UBC
Vascular
Surgery

UBC Vascular Surgery Residency Training Program
2023-2024 Academic Year

INTRODUCTION AND OVERVIEW OF TRAINING PROGRAM FOR CORE RESIDENTS

1) Introduction:

Welcome to the 2023-2024 academic year from the University of British Columbia Division of Vascular Surgery! This document is designed as a brief overview of the program as a whole and includes relevant information for residents of all years. The following few pages will discuss the content of the vascular surgery residency from years 1-5, the various assessments for vascular surgery residents, and a breakdown of the various academic, research, and divisional related activities over the coming year.

The goal of this program is to train outstanding vascular and endovascular specialists facile in medical, endovascular, and open vascular surgical management of all aspects of vascular disease. This is the only province-wide vascular training program in Canada, and residents will have the opportunity to be exposed to all aspects of vascular care in academic and community settings at multiple core training sites in the lower mainland, Vancouver Island and the Okanagan.

The 2023-2024 academic year is the third year of the Competency by Design training program in Canada for vascular surgery. Competency by Design represents a dramatic change in residency training, with a primary focus on promotion based on competence and the documentation of competence attainment through multiple low-stakes workplace-based assessments (Entrustable Professional Activities or EPAs). These assessment tools have been designed specifically for Canadian vascular surgery residency training programs. The preliminary experience with the Competency by Design framework has been very favorable and the program will continue to strive to improve and build the program around this new training paradigm.

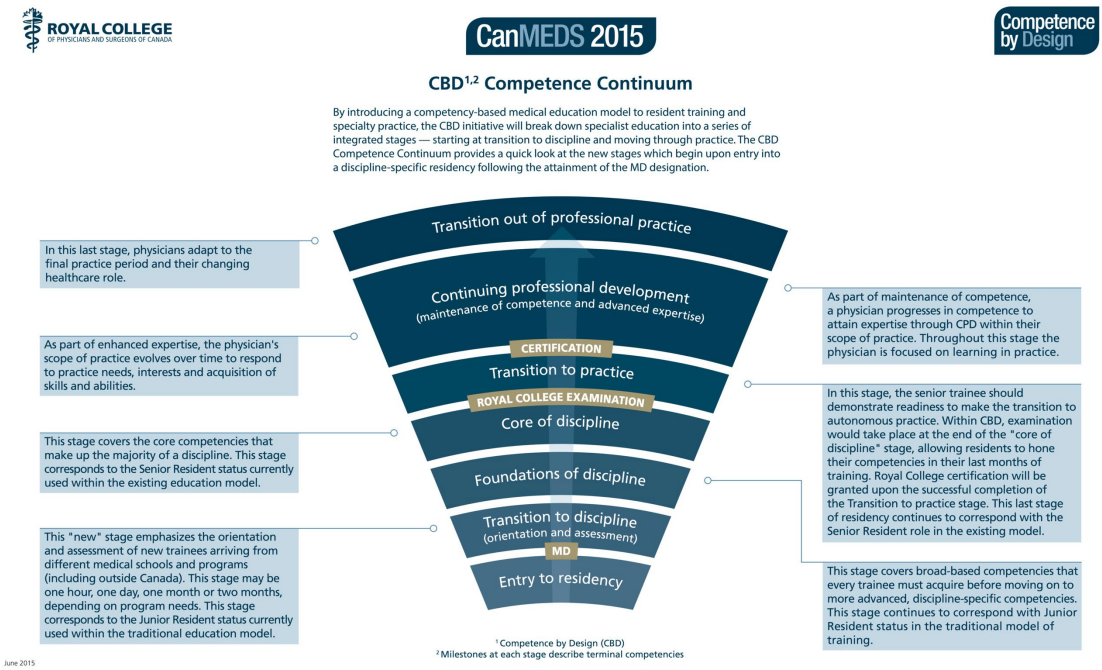
2) Competence by Design

The introduction of Competence by Design into the vascular surgery training framework has resulted in several significant changes in how residents are assessed and promoted. Although the time-based designation for residents (e.g. Postgraduate Year 1/R1, Postgraduate Year 2/R2, etc.) will still be utilized, the Royal College of Physicians and Surgeons of Canada Competence Continuum designates 4 distinct levels of training (below). In theory, residents will be able to advance through each stage regardless of their year in training so long as the criteria for advancement are met, and may take shorter or longer than the traditionally allocated 5 years of training. Each stage (Transition to Discipline, Foundations of Discipline, Core of Discipline, and Transition to Practice) has its own set of Entrustable Professional Activities (EPAs - see Section 9a) that must be achieved prior to advancement.

A major change for the 2023-2024 academic year is that all assessments for all residents will transition to the Competence by Design Framework. All residents will be assessed with EPAs with the PGY-4/5's on the time based training program utilizing these newer assessments however without the standard completion criteria required for the CBD residents.

The transition to practice stage has no existing corollary in the current training paradigm and is meant to serve as a transitional or bridge period immediately prior to the leadership role of becoming a practicing surgeon. The training opportunities here include running a clinic and triaging patients, booking operative slates, and identifying areas for practice development/improvement. Although operative training will remain a cornerstone of this final phase of training, the transition to practice stage is designed to improve the transition between resident training and as a fully licensed practicing surgeon.

One of the most important changes to the training of residents will be the change in examinations. Starting with the 2021 cohort year, both the written and oral examinations will occur in the fall of the planned last year of training (i.e. Fall 2025). This will be a significant departure from current examination format in which standard stream residents will write their examinations in the spring of their 5th/final year of training. This switch was implemented to better facilitate the transition to practice phase of training, though it does create new demands on both residents and faculty with respect to examination preparation and clinical responsibilities.



3) Review of rotation specific objectives

Every rotation that residents participate in has a complete set of rotation objectives. For vascular surgery rotations at Vancouver General Hospital and St. Paul's Hospital, these rotation objectives are broken down into both senior resident rotation objectives (PGY 3 - 5) and junior resident rotation objectives (PGY 1 and 2). These specific objectives should be reviewed prior to the start of each rotation. Kelowna, Victoria, and Royal Columbian Hospital both also have a list of CanMEDS formatted learning objectives for residents to review.

4) Review of training sites for vascular surgery trainees

The division of vascular surgery at the University of British Columbia is exceptionally fortunate to have five core training programs for residents. Vancouver General Hospital, St. Paul's Hospital, Royal Columbian Hospital, Kelowna General Hospital, and Royal Jubilee Hospital (Victoria, BC) all participate in the training of residents at various stages of training, and all residents will rotate through each of these sites during their training. Residents will rotate through Vancouver General Hospital and St. Paul's Hospital multiple times through all years of their residency training. Residents rotate through Kelowna General Hospital typically in their PGY-2 year for 3 blocks and again as a PGY-4 for 3 blocks. Residents will rotate through Royal Jubilee Hospital either at the end of the PGY-4 year or start of the PGY-5 year for 3 blocks. Residents will rotate through Royal Columbian Hospital at any time during training but most time will be spent there as a PGY-3 or PGY-5. These rotations are subject to change based on trainee and training site variables.

The recent addition of Kelowna General Hospital and Royal Jubilee Hospital as core training sites speaks to the outstanding clinical experiences these sites offer, as well as the outstanding faculty dedicated to resident education and teaching. Although each training site has a well-developed standard vascular surgical practice, these sites also offer unique training experiences that may not be encountered elsewhere. Finally, as sites that are non-reliant on resident service for the provision of inpatient care and surgical assistance, residents will get an excellent exposure to different models of surgical care delivery in busy, high volume practices.

The Royal Columbian Hospital is the potential newest addition to the vascular surgery training program and will initially take residents at junior and senior levels of training, with a focus on senior vascular trainees in

PGY 4-5. The Royal Columbian Hospital has the largest advanced endovascular aortic program in British Columbia including fenestrated and branched cases, TEVAR, and advanced peripheral arterial intervention.

The University of British Columbia provides accommodation for residents training at both Kelowna General Hospital and Royal Jubilee Hospital. Residents are expected to provide their own means of transport both to the location and throughout their stay.

5) Resident Resources and Policies

All current resident-specific policies at the University of British Columbia are conveniently located at the Department of Postgraduate Education website on a single page (https://postgrad.med.ubc.ca/current-trainees/policies-procedures). These policies apply broadly to all resident training programs at the University of British Columbia, including residents in the division of vascular surgery. At this website, you can find policies regarding mistreatment, educational environments, residents as teachers, health and safety, program leave, travel and reimbursement, assessment/evaluation/remediation and appeals, and an overview of general resident rotation blocks. Relevant documents have been appended to the end of this document as appendices for resident reference. These documents are up to date as of July 1, 2022. A brief discussion of relevant central policies and especially those with relevance to the division of vascular surgery residency training program are discussed below. In addition, the division of vascular surgery has created 4 division-specific policies: UBC Vascular Surgery Policy on Resident Wellness, the UBC Vascular Surgery Resident Fatigue Risk Management Policy, the UBC Vascular Surgery Resident Supervision Policy, and the UBC Vascular Surgery Health and Safety Policy.

a) Mistreatment/Harassment/Complaints:

In keeping with the Department of Postgraduate Education, the division of vascular surgery residency training program envisions a learning climate that fosters the best possible conditions for working, researching, collaboration and continual self-improvement. Faculty, residents, supporting staff, allied health workers and students are all expected to comport themselves in a professional and respectful manner that supports this environment. The division has a strict no-tolerance policy for harassment, discrimination and bullying. Residents that have been subjected to these behaviors are encouraged to immediately report either directly to the program director, the head of the division of vascular surgery, or a trusted faculty member. Protocols for the generation of formal complaints are attached, including (as relevant): UBC SC7 Policy for Discrimination and Harassment, UBC SC17 Policy for Sexual Assault and Misconduct, and a direct online reporting system for mistreatment is available at the following website: https://mistreatmenthelp.med.ubc.ca/.

b) Remediation/Appeals and Probation:

Remediation and appeals will be subject to some change with implementation of Competency by Design, however existing protocols for remediation and appeals are applicable to non-Competency-by-Design residents. For non-Competency by Design cohorts, protocols for remediation will follow UBC Policy #21 (Resident Evaluation, Remediation, and Probation Policy) and appeals follow UBC Policy #23 (Resident Appeals Policy). In general, residents will receive a summative evaluation at the end of their rotations (In Training Evaluation Report - ITER) which must be signed off by the resident. Extensive efforts will be made by the program director and site directors to ensure frequent meetings with the resident, timely formative feedback and open dialogue to prevent any summative assessment from delivering an unexpected result. If such a situation does arise, a specific process for submitting appeals to remediation or ITER results is outlined in Policies #21 and #23, and requires submission of a written appeal within 10 days of a contested result.

c) Patient encounters, call and after-hours consultations:

Junior and senior call for the Division of Vascular Surgery at UBC at all training sites is home-call. This means that residents are not required to remain in house for assigned call shifts. As per negotiated Resident Doctors of British Columbia policy, this represents a maximum of 9 on-call shifts/month. At all training sites, residents are **only** responsible for inpatient hospital calls. All out-of-hospital calls (e.g. from BC Bedline, family physicians, etc.) are to be taken by attending surgeons only. Out-of-

hospital call residents are expected to be available to come in to hospital for urgent assessments of critically unwell patients in a reasonable timeframe (~20 minutes) and be immediately available by phone.

Resident call requirements, vacation, benefits and reimbursement are negotiated between Resident Doctors of British Columbia and the British Columbian government. The current contract is attached. The contract is legally binding until 2025 and must be adhered to by all residency programs within British Columbia. Violations of this contract should be reported immediately to the program director and can be reported independently and directly to Resident Doctors of British Columbia on their website (https://residentdoctorsbc.ca/bargaining-benefits/collective-agreement/contract-violation-form/).

d) Travel:

As per Department of Postgraduate Education policy, all mandated rotations outside of Vancouver proper (e.g. Victoria and Kelowna), housing will be provided at pre-paid accommodations, with no out-of-pocket expense incurred by the resident (UBC policy #15). Travel to mandated rotations is also reimbursed as per UBC Policy #16a (Resident Mandated Travel and Reimbursement Policy).

Reimbursement for resident presentation at medical conferences is outlined in the UBC Vascular Surgery Conference and Reimbursement policy. In summary conferences are reimbursed up to 1500 dollars per resident with respect to hotel costs and travel. It should be noted that food is not covered under travel reimbursement policies and residents are expected to attempt to find reasonably priced accommodation.

e) Fatigue Risk Management and Burnout:

Given the significant number of high acuity and emergency cases that are encountered within the field of vascular surgery, fatigue management and personal wellness is a critical component resident health and safety. This problem is particularly acute given the very high proportion of cases done in a standard vascular surgery practice that are either urgent or emergent. A recent 2019 Society for Vascular Surgery commissioned report by Coleman *et al*: "Vascular Surgeon Burnout – A Report From the Society for Vascular Surgery Wellness Task Force" (*J Vasc Surg*; 2019; 69(6), e(97)) found that over 30% of practicing vascular surgeons met criteria for burnout, 37% endorsed or screened positive for depression in the past month, and 8% reported suicidal ideation in the previous year. These reported numbers are among the highest of all medical or surgical specialties, and the demands on time and stress from trainees are frequently in excess of what is experienced by practicing surgeons.

The University of British Columbia Division of Vascular Surgery has drafted its own documents in concert with the UBC Faculty of Postgraduate Medical Education Wellness Office: the UBC Vascular Surgery Policy on Resident Wellness, the UBC Vascular Surgery Resident Fatigue Risk Management Policy, and the UBC Vascular Surgery Health and Safety Policy. This specifically outlines policies and procedures related to resident wellbeing, responsibilities of the resident and the program towards these ends, and provides a list of resources for individuals and organizations that can be utilized. It is required that all residents read and familiarize themselves with the prior to the start of the year as these procedures and lists of relevant personnel are updated annually.

The Resident Wellness Office offers a wide variety of services including free, confidential counselling with respect to both professional and personal issues. Residents are strongly encouraged to utilize this excellent resource as needed and appointments can be made online. In addition to the UBC Resident Wellness Office, there are several other services that can provide urgent assistance if needed and are listed below:

Resident Wellness Office:
Phone: 1 855 675 3873
Email: resident.wellness@ubc.ca
Website: https://postgrad.med.ubc.ca/resident-wellness/
Process of Contact: The Resident Wellness Office general hours are Monday to Saturday from

8am – 4pm, with early morning and evening appointments available on certain days of the week. Outside of these hours, you are always welcome to leave a message or send an email and you will receive a prompt reply. If you require immediate assistance outside of these hours, please contact the services listed below.

Physician Health Program of BC:
24-Hour Toll-free Line: 1-800-663-6729
Email: info@physicianhealth.com
Website: www.physicianhealth.com
Process of Contact: PHP offers 24-hour access where you can be connected to an intake counsellor who will quickly determine with you what your needs are and will provide you with access to a variety of services which include a network of clinical counsellors.

Employee and Family Assistance Program (EFAP):
Phone: 604 872 4929
24-hr Toll-free Line: 1 800 505 4929
Email: help@efap.ca
Website: www.efap.ca
Process of Contact: EFAP is a confidential counselling service specialized to provide service to healthcare employees and families throughout BC. They have an "affiliate network" with counsellors anywhere clients are, and also offer telephone counselling. EFAP provides short term counselling, 4-6 sessions on average. You will have a brief intake with an intake counsellor, who will ask which health authority you work for to ensure eligibility.

BC Wide Crisis Line:
Phone: 604 872 3311
24-hr Toll-free Line: 1 800 SUICIDE (784 2433)
Website: www.crisiscentrechat.ca

f) Policies Regarding Interaction with Industry:

The field of vascular surgery is unique in its intimate relationship with industry. Many innovations that have facilitated improved patient care require the utilization of sophisticated and costly medical devices. During the course of training vascular surgery residents are required to work with multiple industry representatives to learn the safe and effective use of these devices, and guidance is required to help navigate these relationships to ensure appropriate interactions. Attached is the CMA code of ethics dictating appropriate interactions between physicians and industry which both residents and faculty are expected to abide by.

6) Resident Funding, Resources and Training Tools:

Residents will be provided with several resources during the course of their residency. Personalized lead will be provided and paid for by the division for every resident. The process of obtaining this will be initiated at the start of the resident's training program. All residents will be expected to purchase their own surgical magnification loupes as soon as possible - the largest distributors in British Columbia being Designs for Vision and Orascopic. Surgical magnification is a necessity for training, and additional information for starting residents can be obtained from the program director directly or from any of the current vascular surgery residents that have had recent dealings with either of these companies.

The only mandatory textbook is Rutherford's Vascular Surgery and Endovascular Therapy, 10th Ed (June 2022). Residents are expected to become intimately familiar with this textbook and all of its contents. There are available educational grants that can be used to help purchase this resource, and the program will assist with this. Several other useful resources including surgical atlases for common vascular surgery procedures and exposures are included in the attachments with this document.

The Royal College of Physicians and Surgeons of Canada lists multiple references that represent examinable material for the Royal College examinations. This list includes multiple useful references and is listed below. Anecdotally the most important of these are the SVS guidelines. The vast majority of examinable material is derived from Rutherford's, and remainder of materials should be utilized as supplemental only.

1. Sidawy AN and Perler BA. Rutherford's Vascular Surgery and Endovascular Therapy (10th edition).
2. Stanley JC, Veith F, and Wakefield TW. Current Therapy in Vascular and Endovascular Surgery.
3. Schneider P, ed. Endovascular Skills: Guidewire and Catheter Skills for Endovascular Surgery.
4. Wind GG and Valentine RJ. Anatomic Exposures in Vascular Surgery.
5. Dalman R. Operative Techniques in Vascular Surgery.
6. Annals of Vascular Surgery
7. Major vascular surgery clinical trials published before the examination
8. Journal of Vascular Surgery
9. Canadian Society for Vascular Surgery Guidelines
10. Society for Vascular Surgery Guidelines

Resident research is partially subsidized by the division. Travel costs (hotel + airfare) for resident research that is presented at a national or international conference will be reimbursed. Similarly, travel costs to the annual Winnipeg Vascular Symposium and the Canadian Society for Vascular Surgery will be reimbursed. All other costs must be supplemented at the resident's expense.

New residents are expected to log-in and complete the radiation training safety module (Fluoroscopy: Practical Radiation Protection) through the Provincial Health Services Authority Learning Hub as soon as possible (https://learninghub.phsa.ca). This module gives a basic summary and overview of safe practice when working with radiation and its completion by the first year of residency is mandatory.

Practice multiple choice questions are available through the Society for Vascular Surgery VESAP examination bank. This examination bank includes approximately 500 multiple choice questions with detailed explanations related to vascular surgical topics and is an exceptionally useful resource. Although the cost for candidate members is approximately $450 USD, login information will be provided by the program director during orientation as the program purchases this for resident access.

7) Regular Academic Activities:

a) Academic Half Day

1. Academic half days take place every Tuesday afternoon during the academic year (e.g. September 2023 to June 2024). The majority of academic content for vascular residents is provided during this time, and academic sessions are organized around foundational topics in vascular surgery (e.g. peripheral arterial disease, cerebrovascular disease, etc.). These afternoons are split into two time blocks: a 13:00 to 15:30 time block and a 15:30 to 17:30 time block. All scheduled teaching activities with vascular faculty occur during the 15:30-17:30 time block. The 13:00 to 15:30 time block is usually scheduled for technical skills sessions, research meetings or independent study.

Academic half day attendance is mandatory, regardless of location. If residents are on out-of-town rotations the division of vascular surgery will facilitate remote participation through videoconferencing. Residents on vacation are exempt from participation.

Each faculty-supervised 15:30 - 17:30 academic session is associated with one or more chapters from Rutherford's Vascular Surgery and Endovascular Therapy (10th Ed). **It is an expectation that these chapters will be read and reviewed prior to attending academic half days.** The focus of each of these sessions will be on the management of the respective pathologies. Sessions with faculty will be case-based and emphasize practical considerations for the treatment of these conditions. At the halfway point and end of the academic year there will be a written vascular examination focusing on the covered material for that half year. This examination is formative and based on questions and format that would be seen with the Royal College examinations (i.e. Short answer). Each examination is 40 questions long and takes approximately 1 hour to complete. These examinations specifically address critical/foundational material, and are designed to help reinforce critical concepts.

Academic Half Days Technical Skills sessions

Multiple sessions during the academic year will be dedicated to technical skills practice sessions for residents. These sessions will be scheduled regularly during academic half-day times from 13:00-15:30. During these sessions, residents will obtain practice in basic anastomosis technique including tie-down anastomoses, parachuted anastomoses, and end-to-end and end-to-side configurations. In addition, several of these sessions will be sponsored throughout the year by Gore Medical and Artivion and involve the utilization of an open surgical wet-lab. Junior resident technical skills will be assessed at two separate times during the academic year, once prior to the winter break and once prior to the summer break. For details regarding these assessments see the assessment section below.

Endovascular technical skills will be developed through periodic endovascular simulation sessions sponsored by one of two endovascular device companies (Gore and Medtronic). These sessions will also take place within the 13:00-15:30 time block. Each session will involve discussion with representatives of the device manufacturer regarding sizing and planning of standard EVAR cases. These sessions also will involve hands-on simulation training in the performance of an endovascular aneurysm repair, and will familiarize the junior residents with the appropriate procedural steps and tools used during these cases. Residents in their R2 years will be expected to be able to plan and perform an uncomplicated EVAR by the end of their second year.

b) Journal Clubs

Journal clubs occur once a month at a predefined location on Wednesday evenings (18:00 - 19:00). The format for journal clubs is described in a separate document. During each journal club, 2 residents each present and review a recent article pertinent to the practice of modern vascular surgery. Presentations include a discussion of the objectives of the paper, methodologies of the study, a review of the results reported and a discussion of the practical importance of the research to the field of vascular surgery as a whole.

Articles selected for journal club **must be approved by the hosting vascular surgeon.** It is understood that junior residents will not be completely certain about an article's appropriateness for presentation at journal club. Instructions for appropriate journals and articles to be selected are provided in the journal club guidelines attached. Resident scheduling for journal clubs is the responsibility of the current chief resident for the year.

Formal assessment forms will be completed by assessing faculty and the results will be included for review in the resident's portfolio during competency committee meetings.

c) City Wide Rounds

City wide rounds involves a 45-minute resident or faculty surgeon-led presentation on a relevant vascular topic every Wednesday at 07:00. These presentations are meant as a review of a vascular surgery topic of the presenter's choosing. An ongoing log of

presentations has been recorded and is available for residents to determine whether a chosen topic has been presented recently in the past. As a rule, residents should look to present a topic that has not been presented in the last 2 years. Presentations on recent clinical experiences in uncommon areas (e.g. experience during an international elective) are encouraged as well. City wide rounds attendance is mandatory, regardless of training site. Residents on vacation are not expected to attend city wide rounds. Formal assessment forms will be completed by assessing faculty and the results will be included for review in the resident's portfolio during competency committee meetings.

d) Research Rounds

Once every 6 months the timeslot for city wide rounds is utilized for city-wide research rounds. These sessions involve a brief presentation by residents including 4 power point slides that gives an overview of that resident's current and future research activities. The purpose of these rounds is to obtain faculty feedback on the merits or challenges of current projects, recruit help from different members of the division as required, and to ensure both resident and faculty accountability towards research productivity. An outline for these rounds and the content of these slides is available and included in the resident orientation package.

e) Morbidity and Mortality Rounds

Morbidity and mortality rounds is a critical part of clinical practice for surgeons at all sites and involves the discussion of the outcomes of the week's preceding cases including any significant complications. Morbidity and mortality rounds are a divisional level quality improvement initiative and resident participation and/or activity in the rounds is not assessed. Once a month residents will be expected to review and discuss a recent significant morbidity/mortality event.

f) Site Specific Educational Activities:

Each training site has its own individual educational activities, many of which participation is mandated. At Vancouver General Hospital, Tuesday morning TEVAR rounds (07:15 - 08:00) attendance is encouraged from vascular surgery residents but is not mandated given operating room responsibilities. Thursday morning VGH Vascular Surgery and Interventional Radiology Multidisciplinary Rounds are mandated and occur from 07:00 - 07:45. Junior residents are excused at 07:30 as needed to prepare ORs as required, perform briefings, etc. R5 attendance at any site for Thursday morning VGH Vascular Surgery and Interventional Radiology Multidisciplinary Rounds is mandatory and attendance either locally or virtually is expected regardless of current location of the resident.

8) Research Initiatives:

Research expectations

It is an expectation of the training program that all residents actively partake in research projects throughout the course of their residency training as part of achievement of the CanMEDS Scholar competency, specifically competencies 4.1 - 4.5). Residents are expected to participate in a minimum of 1 scholarly project (research project, quality improvement initiative, publishable literature review) per year. Resident research project overviews, future research ideas and updates on current research projects will be summarized at quarterly at Resident Research Rounds which are coordinated through the divisional research chair. These rounds have a specific format that includes a discussion of current projects, immediate and long-term plans for each project, and proposed future projects.

Residents are strongly encouraged to approach all faculty regarding potential research projects or to discuss potential research projects directly with the research director (Dr. Konrad Salata). There are divisional supports in place to assist with protocol development, ethics applications, manuscript writing and article submission.

9) Resident Assessments

a) General Resident Assessments (Both Competence by Design and Regular Stream Residents)

Overview:

Resident assessment is a cornerstone of any vascular surgery training program, and provides both residents and their assessors invaluable information about resident progress, areas where residents excel, and areas where residents require additional help. Most importantly, assessment provides critical insight into areas where the vascular surgery training program may need to adapt to the needs of each trainee. A summary document and schedule of assessments is attached for residents to guide them on required assessments and their obtainment throughout the academic year.

i. Written Assessments:

During each academic half day, specific assigned reading from Rutherford's Vascular Surgery and Endovascular Therapy 10th Edition is assigned to be read prior to the academic half day. At the midpoint of the academic year (December) and the end of the academic year (June), residents will write a written examination that covers the material covered during the academic half-days. These examinations are formative in nature and are meant to reinforce key concepts during the readings and to develop familiarity with the short-answer format employed by the Royal College of Physicians and Surgeons of Canada for the final written examination. Performance on examinations is used as one of several methods of determining resident understanding of important vascular concepts. Questions on these examinations are only from chapters cited in the academic half-day schedule. Each examination will consist of 40 short answer questions and take approximately 1 hour to complete.

Covered topics - July to December

1. Peripheral arterial disease
2. Cerebrovascular disease
3. Aortic pathology

Covered topics - January to June

4. Visceral vascular disease
5. Vascular surgery complications
6. Hemodialysis access
7. Upper extremity vascular pathology
8. Venous pathology
9. Vascular miscellaneous

ii. In-Training Evaluation Reports (ITERs):

ITERS are resident assessments completed at the mid and end-point of a resident's clinical rotation. ITERs are rotation specific and are completed for all rotations for both Competence by Design and non-Competence by Design residents. ITERs include a comprehensive assessment of a resident's progress and includes assessment of both Medical Expert and non-Medical Expert competencies. ITERs are completed at the mid and endpoint of each clinical rotation and are accompanied by a face-to-face or virtual meeting with the trainee. Any significant noted areas of deficit are automatically flagged on the one-45 system of assessment and mandate a meeting with the program director as well as review at the next (or in some cases an ad-hoc) Competence Committee meeting. All ITERs are completed by the site postgraduate academic lead or appropriate designate. Because Vancouver General Hospital is split into 2 clinical service teams, all resident assessments for Team Black are completed by the division head, Dr. Kirk Lawlor, and all residents assessments for Team Gold are completed by the program director, Dr. Jonathan Misskey.

iii. V-SITE (Vascular Surgery In-Training Examination)

The V-Site Examination is a North American-wide examination developed and delivered by the American Board of Surgery written by vascular surgery trainees at most residents and fellows in training programs throughout Canada and the United States. Although the specific questions and format of some of the examination is subject to annual change, the examination itself is generally composed of a single, 5-hour online multiple choice examination that involves approximately 200 questions. Approximately 70% of these questions are specific to vascular surgery and 30% relate to surgery and critical care in general. The scores from the V-Site examination are used to help determine each resident's current level of knowledge relative to surgical cohorts at his/her level of training, and to identify areas for remediation or requiring additional training.

The V-Site is the most comprehensive and thorough assessment of a resident's knowledge of vascular surgery, and is the most important individual assessment of the trainee's progress during the year. Residents are strongly advised to prepare as much as possible for this assessment.

iv. Oral examinations for non-graduating senior residents (PGY-3 and 4) - December and June

Mock oral examinations will be held on the last Tuesday of the academic year prior to the winter break in December, and again in June at the end of the academic year. These examinations will be conducted by a vascular surgery faculty and follow a similar format to that of the Royal College of Physicians and Surgeons oral examination. Each PGY-3 and PGY-4 resident will be given 3 oral examination questions based on the preceding content covered in academic half-days for the year. Each resident will be given a clinical case with a vignette with or without additional imaging and the case and its management will be discussed for 8 minutes. The objective of mock oral examinations is to familiarize residents with the format of the Royal College oral examination. Formal assessment forms will be completed by assessing faculty and the results will be included for review in the resident's portfolio during competency committee meetings. These examinations are formative. Junior residents will not be examined but are expected to attend.

v. Oral examinations for graduating senior residents (PGY-5) December and March

Graduating senior residents will also participate in the mock oral examinations held in December along with the PGY-3 and 4 cohorts. In addition, these residents will also have a schedule of mock oral examinations in March in the week preceding their Royal College examinations by volunteer faculty from any of the training sites. The March mock oral examinations are purely formative, are not used for resident advancement, and assessment is given verbally following completion of the mock oral examination. In general, 4-5 mock oral examinations will be scheduled for each resident, with specific timing dependent on faculty availability.

vi. Technical skills assessments

Anastomosis assessments (PGY-1 and PGY-2)

Junior residents will have their anastomosis technical skills assessed at 2 points during the academic year, once immediately prior to the winter break and once at the end of the academic year. During these assessments, PGY-1 to PGY-3 residents will be asked to perform 2 simulated (end-to-side or end-to-end) anastomoses under surgical faculty assessment. These assessments will be based on a modified Objective Structured Assessment of Technical Skill (OSATS) assessment tool. The purpose of these assessments is to document resident technical skill progression, and to facilitate targeted improvements. These formal assessment forms will be completed by assessing faculty and the results will be included for review in the resident's portfolio during competency committee meetings.

EVAR simulation assessments

Vascular surgery residents in all levels of training will be assessed at measuring and performing an endovascular aneurysm repair in a controlled, simulated environment. At multiple times throughout the year residents will have the ability to work with specific device simulators for both EVAR and TEVAR. During these sessions residents may be assessed on their overall performance of the EVAR/TEVAR using an assessment tool known as EVARATE to help rate performance.

vii. Resident case-logs and case tallies:

Resident case logs represent an important tool for determining adequacy of clinical exposure. All residents in PGY-3 to PGY-5 in the conventional stream and in the Foundations of Discipline and above levels in the CBD stream are required to record all surgical cases they participate in. In addition, case tallies will be reported with de-identified information on a Google tabulated spreadsheet that is updated and accessible by all faculty and residents in real time. Residents are expected to update their case-logs and case-tallies at least weekly and preferably daily. Resident completion of case logs is historically poor and incomplete, and personal case logs are generally only reviewable during scheduled program director or competency committee meetings, and are largely not useful in real time. The purpose of a shared case-tally is to be able to immediately identify whether there are significant training gaps and address these early, and also to improve completion rates by residents and their review by relevant surgical faculty. A link for the online resident case log can be found here:

viii. Resident as Teacher 360 Degree Feedback Assessments:

All residents are assessed with respect to their participation in medical student education and this contributes a large component towards assessment of resident Scholar and Leadership competencies. The majority of medical student rotations with residents occur at Vancouver General Hospital which typically sees 45-55 medical students/academic year. Residents are assessed on their professionalism, commitment to teaching, patient care, and non-Medical Expert competencies.

ix. Assessments: Journal club, City-wide rounds

City-wide rounds and journal clubs both have assessment forms that are completed to ensure that residents are assessed on the adequacy of attainment of the CanMEDs scholar, communicator and leader competencies. Assessment criteria are keyed to specific CanMEDs competencies to ensure these are adequately demonstrated by resident learners. These forms are filled out by both co-residents and supervising faculty.

b) Competence by Design-specific Assessments

The starting PGY-1 vascular surgery resident will utilize a framework of assessments specifically designed by vascular surgeons at the Royal College for determining the attainment of competence at each level of training. The underlying feature of the Competence by Design system is the demonstration and documentation of competence through a combination of multiple low-stakes assessments. Each of these assessments involve Entrustable Professional Activities (EPAs), which have been deemed critical for the determination of competence in trainees. As opposed to current time-based training, vascular surgery residents within the Competence by Design framework will have no fixed dates for advancement, and advancement to the next stage will require successful completion of the necessary EPAs.

Starting September 2023, ALL residents (including those originally starting as non-CBD) will transition to utilizing Competency by Design assessments (EPAs). There are several important advantages here including the ability of residents to easily see and review these assessments and for easier documentation.

A general classification scheme will apply to all non-CBD residents using CBD assessments. All PGY-4 residents will use assessments in Core of Discipline and all PGY-5 residents will use assessments in Core of Discipline (first 9 months) and then Transition to Practice (last 3 months). Because these assessments are being logged at the mid-point there is no expectation that non-CBD residents complete all EPAs for a given stage. Instead, a similar number of WBAs (complete 2 operative EPAs and 1 non-operative EPA per block) is expected for residents except that the OSATS and mini-CEX have been substituted for the CBD EPAs.

Entrustable Professional Activities (EPAs):
A list of EPAs will be available for review. For each EPA there are a predetermined number of successful assessments that must be obtained to complete that EPA successfully, as well as a specific number of assessors and a baseline score for assessments that needs to be obtained. There are 4 specific assessment forms that can be used for EPAs: Form 1 is a clinical assessment form used for assessing the diagnostic, examination and investigative capabilities of the trainee. Form 2 is a technical skills assessment form designed to assess the trainee's operative abilities. Form 3 is a multisource feedback assessment used to obtain feedback from multiple sources (similar to the 360-degree assessment form described below). Form 4 is a narrative feedback form designed for qualitative observations for a resident on a number of different milestones. The type of forms needed and the number of observations are detailed both in the UBC Division of Vascular Surgery Competence by Design Curriculum Map as well as the Royal College EPA Guide.

Each level on the Competency Continuum (i.e. Transition to Discipline, Foundations of Discipline, Core of Discipline, and Transition to Practice) have their own EPAs with increasing levels of autonomy and complexity with each level. Although advancement to each level is not time dependent, based on the amount of time required to complete the EPAs, the clinical experience needed, and the frequency of competency committee meetings, this process generally takes 5 years, though it may be longer. Although by no means definite, the expected time frame for each level on the continuum generally follows a standard timeframe. A brief outline of each level on the continuum and the expected time frame are described below:

1. **Transition to Discipline:** General time to completion - 3-6 months
   The transition to discipline stage is the shortest stage in the CBD framework requiring the successful completion of 3 EPAs. EPAs within the Transition to Discipline stage focus predominantly on foundational vascular surgical skills including assessment of patients with urgent and nonurgent conditions and assisting in the operating room.

2. **Foundations of Discipline:** General time to completion - 18-21 months
   The foundations of discipline stage encompasses the majority of conventional "junior resident" training. There are 5 EPAs that require completion however this includes an operative EPA (EPA 4) that requires 30 observations of achievement to be attained.

3. **Core of Discipline**: General time to completion - 33 months
   Core of discipline competencies represent the majority of significant clinical and operative competencies. This includes the clinical and surgical management of all major venous, arterial and lymphatic pathologies. There are 15 EPAs involving all significant operative areas of vascular surgery with prespecified numbers of achievement for each. The Core of Discipline stage is the longest stage and correlates with the senior residency stage for most residents (e.g. PGY 3-5). A resident's chief year will occur during this stage of training.

4. **Transition to Practice:** General time to completion - 3 months
   The Transition to Practice stage is the final stage of the residency training program and involves 4 competencies. Each of these EPAs involves the demonstration of leadership and professionalism-based competencies including common skills such as scheduling of OR slates and the management of a vascular clinic.

10) Meetings with the program director (Every 3 blocks)

Residents are mandated to meet with the program director for a scheduled 30-minute meeting every 3 blocks. The purpose of these meetings is to review resident progress throughout the year, as well as to have individualized discussions with residents regarding results of Competency Committee findings and recommendations. The contents of these meetings, especially with respect to issues surrounding resident wellness, career development, and rotational/educational concerns are confidential and not routinely or formally disseminated without explicit consent from the resident.

1. Review of most recent Competency Committee findings
2. Review of technical skills assessments (AHDs, ORs)
3. Review of academic assessments (AHDs, CWR, JC)
4. Evaluation of rotations, clinical experience, surgical faculty
5. Review of resident case logs
6. Review of research production
7. Rotation and elective planning
8. Career goals and career planning
9. Health/well-being/stress mitigation/burnout

11) Residency Program Committee and Competency Committee

The mandate and terms of reference of the Residency Program Committee are outlined in the 2023-2024 Residency Program Committee Terms of Reference. The Residency Program Committee is an administrative committee that oversees most of the functions of the UBC Vascular Surgery Residency Program. Some of these responsibilities include the selection of new residents to the program, discussion and evaluation of resident rotations, review of training objectives and their attainment at individual training sites, evaluation of faculty, and for ensuring resident safety and wellness during resident rotations.

The Residency Program Committee meets 4 times per year. Voting members include the program director, the UBC Vascular Surgery Division Chief, the Competency Committee Chair, the Research Director, the Resident Wellness Champion, the elected Resident Representative, and the Training Site heads/representatives from each of the 4 core training sites.

UBC Vascular Surgery Competency Committee: The Competency Committee is a subcommittee of the Residency Program Committee within the Division of Vascular Surgery. **The mandate of the competency committee is to review and discuss residency performance and progression towards competence.** The Competency Committee is responsible for many of the critical educational decisions regarding resident advancement, including promotion of residents to the next stage in training, suggesting and monitoring any remedial initiatives, and determining readiness to sit the Royal College Examinations**.** Decisions to guide these decisions are based on individual review of each resident including overview of the residents to date individual assessments (see above, section 8) and feedback from individual rotations. The competency committee is made up of the Competency Committee chair (Dr. David Taylor – incoming Dr. Jerry Chen), the program director, and several voting faculty members. A complete breakdown of the UBC Vascular Surgery Competency Committee Terms of Reference is attached as an appendix. This includes specific details about how the Competency Committee functions and how decisions are made. The recommendations made by the Competency Committee will be ratified by the Residency Program Committee, as well as any recommendations made by the Competency Committee.

During Competency Committee meetings, resident status will be recommended by voting members of the committee into one of several different statuses: 1) Progressing as expected; 2) Progress is accelerated, 3) Not progressing as expected; 4) Failure to progress, and 5) Inactive. Based on these designations, individualized recommendations may be made to assist the resident in their training. The status as determined by the Competency Committee as well as any individual recommendations for residents will be discussed with the Program Director during each Resident-Program Director meeting.

It should be stated explicitly that the primary objective of the Competency Committee is to facilitate resident development. Resident designations are not meant to be punitive, only to help guide resident learning and development. No single assessment generated throughout the year contributes to advancement recommendations - rather, the cumulative information from these multiple formative assessments will be used to determine resident achievement of expected levels of competency attainment in each of the CanMEDS domains.

12) Program Evaluations and Quality Improvement

A system of ongoing quality improvement and rotational feedback will take place at several times throughout the year and involve multiple sources of quantitative and qualitative data. The objective of this quality improvement initiative is to obtain meaningful and timely feedback from all relevant stakeholders to make facilitate ongoing improvement in the training program.

The 2015 CanMEDS competencies explicitly outline Quality Improvement as a core competency expected of residents, and CANRAC accreditation standards highlight the need for the delivery of high quality QIPS programs for all Canadian residency programs. As such, starting in the 2021-2022 academic year there were 2 additional items added to the existing quality improvement framework in the division of vascular surgery training program. These measures are designed to provide direct training in quality improvement and patient safety concepts to residents, and to facilitate direct involvement of residents in quality improvement and patient safety initiatives.

The first initiative is the addition of the UBC Quality Improvement and Patient Safety (QIPS) course to the postgraduate training program curriculum. The QIPS course has been developed by the UBC Postgraduate Education Office in liaison with the BC Patient Safety Quality Council and UBC's Office of Faculty Development. This QIPS course will be incorporated into the existing academic curriculum and will consist of a block of didactic instructional components and a quality improvement project by residents that will be supervised longitudinally of the course of the academic year. The QIPS program will be offered every 2 years.

The second initiative is the addition of a Quality Improvement and Safety representative as a voting member of the Residency Planning Committee. The Quality Improvement and Safety Representative will be a designated faculty member responsible for ensuring the effective delivery of QIPS related competencies to residents, the representation of site-specific QIPS stakeholder concerns at RPC meetings, and working together with the program director in ensuring the delivery of the overall quality improvement initiatives for evaluation of the residency training program as a whole. The QI representative will assume

1) <u>Resident rotation and faculty surgeon evaluations</u>
   Every resident rotation is reviewed by the resident through an online evaluation form on the one45 platform. These evaluations are mandatory and involve resident evaluation of specific rotations as well as involved faculty. These evaluations are

anonymized and are utilized to drive ongoing feedback and programmatic improvement. Unfortunately, because of small numbers and the need for anonymized data to protect residents, there is a substantial time delay between completion of the forms and when they can be released, limiting their effectiveness.

2) Quarterly meetings with program director:
During resident meetings with the program director, the fourth item discussed is feedback by the resident on their current/recent rotations and faculty supervisors. Although this form of evaluation is not anonymized, it does allow for immediate review of any potential issues encountered by the resident and allows for the program director to directly address concerns regarding resident wellbeing or safety and/or raise issues for discussion at future Residency Program Committee meetings.

3) End of year academic half-day program evaluation:
At the end of the academic year (June, 2023), a formal academic half day will be reserved for discussion by the residents of the academic year. This will include a formalized review of the following issues:
    a) Discussion and evaluation of on-service rotations
    b) Discussion and evaluation of off-service rotations
    c) Review of academic curriculum
    d) Review of research curriculum and initiatives
    e) Review of residents as teachers
    f) Discussion, concerns and resident wellness issues

4) Program director stakeholder interviews:
At the end of the academic year in 2024, a formal discussion will be held by the program director, the Quality Improvement lead, and each site lead (Vancouver General Hospital, St. Paul's Hospital, Kelowna General Hospital, Royal Columbian Hospital and Royal Jubilee Hospital). The purpose of these interviews is to elicit site-specific feedback with respect to resident training and resident or training-program related concerns. Resident concerns or issues generated during either quarterly meetings, regular rotation evaluations, or the end of year program evaluation will be discussed.

   The purpose of the stakeholder interviews is to provide a more formal review between the program and respective site leads. Although these processes occur informally regularly, the implementation of this new process is intended to ensure that any identified deficits are relayed in an appropriate fashion to the Residency Program Committee to allow for feedback to potentially directly affect policy.

5) End of year Residency Program Committee meeting:
Near the end of the academic year, the program director will generate an evaluation document based on the findings from the above 5 evaluation sources. This report will include resident, faculty and associated feedback on: vascular resident on-service rotations, vascular resident off-service rotations, current academic curriculum, resident research curriculum, resident teaching, resident wellness and miscellaneous issues. Any specific initiatives can be made, discussed and voted on during this meeting and incorporated into the following year.