DEPARTMENT OF ANESTHESIOLOGY AND PAIN MEDICINE
ANESTHESIOLOGY RESIDENCY PROGRAM
BONICA SCHOLARS PROGRAM

PROGRAM DESCRIPTION, GOALS, AND OBJECTIVES

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1. INTRODUCTION

The University of Washington (UW) Department of Anesthesiology & Pain Medicine (APM) is committed to training the future leaders in anesthesiology and perioperative medicine. While all anesthesiologists need excellent, diverse, and intense clinical training, a smaller group of outstanding individuals must be identified who will lead the development of scientific discovery and research within anesthesiology and its allied disciplines.

To prepare residents for the challenge of leading the future development of academic anesthesiology and research in all aspects of this field, UW Anesthesiology has created the Bonica Scholars Program. This program is designed to provide excellent training opportunities for exceptional individuals who desire a career in academic anesthesiology.

2. PROGRAM DESCRIPTION

The “Bonica Scholars Program” is named for John Bonica, the first chair of Anesthesiology at University of Washington and a pioneer in the fields of Anesthesiology and Pain Medicine. The Bonica Scholars Program is a 5 to 7-year program intended to offer a structured, well-defined and financially viable training opportunity for anesthesiology residents who are committed to a career in academic research. This program is designed to provide high quality clinical training, rigorous instruction in all aspects of research, and comprehensive mentoring to support the Bonica Scholars residents in initiating and sustaining successful academic careers devoted to research.

a. Program Timeline

The first 4 years of residency training will be based on the ABA 48 months Research Template, this includes a maximum of 11 months of research spread over the 48 months of training.

(http://www.theaba.org/PDFs/Resident-Options/Policy_Info_Templates_for_Research_FA07)

The following is the customary allotment of designated research time during residency. We will provide flexibility in order to optimize schedules based on an individual's needs.
Year One: Clinical Base Year (CBY). UW APM integrated Internship program. One month of research with an orientation to potential research mentors and research resources will be offered in the latter part of the CBY.

Year Two: Clinical Anesthesia (CA) year 1. Two months of research will be offered concurrently with the resident building a solid foundation of clinical skill.

Year Three: Clinical Anesthesia (CA) year 2. Two months of research will be offered during the CA2 year.

Year Four: Clinical Anesthesia (CA) year 3. During the second half of the CA3 year, the 24 month dedicated research training begins with six months of allotted research time. This initiates participation as a resident in the NIH funded T32 training program within the Department of Anesthesiology and Pain Medicine. During the 6 months of research, clinical skills will be maintained with a 20% clinical commitment. After this period the Bonica Scholar remains in the department as a T32 fellow.

T32 Fellowship: The T32 postdoctoral fellowship in anesthesiology and perioperative medicine research provides a minimum of 2 years of intensive research training (with an option to apply for a third year of support). Training begins in the CA3 year, which is followed consecutively by an additional 18 months of 80% dedicated research time as a T32 fellow.


Clinical skills will be maintained with a 20% clinical commitment for the duration of the T32 fellowship.

<table>
<thead>
<tr>
<th>Year</th>
<th># of Research Months</th>
<th>Average % Clinical Effort * during research months</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBY</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>CA1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>CA2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>CA3</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Fellowship</td>
<td>18</td>
<td>20</td>
</tr>
</tbody>
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*Clinical days may include weekdays, weekends, daytime or nighttime shifts depending on service and individual needs. Bonica scholars will work with the Chief Residents and Program Director for scheduling clinical work.

During this integrated 5.5 yr. period of training the resident must remain enrolled in the UW Department of Anesthesiology and Pain Medicine Training Program. A resident must have a satisfactory Clinical Competence Committee report for 6 months of Clinical Anesthesia training immediately preceding any research period unless prospectively approved by the ABA Credentials Committee.

Exceptions
By prospective (at least 4 months in advance) application to the Credentials Committee of the ABA, exceptions will be considered for:

1. Aggregating research time normally allocated across the CBY and CA years into one or more years, allowing a significant amount of time to be used for research
as a block
2. Leave of absence from the clinical program for research activities
3. Additional months in research, especially if the research is prospectively integrated in the training program

Options
The default trajectory of a senior Bonica Scholar is entry into our departmental NIH T32 training program in the last 6 months of residency and for 18 months following for a total of 2 consecutive years of research training. However, the department desires to maintain flexibility to optimize research training as well as to accommodate variation in potential schedules/resources. Any Bonica Scholar who desires entrance into the T32 program but cannot (availability of slots for example) will be guaranteed research training and support during the CA3 year and then for the next 18 months as a senior research fellow, with an 80/20 split between research and clinical training.

In addition, the Bonica Scholar may pursue a clinical fellowship at the University of Washington following completion of their T32 training.

a. Financial support
A total research allowance of $20,000 will be available for the duration of the Bonica Scholars Program to be used for supplies, small equipment, personnel, or other essential research expenses.

b. Program Objectives
The program objectives are to:
• provide excellent clinical training in anesthesiology and perioperative medicine
• expose scholars to research experiences that will facilitate identification of a research focus and begin the path towards an independent and successful research career.
  Potential research foci include, but are not limited to:
  ▪ Fundamental neuroscience (consciousness, sleep, anesthetic mechanisms/toxicity)
  ▪ Mechanisms of cell death/organ failure (ischemia/hypoxia, cardiomyopathy, sepsis)
  ▪ Mechanisms of pain, addiction, nociception
  ▪ Fundamental pharmacology (receptor biology, drug targets/mechanisms)
  ▪ Clinical and translation research in acute and chronic pain
  ▪ Anesthesiology outcomes research
  ▪ Bioethics
  ▪ Global perioperative health
  ▪ Palliative care
  ▪ Novel quality improvement
  ▪ Health care economics
  ▪ Bioengineering
  ▪ Genomics
  ▪ Bioinformatics
• provide rigorous training in research methodologies including:
  ▪ Scientific principles
  ▪ Statistical methods
  ▪ Scientific writing and grant applications
  ▪ Ethical research practices
• provide mentoring from externally-funded principal investigators
• provide regular opportunities to think about scientific questions and advances through journal clubs, seminars, and attendance at national meetings such as the Association of University Anesthesiologists, the International Anesthesia Research Society, or the Western Anesthesia Residency Conference
c. Program Administration and Mentorship

- **Bonica Scholars Oversight Committee.** The Oversight Committee consists of the Department Chair, Residency Program Director, T32 Fellowship Program Directors, Vice Chair for Clinical Research, Vice Chair for Basic Research, Director for Research at Seattle Children’s Hospital, and the Scholar’s research mentor (once selected). The committee will review annual progress during residency training. The committee is available to help facilitate trainee/mentor matching and is the group that provides leadership for the resident in terms of supporting their presentations at national meetings, introducing them to academic leaders in the field, and joining them in social outings with visiting professors. This is the primary leadership team for the research trainees.

- **Bonica Scholar-Specific Mentor Committee.** The Scholar-Specific Mentor Committee is intended to provide a formal mentoring process to assist residents in attaining their academic goals related to the Bonica Scholars Program as well as building productive training and career development experiences within the department. Dr. Marge Sedensky, the Bonica Scholars Program Director, serves as the initial mentor for all Scholars upon entry into the Program. The mentor will facilitate early exposure to research in the university and assist the trainee in meeting with potential research mentors. The mentor will work with the Residency Program Director to determine when research time should occur during the clinical anesthesia years so that the resident’s research goals and needs can be met. Once a research mentor has been selected, they will join the mentoring committee. Scholars will complete a Learning Contract (see Appendix 1) at the beginning of the Program and update this document each year to list aims and goals for their research training. This Learning Contract will be shared at the mentoring committee meetings to summarize overall academic progress and progress toward training goals. Scholar-Specific Mentor Committees (consisting of the mentee, the departmental mentor, and their primary research mentor) will meet semiannually.

d. Education and Training Seminars

Bonica Scholars will be expected to participate in the workshops and seminars available to T32 postdoctoral trainees in the department. The sessions occur monthly and the schedule rotates between four seminars: 1) writer’s workshop, 2) grant writing seminar, 3) journal club, and 4) work-in-progress seminar. Sessions may also include guest speakers from both UW and external.

**Writer’s Workshop.** The goal of Writer’s Workshop is to provide the opportunity for trainees to present drafts of manuscripts and receive peer feedback from other trainees and faculty investigators. We have successfully implemented Writer’s Workshop for over a decade in other predoctoral and postdoctoral training programs (Drotar, Palermo, Levers-Landis, 2003a; Drotar, Palermo, Levers-Landis, 2003b). The workshop creates a submission deadline that greatly assists trainees in reaching goals for their scientific writing. In addition, the opportunity to review each other’s scholarly work provides critical instruction in writing and peer review, which are essential to gaining the practical experience to carry out these tasks independently in their future academic careers.

**Grant Writing Seminar.** This seminar focuses on instruction and practical experiences with grant writing. Curriculum topics include developing a research idea, identifying a suitable mechanism, early career grant mechanisms, crafting specific aims, sections of a research grant, NIH review criteria, and peer review and interpretation of summary statements. Reading materials for the workshop include
The seminar includes peer and instructor review of grant application materials, and trainees have
the opportunity to present their aims. The goal of the seminar is to equip investigators with tools to
develop and write more effective grant applications. The rotating nature of the seminar allows for
continued exposure to grantsmanship training, creating opportunities for feedback on proposals
under development over the course of the research training. Faculty mentors involved in the training
program will attend specific sessions so that trainees can get feedback on their aims from an
interdisciplinary group of funded investigators conducting anesthesiology research.
Journal Club. Journal club provides an opportunity to explore contemporary anesthesiology and peri-
operative medicine research. It is important for trainees to be able to critically read, analyze,
present, and discuss manuscripts published in the scientific literature. With this in mind, trainees
have a research journal club that meets in a faculty member’s home. In addition to discussing an
interesting journal article relevant to one of the trainee’s research, this provides additional
opportunity for networking and mentoring.

Work-in-Progress (WIP) Seminar. The WIP Seminar provides an opportunity for trainees to present
their ongoing or planned work for review and discussion, allowing trainees to get critical feedback on
their proposed studies from an interdisciplinary group of investigators. Trainees prepare oral
presentations of their proposed project and put forward critical discussion questions. This permits
experience with presenting their science to interdisciplinary audiences and allows for critique of the
research.

Additional seminars and conferences are available at the UW through the regular
departmental educational offerings and through the Institute for Translational Health Sciences.
UW Anesthesiology Seminars. Research trainees are expected to regularly attend Anesthesiology
departmental grand rounds (attendance taken) as well as the main seminar series for the
department in which their mentor has his/her primary appointment. Other seminars related to a
trainee’s particular research project are available across the university. The department sponsors an
annual Raymond Fink Memorial Research Conference and an annual Academic Evening. These two
events allow research trainees an opportunity to present their research to the rest of the
department.

ITHS Career Development Seminar. UW was awarded a Clinical and Translational Science Award
(CTSA) known at our institution as the Institute for Translational Health Sciences (ITHS). The UW
ITHS, funded under an NIH Roadmap Clinical and Translational Science Award, offers a valuable
partnership for translational research training. The educational programs within the ITHS consist of
both formal degree granting programs as well as ongoing translational research education that can
be accessed by any trainee. The specific opportunities for participation in formal degree programs
are through our School of Public Health and Community Medicine with the potential for MPH, MS,
MSE and MSHS, and doctoral degrees as well.
Within the ITHS there are a multitude of ongoing educational programs including “short courses” such
as research conduct, biomedical ethics, basic study design, clinical trials, meta-analysis, and application
and proposal preparation. The courses listed vary in length from a few well-crafted sessions to a week
of concentrated instruction in research methods and procedures. Documentation of participation in
these offerings can be obtained by certification. Furthermore, there are educational curricula in the
conduct of clinical research and good clinical practice for both the investigator and his/her research
team.

Additional courses are provided in specific laboratory techniques, how to develop therapeutic
products, and business development. These educational opportunities are offered at no charge to
students and are available on an ongoing basis. Finally, students have access to a variety of Institute
resources; significant pilot project funds, subsidized access to a biostatistician, research coordinator support, and use of the clinical research center program, to name a few services.

e. Performance Expectations

Scholars are expected to achieve research-based competencies in research methods, implementation, and dissemination during their residency training. Scholars demonstrate competency in designing methodologically sound research studies and displaying an understanding of research design, methodology, and statistics. They should be capable in organizing and implementing data collection as appropriate to their field of investigation. Scholars should demonstrate a level of research productivity commensurate with their level of professional development, which may include preparing grant proposals and manuscripts, publishing, and presenting research findings.

In order to remain in good standing in the residency program, ALL residents (including the Bonica Scholars residents) must satisfy the essential requirements mandated by the ACGME, the ABA and the UW Anesthesiology residency program, described in the UW Anesthesiology Resident Manual.

Residents who enter the Bonica Scholars Program are required to maintain a high standard of clinical, professional, and academic achievement. Specifically Bonica Scholars residents must be at or above the ACGME and ABA milestone levels for their training year in order to receive approval for research rotations and must pass the ABA part 1 (Basic) examination.

f. Evaluation of Progress

Each Bonica Scholar in conjunction with the Bonica Scholar-Specific Mentor Committee will be required to develop a research portfolio. The portfolio should include the updated Learning Contract with the Bonica Scholar’s research goals, details of projects, conferences attended; abstracts and papers submitted and published, etc. The research mentor will be asked to complete a yearly evaluation to rate research competencies and progress of the Scholar.

In May each year the Bonica Scholars Oversight Committee will evaluate the progress of each Bonica Scholar. The Oversight Committee will review the Bonica Scholar’s academic and clinical performance (with input from the Clinical Competence Committee and Residency Program Director) and the Bonica Scholar’s research portfolio. The Chair of the Bonica Scholars Oversight Committee will provide written documentation to the Residency Program Director of the Bonica Scholar’s continuation in the program.

The Bonica Scholars resident will be notified in writing of their successful continuance in the program by the end of June each year. Bonica Scholars residents who do not meet the requirements for continuation in the Bonica Scholars Program will be offered the opportunity to continue the regular four year program, but will no longer be eligible for the Bonica Scholars Program benefits and awards.

g. Communication with Residency Program & Program Director

The Residency Program Director will have overall responsibility for scheduling the Bonica Scholar’s research time in a way that both meets the Bonica Scholars resident’s needs and needs of the training program (for example during July when only 2/3 of the resident body are available to take call it is very difficult to grant residents time off).

The residency program will provide the Bonica Scholars residents with flexible scheduling in order for them to attend mentoring meetings and specific academic meetings and events. The program will be
responsive to the Bonica Scholars residents’ needs. To meet special requests, the Bonica Scholars and/or their mentors must reach out to the program director and the Chief Residents (who are responsible for monthly OR schedules) in a timely manner to make sure they are not scheduled to be on call on days when they have academic activities. Ideally, the program requires 4 months’ notice for the program director to review requests for residents to attend any academic meetings. The research time in the CA3 year is fixed as the final 6 months of the academic year, as the Bonica scholar is appointed to the first year of the T32 training program.

3. PROGRAM OVERSIGHT
The oversight of the Bonica Scholars Program and the individual Bonica Scholars will be ultimately by the Chair of the Department of Anesthesiology & Pain Medicine in conjunction with the Bonica Scholars Oversight Committee, the Bonica Scholar’s individual mentors, and the Residency Program Director.

The Bonica Scholars Oversight Committee
Members:
- Michael Crowder (Department Chair)
- Karen Domino (Vice Chair for Clinical Research)
- Tonya Palermo (T32 Fellowship Director)
- Margaret Sedensky (Vice Chair for Basic Research, Bonica Scholars Program Director)
- Phil Morgan (Director for Research at Seattle Children’s Hospital)
- Matt Hallman (Residency Program Director)

Oversight Committee Activities:
1. Participate in the selection and recruitment of Bonica Scholars applicants
2. Review the progress of Bonica Scholars residents
3. Provide oversight for Bonica Scholars resident mentoring either by functioning as the mentors or helping select appropriate mentors
4. In May each year, provide annual evaluation of each Bonica Scholar and confirm their continuation in the program in writing to the Residency Program Director

4. SELECTION PROCESS
The Bonica Scholars residents are selected through the National Residency Match Process (NRMP) in March each year. Residents are required to apply to the core residency program using the Electronic Resident Application Service (ERAS). Applicants are also required to complete a short additional application by completing a short questionnaire about their research interests and career goals.

Bonica Scholars candidates will be selected for interview based on their accomplishments including: performance in medical school and undergraduate studies, USMLE (or equivalent) scores, prior research experience and success, leadership, volunteer and professional activities.

Candidates will be invited to a Q&A reception with members of the Bonica Scholars Oversight Committee held 2-3 times during the interview season on the Monday afternoon after the general resident interviews. During this Monday afternoon reception, candidates will also be asked to give a very brief presentation without slides of their previous research project(s) and their likely research area as a Bonica Scholar. Candidates will also have the opportunity to meet with prospective research mentors after this reception. Candidates will be evaluated based on their academic merit, previous experience and their performance during the interviews. A rank
order of candidates will be submitted to the NRMP (program number). Candidates for the Bonica Scholars Program are not excluded from applying for the general 4-year residency program or 5 yr combined ICU program. Applications for the Bonica Scholars Program are accepted only through the NRMP system.

Successful candidates will join the anesthesiology CBY in June after the match or may join the Bonica Program as CA1s after completion of the CBY elsewhere.

5. TERMS AND CONDITIONS OF THE BONICA SCHOLARS PROGRAM
Commitment made by the Bonica Scholars resident to the UW Department of Anesthesiology and Pain Medicine:
- To complete the residency and fellowship research program and use the training as a spring board to a successful academic career in anesthesiology research and clinical care

The commitment made by the Department of Anesthesiology and Pain Medicine to support the Bonica Scholars resident’s education and training:
- To provide a research allowance of $20,000 for the duration of the program
- To provide mentoring to assist the Bonica Scholar in choosing a direction for future research, finding research mentors, and with overall career advice
- To provide up to eleven months of dedicated research time the first four years of the program
- To provide 80% research time for two years beginning with the second half of the CA3 residency and during fellowship training
- To provide didactic opportunities in research methods such as research ethics, scientific writing, scientific method
Appendix

University of Washington Bonica Scholars Training Program

Learning Contract

Mentee:

Departmental Mentor:

Research Mentor:

Part 1. CAREER GOALS AND OBJECTIVES

1.1. Overall career goal:

1.2. Career development and training goals for Bonica Scholars Program:

1.3. Goals for next 12 months:

Part 2. CAREER DEVELOPMENT/ TRAINING ACTIVITIES
[Activities that are planned over the next year]

2.1. Brief statement of research area:

2.2. Brief description of planned research project(s):

2.3. Research skills (identify specific skills that are needed to complete the research):

2.4. Training activities planned to attain new research skills:

2.5. Attendance at professional/scientific conferences:
Part 3. **SCHOLARSHIP**
[Activities that are planned over the next year]

3.1. Planned writing projects and publications:

3.2. Planned oral presentations

3.3. Planned grant submissions

Part 4. **Training in the Responsible Conduct of Research**

The University of Washington requires that all federally funded trainees participate in the Biomedical Research Integrity (BRI) series as part of its commitment to the ethical conduct of research. This will be required of all T32 trainees. See [http://depts.washington.edu/uwbri/](http://depts.washington.edu/uwbri/)

UW Medicine online IRB and/or IACUC training modules (depending on the trainee’s research area) will be expected to be completed. For IRB training, this includes the 2 introductory modules as well as 2 others related to database research and one other elective module chosen by the trainee.

Part 5. **MENTORSHIP AND RESOURCES**
[To be completed by mentors]

5.1. List resources that will be provided to support mentee:

5.2. Plans for mentoring meetings (frequency, etc)

Part 6. **Review of Curriculum Vitae:** Attach UWSOM CV

Signature of Mentee: Date

Signature of Mentor: Date

Signature of Program Directors: Date