to...
the other scoring systems. The literature was very poor of articles related to mangled lower extremity in children.

Conclusion
The mangled lower extremity treatment is a challenge for the surgeon. Many score were developed to help the surgeon, however they cannot be used as the sole criterion by which amputation decision are made and, in case of successful limb salvage, they are not predictive of the functional recovery. Moreover, undue enthusiasm for new surgical techniques can lead to increased morbidity and mortality in case of secondary amputation.

VA098P
SURGICAL TURNAROUND TIME: A TERTIARY VERSUS GENERAL HOSPITAL COMPARISON
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Introduction
Surgical theatre turnaround (STT) is defined as “the time between two cases in a session when hospital staff clean and prepare the theatre for the next case”

Potential delay in STT in a tertiary hospital is patient’s complexity. However, vascular surgery patients generally have multiple comorbidities and their complexity for minor cases are generally comparable between general and tertiary hospitals.

Objective
We compared the surgical theatre turnaround for minor vascular surgery procedures between a general hospital (GH) and a tertiary hospital (TH). Outcomes were mainly patients comorbidities, average turnaround, reasons of delays if exist.

Methods
We conducted a comparative audit of turnaround times between two hospitals (AHS and RPH) during the period from 02/12/2014-28/11/2016, selecting procedures with similarly low degrees of complexity and similar patient demographics. A comparison of total turnaround time and individual facets of theatre through-put timing (all theatre time intervals excluding surgical time) was statistically analyzed.

Results
163 procedures were identified, 68 procedures from TH and 95 procedures from GH.

Patient demographics were comparable (0.9 Male/Female ratio in GH with average age 65, 2.4 M/F ratio in TH with average age 69, TH ASA average = 2.86, GH ASA average = 2.49, ASA Mode = 3 for both populations, ASA P-value 0.0008). Overall turnaround times across all procedures were lower at GH (average of 85 minutes compared to 117 minutes, P-value < 0.01). For all time intervals the general hospital exhibited lower time intervals, most notably in intervals between Anaesthetic Start and Surgical Start (P-value < 0.0000001), as well as Ward Notified to Patient Leaving Recovery (P-value < 0.0000001).

Conclusion
Comparison of tertiary and general hospitals, when reducing potential bias from increased complexity of patients and procedure, may support the hypothesis that general hospitals have lower turnaround times.

VA099P
TESTICULAR INFARCTION: A RARE COMPLICATION POST EVAR
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Endovascular aneurysm repair (EVAR) was pioneered in the early 1990s and has advantages of a less invasive procedure compared to open aneurysm repair. Despite improved 30-day mortality and morbidity rates, there are still complications with EVARs leading to early morbidity and even mortality requiring prompt detection and management. One such complication is limb graft occlusion. Unfavourable anatomy usually restricts or increases the risk of device related complications.

We present a rare case of an acute right testicular infarction requiring orchidectomy day 2 following EVAR insertion. The case involved a 64 year old male who had an asymptomatic 71mm saccular infra-renal abdominal aortic aneurysm (AAA) with favourable neck anatomy, however distal aortic narrowing inferior to the aneurysm was present and not initially appreciated intra-op. He underwent inferior mesenteric artery coiling and standard placement of the EVAR (GORE Excluder, Arizona, USA). Post operatively in recovery he was noted to have an acute ischaemic right limb with no palpable pulses. Urgent angiogram confirmed right iliac limb graft occlusion which required bilateral iliac stents (Atrium V12, Rastatt, Germany) and extension of the right iliac limb with an uncovered stent (Complete SE, Medtronic, Minneapolis, USA) into the external iliac artery. Right iliac limb occlusion was suspected to have been caused by EVAR limb compromise within a narrowed distal aortic segment and possible thrombus dislodgement post initial EVAR deployment and balloon moulding. Post stenting angiogram confirmed right iliac and common femoral
artery patency. However this gentleman developed worsening right testicular pain 36 hours post-operatively, with an ultrasound confirming occluded testicular blood flow. An orchiectomy was performed and histology showed global testicular infarction with no obvious embolic event.

This case highlights a rare EVAR complication with less than five cases having previously been published.

VA100P
THE ASSOCIATION OF PERIPHERAL ARTERIAL DISEASE WITH ABDOMINAL AORTIC ANEURYSM GROWTH: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background
The role of atherosclerosis in abdominal aortic aneurysm (AAA) pathogenesis is controversial. Atherosclerosis-associated peripheral arterial disease (PAD) has been reported to be a risk factor for AAA diagnosis in population screening studies, but its relationship with AAA growth is controversial.

Methods
A systematic search of MEDLINE, Scopus, CINAHL and the Cochrane Central Register of Controlled Trials was conducted in April 2016 and repeated in January 2017. Databases were screened for studies reporting AAA growth rate in patients with and without PAD. The included studies underwent a quality assessment and where possible, were included in the meta-analysis. A subgroup analysis was performed, including only studies that adjusted for confounding factors.

Results
Seventeen studies, including a combined total of 4,873 patients, met the review entry criteria. Data from 15 studies were included in meta-analysis. There was marked heterogeneity in the study design, methodology and statistical analyses used. In the main analysis, PAD was found to be associated with reduced AAA growth (standard mean difference = -0.13 [95% CI -0.27 to -0.00], P=0.04). However, statistical significance was not maintained in sensitivity analysis. In a sub-analysis that only included data adjusted for other risk factors, no significant association between PAD and AAA growth was found (standard mean difference -0.11 [95%CI -0.23 to 0.00], P=0.05).

Conclusion
This systematic review suggests that currently reported studies demonstrate no robust and consistent association between PAD presence and reduced AAA growth. A small reduction in AAA growth in patients that have PAD cannot be ruled out.

VA101P
THE BURDEN OF PERIPHERAL ARTERIAL DISEASE IN AUSTRALIAN ABORIGINAL PEOPLES LIVING IN CENTRAL AUSTRALIA: TARGETED DETECTION IN THE INDIGENOUS ADULT HEALTH ASSESSMENT REQUIRED.

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Background
With a higher prevalence, early onset, and greater complication rate, diabetes has had a devastating affect on Australian Aboriginal peoples. Peripheral Arterial Disease (PAD) is independently associated with diabetes, cigarette smoking, and dyslipidemia all of which are more prevalent amongst Indigenous Australians. Unfortunately, little is known about PAD in Aboriginal and Torres Strait Islander peoples, with no national prevalence data reported. Our study is the largest to report the prevalence of clinically diagnosed PAD, clinical risk factors, and biochemical profiles in an Australian Aboriginal population.

Method
273 participants from six communities in central Australia undertook Ankle Brachial Index assessments in the Heart of the Heart study. The presence of PAD was defined as an ABI < 0.9. Stepwise multivariate logistic regression was performed to identify risk factors associated with PAD.

Results
PAD was detected in 58 (22.9%) of the 273 participants. Following multivariate logistic regression PAD was independently associated with HbA1c (>6.5%) [OR=2.057, p=0.032], BMI (>30kg/m2) [OR=2.214, p=0.016], and inversely associated with residing remotely [OR=0.466, p=0.025].

Conclusion
This study highlights the high prevalence of PAD irrespective of diabetes and advanced age in Australian Aboriginal adults living in Central Australia. These findings when viewed in the context of the health burden in Indigenous Australians suggest that a greater emphasis on PAD detection and management is required and should form part of the Indigenous Adult Health Assessment.
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Abstracts (cont’d)

VA102P
THE CURRENT LANDSCAPE OF 3D PRINTING IN ENDOVASCULAR INTERVENTION
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Purpose
3D printing has started to establish itself as an adjunct to endovascular procedures, where the ability to visualise complex anatomy with physical 3D models provides better anatomical clarity than can be achieved with 3D reconstructions or 2D imaging modalities.

Methodology
We performed a literature search using Ovid MEDLINE, Ovid EMBASE and PubMed. The search terms used were “Printing, Three-Dimensional” AND “Vascular Surgery” AND “Endovascular”. This resulted in 18 articles, which were independently read in full to identify relevant studies. The findings from these studies were then compared against our own centre’s experiences with the technology.

Results
Our literature search identified 10 publications reporting on the use of 3D printing in endovascular procedures, of which 3 (30%) related to the planning of fenestrated grafts. In 6 (60%) of the articles, the 3D printed models were used for simulation. The vast majority (80%) of articles utilised the 3D printed models for interventional planning. In addition, in 100% of cases, the 3D printed models developed for the studies did not degrade after simulation or manual interrogation. Despite this, only 3 (30%) of articles involved the use of 3D printed models in training. Therefore, we highlight the largely untapped potential for these models to be reused for trainee education, which was not explored in the majority of articles.

The studies’ conclusions correlate with our own experiences from our 3D printing lab, where expert vascular surgeons have deemed 3D printed models invaluable in the planning of complex cases, such as in cases with short or very angulated necks, or for the planning of fenestrated grafts in juxtarenal aneurysms.

Conclusion
Vascular Surgery units worldwide, including our own, are starting to explore the applications of 3D printing in endovascular surgery. We attest to the enormous potential for growth in this field, and the ease of adoption of this new technology.

VA103P
THE DISTRIBUTION OF VASCULAR DISEASE IN SUSPECTED GIANT CELL ARTERITIS (GCA) PATIENTS AS DETECTED BY POSITRON EMISSION TOMOGRAPHY (PET)-CT: INTERIM RESULTS FROM THE GIANT CELL ARTERITIS AND PET SCAN (GAPS) STUDY
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Background
Positron emission tomography (PET)-CT scan detects large vessel vasculitis in 80% of biopsy positive giant cell arteritis (GCA) patients. We assessed the prevalence and distribution of PET detected vascular inflammation using a new protocol allowing visualisation of the smaller superficial temporal, occipital and vertebral arteries in addition to the large cervical and thoracic vessels.

Methods
From May 2016 to April 2017, 41 patients suspected of having GCA underwent fluorine-18 fluoro-2-deoxyglucose (FDG) time-of-flight PET-CT scan within 72 hours of commencing corticosteroids. They subsequently had a temporal artery biopsy (TAB). FDG uptake was graded by one of two blinded, experienced nuclear medicine physicians at 16 vascular sites using a semi-quantitative scale. Note was also made of arterial calcification, infection and malignancy.

Results
Median age was 68. Symptoms included headache (88%), jaw claudication (34%), and visual disturbance (29%). Median ESR was 36 mm/hr and CRP was 16 mg/L. 12/41 patients (30%) had inflammatory changes on TAB, eight (20%) with mural inflammation and four (10%) with limited periadventitial small vessel vasculitis. 28 (68%) had negative biopsies and one declined TAB as she had aortitis on prior CT scan. 18 (44%) were assessed as having definite or probable (>= 50% chance) GCA at clinical follow-up two weeks post biopsy. 28 (68%) had increased FDG vascular uptake on PET scan with the carotid (44%), vertebral (32%) and superficial temporal (27%) arteries most affected. Six (15%) had increased uptake isolated to the vertebral, temporal or occipital arteries. Infection or cancer was detected in six patients.

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Conclusion
In this interim analysis, 68% of patients initially suspected of having GCA had increased FDG vascular uptake (suggestive of inflammation) compared with 30% with inflammatory changes on biopsy. We detected uptake in the vertebral and temporal arteries which is a new finding on PET-CT. The clinical role of this technique will be elucidated on longer-term follow-up.

VA104P
THE EFFECT OF RESIDUAL CLOT AND STENOSIS POST-RECANALISATION OF THROMBOSED DIALYSIS ACCESS ON PATENCY DURATION
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Background
We have previously demonstrated high patency rates following recanalization of blocked fistulas and grafts using a novel “fast urokinase” technique. It was hypothesized that this was due to superior clot clearance. This study aimed to evaluate the extent of clot clearance achieved with the above technique and investigate if the presence of residual clot and stenosis following recanalization of thrombosed dialysis access have bearing on patency.

Methods
We conducted a retrospective study of all declotting interventions to upper limb fistulas and grafts using the “fast urokinase” technique undertaken at the interventional suite in the Canberra Hospital Department of Medical Imaging between the period of Jan 2010 to Nov 2016. This yielded 91 haemodialysis patients with 94 thrombosed upper limb dialysis access.

Results
A total of 405 interventions were analysed. In 71 (17.1%) interventions, there was residual clot/stenosis identified on completion angiography. The mean duration of patency following these interventions was 195.25 days. The mean duration of patency following interventions where there was no residual clot/stenosis was 241.63 days. There was a statistically significant difference between the 2 groups (p = 0.2620). When further divided into native fistula versus graft, there was no difference between the 2 groups (p = 0.69 and p = 0.14 respectively). There was no effect of specific interventional radiologist on patency duration. The complication rate was 0.04%, with 16 minor and 1 major complication.

Conclusion
The decision against further treatment of residual clot/stenosis is often due to several factors including non-significant limitation on flow rate, prolonged procedure, patient intolerance, and lesions resistant to treatment. Our results suggest that there are other factors which may influence the patency of dialysis access such as flow rates achieved following recanalization, time between recanalization and haemodialysis, and anticoagulation status.

VA105P
THE INTRODUCTION OF ELECTRONIC MEDICAL RECORDS IMPROVES THE QUALITY OF ADMISSION DOCUMENTATION
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Introduction
Excellent communication and accurate documentation between health professionals is an important aspect of providing patients with quality of care. This study aims to assess if Electronic Medical Records (eMR) improve the accuracy and quality of documentation in the surgical admission notes from the Vascular Surgery department at the Princess Alexandra Hospital, since the introduction of the eMR.

Methods
A retrospective chart study was performed on 80 randomly selected patients. 40 patients were selected before the introduction of eMR (paper-based notes), and 40 patients were selected after the introduction of eMR. The accuracy and quality of admission notes was assessed based on patient identifiers, time and date, medication history, family history, physical examination and blood results.

Results
Documentation significantly improved in all areas of interest. In particular, patient identifiers improved from 30% to 50%, medication history 40% to 85%, and family history documentation improved from 5% to 20%.

Conclusion
Electronic Medical Records enhances the quality of documentation in patient’s surgical admission notes, which may lead to better patient care and adherence to legal requirements. Adhering to a clerking proforma may simplify and streamline the process of documentation, as well as increase efficiency.
Abstracts (cont’d)

References

VA106P
THE NAV CARS EVAR PROJECT – EXPERIMENTAL SET UP FOR NAVIGATED CONTRAST AGENT AND RADIATION SPARING ENDOVASCULAR AORTIC REPAIR

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Purpose
Endovascular aortic repair of aortic aneurysm (EVAR) has medical benefits compared to open surgery as reduced morbidity and mortality rates, fast recovery and reduced hospital stay. Disadvantages of EVAR procedures are the usage of nephrotoxic contrast agents and radiation exposure to the patient and the physician. We report the development of a prototype for real-time navigation during EVAR procedure.

Methods
The preoperative planning CT was used for three-dimensional reconstruction of aortic anatomy by volume-rendered segmentation. Relevant landmarks are matched in real-time with the two-dimensional angiographic scene. During the endovascular procedure the software continuously registers the position of the guide-wire or stent-graft. An additional 3D screen shows the generated endoluminal view during the whole intervention in real-time, including visualization of plaque anatomy and outgoing vessels.

Results
We examined the combination of hardware and software components including complex image registration and fiber optic sensor technology (Fiber-Bragg Navigation). The presented experimental navigation system for EVAR consists of 4 steps: 1) Preoperative planning: Segmentation of patient specific vessel anatomy, 2) 3D print: Rapid prototyping of patient specific aortic model (Rapid Prototyping), 3) Implementation of fiber bragg sensor technology into sheaths and catheters for continuously localization of position and curvature, 4) Virtual Angioscopy: Real time registration of fiber optic information into preoperative planning CT and visualization.

Conclusion
The aim of the Nav CARS EVAR concept is reduction of contrast medium and radiation exposure by a three-dimensional navigation during the EVAR procedure. The “Virtual Angioscope” should improve intraoperative visualization. To implement Fiber Bragg Navigation further experimental studies are necessary to verify accuracy before clinical application.

VA107P
THROMBECTOMY OF THE FOREARM ARTERIES RELIEVES PAIN FOLLOWING TRAUMATIC THROMBOSIS; A CASE SERIES

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Purpose
Traumatic thrombosis of the forearm arteries is an increasingly common presentation, largely iatrogenic in nature. Radial artery catheterisation for coronary angiography carries a 4% risk of radial artery occlusion. Traditional management has been conservative, yet thrombectomy and arterial repair is a simple and low risk procedure indicated in selected cases. The efficacy of such an approach is not well described.

Methodology
During a one year period in 2016 five patients with trauma related acute thrombosis of the radial or ulnar arteries underwent surgical revascularisation of the occluded vessels. The indication for surgical treatment was severe ongoing pain with different degree of associated hand ischaemia mostly occurring following cardiac catheterisation (4 cases). 1 patient had hyperextension injury leading to ulnar artery thrombosis.

Results
All five patients underwent successful revascularisation, defined as restoration of inflow and outflow, under general anaesthetic. Four patients had a patch angioplasty with forearm vein (three radial arteries and one ulnar artery), whilst the remaining patient had a sufficiently large radial artery for a primary closure. Four patients (three radial arteries and one ulnar) had complete resolution of symptoms. None of these patients had any complications.
The remaining patient had no improvement in symptoms, and was eventually diagnosed with complex regional pain syndrome. In retrospect, this was likely to have been the diagnosis precipitating this patient’s coronary angiogram.

Conclusion
Thrombectomy and arterial repair can be effective in relieving disabling pain following traumatic forearm arterial thrombosis. Careful patient selection is important.

VA108P
TRANSCATHETER AORTIC VALVE IMPLANTATION AND VASCULAR SURGERY: A SINGLE CENTRE EXPERIENCE
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Introduction
TAVI offers minimal invasive treatment for severe aortic stenosis in patients deemed unsuitable for open surgery due to age and co-morbidities. The high risk nature of the patient cohort means implantation does still carry a significant risk, particularly vascular access complications, renal dysfunction, MI and stroke. For the implementation of a new TAVI service, full consideration needs to be given to all potential implications, including the impact on the vascular surgery service. This study aims to describe our experience at Waikato Hospital of TAVI-related vascular complications.

Methods
A retrospective review of all patients who underwent TAVI from 2008 until March 2017 using the electronic clinical record for vascular complications. Complications were standardized by the use of definitions from the Valve Academic Research Consortium.

Results
There were 264 TAVI performed during the study period. The average age was 80 years at intervention. The age range was 54 to 94 years old with 172 men and 92 women. 71.7% identified as New Zealand European and 4.9% as NZ Maori. There were 13 major (4.9%) and 19 minor (7.2%) vascular access complications. Ten of these complications required operative intervention from the vascular surgeons. A further eight patients required interventional procedures either at the time of TAVI or afterwards. There were no vascular access related mortalities and no patient required a major amputation secondary to a complication.

Conclusions
The introduction of a TAVI service is likely to affect the workload of your vascular surgery service. However, despite the patient cohort being elderly and with high mortality long-term, few vascular complications occur that are irretrievable. A multi-disciplinary approach with pre-intervention consultation where appropriate is likely to improve outcomes.

VA109P
TREATMENT OF ABDOMINAL AORTIC ANEURYSMS WITH THE LOW PROFILE OVATION ABDOMINAL STENT-GRAFT SYSTEM
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Purpose
To evaluate and report the mid-term safety and effectiveness of the low profile Ovation Abdominal Stent-Graft System in the treatment of abdominal aortic aneurysm.

Methodology
Thirteen patients with AAA (12 males and 1 female; mean age 76.1 years) were electively treated with Ovation Abdominal Stent-Graft System between August 2016 and April 2017. Patients were followed-up through discharge and follow-up appointments were performed at one and six months post intervention.

Results
Technical success was 92.3%, the mean screening time was 29.4 minutes, and the mean length of hospital stay was 2.5 days. The average length of follow-up was 5.9 months (range 2-10 months). None of the patients required conversion to open surgery. There was no aneurysm enlargement, rupture, fracture or migration noted during the study period. One patient was found to have a type Ia endoleak and is currently awaiting a secondary procedure. Two patients were found to have a type II endoleak on follow-up imaging both originating from the IMA. One patient was found to have a 50% aortic stenosis at the graft inflow. Two patients had technically challenging cannulation of the contralateral limb. One of those patients required brachial artery access to complete the procedure while contralateral limb cannulation was performed in the second patient by holding the limb against the sheath. Hospital and 30 day mortality was 0%. No other complications were observed.

Conclusion
Our experience provides early evidence that it is a safe and effective device with high technical success. However, some technical challenges with cannulation of the contralateral limb were noted.
VA110P
USE OF 3D PRINTED MODELS FOR PREOPERATIVE REHEARSAL TO IMPROVE OPERATIVE OUTCOMES PRIOR TO COMPLICATED AORTIC SURGERY

Jason Tioniolo, Andrew Woo, Nathaniel Chiang and Jason Chuen
The Austin Hospital, VIC

Purpose
Endovascular management of complex aortic anatomy can be challenging. Customisable endovascular simulators such as the Symbionix Angio Mentor (Cleveland, Ohio USA) can be used to rehearse prior to surgery and anticipate difficulties, however this equipment is expensive with a closed and limited simulation toolset. This pre-rehearsal could translate to better understanding of the anatomy, shortening of operative times, reduced complication rates and less equipment wastage.

Method
An alternative to computer-based simulation is physical 3d-printed models. A life-size stereolithographic model was segmented using Materialise Mimics Innovation Suite (Leuven, Belgium). An aorta with complicated anatomy was 3d-printed from the supra-aortic trunks to the femoral vessels using Formlabs Clear Resin (Somerville, Massachusetts USA). This was then suspended and secured in a plastic container filled with waterbeads. 8mm transparent polyvinyl tubing was aligned against and taped to the subclavian and femoral arteries of the model. This container was then placed on an angiography suite table. A camera was attached to the gantry and video streamed to a monitor. The surgical procedure was then simulated, allowing the operators to practice cannulating the aortic model and the visceral vessels through the polyvinyl tubing.

Results
This technique can assist in identifying potential technical issues and in preoperative planning with optimization of plans and equipment. Whilst CT imaging is capable of stereoscopic rendering to provide a 3D representation of the aorta; these images can only be viewed in two dimensions, which makes subtleties of complicated anatomy difficult to appreciate.

Conclusion
3D printing is a simple, cheap and viable option that enables the unique ability to simulate complicated operations on anatomy matched to individual patients without expensive computer-based endovascular simulators. Its scope can readily be extended to education and training.

VA111P
XENOPROSTHETIC GRAFTS PROVIDE A SAFE, COST EFFECTIVE TREATMENT FOR MYCOTIC ANEURYSMS AND INFECTED AORTIC GRAFTS

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Objective
No consensus exists regarding the best management of infected aortae. Neoaortoiliac reconstruction has advantages over extra-anatomical bypass grafting; however use of autologous vein is associated with venous hypertension and compartment syndrome, cadaveric homografts are associated with high rates of perianastomotic haemorrhage, limb occlusion and pseudoaneurysm. Arterial repair using xenoprosthetic patches has lower infection rates compared to the use of prosthetic material. The aim of this case series is to report the use of bovine biomaterial for neoaortic repair of mycotic aneurysmal disease and infected aortic grafts.

Methods
Patients with evidence of infected aortic grafts or mycotic aneurysms who were suitable for open aortic surgery were included. Following removal of the graft/excision of the aneurysmal sac, a 10x16cm XenoSure Biological Surgical Patch (LeMaitre, Germany) was rolled into a tube, or bifurcated tube graft, and secured with Prolene sutures. Proximal and distal anastomoses were conducted in a standard manner. Patients were continued on long-term antibiotics and surveyed with CTA at 1, 3, 6 and 12 months.

Results
Six patients underwent such repair 2013-2015: 2 infected Dacron grafts, a mycotic iliac aneurysm, and 3 mycotic aortic aneurysms. All were treated with bovine aortic grafts or patches. Patients had a median age of 69.5 years (range 67-75 years), with peri-operative and 30-day mortality of 0%. Median follow-up 18 months (range 8 – 28 months). Post-operative contrast-enhanced CTA revealed no evidence of infection at the operative site in all patients. Freedom from re-infection and re-intervention was 100%.

Conclusions
Xenoprosthetic (bovine) neoaortic grafts are an alternative, cheap method to treat infected aortae with excellent short term freedom from infection and re-intervention. Optimum duration of post-operative antibiotic therapy remains undetermined. Further cases and longer follow up are required to determine the true efficacy of this technique.
A firm case has been made over the last 40 years to spare the trunk of the great saphenous vein when treating varicose veins patients. One side of the discussion concerns controlling the venous disease better without destroying the GSV trunk and the other side argues possible future requirement of the GSV as an arterial bypass conduit. When considering GSV preservation options the discussion centres around the pathophysiology of great saphenous vein reflux. Vein physicians would agree that most cases of GSV disease develop over time according to the ascending theory where distal tributaries enlarge initially, followed by segmental great saphenous vein reflux and enlargement and this progresses in a proximal direction, ultimately resulting in the sub-terminal and finally terminal saphenofemoral junction valves developing incompetence. This suggests a vein wall problem. In some cases however the patient’s history suggests a descending evolution of disease where the pathology really does start at the top venous valves with reflux extending further down the leg over time.

One must consider how badly diseased is the great saphenous vein trunk. Maybe there is only a small segment involved with disease and in many cases the predominant problem is tributary enlargement and reflux rather than trunk disease. That brings into question the need to treat the GSV trunk at all. The valid questions should be asked: is it possible to rehabilitate this trunk by treating just the tributaries and maybe reconstitute a non-refluxing GSV trunk? Does sparing the GSV trunk lead to a change in recurrence rate? Protagonists of preserving the GSV say it reduces the rate of recurrence. Alternatively, should we be more concerned in terms of arterial bypass material and consider leaving a not-so-diseased GSV for possible use as graft material.

In the 1970’s Professor John J Bergan was championing the notion “save the innocent saphenous vein for the vascular surgeon”. In 1988 some French and Italians developed the CHIVA theory of repairing refluxing venous shunts but leaving the GSV trunk intact. In 1994 Australia’s Rod Lane developed his Venocuff, an external venous valve stent which he designed to wrap around the saphenofemoral junction valve ring to re-establish competence at that valve. In 2003 Dr Paul Pittaluga in France developed the ASVAL technique of surgically eliminating refluxing tributaries coming off the refluxing great saphenous vein. Pittaluga’s results in reducing GSV diameter and eliminating truncal reflux are impressive. Even the Japanese have been active in trying to preserve the saphenous trunk with some publications in 2009 championing angioscopic valvuloplasty and vein transposition.

Therefore there is a case to be made for and various techniques available to preserve the GSV trunk. Remember that venous disease extends over the patient’s lifetime and observing mild or even moderate reflux down a great saphenous vein is certainly allowed depending on clinical situations. As deterioration naturally occurs the treatment options may change. Simple treatment like removing the offending tributaries may slow the deterioration of the great saphenous trunk itself. Taking into consideration the age of the patient, future pregnancies, the current symptoms and the patient’s wishes as to desired treatment outcomes, one can make a case that in some patients the great saphenous vein trunk should be preserved. The unacceptably high recurrence following surgical stripping of the GSV favoured GSV preservation if possible, a position promoted by John Royle in Melbourne. With such good results in the medium term following thermal ablation of the GSV, the argument for preservation of it in order to reduce recurrences has lost ground.

If you opt to preserve the GSV trunk in treating patients with GSV disease, monitoring for future deterioration will be required.

Established peripheral or coronary artery disease with imminent requirement for bypass material must lead the treating physician to consider saving the GSV trunk for future use.

VE001
ANGIOJET PERIPHERAL THROMBECTOMY IN THE TREATMENT OF VENOUS THROMBOEMBOLISM: A SINGLE-CENTRE AUSTRALIAN EXPERIENCE
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Background
Pharmacomechanical thrombectomy is increasingly used as an adjunct to anticoagulation in the treatment of venous thromboembolism (VTE). We present our experience using the AngioJet peripheral thrombectomy system (Boston Scientific) in treating VTE.

Methods
A retrospective audit of AngioJet cases performed at The Townsville Hospital between 2015 and 2017 was conducted. Clinical, procedural and follow-up data were recorded for each patient.
Results
A total of 17 patients were treated with 19 AngioJet procedures, with a mean age of 37.9 years. 14 procedures (73.6%) were performed for iliofemoral deep venous thrombosis (DVT), 4 procedures (21.1%) for subclavian DVT and 1 procedure (5.3%) for massive pulmonary embolism (PE). 6 patients (35.3%) had no discernible predisposing factors contributing to development of VTE. 1 patient had a semi-elective procedure at 262 days post-DVT to treat pelvic congestion. All other patients had urgent procedures at a mean of 2.2 days post-event. Pharmacological thrombolysis with tissue plasminogen activator (tPA) was used in addition to mechanical thrombectomy in 17 procedures (89.5%), with a mean dose of 9.2 mg. An inferior vena cava (IVC) filter was placed in 10 patients (58.8%). The mean procedure time was 111.6 minutes. All 17 patients had radiographic and clinical success at the time of hospital discharge. The mean admission duration was 3.3 days, with mean follow-up of 237.8 days. 3 patients (17.6%) had treatment-related PE, with significant association with upper limb DVT (p = 0.009). 15 patients (88.2%) reported resolution of symptoms at follow-up. Failure at follow-up was associated with increased age (p = 0.015), active smoking (p = 0.008) and longer time from diagnosis to procedure (p = 0.007).

Conclusion
Our experience demonstrates that the AngioJet peripheral thrombectomy system is an effective method of treating VTE. Early treatment and appropriate patient selection is critical to achieve good clinical outcomes.

VE002
DEVELOPMENT AND ECONOMIC BENEFIT OF A NURSE DELIVERED VARICOSE VEIN SERVICE
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Purpose
The treatment of patients with varicose veins constitutes a considerable workload and financial burden to health care systems. We report one Scottish centres experience developing a new model of nurse delivered varicose vein service.

Methodology
Clinical assessment is undertaken by a nurse specialist in a ‘one-stop’ outpatient clinic; this includes duplex ultrasound imaging, physical examination and choice of treatment pathway. Endo Venous Laser Therapy (EVLT) is performed independently by a nurse specialist in both theatre and outpatient clinic settings. Outcome measures include: patient satisfaction, post-operative complications, patient waiting times and cost. We aimed to reduce waiting times to <84 days.

Results
865 patients (516 Female, 349 Male) were treated independently by a nurse specialist between 2012 and 2017. Rate of post-operative complication was 1.5%. Mean patient satisfaction score was high (8 on a 10 point Likert scale. SD=1.9). Comparison of operator cost alone shows a specialist nurse costs 52% less than a surgeon. Nurse delivered treatment in an outpatient clinic, compared to surgeon delivered treatment in theatre results in a 29.5% cost reduction per case (£551 versus £388.63). Waiting time from referral to assessment reduced from mean 110 days (SD=5.65) to 70 days (SD=9.81); time from assessment to treatment reduced from mean 99 days (SD=9.19) to 75 days (SD=7.52).

Conclusion
At a time of increased economic pressure, high quality vascular services can be delivered through development of the non-consultant workforce. Safe, modern treatment of symptomatic varicose veins can be delivered by specialist nursing staff resulting in high patient satisfaction, cost savings and increased consultant capacity.

VE003P
PILOT STUDY: NEAR-INFRA RED IMAGING OF THE MICROVENOUS NETWORK
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Purpose
We conducted a pilot study of venous network imaging using a near-infra red (NIR) laser and camera to fluoresce indocyanine green (ICG) contrast. Our objective was to explore the microvascular imaging capabilities of this modality in patients with and without clinical evidence of venous disease. Imaging the microvenous network is difficult. Successful imaging however could lead to better understanding of venous disease, in the hope of identifying people at risk of developing venous ulceration early. Previous work by our research group with retrograde resin casting of amputated limbs, and with Superb Microvascular Imaging (SMI) ultrasound, has shown that microvenous incompetency can be demonstrated, even in those with no evidence of venous disease on duplex ultrasound.
Methodology
Nine participants (4 non-diseased, 5 diseased) gave written informed consent. Degree of venous incompetence was determined on duplex ultrasound. A NIR emitting device (805 nm) was used to fluoresce the ICG contrast, and this was captured by the NIR camera and recorded and displayed in real time. Patients received systemic and local injections of ICG into the great saphenous vein.

Results
Images acquired by the NIR camera showed discernible blood vessels, and quantifiable data were obtained for the dye intensity. We identified three phases in the images of systemically injected patients (arterial, capillary, and venous). We have distinguished flares in the imaging sequences that we hypothesise represent microvenous incompetence, and the level of flares increased in the more diseased patients.

Conclusion
With NIR imaging we can discern abnormalities in the microvessels (up to 5 mm depth) using both systemically and locally injected contrast, and this modality may be more sensitive than duplex ultrasound as we have identified microvenous flares in a patient that clinically, and on a duplex ultrasound, had no evidence of venous disease.

VE004P
ULTRASOUND GUIDED FOAM SCLEROTHERAPY: DOES SIZE MATTER?
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The Austin Hospital, VIC

Purpose
Ultrasound-guided foam sclerotherapy (UGFS) is a low-cost and minimally invasive treatment option for varicose veins. There is a relative paucity of outcome reports.

Methods
UGFS at a tertiary hospital between 2010 and 2017 were studied. Treatments were either the greater saphenous vein (GSV) or short saphenous vein (SSV). Pre-treatment, in-treatment, 6-week and 1-year post-treatment ultrasound reports were analysed. Vein diameters were measured at 3cm below the respective junctions. Primary outcome was to determine if vein diameter would predict recanalisation.

Results
456 treatments were completed in 289 patients. 372 (81%) targeted the GSV. Mean vein diameters of the GSV were smaller than SSV [5.5 +/- 1.9mm (GSV), 6.2 +/- 2.6mm (SSV); p=0.024]. 109 (24%) had CEAP of at least 4.

At six weeks, complete obliteration, partial recanalisation and complete recanalisation rates for GSV were 55%, 29% and 13% respectively. Of the 251 veins with complete obliteration at six-weeks, partial and complete recanalisation at one-year was 21% and 26%, respectively. Regarding the SSV system, complete obliteration, partial recanalisation and complete recanalisation at 6-weeks were 51%, 30% and 13%, respectively. Similarly, partial and complete recanalisation at one-year was 26% and 18%, respectively. Using Student-t test, increasing vein diameter was associated with partial or complete recanalisation at 6 weeks [5.4 +/- 2.0mm (obliteration) cf. 5.9 +/- 2.2mm (recanalisation); p=0.036] and 1 year [4.7 +/- 1.7mm (obliteration) cf. 5.7 +/- 2.0mm (recanalisation); p=0.036]. Vein diameter of greater than 6mm was not associated with recanalisation (p=0.07). 15 (3%) new onset DVTs, and 11 (2%) injection-related ulcers reported on follow-up.

Conclusion
More than 50% achieved complete obliteration at 6 weeks. Significant sonographic recanalisation developed at one-year. Increased vein diameter was associated with recanalisation. Their impact on clinical recurrence is unknown.

VE005
THE ART OF SELECTING THE RIGHT TREATMENT METHOD(S) FOR DIFFERENT GSV REFUXING PATTERNS: ESTABLISHING A GSV TREATMENT PLAN
G Mark Malouf

After taking a medical history and performing a physical examination of the legs in a patient with varicose veins the next step is comprehensive venous duplex mapping performed in the standing position, preferably by the treating doctor or their trusted vascular sonographer, to create a venous map to explain the clinical situation. With respect to the GSV trunk, tributaries and territory, certain questions have to be answered and recorded. These include flow at the terminal and subterminal valves, the trunk diameter and the proximal and distal extent of venous reflux. Very commonly the GSV trunk is not sitting in the saphenous compartment down on the deep fascia, with the depth beneath the skin varying. The GSV trunk may not be continuous, often absent in the middle third of the leg, replaced by tributaries. The extent of the reflux below the knee in the great saphenous vein is important to record and also what the major tributaries are doing, especially including the anterior accessory saphenous vein in the thigh. Reflux in the GSV trunk reflux may not originate from the GSV itself but may arise from pelvic escape veins, perforator incompetence or even small...
saphenous vein reflux via intersaphenous connections. All of this has to be recorded carefully on the venous map which becomes the basis of formulating the treatment plan. With so many possible GSV refluxing patterns you must have available a treatment plan for all possible patterns of reflux. Such treatment options include the conservative options of losing weight and doing more walking and taking venoactive drugs and wearing graduated compression stockings. Most cases require interventional treatment. The important considerations are the saphenous trunk, above and below the knee, the AASV and other major tributaries, and more important to the patient the varicosities themselves and the cosmetic spider veins. Options here include thermal ablation, sclerotherapy, either liquid or foam, and open surgery that might include ligation and stripping of the trunk accompanied by phlebectomies, or possibly phlebectomies alone. Thermal ablation, now in the ascendency, employs laser or radiofrequency heat to destroy GSV trunks, the AASV and pathological perforating veins; thermal ablation requires tumescence. The recently introduced non-thermal non-tumescent options such as cyanoacrylate vein glue and mechanico-chemical ablation are gaining ground. Therefore all of these treatment options should be available to you for use in your “a-la-carte” treatment plan for each leg treated.

Controlled trials comparing different types of GSV treatments all conclude that whatever method you choose it does improve the patient’s quality of life. Guidelines by major venous organisations around the world suggest that thermal ablation is now the preferred treatment method for the GSV trunk from groin to the upper calf level and that conventional surgery and ultrasound guided foam sclerotherapy alternate for second and third choice. Treatment of GSV tributaries, by either sclerotherapy or phlebectomies, must be a vital part of the treatment plan, either at the time of truncal treatment or delayed. GSV treatment choice would be modified by exactly what is found on the duplex mapping in terms of extent of reflux, depth and complexity, what you and the patient define as the desired end point of treatment, what treatment options you are trained in and comfortable with and the logistics and cost of the various procedures.

In Australia most GSV’s are currently treated using thermal ablation combined with either sclerotherapy or phlebectomies for the tributaries. Cyanoacrylate glue GSV closure is increasing in frequency, and allows extension of treatment to refluxing below-knee segments with no fear of nerve damage. This treatment has excellent short term results. Ultrasound guided foam sclerotherapy, either with multiple puncture sites or using an intravenous catheter is performed by many doctors in the case of a narrow GSV trunk. Below knee great saphenous vein reflux is currently mostly treated with UGFS possibly combined with removal of the larger tributaries using stab avulsions. Mechanicochemical ablation combines sclerotherapy with endovenous trauma and abrasion. Numerous trials prove its efficacy but as yet has not been employed widely in Australia. It remains part of your armamentarium.

Whatever treatment plan you devise for a specific set of veins you have to be able to carry it out in a sensible and timely and cost effective fashion. Thererfore make sure you are across all the various options. The future trend in venous treatments is moving out of the hospital setting into a procedure room setting organised to cater for the various treatment options.

NU001
KEYNOTE ADDRESS: APPLYING EVIDENCE-BASED GUIDELINES FOR LOWER EXTREMITY PERIPHERAL ARTERY DISEASE
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Purpose
Approximately 202 million people worldwide have lower extremity peripheral artery disease (PAD). PAD affects the lives of 8.5 million Americans ages 40 years and older; and significantly impacts morbidity, mortality, and quality of life. The purpose of this presentation is to describe the process and discuss specific evidence-based recommendations to diagnosis and manage individuals with lower extremity PAD.

Methodology
The American Heart Association (AHA) and American College of Cardiology (ACC) lead the development of a new PAD guideline. Representatives of professional organizations with expertise in PAD were nominated for the inter-professional writing committee. Two doctoral nurses served on the committee representing the Society for Vascular Nursing and the Society for Vascular Medicine. Committee work was comprised of face-to-face meetings and biweekly conference calls over 2-years. Literature was systematically reviewed and appraised. Quality and level of evidence were peer reviewed, voted upon, and externally peer reviewed.
Results
Guidelines were premiered at the 2016 AHA scientific sessions and jointly published by the AHA and ACC. Specific recommendations encompass the clinical assessment, history and physical exam, resting and exercise ankle brachial indexes, physiological testing, and imaging studies. Guidelines include the role of pharmacological agents: antiplatelets, oral anticoagulants, statins, antihypertensives, and cilostazol. Recommendations on glycemic control, smoking cessation, vascular screenings, and exercise interventions are described. Options to minimize tissue loss and surgical revascularization for claudication are discussed.

Conclusion
Clinician knowledge and application of national guidelines may be useful in diagnosing and managing patients in Australia with lower extremity PAD. Nurses should be encouraged to participate in guideline development and implementation.

NU002
PERIOPERATIVE DIABETES MANAGEMENT: A BEST PRACTICE IMPLEMENTATION PROJECT
Tanghua Chen
Liverpool Hospital, NSW

Type 2 diabetes is recognised as the fastest growing chronic disease in Australia and other countries, diabetes is a frequent co-morbidity amongst inpatients and it affects 10-15% of the surgical populations, surgery accompanies high mortality and morbidity in diabetes patients. Optimisation of diabetes management in periop will improve quality of care delivery and prevent post op complications.

The aims of this project:
• To conduct an audit of perioperative management of patients with diabetes
• To implement evidence-based best practice recommendations around perioperative diabetes management using Joanna Briggs Institute (JBI) best practice recommendations
• To assess the effectiveness of these strategies in optimising perioperative diabetes management

Results to be updated later.

NU003
ABDOMINAL AORTIC ANEURYSM (AAA) SCREENING – OUTCOMES AND LEARNINGS FROM A 12 MONTH PILOT
Frank Guerriero, Richard Allan and Ji Spark
Flinders Medical Centre, SA

Abdominal aortic aneurysms (AAA’s) are a dilation of the aorta below the diaphragm to a diameter of 3 cm or greater. With a large majority of AAA’s being asymptomatic and high mortality rates associated with rupture (90%) there is a strong argument for the implementation of screening programs to facilitate early identification of this silent and deadly disease.

In May 2016 the Flinders Medical Centre Vascular and Endovascular Surgery Department, in conjunction with a local Community Health Clinic (GP Practice), launched a pilot program offering free screening to members of the general public for AAA disease.

The initial screening population was both men and women aged 65 and over. This criterion was later revised to: any man aged 65 and over and women aged 65 and over who have one or more significant risk factors (smoking history, high blood pressure or family history).

The pilot successfully screened 578 patients in 2016, with a total of 9 (1.5%) clinically significant (≥3.0cm) AAA’s detected. This result is lower than previously published international prevalence data, reported as being 4-7% in men aged ≥651,3.

This presentation provides a discussion of the findings and outcomes of the pilot South Australian AAA screening program. Costings and learnings will also be discussed for consideration in future AAA screening programs.

NU004
AMPUTATION IN AUSTRALIA AND NEW ZEALAND: AN ANALYSIS OF 20,669 CASES FROM THE AUSTRALASIAN VASCULAR AUDIT DATABASE
Guilherme Pena, Prue Cowled, Joseph Dawson, Brenton Johnson, Barry Beiles and Robert Fitridge
Royal Adelaide Hospital, SA

Purpose
The purpose of this study was to analyse amputation data in Australia and New Zealand since establishment of Australasian Vascular Audit (AVA) database in 2010. Incidence of comorbidities among patient who underwent amputation and hospitalization/rehabilitation costs were explored.

Methods
Amputation data from the AVA over the 6-year period 2010-2015 was retrospectively analysed. Total admission costs for patients who underwent amputation within our institution and rehabilitation were examined.

Results
A total of 20,669 amputations were recorded in the AVA between 2010-2016. Most of those procedures were minor amputations (13,515); 12,115 were performed in Australia and 1,400 performed in New Zealand. Among patient who underwent minor amputations 79% had diabetes and 62% had a smoking history. The median length of stay for minor amputations was 11 days. 7,154 procedures were major amputations, 5,795 performed in Australia with above knee/below knee (AKA/BKA) ratio of 0.74 and 1,359 procedures done in New Zealand with AKA/BKA ratio of 1.02. 60.5% of patients who had major amputation were diabetic and 67% had a smoking history. The median length of stay for major amputation was 20 days.

Cost analysis of amputations conducted at the Royal Adelaide Hospital revealed average total admission cost of 18,153 AUD for minor amputations and 35,016 AUD for major amputations. Fifty two percent of patient who had major amputation were discharge to rehabilitation facility. The average length of stay in rehabilitation across two Local Health Network in Adelaide was 27 days with estimated costs of 12,33 AUD per day.

Conclusion
This is a comprehensive dataset of amputation in Australia and New Zealand. The incidence of diabetes is higher than previously reported, reflecting the increasing incidence within the general population. We found that the resource allocation by hospitals and direct economic burden of amputations in Australia and New Zealand is high.

NU005
ROLE OF EXERCISE IN PATIENTS WITH PERIPHERAL ARTERY DISEASE: EVIDENCE-BASED GUIDELINES
M. Eileen Walsh
College of Nursing University of Toledo, Ohio, United States of America

Purpose
Approximately 202 million people worldwide have lower extremity peripheral artery disease (PAD). PAD significantly impacts morbidity, mortality, and quality of life. Major clinical trials have supported the role of supervised exercise in patients with PAD, however, few programs dedicated to exercise rehabilitation exist. Supervised exercise improves physical function, quality of life, pain-free walking distance, and reduces cardiovascular risk. The Exercise & Sports Science Australia position statement and recent American guidelines advocate for exercise in PAD patients. The purpose of this presentation is to describe current evidence-based recommendations specific to exercise and to discuss potential barriers.

Methodology
The American Heart Association and American College of Cardiology lead the development of an all-encompassing PAD guideline. Representatives of professional organizations with expertise in PAD served on the inter-professional writing committee. Committee members reviewed the scientific literature on exercise interventions. Search terms included but were not limited to: exercise rehabilitation, exercise therapy, exercise training, and supervised exercise. Recommendations were peer reviewed, voted upon, and externally peer reviewed.

Results
Exercise guidelines are class I and class II levels of recommendation as there is sufficient supportive evidence from randomized control trials. Recommendations for structured exercise within a hospital or outpatient facility and at a community or home-based setting are defined. Frequency, duration, level of supervision, and use of behavioral change techniques are addressed. Modalities such as walking, cycling, and upper-body ergometry are discussed. Potential barriers, including reimbursement issues are mentioned.

Conclusion
Exercise is an important intervention in the management of patients with PAD. Clinicians should promote exercise in accordance with the evidence-based guidelines.
NU006
OUTCOMES OF OPEN LOWER LIMB ARTERIAL SURGERY IN NEW SOUTH WALES
Sarah Aitken, Fiona Blyth, Deborah Randall and Vasi Naganathan
Concord Institute Academic Surgery, NSW

Purpose
Open arterial revascularisation for peripheral arterial disease carries considerable risk for patients. Australian data on outcomes following lower limb arterial surgery is limited. Data-linkage allows for greater evaluation of procedural frequency, patient characteristics and outcomes for these patients.

Methodology
A cohort of all patients in New South Wales (NSW) who had infrainguinal lower limb arterial revascularisation in 2010-2012 was drawn from the NSW Health Admitted Patient Data Collection and linked to the Births Deaths and Marriages Death registry. Endovascular procedures and hospital admissions solely for haemodialysis were excluded.

Results
4041 open revascularisation procedures for lower limb ischaemia were performed on 3516 patients. Patients were older (median 75 years), had significant comorbidities (39% had charleston score moderate to severe) and averaged 20 days (IQR 8-53) in hospital. 35% of patients had at least one readmission for any cause within 3 months of their procedure (P<0.0001). Overall mortality was high with survival analysis demonstrating the average time to death was 3.14 years (SE 0.1). Lower limb embolectomy had a greater all cause mortality than bypass or endarterectomy (32% vs 26%, P <.0001). Increasing age was associated with more adverse outcomes. Patients aged 75 years or older remained in hospital longer than younger patients (41% vs 25% exceeded the median stay, P=.001), were more likely to be readmitted within 3 months (39% vs 33%) and had a higher risk of nursing home placement. High Charlson comorbidity scores were significantly associated with increased mortality, intensive care requirements but not longer lengths of stay. Emergency admissions had higher mortality and length of stay.

Conclusion
Lower limb revascularisation procedures are commonly performed in NSW and carry significant morbidity and mortality. Increasing age, comorbidities and the need for emergency surgery can predict adverse outcomes.

NU007
EXPERIENCING CHAOS: PATIENT AND FAMILY EXPERIENCES OF HOSPITALISATION FOR CLI-RELATED AMPUTATION
Susan Monaro, Jana Pinkova, Janice Gullick and Sandra West
Concord Repatriation General Hospital, NSW

Purpose
To understand the experience of hospitalisation for patients and families in the lead up to major amputation for critical limb ischaemia (CLI).

Background
Patients with CLI are generally aged and frail and have other considerations such as comorbidities and geriatric syndromes. Patients who proceed to amputation have extended lengths of stay in acute care with poor outcomes, and many require institutionalisation or transition to rehabilitation in a poor state. Understanding what happens to these patients when they are hospitalised with a view to amputation will contribute to providing patient-centred care and improve patient outcomes.

Methodology
This qualitative study used Heideggerian Phenomenology to develop understanding of their experience of hospitalisation. People with CLI who had been advised to undergo major amputation and their carer were recruited for semi-structured interviews (1) before amputation was performed and (2) 3-6 months following the surgery. Interviews were conducted between September 2014 and March 2016 and were recorded and transcribed verbatim then analysed using a hermeneutic framework.

Results
Fourteen patient and 13 carers were recruited for an initial interview. Eight patients and seven carers proceeded to the second interview. Analysis uncovered the following themes: chaotic care (the frail body and the frail mind, nurse busyness, and increased care vigilance), chaotic environment (noise, unreliable space, precariousness of accommodation, and unpredictable scheduling), and chaotic communication (multiple stakeholders, information overload and inconsistencies, and cultural and linguistic differences). The experience of hospitalisation for CLI, with or without amputation was one of chaos.

Conclusions
Patients and family members need a range of strategies to achieve mindful decision-making in preparation for amputation. A greater focus on preparation for the possibility of amputation and frameworks of care that support preparation and adjustment are of vital importance.
NU008
MINDFUL CARE: ENHANCING THE PATIENT AND FAMILY EXPERIENCE OF MAJOR AMPUTATION
Susan Monaro, Jana Pinkova, Janice Gullick and Sandra West
Sydney Local Health District, NSW

Background
Progression to critical limb ischaemia (CLI) often necessitates an unplanned admission to acute care and consideration of major amputation. Many patients with CLI are also elderly and/or frail and have or are at risk of geriatric syndromes. The potential for which is increased with the change in environment and their rapid decline in health and mobility.

Aim
This paper discusses current approaches to mindful care, communication strategies, and environmental optimisation developed to address the complex care needs of patients hospitalised for CLI-related major amputation.

Discussion
Proactive nursing assessment and management of the CLI patient as they enter acute care is important in improving the patient and family experience, and patient outcomes. Mindful care of the person undergoing amputation requires an approach that tailors understanding of the surgical and geriatric risks to encompass both the fragile mind and body while addressing and individualising the following areas of physical care: nutrition and hydration, continence, skin and wound care, and management of pain and mobility deficits. Physical care then begins with risk assessment and a focus on reduction of risk for falls, pressure injuries, and delirium. The necessary care then needs to be delivered in a safe and mindful environment that includes determination of the optimal manual handling approaches and tolerable levels of sensory stimulation. Psychological care requires engagement with the person as they prepare for and recover from amputation and assists both recovery and the recognition of problems such as cognitive impairment and depression.

Conclusions
Attention to both physical and psychological care, timely and appropriate communication, and the creation of a mindful environment should be tailored towards the specific needs of the elderly and often frail person hospitalised for a CLI-related major amputation to assist in mitigating what for many is a chaotic experience.

NU009
A RANDOMISED TRIAL OF NEGATIVE PRESSURE WOUND DRESSINGS FOR LOWER LIMB AMPUTATIONS
Stuart Walker
Royal Hobart Hospital, TAS

Purpose
Negative pressure wound dressings have become commonplace in the management of open surgical wounds. There have been suggestions that negative pressure wound dressings for at risk surgical wounds closed primarily may reduce surgical wound complications. This study investigates the potential advantage of negative pressure wound dressings for lower limb amputation wounds.

Methodology
A randomised study of conventional wound dressing (wool and crepe) versus negative pressure wound dressing (PICO) in patients undergoing lower limb amputation in a tertiary level teaching hospital department of vascular and endovascular surgery. All wounds were closed in a standard fashion with Vicryl to fascia and interrupted nylon to the skin. The dressing were left intact for 5 days following surgery and then followed with conventional wound dressings. The primary end point was the need for any surgical intervention to the amputation within 3 months of the index procedure. Secondary end points included wound infections within 6 weeks.

Results
Over a 48 month period, 49 patients underwent a below or above knee amputation. Of these, 38 patients were recruited and completed the study, 19 in each group. The two groups were well matched in terms of sex (11 males in wool and crepe and 12 in PICO), age (mean age of both groups was 68 years), comorbidities and indications for surgery. The primary end point occurred in 3 patients in each group, 2 conversions of below knee amputation to above knee amputation in each group, one shortening of an amputation in the PICO group and one haematoma wash out in the wool and crepe group. There was no difference in wound infections between the two groups (26% vs 15% p 0.426)

Conclusion
Early results from this small randomised study suggests that there is no advantage to negative pressure wound dressings for lower limb amputation wounds closed primarily.
NU010
MINIMISING PAIN AT DRESSING CHANGES REDUCES THE NEED FOR THEATRE TIME
Karen Nixey
Waikato Hospital, Hamilton, Waikato, New Zealand

NZ Ministry of Health targets place an emphasis on throughput of patients with the 2016/2017 target stating the volume of elective surgery will be increased by an average of 4000 discharges per year. Never before have DHBs been under more pressure to provide the greatest good for the greatest number. However nursing has long been a proponent of the concept of patient-centred care and this work looks at whether, for a small subset of patients, there is an alternative to the operating theatre and general anaesthesia (GA) for those who experience extreme pain during dressing changes.

The patient who provided the motivation for this work was a 55 year old male who returned to theatre eleven times in six weeks for dressing changes. The impact on the patient is investigated as well as the cost to the health system including opportunity cost. Four main themes are explored:

• Negative pressure wound therapy and is dressing change really that painful?
• The relationship between pain, stress and wound healing
• Are general anaesthetics toxic to the brain?
• Alternatives to general anaesthetics

The GAs did indeed allow the patient to experience pain free dressing changes but appeared to mean he experienced drowsiness, confusion, hallucinations and cognitive decline. What then are the alternatives? Penthrox as well as ketamine and midazolam provide promising pharmacological interventions, however, on a ward it is time rich interventions that are most easily accessed. Distraction of the patient, explanation of what pain relief was and when it would work, coaching on how to utilise the Entonox, allowing the patient to take down their own wound dressing and ask questions, all proved subsequently to be effective in reducing pain and anxiety during wound dressing changes. This then leads to a reduction in the need for a GA and frees up valuable theatre time benefiting both the patient and the hospital.

NU011
EXTRACORPOREAL SHOCKWAVE IN THE TREATMENT OF VENOUS ULCERATION: A PILOT STUDY
Ben Cooper
Aberdeen Royal Infirmary, Aberdeen, United Kingdom (Great Britain)

Purpose
Venous ulceration of the lower limbs is a well-recognised, chronic condition. It affects a significant proportion of the population, results in reduced quality of life (QOL) and is associated with substantial financial burden to health care systems. This pilot study investigates the use of extracorporeal shock wave (ECSW) in the treatment of chronic venous ulcers. Primary aim: to assess clinical effectiveness of this treatment when combined with current best practice, multilayer compression bandaging.

Methodology
28 participants were recruited (14 Male, 14 Female). Venous reflux confirmed by duplex ultrasound (24 great, 4 small saphenous). ECSW was administered at two week intervals alongside best practice treatment, simple primary dressings and multilayer compression therapy. Participants were followed up at 6 and 12 months. Outcome measures: Wound area, time to healing, pain scores, exudate levels and QOL.

Results
21 wounds reduced surface area by ≥50%; of these 9 healed. Median time to wound closure was 8 weeks (IQR=5). Median wound area for the cohort reduced from 22.89cm² (IQR=36.49) at baseline to 6.50cm² (IQR=19.26) at follow up, a statistically significant 72% reduction (p<0.001). Pain scores and exudate reduced for 96% of participants. Median pain score for the cohort reduced from 6 (IQR=3) at baseline to 2 (IQR=4) at follow up, a statistically significant reduction (p<0.001). Quality of life improved for the whole cohort with statistical significance (p<0.001), regardless of wound healing outcome. Of the patients whose wound healed, none had recurred at 12 month follow up.

Conclusion
Shockwave therapy should be regarded as a safe treatment worthy of consideration. There appears to be substantial benefit in the treatment of large ulcers, of long duration, not responding to multilayer compression therapy.
Abstracts (cont’d)

**NU012**

AN INTEGRATED MODEL OF WOUND PREVENTION AND MANAGEMENT ACROSS THE COMMUNITY-HOSPITAL CONTINUUM

Grace Manjoro, Susan Monaro, Catherine Johnson, Ian Reid and Charles Fisher
Northern Sydney Local Health District, NSW

Introduction
There is increasing support for the management of complex wounds as a team. This project aims to implement a new model of patient-centred wound prevention and management across the care continuum via improving access to and interconnectedness of existing services.

Background
Wounds are a significant burden to the patient and the health care system. Rapid expansion of wound management products and devices, and the transition of care delivery to outside the acute setting has led to more complex wounds being managed across multiple care settings. Many wounds are at risk of chronicity and then recurrence if the appropriate prevention strategies and surveillance are not undertaken. Lack of integration of wound prevention and management across the care continuum may contribute to poor patient outcomes and increased cost. Whilst there have been workforce initiatives such as specialisation and advanced practice positions, these have not been well integrated with other areas, particularly primary care.

Aim
To measure wound prevention and management activity and outcomes in one local health district in the Sydney metropolitan area across the community-hospital continuum in response to a new model of care.

Method
Mixed method.

Progress
The model will be described and the outcomes to be measured to demonstrate changes in response to the new model of care include:

Patient and carer
- Level of engagement and satisfaction with wound prevention and management
- Access to wound services
- Quality of care in wound prevention and management
- Reduced healing times and reduction of wound recurrence

Organisational:
- Clinical practice and documentation standards
- Work force training
- Cost-efficiencies
- Clinician satisfaction

**NU013**

REVIEW OF CURRENTLY AVAILABLE SCORING SYSTEMS IN DIABETIC FOOT ULCERATION

Simon Joseph, Raden Aragarini, Kurt Smith, Daniel J Green and Shirley J Jansen
Sir Charles Gairdner Hospital, WA

The significance of diabetic foot ulcers (DFUs) in Australia is evident with estimates that as many as 400 new diagnoses made each week.1 Numerous scoring systems have been proposed for assessment of DFUs. However, no single method is accepted as the gold standard system for grading ulcers. The Meggitt-Wagner (MW) and University of Texas (UT) systems have historically been implemented and shown to have high positive predictive value in estimating lower extremity amputation. However, the MW system, while linear and simple to use, fails to incorporate peripheral artery disease (PAD) and the presence of infection. Both systems also exclude peripheral neuropathy as a scoring criterion. This limits applicability as neuropathy, infection and PAD are of key importance in ulcer outcomes.

Newer methods such as the PEDIS system (Perfusion, extent, depth, infection and sensation) and the Society for Vascular Surgery WIfI (wound, ischaemia, foot infection) system incorporate ulcer characteristics with factors such as infection and perfusion. Early validations of these systems suggest that despite being more complex, they have superior sensitivity and specificity in predicting adverse ulcer outcomes than the MW and UT systems. All currently used systems score existing DFUs. There are currently no systems used for scoring a patient without ulcers in order to quantify the risk of subsequently developing ulceration.

We present a literature review of current scoring systems in the context of a proposed longitudinal prospective trial in which diabetic patients will be followed for a period of 6 months and receive investigation using a series of novel tests including laser doppler flowmetry (LDF) and optical coherence tomography (OCT). Investigation of suitable assessment techniques in diabetic patients could be combined with existing scoring systems to generate new methods for risk stratifying diabetic patients.

NU014
MANAGEMENT OF DIABETES RELATED FOOT DISEASE: THE CURRENT AUSTRALIAN PRACTICE STANDARD
Molly Gilfillan, Laurens Manning, Emma Hamilton, Paul Norman and Carsten Ritter
Fiona Stanley Hospital, WA

Purpose
Diabetes-related foot disease (DRFD) is the most common diabetic complication worldwide and confers a significant morbidity, mortality and economic burden. Poor outcomes occur despite increasing awareness and efforts to streamline treatment. Current guidelines advocate a multidisciplinary approach to DRFD patients. Unfortunately diabetic foot care remains highly variable and lacks standardisation.

We aim to establish the current clinical management standard for DRFD in Australia and compare it to international recommendations.

Methodology
A survey was distributed to all Australian vascular surgeons on the ANZSVS database (N=195) investigating aspects of DRFD management in each member’s institution. Responses were collected over a 3-month period and data analysed using descriptive methodology.

Results
The response rate was 26.67% (52 of 195). Tertiary metropolitan hospitals were identified as the primary location of practice (67.31%), with a majority of 33 respondents (63.0%) working in a centre with a Multidisciplinary Diabetic Foot Unit. However, only 8 (25.81%) had independent admitting rights with the majority of DRFD inpatients being managed under vascular surgery as the primary admitting team (84.25%).

The composition of the MDFU was heterogeneous, with most units consisting of vascular surgeons (88.89%), infectious diseases specialists (88.89%), endocrinologists (83.33%) and podiatrists (94.44%) as core members. Diabetes and wound management nurse specialists were present in 44.44% and 55.56% of MDFUs respectively. Follow up was varied according to the degree of vascular intervention and initial admitting team.

Conclusion
Most tertiary centres in Australia provide their diabetic foot service in a multidisciplinary environment however the implementation and composition of services remain varied. International recommendations for dedicated inpatient MDFU teams seem not yet fully achieved and development of the existing services should be encouraged.

NU015
NEAR INFRARED SPECTROSCOPY IN THE ASSESSMENT AND MANAGEMENT OF DIABETIC FOOT ULCERS
Simon Joseph, Raden Argarini, Chi Ho (Ricky) Kwok, Kurt Smith, Daniel J Green and Shirley J Jansen
Sir Charles Gairdner Hospital, WA

Chronic wounds secondary to diabetic foot ulceration contribute significantly to Australian healthcare cost and disease related morbidity. Moreover, a significant proportion of diabetics with foot ulceration progress to requiring amputation, which further contributes to the disease burden. Management and assessment of diabetic foot ulcers are complicated by the availability of varied treatments which have different efficacies in different individuals; limitations in current systems of assessing peripheral perfusion in diabetics; and the lack of a strong predictive test to identify high risk patients and prevent ulceration.

Near infrared spectroscopy (NIRS) is a novel technique that may prove useful in the identification and early intervention of ulcers at risk of non-healing. NIRS delivers modulated light at predefined wavelengths and collects backscattered light to measure the change in signal amplitude and change in wavelength phase. These measurements can be used to quantify the concentration of oxyhaemoglobin and deoxyhaemoglobin at small distances below the skin surface and hence provide a quantitative measure of superficial microvascular status.

Small studies using NIRS in diabetic wounds have shown higher concentrations of oxyhaemoglobin when compared to the contralateral control limb. Furthermore, a weekly downward trend in oxyhaemoglobin concentration over one month showed significant predictive value in determining ulcer healing. Ulcers that did not heal showed no linear regression in oxyhaemoglobin concentration.

Evidence regarding the use of NIRS as a test to predict future ulceration in diabetic feet does not currently exist. We present the current literature regarding NIRS in management of diabetic foot ulceration in the context of a planned prospective longitudinal study of NIRS compared to laser doppler flowmetry and optical coherence tomography in non-invasive assessment of microvascular status of the diabetic foot and in ulcer outcomes.
Abstracts (cont’d)

**NU016**
THE MULTIDISCIPLINARY DIABETIC FOOT UNIT AS A MEANS TO ECONOMISING VASCULAR INPATIENT ADMISSIONS

Molly Gilfillan, Tina Dilevska, Lydia Lamb, Lauren Manning, Emma Hamilton, Paul Norman and Carsten Ritter
Fiona Stanley Hospital, WA

**Purpose**
The lifetime risk of a foot ulcer in diabetics is 20-25% leading to over 10,000 foot-related hospital admissions annually in Australia. The amputation rates for these patients are high with inpatient management remaining variable.

This study aims to investigate the admission pattern for patients with diabetes related foot disease (DRFD) in Australia with a focus on admissions to vascular surgical units. This is then compared to revascularisation requirements during admission, highlighting the organisational and practical benefits of a multidisciplinary foot unit (MDFU) with own admission rights.

**Methodology**
An online survey was distributed to all 195 Australian members of the ANZVS investigating aspects of DRFD management in each member’s institution. This was correlated to the outcome of a retrospective analysis of all patients admitted to the MDFU at Fiona Stanley Hospital over a period of 1 year.

**Results**
From the survey 52 responses were received (26.7%). The majority of respondents (84.25%) identified vascular surgery as being the primary admitting specialty for DRFD patients. This finding was consistent even in centres with a MDFU. Only 25.81% MDFUs had independent admission rights.

Fiona Stanley MDFU has independent admission rights to beds allocated to the unit. From February 2015 to February 2016 a total of 128 patients accounted for 158 DRFD admissions. The median length of hospital stay was 8.5 [6.0 – 15.0] days. Of the 128 patients, 59 (33%) required arterial imaging but only 16 (10%) required inpatient revascularisation. A total of 72 (46%) debridements were performed with 54 (34%) proceeding to amputation (31% minor, 3% major).

**Conclusion**
Only a small number of patients admitted for DFRD required revascularisation during their hospital stay. A MDFU with its own bed allocation can effectively reduce the admission burden to vascular units whilst streamlining management for DRFD patients, thereby increasing capacity for patients requiring revascularisation procedures.

**NU017P**
EXPERIENCES FROM FIRST MULTICENTER INTRODUCTION OF THE SOCIETY OF VASCULAR SURGERY (SVS) WOUND-ISCHEMIA-FOOT-INFECTION (WIFI) CLASSIFICATION SYSTEM IN AUSTRALASIA

Nedal Katib, Frank Guierrero, Ian Spark, Justin Roake, Mauro Vicaretti and Manar Khashram
Westmead Hospital, NSW

**Purpose**
The Wound-Ischemia-Foot-Infection (WIfI) classification has been introduced as part of patient assessment in nurse led vascular wound clinics at Westmead Hospital New South Wales, Flinders Medical Centre South Australia and Christchurch Hospital New Zealand. WIfI attempts to stratify risk of limb loss and benefit from revascularization. Its method has previously been shown by the our institutions to involve a period of training and requires training before it may be reliably utilized.

**Methodology**
Between June 2015 and June 2017, three phases of introduction were organized for each center involved including training, assessment of staff involved and finally prospectively collecting data on all wounds assessed with the WIfI classification system.

Wounds that were not assessed by a trained staff member familiar with WIfI were not included. Scores that had incomplete data regarding perfusion were also not included. Wounds were only scored if all three categories could be assessed in the same setting. Wounds were not scored twice unless they had completed one year of follow up.

**Results**
Across all three centers we receive approximately 2850 visits from patients with diabetes mellitus per year with foot wounds in a Podiatric and Vascular High risk foot clinic. The most difficult part of the assessment has been the ischemia component which has proven to be more subjective than objective as predicted. Non-standardized methods are used across different centers in Australia to assess for Ischemia grades.
Conclusion
WIfI has a complex grading system and a matrix of risk allocation that requires effort to learn initially. Its potential benefit rests in its objective and categorical assessment of foot wounds and may help guide patient referral, assessment and clinical decision-making. Implementing the WIfI classification system requires training and the initial process may be time consuming. Standardization of ischemia assessment is important to eventually utilize the full benefit of WIfI.

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General Information

Venue
The ANZSVS 2017 Conference is being held at Crown Convention Centre, Perth at Great Eastern Hwy, Burswood WA 6100.

Further details regarding the venue can be found on the website: https://www.crownperth.com.au/

Registration Desk
The registration desk is located in the Main Foyer on the ground level of the Convention Centre and will be open at the following times:

- Thursday 12 October: 3:30pm – 5:30pm
- Friday 13 October: 8:00am – 5:30pm
- Saturday 14 October: 8:00am – 5:30pm
- Sunday 15 October: 8:00am – 4:00pm

Name Badges and Conference Satchels
Your name badge is essential for entry into scientific sessions. Please collect your Conference satchel and documentation from the registration desk prior to entering the sessions.

The organising committee has arranged for satchels to be donated to Alannah and Madeline Foundation after the Conference concludes. Please feel free to use your satchel during the conference and return it to the registration desk if no longer required. The conference organiser will donate the satchels to Alannah and Madeline Foundation.

Alannah and Madeline Foundation is a national charity protecting children from violence and its devastating impact. This donation will contribute to their Buddy Bag Program. Buddy Bags are provided to children in foster care and domestic violence refuges across Australia and are backpacks containing new and essential items, such as toiletries, pyjamas, socks, underwear and a pillowcase, as well as comfort items such as a book, photo frame and teddy bear.

This contribution will help children who have been subject to the trauma of family violence have the opportunity to have some belongings of their very own, and will help begin the process of restoring a sense of safety and security into their lives.

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Welcome Reception  
Friday 13 October 2017, 5:30pm – 6:30pm  
Grand Ballroom 1, Ground Level  
Crown Convention Centre Perth  

The welcome reception will follow the last scientific session on Friday 13 October. The evening will include light refreshments and canapés. The function is included in your registration however, it is mandatory to indicate your attendance when completing your registration online.

Trainees Dinner (ticketed event)  
Friday 13 October 2017, 7:30pm – 10:30pm  
Print Hall  
Brookfield Place  
125 St Georges Terrace, Perth  
The dinner is proudly supported by Cook Medical

Conference Dinner (ticketed event)  
Saturday 14 October 2017, 7:30pm – 10:30pm  
Astral 1, Ground Level  
Crown Convention Centre Perth

Morning Teas, Lunches and Afternoon Teas  
All morning teas, lunches and afternoon teas will be served in the industry exhibition area in Grand Ballroom 1, Ground Level.

Business Meetings  
Research Foundation Meeting  
Friday 13 October 2017, 12:30pm – 1:30pm  
Botanical 4, Lower Level  
Crown Convention Centre Perth  

ANZSVN Executive Meeting  
Friday 13 October 2017, 3:00pm – 5:00pm  
Botanical 4, Lower Level  
Crown Convention Centre Perth  

CPD and Audit Committee Meeting  
Saturday 14 October, 12:30pm – 1:30pm  
Botanical 4, Lower Level  
Crown Convention Centre Perth  

ANZSVS Annual Business Meeting  
Saturday 14 October 2017, 5:30pm – 6:30pm  
Grand Ballroom 2, Ground Level  
Crown Convention Centre Perth  

ANZSVN Annual General Meeting  
Sunday 15 October 2017, 1:30pm – 3:00pm  
Botanical 2 / 3, Lower Level  
Crown Convention Centre Perth

Board of Vascular Surgery Supervisors Meeting  
Sunday 15 October 2017, 12:30pm – 1:30pm  
Botanical 4, Lower Level  
Crown Convention Centre Perth

Lunchtime Symposium  
Saturday 14 October 2017, 12:30pm – 1:30pm  
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This lunch symposium offers the opportunity to hear from both local and international thought leaders on the practical applications of both Endo-Anchors and Atherectomy. Dr Jean-Paul De Vries will share his European experience on the Heli-FX including the increasing application of this device in Europe. The second part of the session, led by Dr Vikram Puttaswamy, will discuss the applicability of Directional Atherectomy as a first line treatment strategy for PAD and how a leading centre in Australia, North Shore Private, has evolved their practice over the journey. Both sessions will focus on identifying the right patient, and discuss the challenges and solutions available to achieve optimal patient outcomes. This lunch symposium is proudly sponsored by Medtronic.

Special Dietary Requirements  
Please note that the venue is responsible for all catering at the Conference. RACS and ANZSVS do not inspect or control food preparation areas or attempt to monitor ingredients used. You must contact the venue directly for all special dietary requirements during the event, irrespective of whether details have been provided to RACS and ANZSVS.

If RACS/ANZSVS requests information about your dietary requirements for a specific event RACS/ANZSVS will endeavour to forward the information provided to the venue (time permitting). RACS/ANZSVS will not retain information provided for future events, so you must verify your requirements for each event. Even if information is requested or provided, RACS/ANZSVS takes no responsibility for ensuring that the venue acknowledges your dietary requirements or that these requirements can be met. In all cases you must verify for yourself that your dietary requirements have been met and RACS/ANZSVS refutes any and all liability for any failure to adequately provide your special dietary requirements or any consequential damage resulting from such failure.
General Information (cont’d)

Continuing Professional Development Program
This educational activity has been approved in the College’s CPD program whereby Fellows who participate can claim 1 point per hour (maximum 21 points) in Maintenance of Knowledge and Skills. For automatic allocation of your CPD points please ensure you list your RACS ID number on the registration form.

Speakers’ Support
Botanical 1, Lower Level
Crown Convention Centre Perth

Signage will direct you to the speaker support centre at the Convention Centre. It is essential that all speakers check-in at the speakers’ support centre at your earliest convenience but no less than 2 sessions prior to your presentation.

E-Posters
Scientific posters will be displayed electronically on poster stations located in the industry exhibition during the Conference.

Conference App
1. Download the ignite portal from the store:
   www.igniteeventportal.eventapp.com.au
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Industry Exhibition Hours of Operation
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Saturday 14 October 2017 8:00am – 5:30pm
Sunday 15 October 8:00am – 4:00pm

Dress
Scientific Sessions: Business attire / smart casual
Conference Dinner: Lounge suit / cocktail dress

Internet Facilities
Wireless internet will be available throughout the Conference. Details will be made available onsite.

Parents’ Room
Meeting Room 1, Ground Level

The parents’ room is located in Meeting Room 1, Ground Level of the Crown Convention Centre Perth. Facilities include a change table, heating amenities, fridge and a comfortable area for feeding.

For more information contact:
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Royal Australasian College of Surgeons (RACS)
College of Surgeons’ Gardens
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