Moore-Bridenbaugh
Anesthesia Research Fellowship
Curriculum

Department of Anesthesiology

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Introduction & Background

Established in 1920, Virginia Mason is an award-winning, non-profit organization offering a network of primary and specialty care clinics throughout the Puget Sound region and a 336-bed hospital in Seattle.

The Department of Anesthesiology at Virginia Mason Medical Center is widely recognized as one of the early adopters of regional anesthesia for anesthesia and post-operative pain, led by Daniel Moore, MD. Research and publications that impact anesthesia practice and patient care are important facets of the academic mission of the department.

The Moore-Bridenbaugh Anesthesia Research Fellowship was created to provide a true research opportunity to a board-certified or board-eligible anesthesiologist. Research projects are not limited to any particular subspecialty in anesthesiology and can be clinical or bench-research focused.

Purpose

The purpose of the Moore-Bridenbaugh Anesthesia Research Fellowship is to help ensure the vitality and quality of anesthesia care around the world by supporting fellows interested performing meaningful, supervised research and engaging in scholarly activities as they prepare to pursue roles in academic anesthesia medicine. As fellows participate in valuable research and clinical experience under the guidance and mentorship of expert faculty members, they gain new insights and collaborate with physician-scientists to generate new knowledge, with the aim of using the fellowship year as a springboard for a future academic and clinical career.

Eligibility

Trainees for Moore-Bridenbaugh Anesthesia Research Fellowship must have an MD degree or equivalent, have completed an ACGME-accredited residency, and have an interest in academic anesthesia. Submission of a goal statement to include research experience and research interest, curriculum vitae, and three written letters of recommendation with phone and email contact information for references, including one letter from the director of the candidate's residency program, are required. International applicants are ineligible for the Moore-Bridenbaugh Anesthesia Research Fellowship.

Each applicant to the Moore-Bridenbaugh Anesthesia Research Fellowship program will be evaluated on the following criteria:

- Has the applicant submitted each Application Requirement in its entirety? (Y/N)

- Has the applicant met minimum criteria for eligibility? (Y/N)

- How well will the applicant meet program goals? (Likert Scale, 1 – 5)

- How well will the applicant achieve expected products and activities? (Likert Scale, 1 – 5)

- How well did the applicant respond in an interview? (Likert Scale, 1 – 5)

- Overall ranking of the applicant (Likert Scale, 1 – 5)

Duration of Fellowship

The duration of training is one year.

Number of Positions

One. The fellowship is offered every three to five years.

Salary

The Moore-Bridenbaugh Anesthesia Research Fellow will receive a competitive salary and benefits at the appropriate regionally determined PGY level, depending on level of training, for 0.6 FTE (3 days/week). The fellow will serve in an attending MD/clinical anesthesia role for the remaining 0.4 FTE (2 days/week), at the appropriate MD pay level.

Program Faculty

Direct supervision and mentoring will be provided by any member of the faculty in the department. Oversight of the fellowship is provided by David Auyong, MD. Support for the fellowship is provided by Kelsey Hanson, Academic Specialist.

David Auyong, MD, Program Director, graduated from the University of Washington School of Medicine prior to completing residency and fellowship in Regional and Ambulatory Anesthesiology at Duke University Medical Center. He is board certified by the American Board of Anesthesiology, with special interests in regional anesthesia, ultrasound guided regional anesthesia, and continuous peripheral nerve blockade.

Helen Bean, DO, a graduate of the Philadelphia College of Osteopathic Medicine, completed her internship at the University of Pittsburgh Medical Center, residency in anesthesiology at Riverside University Health System, and fellowship in advanced clinical anesthesia at Stanford University. Board certified by the American Osteopathic Board of Anesthesiology, she serves as Program Director for the anesthesiology residency program at Virginia Mason Medical Center. Her special interests lie in resident education, anesthesia for complex spine surgeries, advanced airway management, and medical simulation.

Matthew Birnbaum, MD, completed medical school at Wake Forest University School of Medicine, internship in internal medicine at Tucson Hospitals Medical Education Program, and residency in anesthesiology at Virginia Mason Medical Center, where he also completed a fellowship in pain medicine. Board certified by the American Board of Anesthesiology in Anesthesiology and in Pain Medicine, his special interest is in interventional pain management.

Ryan Choi, MD, a graduate of the George Washington University School of Medicine and Health Sciences, completed his internship, residency, and fellowship in pain medicine at the Washington University in Saint Louis. Board eligible by the American Board of Anesthesiology in pain medicine, his special interests lie in interventional pain medicine, acute post-operative pain, complex regional pain syndrome, and chronic back and neck pain.

Eliot Fagley, MD, completed medical school, internship, and anesthesiology residency at Tulane University before completing two fellowships at Washington University School of Medicine in Saint Louis, one in Critical Care and a second in CT Anesthesiology. He has board certification in Anesthesiology and in Critical Care by the American Board of Anesthesiology, as well as in Advanced Perioperative Echocardiography. He serves as the Section Head for Critical Care Medicine as well as Chief of Staff and has undergone extensive training in the Virginia Mason Production System management method to solve challenging problems.

Robert Hsiung, MD, graduated from the Albert Einstein College of Medicine prior to completing residency and fellowship in anesthesiology at Virginia Mason Medical Center and fellowship in critical care medicine at Stanford Hospital and Clinics. He is board certified in critical care medicine by the American Board of Anesthesiology, with special interests in regional anesthesia and critical care medicine.

Justin Liberman, MD, MPH, graduated from the University of Arizona College of Medicine before completing internship and residency at Virginia Mason Medical Center. Following residency, he completed the VA Quality Scholars Fellowship in Nashville, Tennessee, where he received his Master of Public Health in Epidemiology. He is board certified by the American Board of Anesthesiology, with special interests in quality improvement, patient safety, Virginia Mason (Lean) Production System, and preoperative surgical optimization.

Brooks Ohlson, MD, completed medical school at University of Washington, followed by internship and residency at Virginia Mason Medical Center and fellowship at Vanderbilt University. He is board certified by the American Board of Anesthesiology in both anesthesiology and critical care medicine, with special interest in point-of-care ultrasound and education.

Christine Oryhan, MD, graduated from the University of Illinois at Chicago before completing internship at Presence Resurrection Medical Center, residency at University of Chicago, and Pain Medicine Fellowship at Virginia Mason Medical Center. Certified by the American Board of Anesthesiology in Pain Medicine, she serves as Program Director for the Pain Medicine Fellowship program at Virginia Mason Medical Center. Her special interests are in interventional pain medicine, cancer pain medicine, postoperative pain medicine, and regional anesthesia.

Wyndam Strodtbeck, MD, a graduate of the University of Iowa College of Medicine, completed his residency in anesthesiology at Virginia Mason Medical Center and fellowship in pain medicine at the University of Vermont. Board certified by the American Board of Anesthesiology in anesthesiology and in pain medicine, he specializes in interventional pain medicine.

Daniel Warren, MD, graduated from the University of Texas Health Science Center before completing his transitional internship at St. Joseph Hospital, Houston, residency in anesthesiology at Virginia Mason Medical Center, and fellowship in anesthesiology - pain medicine at Virginia Mason Medical Center. Board certified by the American Board of Anesthesiology with a subspecialty in pain medicine, he specializes in anesthesiology, pain management, and interventional pain management, with special interests in acute post-operative pain medicine, cancer pain medicine, and regional anesthesia.

Wade Weigel, MD, a graduate of the Medical College of Wisconsin, completed his internship in internal medicine at the University of Washington and residencies in anesthesiology at University of Washington and Pennsylvania State University. A Fellow of the American Society of Anesthesiologists, he is board certified in anesthesiology and is an ABA examiner, and completed a Healthcare Improvement Science Fellowship in 2017 at Virginia Mason Medical Center. Research interests include out of OR process improvement, airway management, regional anesthesia, and neuromuscular blocker management process improvement.

Program Goal

The goal of the Moore-Bridenbaugh Anesthesia Research Fellowship program is to provide a unique and challenging research experience, complementing the fellow's clinical experiences, to include:

1. Perform meaningful, supervised research and engage in scholarly activities.

2. Learn a multidisciplinary team approach to medical research and serve as a valued and important contributor to the team.

3. For clinical studies, examine records from a population of patients in the context of a high-volume anesthesia service, both outpatient and inpatient.

4. Study, analyze, write, present, and publish on multiple aspects of anesthesiology at Virginia Mason.

Program Objectives

By the end of the fellowship year, the fellow will be able to:

Medical Knowledge

- Demonstrate understanding and application of medical knowledge in the assessment of anesthesia focused clinical or bench data.
- Apply knowledge of medical literature for evaluation of clinical data to patients undergoing anesthesia.
- Use medical knowledge and analytical thinking to develop presentations and manuscripts that will contribute significantly to the literature.

Research Skills

- Design and execute scientific research project(s).
- Apply knowledge of Human Subjects Research ethics and institutional review board (IRB) requirements to submission of projects for approval.
- Apply various statistical methods to analysis of clinical data.
- Use data abstraction and analysis skills to report from and analyze data to meet study aims.

Interpersonal Skills, Communication Skills, and Professionalism

- Complete assigned tasks, including documentation, reliably and in a timely manner.
- Demonstrate integrity, respect for others, honesty, and compassion.
- Set a tone of respect and collegiality for individuals and the team.

Expected Activity

1. Design, complete, and submit manuscript to peer-reviewed journal for at least one research project in anesthesiology. If a project cannot be finished before the fellow graduates, the project will be continued by the faculty or incoming fellow, who then becomes a co-author.

    a. **Identify a topic/project**—meet with a member of the faculty to identify/confirm potential topic, data needed or available, and knowledge necessary to investigate further.

    b. **Formulate a hypothesis**—using the knowledge you have gained, formulate a hypothesis about a cause or effect of the phenomenon, or the relationship of the phenomenon to some other phenomenon.

    c. **Test the hypothesis**—plan and carry out tests of the hypothesis, including gathering and sorting data as needed.

    d. **Analyze the data**—use proper mathematical analysis to see if the results of the experiment support or refute the hypothesis.

    e. **Draft a manuscript**—use AMA formatting to draft a publishable academic research article, provide initial and subsequently improved drafts to faculty member to receive input for improvement, and identify appropriate peer-reviewed journals for submission.

    f. **Submit manuscript**—follow publisher guidelines for submitting manuscript, make changes in response to reviewer feedback, and re-submit in a timely manner.

2. Interact daily with supervisor to identify next steps on research plan(s), collaborate on analysis and submission, enhance research methodology, perform statistical review, and build on database creation and analysis skills.

3. Work with analysts and multidisciplinary providers to determine appropriate inclusion/exclusion criteria for use in building robust databases.

4. Participate actively in grand rounds, regularly scheduled conferences, and Journal Club:

   Grand Rounds—*Every Friday, 7:30–8:30am, Volney Richmond Auditorium*
   Weekly education is provided on wide variety of medical topics. Attendees can earn *AMA PRA Category 1 Credit™* for Grand Rounds by completing a registration form and sending it to CME.

   Clinical Incidences & Competencies (CIC) Conference—*Every Tuesday, 6:45-7:30, Correa A/B*
   Weekly conference focuses on recent cases in anesthesia that could benefit from further discussion. Literature review, discussion, and recommendations for further care and treatment for each patient are discussed.

   Journal Club—*Scheduled at least quarterly throughout the year.*
   Providers meet regularly to discuss the latest news from literature published for physicians and health care providers.

Expected Products/Outcomes

1. Completion of at least one original research study, either retrospective or clinical/bench (select one). Initiation of a second study, with expectations of completion that may involve post-fellowship analysis, writing, and submission.
2. At least two publications anesthesia topics in peer-reviewed journals per year, co-authored with mentoring providers.
3. Presentation of research at a minimum of one national or international meeting.

Retrospective Research Program Objectives

In the **first quarter**, the fellow will:

1. Complete CITI GPC/Ethics Training and Statistics course.

2. Attend the Wilske Research Symposium in September.

3. Develop studies, conduct literature review, and submit IRB application with data collection plan.

In the **second quarter**, the fellow will:

1. Receive IRB approval for research.

2. Complete data collection.

3. Plan and submit data analysis.

In the **third quarter**, the fellow will:

1. Finish statistical consultation and data analysis.

2. Finalize literature review for manuscript preparation.

3. Complete manuscript and circulate for input from all authors.

4. Submit abstract to ASA annual meeting and full manuscript for journal submission.

In the **fourth quarter**, the fellow will:

1. Complete manuscript revisions and resubmit.

2. Present findings at department CIC.

Prospective/Clinical/Bench Research Program Objectives

In the **first quarter**, the fellow will:

1. Complete CITI GPC/Ethics Training and Statistics course.

2. Attend the Wilske Research Symposium in September.

3. Develop studies, complete literature review, and submit IRB.

In the **second quarter**, the fellow will:

1. Complete IRB revisions, if any, and receive approval for research.

2. Prepare for study:

    a. Register study on ClinicalTrials.gov.

    b. Set up database.

    c. Educate clinicians.

    d. Prepare study packets.

In the **third quarter**, the fellow will:

1. Consent and enroll patients as appropriate.

2. Complete data collection.

3. Complete data entry into database.

In the **fourth quarter**, the fellow will:

1. Complete data collection, if needed.

2. Complete data analysis and statistical consultation.

3. Complete final literature review for manuscript presentation.

4. Develop the manuscript with co-authors, including procurement of images if needed and development of tables, figures, and graphs.

5. Submit for publication.

All research data must be stored on a secured, shared drive. No PHI may be placed on a flash drive or moved from the secured, shared drive in any manner.

If the fellow is unable to complete a manuscript prior to completion of appointment as a Virginia Mason Fellow, authorship may change. Access to Virginia Mason's electronic medical record, including for the purpose of research, concludes when the fellowship appointment ends.

Research Fellowship Timeline

Moore-Bridenbaugh Anesthesia Research Fellowship
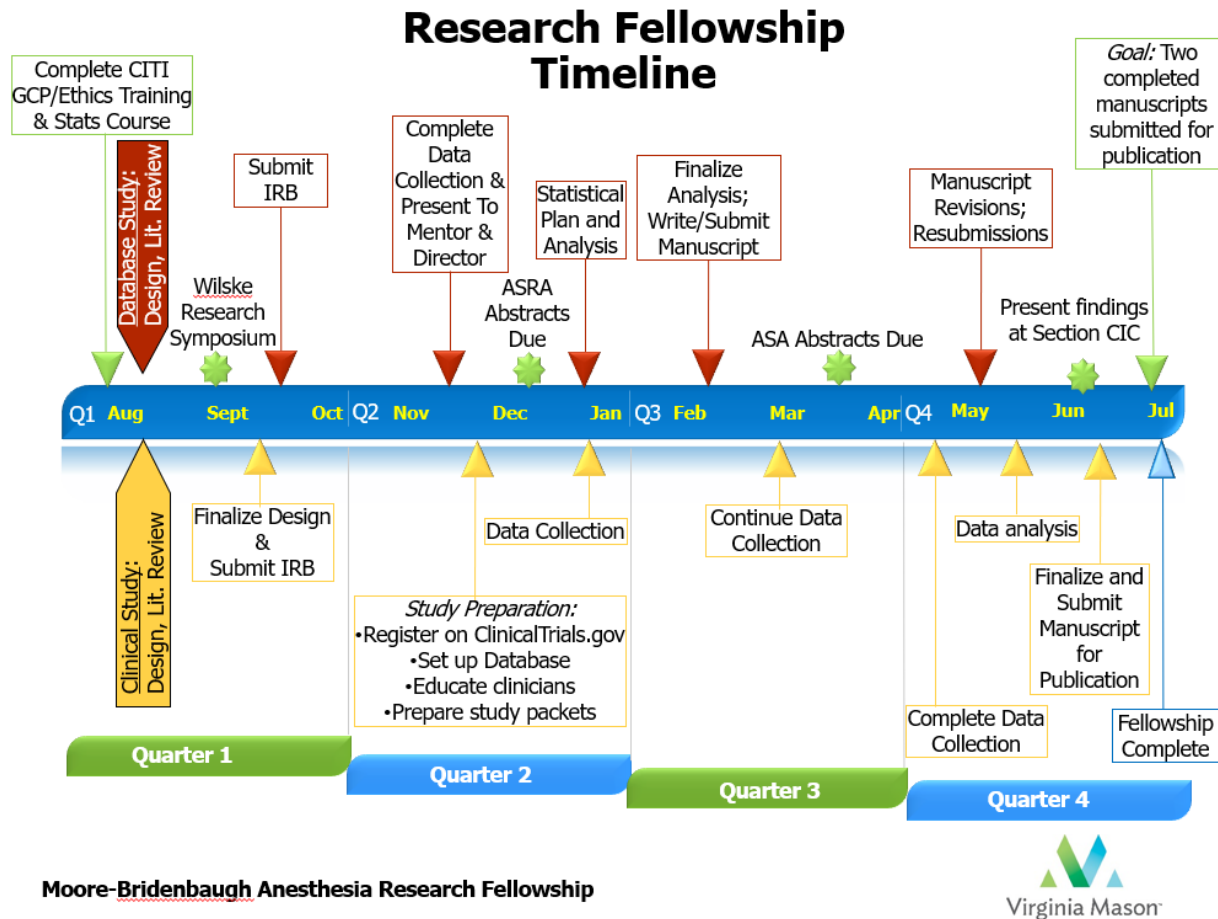
Evaluation and Feedback

The fellow will meet with the Program Director quarterly and receive feedback based on quarterly objectives. The fellow will be expected to provide confidential assessment and feedback about the program and faculty. Faculty, research support team members, analysts, and other team members who interact with the fellow may also be asked periodically to evaluate the fellow. Assessment will focus on the goals, objectives, activities, and outcomes above.