

**University of Michigan Health System
Internal Medicine Residency**

Research Curriculum [Including Research Block Elective]

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Goals and Educational Purpose

The University of Michigan Internal Medicine Residency seeks to train leaders in internal medicine. Scholarship and discovery are essential components of academic medical leadership. In addition, clinical and administrative leaders must be comfortable with critical interpretation of new research findings. It is our goal for all residents to appreciate the scientific rigor, societal benefits, and professional rewards of thoughtful investigative scholarship. In addition, we believe that biomedical investigation may play an important role in career selection and development for some residents.

A research project is required of all residents as a criterion for program graduation. A dedicated research block rotation is elective for residents at the HO2/3 levels. Request for a research elective requires submitting a one page proposal which highlights the title, mentor, hypothesis, specific aims and a brief summary of the methods to be used. Residents are encouraged to consider all forms of research (basic science, translational, clinical, educational, health services, ethics, quality improvement, etc.) as ripe for inquiry, and to pursue answerable questions of professional interest.

This document reflects the goals of both the mandatory senior research project and the elective research block rotation.

Competency Objectives

In supplement to the University of Michigan Longitudinal Learning Objectives, the following provide an overview of the knowledge, skills, and behaviors promoted through the mandatory research project and in the research block rotation.

- I.** Interpersonal and Communication Skills
 - a. By conclusion of HO3, residents will produce effective written and oral scientific communication through posters, abstracts, teaching slides, manuscripts, grant applications, or other scientific communications.

- II.** Professionalism
 - a. HO2 residents will demonstrate personal responsibility for setting research goals and working with mentors to set and achieve research timeline objectives.

- b. HO3 residents will additionally
 - i. Uphold ethical and professional expectations of research consistent with institutional review board guidelines, including maintenance of meticulous data and conduct of ethically sound human subjects research;
 - ii. Participate as possible in specialty organizations that promote scholarly activity and continuous professional development;
 - iii. Publish accurate and reliable research results, with attention to appropriate authorship attribution criteria;
 - iv. Disclose potential financial conflicts of interest (including speaker fees, consultative relationships, investments, etc) as appropriate when engaging in and disseminating research results; and
- III. Practice-Based Learning and Improvement**
- a. During HO1 residents are expected to
 - i. Identify an area of potential scholarship and identify potential mentors
 - ii. Request a block research elective if desired, by submitting a one page proposal which highlights the title, mentor, hypothesis, specific aims and a brief summary of the methods to be used; and
 - iii. Utilize electronic and library resources as necessary to support independent learning in areas of scholarship interest.
 - b. During HO2, residents are additionally expected to
 - i. Independently identify an area of research interest and a research mentor in order to engage in the scholarship of scientific inquiry and dissemination; and
 - ii. Independently utilize available resources and regularly meeting with an identified research mentor.
 - c. By conclusion of HO3, residents must
 - i. Summarize their research project in an abstract which highlights the following: title, authors, hypothesis, specific aims, methods, results and discussion of observations made. The resident must submit the abstract to the program for review by a panel of faculty members for presentation selection.
 - ii. Disseminate scientific knowledge through a formal presentation for resident peers and faculty, with either an oral or poster research presentation during the Internal Medicine Annual Research Day. Presentation of the research project at a regional or national research meeting is also desirable.

Teaching Methods

- I. Structured Didactics and Small Group Learning
 - a. “Introduction to Research” presentations are provided annually, both during Intern Report and the HO2 annual retreat. See the resident research website for archived presentation content.
 - b. Special noon conferences focusing on the following topics are scheduled throughout the year: the importance of clinical research; data gathering; data analysis; designing your research presentation.

- c. Evidence Based Medicine small group teaching sessions are integrated into the ambulatory block Thursday afternoon Teaching & Learning seminars. This EBM curriculum uses progressive content from HO1 through HO3 to help residents understand fundamental skills necessary for critical appraisal of primary research.
- d. During research block, residents are expected to attend standard mandatory teaching: noon conferences and Grand Rounds. Grand Rounds serve as a model of research dissemination.

II. Special projects/Independent Study: mandatory senior research project
 A research project is required of all residents as a criterion for program graduation. Residents are reminded to consider potential projects during their HO1 year, identify an achievable project and mentor by early HO2, and present their progress or final results during HO3. Identification of research mentorship is facilitated by the Program Director and by the Assistant Program Director for Career Development. The mandatory research requirement is supported through a series of “Introduction to Research” presentations as above. Further information and extensive resources are available on the residency research website: <http://sitemaker.umich.edu/resident.research>.

Research Block Rotation Schedule

All residents remain on active duty throughout research block, and are expected to be available to their patients and colleagues by standard beeper contact. Continuity clinic continues throughout the research block, and residents remain responsible for daily responsiveness to the needs of their clinic patients. There is no other clinical assignment.

Residents are expected to attend standard teaching conferences, including departmental Grand Rounds. All usual duty hour policies pertain to research block, including the mandates for days off and weekly duty hour limits.

	Monday	Tuesday	Wednesday	Thursday	Friday
AM					
PM	12:00 Noon Conference	12:30 Intern Report	12:00 Noon Conference	[Board Review, in spring]	12:00 Grand Rounds

Evaluation Methods

Assessment of the mandatory senior research project takes place through evaluation of the abstract submitted to the program and evaluation of the research presentation. Formative face-to-face feedback to residents by research mentors should occur intermittently, integrated with research discussions. For the research block rotation, mentors complete online competency-based evaluations of each resident. The evaluation is shared with the resident, is available for on-line review by the resident at his/her convenience, and is sent to the residency office for internal review. The evaluation is part of the resident file and is incorporated into semiannual performance reviews for directed resident feedback. Residents complete a service evaluation of the rotation mentor.