

Appendix F – Curriculum of the Program

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Appendix F1 – Sample one year program

| Block | Duration (weeks) | Dates | Site | Experiences | Longitudinal Clinic (q 2 wks) |
|-------|------------------|-----------------|-------------------------|---|-------------------------------|
| 1 | 4 | Jul 1 – Jul 28 | SJH I | Inpatient service Ambulatory clinics – thrombosis, APS | MUMC |
| 2 | 4 | Jul 29 – Aug 25 | HGH I | Inpatient service Ambulatory clinics – thrombosis | MUMC |
| 3 | 4 | Aug 26 – Sep 22 | JH I | Inpatient service Ambulatory clinics – thrombosis Pediatrics (MUMC) | MUMC |
| 4 | 6 | Sep 23 – Nov 3 | SCHOLARLY PROJECT BLOCK | Must be approved by AFC director and Scholarly Block Co-ordinator | |
| 5 | 6 | Nov 4 – Dec 15 | ELECTIVE BLOCK | 6 week elective must be approved by AFC director | |
| 6 | 6 | Dec 16 – Jan 26 | SJH II | Inpatient service Ambulatory clinics – thrombosis | MUMC |
| 7 | 6 | Jan 27 – Mar 8 | HGH II | Inpatient service Ambulatory clinics – thrombosis | SJH |
| 7 | 6 | Mar 9 – Apr 19 | AMBULATORY BLOCK | Vascular Clinic (MUMC) CTEPH Clinic (SJH and HGH) Pediatrics (MUMC) Special coagulation experience (5 days) scheduled during this block VKA monitoring clinic (HGH) Diagnostic Imaging experience (5 days) | SJH |
| 8 | 6 | Apr 20 – May 31 | JH II | Inpatient service Ambulatory clinics – thrombosis | SJH |
| 9 | 4 | Jun 1 – Jun 30 | ELECTIVE BLOCK | Must be approved by AFC director | |

EDUCATION:

- One half day a week will be a dedicated academic half day. Academic half day activities will be logged in the Half Day Log Book, appended to the Portfolio.
- TaARI Research Seminars, Hematology Grand Rounds, and Clinical Thromboembolism Program meetings should be attended by trainees.
- Trainees are encouraged to attend Thrombosis Journal Clubs, as well as the Annual McMaster Thromboembolism Update and the Annual Thrombosis Canada Conference (if held in Hamilton or Toronto).

CALL:

- During “Part I” rotations - On clinical (non-research or elective) blocks, trainee will be first call during the day for the inpatient service, and will do roughly 1 in 5 call on evenings and weekends. Staff physicians will be available for backup and will be “co-scheduled” with the trainee.
- During “Part II” rotations - On clinical (non-research or elective) blocks, trainee will take primary responsibility for the inpatient service (roughly 1 in 5 call). Staff physicians will be co-scheduled and available for backup. This recognizes the trainee’s ability to take on increasing, graded responsibility and independently run the Thrombosis Service.

OFFICE SPACE:

- Trainee will have desk and computer space at each hospital site, arranged by the site representative

Appendix F2 – Academic and Clinical Curriculum Overview

| Experience | Format | Frequency and timing |
|---|---|---|
| Learning experiences outside of clinical setting | | |
| Adult Thrombosis Medicine AFC Academic Half Day | Case Based and Lecture Based | Weekly, all blocks |
| Research Curriculum | pertinent academic half days, ethics tutorials, scholarly project completion and presentation | All blocks, dedicated time during 6-week Scholarly block |
| Hematology & Thromboembolism Grand Rounds | lecture based with discussion | Every 2 nd week with summer hiatus, all blocks; approx. 30% are thrombosis-related |
| Clinical Thromboembolism Program Meetings | group discussion and policy making | Every 2 nd week with summer hiatus, all blocks |
| TaARI Research Seminars | lecture based and discussion | monthly with summer hiatus, all blocks |
| Thrombosis Journal Clubs | review of article and critical appraisal and discussion | Quarterly, all blocks |
| Learning experiences in a clinical setting | | |
| Inpatient thrombosis consultation service | Exposure in clinical setting allowing development of competencies | Core clinical rotations (HGH I and II, JH I and II, SJH I and II) |
| Longitudinal Thrombosis Clinics | Exposure in clinical setting allowing development of competencies | Every 2 nd week except during Elective and Scholarly blocks (9 clinics at each of SJH and MUMC longitudinal clinics) |
| Thrombosis Ambulatory Clinics | Exposure in clinical setting allowing development of competencies | Core clinical rotations (HGH I and II, JH I and II, SJH I and II) not attended while on call |

| | | |
|--|---|---|
| Special Ambulatory Clinics (Peds, CTEPH, VKA monitoring) | Exposure in clinical setting allowing development of competencies | Ambulatory block |
| Thrombosis consultation service call | Exposure in clinical setting allowing development of competencies | Core clinical rotations (HGH I and II, JH I and II, SJH I and II) 1 week per block |
| Diagnostic Imaging Experience | Exposure in clinical setting allowing development of competencies | Ambulatory block Approx. 5 days |
| Elective Blocks | Exposure in clinical setting allowing development of competencies | one 6 week and one 4 week block; one elective block may be used for additional Scholarly time |

Academic Half Day Curriculum

| Academic Half-Day Curriculum | Presenter | Level* |
|---|-------------------|--------|
| Introductory Topics | | |
| Introduction to Program, Wards and Resources | Dr. V. Bhagirath | 1 |
| -includes: Resources for Residents under Stress, appeals | | |
| Orientation to Wards, Call and Administrative Procedures | Dr. V. Bhagirath | 1 |
| Intrinsic CanMEDS Competencies | | |
| Communicator | | |
| Developing patient focused counselling and decision-support tools | Dr. G. Guyatt | 2 |
| Leader | | |
| Time Management | Dr. M. Pai | 3 |
| Laboratory management, QA, SOPs, Reference Intervals | Dr. C. Hayward | 3 |
| Health advocate | | |
| Quality improvement and quality assurance initiatives | Dr. C. Hillis | 1 |
| Scholar | | |
| Biostatistics & epidemiology | Dr. S. Bangdiwala | 3 |
| Teaching and evaluating junior learners | Dr. P. Wasi | 1 |
| Professional | | |
| Ethical issues in hematology & thromboembolism | TBD | 1 |
| Medical Expert CanMEDS Competencies | | |
| Coagulation | | |
| Practical coagulation: lab clinical problems (CBL) | Ms. K. Moffat | 2 |
| Platelet Function Testing (CBL) | Dr. C. Hayward | 3 |
| Approach to the bleeding patient (CBL) | Dr. A. Iorio | 1 |
| Arterial Thrombosis | | |
| Antithrombotic management of peripheral arterial disease | Dr. S. Anand | 3 |
| Antithrombotic management of ACS, primary and secondary antithrombotic prevention of CV disease | Dr. S. Mehta | 3 |
| Antiplatelet agents | Dr. J. Eikelboom | 2 |
| Antithrombotic therapy in cardiac surgery patients | Dr. I. Jaffer | 1 |
| Management of cardiac valve prostheses (CBL) | Dr. S. Schulman | 1 |
| Antithrombotic management of cerebrovascular disease | Dr. W. Oczkowski | 2 |
| Bleeding | | |
| Massive hemorrhage and bleeding in patients on anticoagulants | Dr. M. Pai | 1 |
| Blood products for reversal of anticoagulants | Dr. M. Zeller | 2 |
| Diagnosis of VTE | | |
| Diagnosis of VTE | Dr. G. Le Gal | 1 |
| D-dimer | Dr. C. Kearon | 2 |
| DVT | | |
| Diagnosis and management of uncommon sites of venous thrombosis | Dr. A. Iorio | 3 |
| Post-thrombotic syndrome | Dr. S. Kahn | 2 |
| Superficial vein thrombophlebitis | TBD | 2 |
| Upper extremity DVT | Dr. R. Ikesaka | 1 |
| Physiology of thromboembolism | | |

| | | |
|--|---------------------------|---|
| Physiology of thrombosis | Dr. P. Liaw | 1 |
| Mechanisms of thrombosis and hemostasis | Dr. S. Schulman | 1 |
| Venous anatomy | Self-study in anatomy lab | 1 |
| Microvascular thrombosis | | |
| HIT testing | Dr. I. Nazi | 3 |
| HIT, warfarin induced skin necrosis, and prothrombotic DIC | Dr. T. Warkentin | 3 |
| Interruption of anticoagulation | | |
| Periprocedural management of anticoagulation | Dr. J. Douketis | 1 |
| Monitoring of anticoagulation | | |
| Quality requirements for point of care testing | Ms. C. McCallum | 3 |
| INR monitoring | Ms. M. Robinson | 1 |
| Pulmonary embolism | | |
| Management of massive/submassive PE | Dr. K. de Wit | 2 |
| Chronic thromboembolic pulmonary hypertension | Dr. P. Dorasamy | 3 |
| Thrombophilic conditions | | |
| Thrombophilia | Dr. W. Lim | 2 |
| Antiphospholipid antibody syndrome | Dr. M. Crowther | 2 |
| Plasmapheresis for TTP/APLAS | Dr. D. Arnold | 3 |
| Thrombosis in special populations | | |
| Cancer-associated thrombosis | Dr. L. Linkins | 2 |
| Peripartum anticoagulation and thrombosis in pregnancy | Dr. S. Bates | 2 |
| Pediatric thrombosis | Dr. A. Chan | 3 |
| VTE in bariatric and renally impaired populations | Dr. D. Siegal | 3 |
| Treatment of VTE | | |
| Interventional radiology in VTE | Dr. G. Yip | 2 |
| Future directions in VTE therapy | Dr. J. Weitz | 3 |

*Level 1 indicates introductory/foundational topic, Level 2 indicates intermediate, Level 3 indicates advanced. Half-days are scheduled such that Level 1 topics are covered in approximately the first third, Level 2 topics are covered in approximately the second third, and Level 3 topics are covered in approximately the last third.

Hematology & Thromboembolism Grand Rounds

These seminars occur biweekly on Fridays at noon, with a hiatus during the summer months. Many of the topics are pertinent to thromboembolism. The rounds are held at various sites, but videoconferenced to all McMaster Hematology & Thromboembolism teaching sites. Lunch is provided.

The 2018-19 schedule is presented below. Topics of relevance to Thrombosis AFC trainees are highlighted:

| Date | Speaker | Topic |
|--------------|--------------------------|---|
| Jun 1, 2018 | Dr. Madeleine Verhovsek | Hemoglobinopathy clinic – 5 year update |
| Jun 22, 2018 | Hematology Residents | “Fun rounds” |
| Sep 21, 2018 | Dr. Joseph Connors | Hodgkin Lymphoma – 2018 update |
| Oct 5, 2018 | Dr. Susan Branford | Molecular monitoring |
| Oct 19, 2018 | Dr. Catherine Ross | Update from flow cytometry lab |
| Nov 16, 2018 | Dr. Lori-Ann Linkins | DOACs for treatment of HIT |
| Dec 7, 2018 | Hematology residents | ITP |
| Jan 4, 2019 | Hematology residents | Highlights from ASH conference |
| Jan 18, 2019 | Dr. Colin Kretz | Regulation of ADAMTS13 in TTP and vWD |
| Feb 15, 2019 | Dr. Donna Reece | Optimizing outcomes in myeloma |
| Mar 1, 2019 | Dr. Troy Climans | Allo HSCT – source of stem cells |
| Apr 5, 2019 | Dr. Dina Khalaf | AML – beyond 3+7 |
| May 3, 2019 | Dr. Rick Ikesaka | Upper extremity DVT |
| May 17, 2019 | Dr. Marie-Pier Arsenault | Thrombosis in vasculitis |
| Jun 7, 2019 | Dr. Ken Anderson | Update in myeloma therapy |

TaARI Research Seminars

These seminars occur monthly on Wednesdays, with a hiatus during the summer months. They provide insight from global leaders in cutting edge science relating to thrombosis and vascular disease. The seminars are held in the auditorium of the David Braley Cardiovascular & Stroke Research Institute, located on the Hamilton General Hospital Campus, at 9:30-10:30.

The 2018-19 schedule is presented below:

| Date | Speaker | Topic |
|--------------|------------------------|--|
| Oct 17, 2018 | Dr. Davide Matino | Advances in Hemophilias A and B |
| Oct 24, 2018 | Dr. Agnes Lee | Cancer-associated thrombosis |
| Dec 19, 2018 | Dr. Ryan Zarychanski | Transfusion effects in critically ill patients |
| Jan 16, 2019 | Dr. Wolfgang Bergmeier | Platelet signaling pathways |
| Feb 6, 2019 | Dr. David Ginsburg | Mechanisms of LDL transcytosis—the neglected first step of atherosclerosis |
| Mar 21, 2019 | Dr. Matt Flick | Coagulation factors in pancreatic ductal adenoCa |
| Apr 17, 2019 | Dr. Noel Chan | Antithrombotics in PAD |
| May 8, 2019 | Dr. Anirban Sen Gupta | Artificial platelet-like vesicles |

Thrombosis Journal Club

These journal club meetings occur quarterly. They provide an opportunity for trainees and faculty to meet in a less formal setting to discuss recently published thrombosis research articles of interest. The meetings generally occur over dinner at local restaurants, with food being provided. **Participation is encouraged, but is not mandatory.**

Last year's Journal Club meetings are outlined below:

| Date | Speaker | Topic |
|--------------|-------------------|--|
| Jun 20, 2018 | Dr. Clive Kearon | Antiphospholipid antibody syndrome |
| Oct 24, 2018 | Dr. Agnes Lee | Cancer associated thrombosis (AVERT and Cassini) |
| Nov 26, 2018 | Dr. Siavash Piran | PROACT study (reduced INR for On-X valve) |

Mandatory On-Line Ethics Tutorials

Trainees are required to complete the following on-line ethics tutorials and to submit documentation of completion to the Program Assistant. Completion of these tutorials is a requirement by the end of the training program.

| Tutorial | Website address |
|---|---|
| McMaster University – Retrospective Review of Health Records | https://ethics.mcmaster.ca/chart/ |
| Collaborative Institutional Training Initiative (CITI) - Canada Education Program Good Clinical Practice Course | https://www.citiprogram.org/index.cfm?pageID=154&icat=7&clear=1 |
| Collaborative Institutional Training Initiative (CITI) - Canada Education Program Human Subjects Research (HSR) - Biomedical | https://www.citiprogram.org/index.cfm?pageID=154&icat=7&clear=1 |
| Royal College of Physicians and Surgeons of Canada – Bioethics modules | http://www.royalcollege.ca/portal/page/portal/rc/resources/bioethics/cases |