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INTRODUCTION

History of the Program

Owen Wangensteen, M.D., Ph.D., the first fulltime Chairman of the Department of Surgery, was the first recipient of a Ph.D. granted by the department of Surgery. Subsequently, he developed a surgical residency program with a commitment to training academic surgeons. To accomplish this goal, each resident was provided with dedicated time to engage in surgical research through the development of strong ties to multiple graduate education programs in the University and by creating a Ph.D. in surgery.

The University of Minnesota surgical research training program attracted outstanding medical students from a national pool who then went on to be surgical leaders throughout the country. This same legacy continues today.

Values of Research

To continue this tradition of academic surgical training, the Department of Surgery faculty continues to invest financially to maintain a robust resident research program. This commitment from the Department allows residents to participate in independent and supervised investigations, with valuable opportunities to participate in scientific discovery and/or clinical innovation, and productively contribute to the academic literature. We expect that this research experience will provide a sound foundation for a future career in academic surgery.

Program Goals and Objectives

Providing a formal research experience for residents is a Departmental priority but it is not possible to guarantee that all residents can participate. The career goals of the trainee, clinical training progress and evaluations, previous research experience, engagement in the process described below, availability of funding, the number of clinical residents in the program and other factors are considered when residents are selected to participate in the research program. The Department’s commitment to each resident chosen to enter the research program is a one or two-year mentored experience with the opportunity to engage in basic, translational, clinical, health outcomes, informatics or education research.
FINDING A RESEARCH PROGRAM

Research Programs outside the Department

In general, the residents will be required to train within the Department of Surgery. On very rare occasion, a resident will be permitted to work within the research program of a non-Surgery Department faculty; however, such cases will also require simultaneous sponsorship by a member of the Department of Surgery. In the latter situation, funding must be secured either by extramural funding, training grant, or by the outside sponsor.

Selection Process

In October/November of each year, the Resident Research Mentoring Council will meet with the G2 residents to introduce the resident research program; review this manual and placement timeline; explain how to prepare for the research experience; describe expectations of the resident, mentor and department during the program; and lead a general discussion about the program.

Each resident will be required to submit a Research and Career Intent Form describing their research, fellowship, and career goals and interests by August 15th of their G3 year. The form will become part of the resident’s portfolio and submission is a prerequisite to advancement within the program. The Research and Career Intent form will be reviewed by the Resident Research Mentoring Council who will identify research mentors within the Department of Surgery who can provide a supportive and productive environment for each resident, matching as much as is possible the resident’s goals and interests.

Factors determining mentors include: 1) available funding, 2) prior resident experience in a given laboratory and 3) the faculty’s track record of accomplishments. Each resident will be required to meet with the suggested mentors one-to-one to discuss the possible fit of the mentorship relationship and laboratory opportunity. A final decision of where to place a research resident will be made by the Resident Research Mentoring Council by February 1.

If a resident is assigned to a basic science mentor, a clinical mentor will additionally be assigned (i.e. if a Ph.D. laboratory mentor or non-practicing surgeon is chosen, a surgeon mentor should also be chosen to foster development of that mentoring relationship for attainment of clinical career goals).

Funding and Commitment

The resident’s funding may come from multiple sources, including, but not limited to NRSAs or training grants.
Rarely, extensions of the research experience to a total of three years may be possible under one or more of the following circumstances:

1. Availability of other individuals to fill the upcoming G4 clinical spots without compromising other individuals’ clinical or research training.
2. Scientific development and achievement sufficient to warrant an additional year.
3. Achievement of the criteria for being admitted to graduate school and active pursuit of a specialized graduate degree. This will require advanced planning, advanced approval, and is not guaranteed.

Every effort will be made to ensure our agreed upon commitment to residents for a research experience. Occasionally, there is an unexpected departmental need for a senior clinical resident requiring that the planned research period is shortened. The decision to shorten the experience, if necessary, will be made on the basis of multiple factors, including but not limited to: ABSITE performance (<30th percentile), previous resident clinical performance, resident citizenship, resident laboratory productivity to date/anticipated productivity, residency program staffing requirements and career goals.

Timeline

PGY-2 Year
- Resident Research Mentoring Council meets with residents for program overview

PGY-3 Year
- G3 residents complete Research and Career Intent Form (August 15th)
- Resident Research Mentoring Council meet individually with G3 residents and identifies mentors (end of August)
- G3 residents meet with suggested mentors (September/October)
- Finalized selections of research assignments by Resident Research Mentoring Council (February 1)
- Apply for applicable grants
RESPONSIBILITY AND EXPECTATIONS

Department Responsibilities

The Department of Surgery has a commitment to:
- Provide a sustainable research program
- Seek and provide active funding
- Maintain research resident connection to the Department of Surgery and its faculty
- Encourage a positive, productive training / mentorship experience
- Recognize faculty with track records of successful resident training
- Encourage junior faculty development in investigation and pursuit of mentorship and training roles

On behalf of the Department, the Resident Research Mentoring Council will:
- Help the resident identify his/her primary research mentor
- Help identify additional clinical mentors, where appropriate
- Monitor academic progress of the trainee in the research laboratory

The Department and the Mentor(s) are financially committed to:
- salary support for each resident in the research program
- Appropriated funding for research activities
Department provides support for each resident to present his/her research at a maximum of $1,500 per meeting for two national/international meetings.

Trainee Responsibilities

The trainee is expected to:
- Provide a commitment to the research program
  - Minimum 40 hours/week including research time, writing time, and meetings/conferences
    - Residents will complete a biweekly time sheet signed by the mentor to the program administrator
    - Residents will submit a monthly report on moonlighting hours to the program administrator
- Engage in scientific writing
  - Abstracts
  - Grants
  - Publications in peer-reviewed journals
  - Book chapters
- Present research findings
  - Lab meetings
  - Weekly research resident seminar series
  - Resident Research Day
  - Department of Surgery Research Day

revised 01/23/14
Local / National meeting presentations to be determined under guidance of mentor
- Strongly encouraged and expected where reasonable and applicable to submit abstracts to the following meetings:
  1. Academic Surgical Congress
  2. American College of Surgeons Clinical Congress
  3. American College of Surgeons Surgical Forum
  4. Southern Surgical Association
  5. American Surgical Association
  6. Society for Surgery of the Alimentary Tract
  7. Society of Surgical Oncology
  8. American Association for the Surgery of Trauma
  9. Society of Thoracic Surgeons
  10. Association for Surgical Education
  11. American Pediatric Surgical Association
  12. American Society of Colon and Rectal Surgeons
  13. American Society of Transplantation
  14. American Society of Transplant Surgeons
- Completion of initial Responsible Conduct of Research (RCR) training, IRB and/or IACUC training and other required research training and annual updates
- Meet at least biweekly with mentor; these meetings can include but are not limited to one-on-one meetings, mentor team meetings, lab/research program meetings.
- Semiannual report to the Resident Research Mentoring Council
  - Progress on research project(s)
  - Abstracts submitted
  - Abstracts accepted
  - Meetings attended
  - ABSITE and other clinical evaluations scores
  - Moonlighting activity review
  - Graduate school grades and status of program completion, if applicable
- Annual report to and meeting with the Resident Research Mentoring Council
- Attend and participate in monthly Department of Surgery Research Seminars
- Attend and participate in weekly Research Resident Seminars
- Participate in department education activities
  - Medical student education
  - Grand Rounds
  - Core Curriculum
  - Resident Meetings

**Primary Mentor Responsibilities**

The primary mentor will commit to:
- Guide and support mentee
- Meet at regular intervals with mentee
- Prepare an annual evaluation to share with the Resident Research Mentoring Council
- Financially sustain the laboratory and project
- Financially support the resident to attend meetings where mentor has approved submitting abstracts for presentation
- Provide mentorship on research program development and management, career development, scholarship, and professional development
- Provide lab training for all required assays, materials, devices, etc.

**Evaluation Process**

The resident will be expected to set short- and long-term goals related to their research project(s) with the primary mentor, and to address progress on these goals on a regular basis, at least every two months. Goals should include abstract submission and publication targets.

The resident will meet with his/her mentor and the Research Resident Mentoring Council once each year, at which time goals, objectives, and progress will be reviewed. The resident is expected to prepare an annual report for this meeting, and the primary mentor will prepare an evaluation for this meeting. Subsequent goals will be set at these meetings.

**Moonlighting**

Residents have traditionally had the privilege to engage in moonlighting opportunities during their laboratory experiences. Residents are required to report their moonlighting experience in accordance with the Graduate Medical Education Policy on moonlighting (http://www.med.umn.edu/gme/residents/instpolicyman/genpolprocmoonlighting/home.html). This privilege will be continued for residents who are in good academic standing and who are productive in their research activities. Residents will complete a monthly time sheet of moonlighting activity and send to the program administrator, with possible revocation of the moonlighting privilege, in the following general circumstances:
- Academic probation, as determined by performance on the ABSITE in-service examination
- Poor laboratory research effort as determined by the primary mentor

**FORMAL CURRICULUM**

**Weekly Research Resident Seminar Series**
- Led/organized jointly by the office of the Vice Chair of Research, the Division of Basic and Translational Research, and by senior lab residents
- All research residents are required to attend and participate
- Information sharing
  - Upcoming events (local, regional and national conferences and meetings)
  - Upcoming deadlines (abstract submissions, grant applications)
Monthly Department of Surgery Research Seminar
- Invited speakers to present research

Monthly Resident Presentations
- Resident presentation of research
  - Updates
  - Practice/feedback for meeting presentation
- Facilitated by a senior faculty member

Biweekly Enrichment Program
- Conducted early in the research experience (summer or fall of initial research year)
- Invite research/clinical faculty from various departments
- Topics:
  - Basic principles of research
  - Basic science review
    - Immunology
    - Oncology
    - Inflammation
    - Cell signaling
  - Fundamentals of statistics
  - Principles of translational research
  - Sources/experts on site for specific tools
  - Literature review/writing
  - Grant writing
  - Research ethics
  - Outcomes research
  - Scholarly activity how-to’s:
    - Writing abstracts
    - Making PowerPoints
    - Making posters
    - Writing a manuscript
  - Public speaking course
  - Journal Club

Resident Research Day

All residents engaging in the laboratory experience will be expected to submit at least one abstract for possible inclusion to the Resident Research Day, and all research residents will present at least once. One basic science and one clinical science research award will be given at the conclusion of Resident Research Day.

Department of Surgery Research Day

All residents engaging in the laboratory experience will be expected to submit at least one abstract for possible inclusion to the Department of Surgery Research Day. This will be a
part of a robust day of research presentations and posters, including faculty, post doctoral fellows, and lab scientists. The abstract review committee will select those abstracts which will be chosen for oral presentations versus posters. All clinical residents will be expected to attend, and all faculty will be encouraged to participate. Awards will be given for a variety of research endeavors.