Introduction

The Resident Research Track (RRT) offers an in-depth six month research experience for motivated, research-oriented individuals in their final year of residency. The RRT option in the anesthesiology residency is recognized by the Accreditation Council for Graduate Medical Education (www.acgme.org). The Resident Research Track is also referred to as the Resident Research Track by the American Board of Anesthesiology (ABA Booklet of Information, http://www.theaba.org/Home/publications) and by the Foundation for Anesthesia Education and Research (http://www.faer.org).

The goal of the Resident Research Track is to provide training in research techniques and scientific methods to residents interested in academic careers, and to generate results that will be suitable for presentation at a local, regional, or national scientific meeting.

It is anticipated that residents will build on the research experience of the RRT, and follow RRT training with additional research training (typically as a fellow, but occasionally as faculty). For example, RRT training may be the first six months in the 18-month continuum of the Research Fellowship Grant for residents, sponsored by the Foundation for Anesthesia Education and Research (FAER; http://www.faer.org/programs/grants/options.html#RFG).

Highly successful residents may also pursue a Mentored Research Training Grant (RTG) for Instructor or Assistant Professors, sponsored by FAER. With regard to the ABA certification process, Option A of the Resident Research Track may be fulfilled by completing six months of clinical or laboratory research experience during 48 months of training that must include 30 months of Clinical Anesthesia. Option B of the Resident Research track, intended for residents who plan careers as academic investigators, may be fulfilled by completing 18 months of clinical or laboratory research at any time during 60 months of training which must include a minimum of 30 months of Clinical Anesthesia. Residents are eligible for entrance into the ABA examination system after they have completed their Clinical Base requirement, 30 months of Clinical Anesthesia satisfactorily, and a minimum of six months of research experience.

Program Description

General

The RRT will typically comprise 6 continuous months in the CA-3 year. Approximately 80% of the time will be devoted to research-related activities, and approximately 15-20% time (1 day per week) will be devoted to patient care activities, in order to maintain clinical skills acquired during the preceding 2 years. Up to two RRT positions will be offered each year for CA-3 residents. Two RRT residents will typically not concurrently pursue the research rotation. One RRT rotation will typically occur August-January, and the other RRT rotation will typically occur December-May of the CA-3 year. RRT residents will be expected to take out one of their total three weeks of annual vacation during the 6 month research rotation.

Residents undertaking the RRT will not be eligible for an elective month in their CA-3 year. They will be required to take the 2 mandatory rotations, cardiac and pediatrics, and 4 other
rotations of their own choosing to make up the remaining 6 months of clinical rotations.

Residents interested or potentially interested in the RRT are encouraged to begin planning or exploring potential research opportunities in the fall of their CA-2 year. Potentially interested residents should meet with the Vice Chairs for Clinical Research prior to identifying potential mentors and research projects.

**Program Oversight**
The Resident Research Track is directed by the Scholarship Oversight Committee. This committee is comprised of the Vice Chair for Clinical Research, the Vice Chair for Basic Research, and at least two (2) senior investigators who are faculty of the Department of Anesthesiology & Pain Medicine. This committee is responsible for reviewing resident applications, selecting appropriate residents to participate in the RRT, for overseeing and assessing the trainee’s progress and verifying to the ABA that the requirement has been met. Karen B. Domino, MD, MPH, Vice Chair for Clinical Research is currently Chair of the Scholarship Oversight Committee.

**Academic Requirements**
To be considered for the RRT, the resident should have achieved consistently good exam results for AKT 0, 1, 6, or ITE and be at least in the 30 percentile range. The resident’s clinical abilities must be judged to be consistently superior in all evaluations. Attendance records at lectures and grand rounds must be consistently over 75%. Residents must maintain this level of academic performance in order to be in the RRT, even after approval of the project. The RRT shortens the clinical component of residency by 5 months, and the Clinical Competency Committee must be confident that the clinical skills of the applicant are sufficiently strong to not be significantly diminished by the applicant’s participation in the RRT. In addition, previous research activities will be considered. The CCC may also remove a resident from the RRT if at any time concern is raised about their clinical competence after accepting or starting the research period. Priority will be given to residents who will commit to additional clinical or research fellowship training.

**Research Project**
The choice of research project is an important component of the proposal. The project should be tailored to the needs, interests and ability of the applicant, designed to enhance their intellectual growth, and be relevant for entrance into a career in academic anesthesia. The project may be laboratory research, clinical research, or a population-based study. It must be conducted at the UW or UW-affiliated hospitals, although not necessarily in the Anesthesiology Department. A didactic component of the project is not required. However, if appropriate for the applicant a didactic component will be viewed favorably. Didactic activities may include (but are not limited to) mini-courses or seminars in protocol design, clinical trials design, meta-analysis, or biostatistics. Didactic activities must be a limited portion of the RRT, and complement, rather than detract from, the research experience.

For projects involving animal or human studies, appropriate IACUC or IRB is required. IACUC or IRB approval is not required to apply for the RRT, however documentation of compliance is required before starting the RRT. In the event that IACUC or IRB approval is not obtained, the resident will not be able to undertake the RRT. It is the responsibility of the mentor to obtain necessary approvals, but sufficient time to obtain compliance approvals must be allowed.
Mentor
An involved, supportive and experienced mentor is essential for a successful RRT experience. It is expected that the mentor will be an active and accomplished investigator. Typically, a mentor will be a member of the senior faculty, one with a history of successful research and grant funding. Characteristics of a desirable mentor include a record of successful mentorship, research accomplishment, and expertise in the proposed approaches. The mentor should also be enthusiastic about the project, the applicant, and the applicant’s academic development. The mentor must make a written commitment to continuous, direct supervision of the RRT resident in developing research expertise and achieving the goals of the research proposal. The mentor statement is extremely important in evaluation of the RRT application.

Clinical Responsibilities
Concentrated time away from clinical duties is necessary for adequate research training. It is also important to maintain and consolidate the clinical skills acquired during the CA-1 and CA-2 years. The RRT resident will work approximately 20% clinically (typically ~10-12 hours/week) in a clinical capacity. This may include weekday daytime activity, call, and/or some (but not entirely) weekend duty. Clinical responsibilities will be flexible (in consultation with the mentor/resident and chief residents) to avoid the disruption of research activities. Standard evaluation of clinical skills will continue throughout this time.

Research Presentation
An important component of research training is acquiring skills and experience in the presentation of research results. After the conclusion of the research period, the resident will be required to present the project at departmental Grand Rounds (normally in Late May or June of the CA-3 year) and at a suitable external conference (WARC, ASA, IARS, etc.). It is expected that the results of the RRT research will be published in a peer-reviewed journal.

Evaluation
Evaluation of progress in the RRT will be accomplished by written self-reporting by the resident and written reports by the mentor.

A preliminary evaluation of progress must be submitted by the mentor to the Chair of Scholarship Oversight Committee after 6 weeks. Continuation in the RRT requires satisfactory progress of the resident. If progress is unsatisfactory, the resident may be required to terminate the project and re-join the clinical anesthesia track.

An interim evaluation of progress must be submitted by the RRT resident to the Chair of Scholarship Oversight Committee after 12 weeks. This progress report should address research progress and findings to date, any unanticipated limitations, problems, or deviations from the original research plan, and plans for the remaining three months. Similarly, the mentor will also provide a mid-project report assessing the resident’s progress.

A final evaluation of progress must be submitted by the RRT resident to the Chair of Scholarship Oversight Committee within one month of concluding the RRT. This will be reviewed by the Scholarship Oversight Committee. The final progress report should state the aims of the project as proposed in the original research plan, summarize the pertinent research findings and conclusions, how the RRT experience has contributed to the resident’s career development plans, and future plans. Manuscripts submitted for publication, or to be submitted for publication, may
be included as part of the evaluation. Similarly, the mentor will also provide a final report assessing the resident’s progress.

Grading will be satisfactory / unsatisfactory, with the inclusion of a narrative component. A resident with an unsatisfactory grade will have their overall performance reviewed by the CCC. The resident may receive an unsatisfactory report to the ABA and in the case that this is the last 6 months of residency, may be required to complete extra training in order to successfully graduate from the residency program.

**Application Process**

The application process is designed to identify residents with the greatest likelihood of achieving the goals and objectives of the RRT. It recognizes the need to identify successful applicants in time to permit scheduling of the CA-3 year, while permitting as much time as possible for residents to identify and develop their career goals during the CA-1 and CA-2 years.

**Notification of Intent**

Residents interested in applying to the RRT must discuss their interest with Karen B. Domino, MD, MPH, Vice Chair for Clinical Research (kdomino@uw.edu) before January 22, 2018 and preferably earlier. While a formal written letter of intent is waived, verbal/email notification of intent is required, indicating mentor and project title. This step guarantees the choice of an appropriate mentor and project and allows review of the resident’s clinical performance, prior to inviting the candidate to submit a research application.

**Research Application**

Residents interested in applying for the RRT must submit a Research Application by Monday March 19, 2018 before midnight. This date cannot be delayed due to need for time to review the applications and need for approval prior to the CA-3 rotation lottery in April. The Research Application consists of the Research Plan (see Page 6 for Research Plan outline), the Applicant’s CV or Biosketch, the Mentoring Plan, and the Mentor’s Biosketch. The Research Application should be submitted to the Vice Chair for Clinical Research, Karen B. Domino, MD, MPH (kdomino@uw.edu). We strongly recommend you send your research application to Dr. Domino 1-2 weeks prior to the due date, for feedback on how to improve your application since selection is competitive.

**Selection Process**

Resident Research Track Applications will be evaluated by appropriate members of the Research Committee, chaired by the Vice Chair for Clinical Research, as well as other faculty with experience in the particular field being investigated. Consistent with current standards for conflict of interest in research, any committee member will be excluded from evaluating the application of a resident for whom they serve as mentor or co-investigator. Research applications will be evaluated based on evaluation of the 1) research plan, 2) mentoring plan and 3) applicant, according to standard review criteria distributed to committee members (see attached evaluation form). The Research Plan will be evaluated according to the significance of the research problem, the approach, the likelihood of successfully achieving the research aims within the 6 month period, the potential to lead to subsequent research activity, and the contribution of the proposed research to the academic development of the resident. The Mentoring Plan will be evaluated according to the mentor’s experience, the training environment, the appropriateness of the research plan, and the potential for advancing the
resident’s career. The Applicant will be evaluated according to their potential to pursue subsequent research training and become an academic anesthesiologist. In addition, priority for awarding will be given to residents who will commit to additional clinical or research fellowship training. See attached Resident Research Track evaluation form.

Residents and mentors will be notified in April of the CA-2 (R3) year of the decision regarding the application. In some cases, the Resident will be given tentative approval pending resubmission of the research plan to address reviewer concerns and criticisms. Residents must maintain a high level of academic performance in order to be in the RRT, even after approval of the project.
Resident Research Track Proposal
Due March 19, 2018

A. Research Plan
The Research Plan should be written primarily by the applicant, with the assistance of the mentor. The Research Plan must be in 11 point type size, double spaced, with margins of at least 1 inch, limited to 10 pages (inclusive of text, tables, figures, charts, graphs, references, and appendices), and organized in the following manner:

1. Title and Abstract page (1 page limit)
   a. Title of research proposal
   b. Name, academic degrees, email address of applicant
   c. Name, academic degrees, faculty rank, telephone number, email address of mentor and proposed research dates
   d. Abstract. State the broad, long-term objectives and specific aims of the project, relationship to anesthesiology, and research design and methods. The abstract should be a succinct and accurate description of the proposed work.

2. Specific Aims. State the long-term objectives and describe concisely what the research is intended to accomplish and the hypotheses to be tested.

3. Background and Significance. Briefly sketch the background for the present proposal, critically evaluate existing knowledge, and identify gaps that this project is intended to fill.

4. Preliminary Results (optional). Use this section to provide an account of the applicant’s preliminary studies pertinent to the application and/or any other information that will help to establish the experience and competence of the investigator to pursue the proposed project.

5. Experimental Design and Methods. Describe in detail the experimental design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed, and interpreted. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims.

6. Compliance Approvals. Is Animal Care and Use Committee (IACUC) approval needed for this project? Is Human Subjects Committee (Institutional Review Board) approval needed for this project? If either approval is needed, please indicate the approval number (if approved), the submission date (if not yet approved), or the date to be submitted (if not yet submitted). Remember that appropriate regulatory approvals MUST be obtained prior to starting the RRT. Obtaining appropriate regulatory approvals is the responsibility of the mentor.

7. References. Cite only the most important, relevant literature.

8. Personal Development (1 page limit). Indicate the benefits of the RRT to the development of the applicant as an academic anesthesiologist.

B. CV or NIH Biosketch of the Applicant

C. Mentoring Plan
The Mentoring Plan should be written by the Mentor. The plan should describe the role of the mentor in the proposed research, specifics regarding the educational program for the applicant and how this award and the mentor’s teaching will prepare the applicant for an academic research career. Indicate how much of the mentor’s professional time is available for research
and how much is specifically available for this project. Indicate the resources available for the proposed research, including laboratory (or other pertinent) facilities and funding source(s) (NIH or other). Indicate whether appropriate regulatory approvals have been obtained, or the plan for obtaining them. Provide details of the mentor’s recent mentoring experience, including a list of recent mentees, their current positions and their research projects. The mentor must provide a statement accepting responsibility for the resident’s supervision and development. The mentor’s mentoring plan is a critically important part of the proposal.

D. NIH Biosketch of the Mentor
Use the 4-page NIH Biosketch