



## Research and Scholarly Activity Curriculum (Longitudinal)

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The Research and Scholarly Activity curriculum is a longitudinal curriculum spanning all three years of the residency program. Training takes place at the NWFMR Family Medicine Practice, Harrison Medical Center inpatient experiences, Madigan Army Medical Center Applied Research Training course, and various conferences at the local, regional and national level.

### ACGME Competencies and FM-Specific Milestones Addressed:

1. **Patient Care** that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health  
✓ *PC-2, PC-3*
2. **Medical Knowledge** about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care  
✓ *MK-2*
3. **Systems-Based Practice** as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.  
✓ *SBP-1, SBP-2, SBP-4*
4. **Practice-Based Learning and Improvement** that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care;  
✓ *PBLI-1, PBLI-2, PBLI-3*
5. **Professionalism** as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population;  
✓ *PROF-1, PROF-2, PROF-4*
6. **Communication** result in effective information exchange and teaming with patients, their families, and other health professionals;  
✓ *C-2, C-3, C-4*

### Family Medicine Program Requirements:

**IV.B.1.** “The curriculum must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.”

**IV.B.2.a)** “Residents should complete two scholarly activities, at least one of which should be a quality improvement project.”

## **Competency-based Objectives and Instructional Methods**

**Rotation goal:** The goal of the NWFMR Research and Scholarly Activity Curriculum is to help residents to develop a discipline of scientific inquiry and scholarship as a part of a commitment to the practices of evidence-based medicine, life-long learning, and practice improvement.

The practice of medicine requires that physicians know about established and evolving sciences and their application to patient care, be able to investigate and evaluate their own patient care, be able to appraise and assimilate scientific evidence and improvements in patient care, and have an awareness of and responsiveness to the large context and system of health care. Research and scholarly activities are two complementary methods by which physicians learn and maintain such knowledge and skills. Research is a process or activity in which knowledge is tested or developed; scholarly activities include oral or written presentations that reflect a thorough and critical collection of knowledge.

### **A. Patient care**

#### **Objectives**

While providing direct patient care in all environments, residents will demonstrate the ability to:

1. Consistently apply evidence-based principles to the practice of inpatient and outpatient care provided on all rotations. PGY-1 requirement.
2. Critically appraise practice guidelines, applying EBM principles and logic to individualize care to patients. PGY-2/3 requirement.

#### **Instructional Methods**

1. *Direct Instruction and Role-Modeling:* by faculty attending(s) and senior family medicine resident(s) during inpatient care services, resident continuity clinics, and other patient/family interactions.
2. *Guided Research:* Resident presentation of assigned topics based upon clinical cases.
3. *Supervised Clinical Management:* Application of information to individual patient care under guidance of faculty and senior family medicine residents during inpatient care services and resident continuity clinics.

### **B. Medical Knowledge**

#### **Objectives**

Residents will become self-sufficient in ongoing learning about established and evolving biomedical, clinical, and cognate sciences as well as the application of this knowledge to patient care. By the end of residency (or sooner if noted), residents will demonstrate the ability to:

1. Formulate a patient-oriented EBM question in a PICO format. (PGY-1)
2. Use information resources to answer an EBM question. (PGY-1)

3. Model the use of EBM in patient care and formal learning for medical students and junior residents in rounds, clinic, and morning report.
4. Describe basic research designs
5. Describe process and timing of Institutional Review Board review of research protocols and other scholarly activities.
6. Describe the components of a research article.
7. Perform literature searches using MEDLINE and other resources.
8. Critically evaluate research articles.
9. Utilize evidence-based medical information resources.
10. Interpret treatment and screening recommendations.
11. Interpret and apply clinical decision rules and clinical practice guidelines.
12. Appropriately apply evidence in clinical decision-making.
13. Critically appraise and apply basic biomedical statistics within a written work.

Residents *may* also develop the ability to:

1. Formulate a research question and/or hypothesis.
2. Design a descriptive and/or explanatory study.
3. Prepare a research protocol application for Institutional Review Board review
4. Prepare an application for a research grant.
5. Collect and analyze data.
6. Evaluate and discuss study findings.

### **Instructional Methods**

1. *Direct Instruction and Role-Modeling*: by faculty attending(s) and senior family medicine resident(s) during Journal Clubs, Grand Rounds, peer review and authoring of literature submissions, and in presentations of research at conferences.
2. *Direct Instruction*: Attending the Applied Research Training Course (ART) at Madigan Army Medical Center (at least day one, preferably by end of PGY-2 year, see sample agenda in enclosure (2)).
3. *Self-Directed Learning*: CITI Course in The Protection of Human Research Subjects. If unable to attend ART, directed readings from enclosure (3) can be assigned.
4. *Guided Scholarly Activities*: Resident preparation, peer review, and presentation of topics and medical literature.

## **C. Systems-based practice**

### **Objectives**

Residents will demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. While providing direct patient care in all environments, residents will demonstrate the ability to:

1. Provide cost-effective, evidenced-based care to their patients.

2. Critically appraise practice guidelines, applying EBM principles and logic to individualize care to patients. PGY-2/3 requirement.

Residents *may* also demonstrate understanding and skill in system improvement via the ability to:

3. Present the design and results of a clinical quality improvement project at a conference.
4. Describe the design, implementation and effects of a patient education program on risk behavior or chronic disease management in a newsletter.

### **Instructional Methods**

1. *Direct Instruction and Role-Modeling*: by faculty attending(s) and senior family medicine resident(s) during inpatient care services, resident continuity clinics, Journal Clubs, Grand Rounds, and other didactic activities.
2. *Supervised Clinical Management*: Application of information to individual patient care under guidance of faculty and senior family medicine residents during inpatient care services and resident continuity clinics.
3. *Self-Directed Learning*: from resources listed below in enclosures.

## **D. Practice-based learning and improvement**

### **Objectives**

PBLI involves investigation and evaluation of care for their patients, appraisal and assimilation of scientific evidence, and striving continuously for improved patient care based on constant self-evaluation and lifelong learning. Residents will demonstrate the ability to:

1. Participate in process/performance improvement projects. (each year)
2. Assist in the disease and chronic care management processes to improve health delivery for their empaneled patients. (PGY-1)
3. Describe the following common basic biostatistical terms and apply them to an article from the literature: NNT (number needed to treat), NNS (number needed to screen), NNH (number needed to harm), ARR (absolute risk reduction), RRR (relative risk reduction), LR (likelihood ratio), confidence intervals. (PGY-1)
4. Critically appraise a case using support from medical literature and either write or present it in a formal setting. (PGY-2/3)
5. Participate in (PGY-1) and assist in leading (PGY-2/3) a team-based process/performance improvement project.

### **Instructional Methods**

1. *Direct Instruction and Role-Modeling*: by faculty attending(s) and senior family medicine resident(s) during Journal Clubs, Grand Rounds, peer review and authoring of literature submissions, and in presentations of research at conferences. Attendings, senior residents, nurses and other organizational staff also provide instruction and role-modeling during process improvement projects.

2. *Direct Instruction*: Attending the ART Course at MAMC (day one).
3. *Supervised Clinical Management*: Application of information to individual patient care under guidance of faculty and senior family medicine residents during inpatient care services and resident continuity clinics. Application of information to process improvement projects under guidance of project leaders.
4. *Guided Scholarly Activities*: Resident participation and presentation of process improvement projects, typically one AAFP METRIC project per year.
5. *Self-Directed Learning*: If unable to attend ART, directed readings from enclosure (3) can be assigned.

## E. Professionalism

### Objectives

Professionalism includes a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to patients of diverse backgrounds. By the end of residency (or sooner if noted), residents will demonstrate the ability to:

1. Understand basic ethics as it applies to biomedical research. (PGY-1)
2. Engage in scholarly activity with application of ethical principles and Navy. PGY-2/3 requirement.
3. Recognize and report lapses in professionalism using appropriate reporting procedures.
4. Actively seek feedback on scholarly work and accept constructive feedback.
5. Perform peer review of a scientific topic and constructively communicate recommendations back to the author.

### Instructional Methods

1. *Direct Instruction and Role-Modeling*: by faculty attending(s) and senior family medicine resident(s) during patient care, research, process improvements, interpersonal interactions, peer review and response to lapses in professionalism.
2. *Direct Instruction*: Attending the ART Course at MAMC (day one).
3. *Self-Directed Learning*: CITI course on The Protection of Human Research Subjects.
4. *Guided Scholarly Activities*: Resident peer review, authoring, and presentation of medical literature articles under guidance from faculty and senior residents.

## F. Interpersonal and communication skills

### Objectives

Skilled communication results in effective information exchange and collaboration with patients, their families, and other health professionals. By the end of residency (or sooner if noted), residents will demonstrate the ability to:

1. Communicate source of knowledge in the basis for their clinical decision-making. (PGY-1)
2. Describe modes of written communication for disseminating scholarly work (e.g., review article, case report/series, patient/community education material, research article, book chapter).
3. Describe modes of presenting scholarly work (e.g., grand rounds, case conference, community groups).
4. Formally present a case in written or oral format using EBM principles.
5. Give effective presentations utilizing speech, audio-visual aids, and computer-assisted learning.
6. Teach medical students and fellow residents, communicating strength of recommendation and levels of evidence for practice recommendations.

Residents *may* also develop the ability to write a research paper (applying rules of English usage, style and composition for publication).

### **Instructional Methods**

1. *Direct Instruction and Role-Modeling*: by faculty attending(s) and senior family medicine resident(s) during patient care, research, process improvement projects, presentations, and daily interpersonal interactions.
2. *Direct Instruction*: Attending ART course at MAMC (day 1). Directed readings from sources such as *Getting to Yes* or *Difficult Conversations* if deemed necessary or advisable.
3. *Guided Scholarly Activities*: Resident presentations of assigned topics, projects, scholarly work, and medical literature under guidance from faculty and senior residents.

### **Outcomes Measures (REQUIRED ACTIVITIES FOR GRADUATION)**

The NWFMR Research and Scholarly Activity Curriculum is covered longitudinally through all three years of residency training using the methods outlined below. Outcomes measurements for the above goals are stated in the following requirements for successful graduation from the residency program:

1. Participate in Journal Club by leading a minimum of one session, preferably in the 2<sup>nd</sup> or 3<sup>rd</sup> year of residency. Residents will utilize one of Family Practice Inquiry Network's (FPIN) PURLs Journal Club toolkits found here (Competencies: medical knowledge, communication skills, systems-based practice.):  
<http://www.fpin.org/institute/purls/journal-clubs/> (NWFMR Password \_\_\_\_\_)
2. Actively participate in a group AAFP METRIC activity.
3. Meaningfully contribute to the scientific literature through writing of one peer-reviewed topic. Suggested option: write an FPIN Help Desk Answer (HDA). Alternative options: publication of a book chapter or online evidence-based clinical review, or acceptance of a manuscript (case report, clinical review, research project) by a peer-reviewed medical journal. (Competencies: medical knowledge, communication skills, systems-based practice.)
4. Publicly present research, a case report, or a process improvement project at a local, regional, or national conference. All residents are required to submit one faculty supervised abstract to a regional or national meeting.  
If not accepted for presentation, then proposals will be presented locally at the hospital in both oral and written formats (paper or poster with presentation). (Competencies: medical knowledge, communication skills, systems-based practice, professionalism.)
5. Accumulate at least five (5) points of additional scholarly activity (see table). Other activities may be considered toward point accumulation via rotation liaison approval. Total points accumulated during residency will be utilized for award submissions.
6. Peer collaboration is encouraged in all projects. Faculty collaboration and supervision is required prior to submission of any material. (Competency: interpersonal and communication skills.)

<b>Required Scholarly Activities</b>	<b>Scholarly Activity options to complete requirements (points)</b>
Lead a Journal Club (PGY-2 or PGY-3)	Complete an IRB-approved research project (5)
Complete one AAFP METRIC project with a group	Acceptance of a manuscript to a peer reviewed medical journal (5)
Submit medical literature for publication (minimum is an FPIN HDA)	Acceptance for publication of a book chapter (5)
Submit an abstract for regional or national conference presentation	Presentation (podium or poster) at a national conference such as AAFP (4)
Present scholarly work at a conference (minimum is local presentation)	Presentation (podium or poster) at a regional conference (3)
	Publication of a letter to the editor in a peer-reviewed medical journal (2)
	Presentation (podium or poster) at a local conference (2)
	Complete research ethics and process training (ARC or CITI course) (2)
	ABFM Performance Improvement Activity beyond that required for board certification (2)
	Individualized PDSA presentation or paper (1)
	Evidence-based academic conference presentation (1)
	Lead a second Journal Club (1, limit 1)

## Evaluation Activities

Residents will receive an ***incomplete*** for the rotation and will not be eligible for graduation until the following items are completed.

1. **Resident Evaluation:** *(the resident may be evaluated by several department members)*

- Interval feedback:
  - Residents are provided formative feedback about their performance during scheduled scholarly activities (e.g., Journal Club), practice group/team meetings, and Educational Evaluation Conferences (EEC's).
  - Written feedback is required if a resident performs in a substandard manner. Such written feedback should be provided to the Associate Program Director and/or Program Director.
- Final Evaluation:
  - Using a rotation-specific online evaluation form, staff advisors will provide a final evaluation to verify completion of required scholarly activities and assess level of competency.
- Attendance Verification:
  - Documentation of attendance at Grand Rounds, Journal Clubs, residency research conferences will be maintained in resident electronic and/or hard copy training files.

2. **Documentation:**

- Residents will provide the Program Coordinator and their staff advisor certificates or documentation of completed ethics and research process training must be provided by residents.

3. **Staff Evaluation:** (resident-completed)

- Residents evaluate faculty/staff using a standard online evaluation form. Evaluation is to be completed within two weeks of completion of all required scholarly activity AND at least two weeks prior to graduation.

4. **Rotation Evaluation:** (resident-completed)

- Resident assesses quality of the rotation on the standard rotation evaluation form (same as for rotation faculty evaluation). Evaluation is expected to be completed within two weeks of completion of all required scholarly activity AND at least two weeks prior to graduation.
- Formative information about the residency and curriculum is also derived from quarterly resident evaluations of the residency program and from annual Residency Graduate Surveys.
- Residency Graduate Surveys also provide an opportunity for graduates to report how well their residency experience prepared them to appraise and assimilate scientific evidence and improvements in patient care or prepare them to investigate and evaluate their own patient care.



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Program Director

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Date

**Enclosure 1.** Evidence-Based Medicine Resources available through UW Health Links

- Clinical Evidence
- Cochrane Library
- Combined Internal Medicine/Pediatric Residency Critically Appraised Topics (University of Rochester Medical Center)
- Evidence-Based Medicine for UW Medicine Residents (teaching support tools)
- Evidence-Based Medicine Tutorial (Duke University Medical Center and University of North Carolina at Chapel Hill)
- Guide to Community Preventive Services: Systematic Reviews and Evidence Based Recommendations at a Glance (CDC)
- Evidence-Based Practice Resources (table of EBP resources including full-text and UW availability)
- HSTAT (Full-text clinical practice guidelines, technology assessments and health information)
- Info POEMs & Info Retriever
- PEDro (Physiotherapy evidence database)
- Search Prime Answers from Dropdown, Prime Evidence, & Search for evidence in Prime Answers
- TRIP Database
- Up To Date - Drug Interactions Program
- UW Family Medicine's Evidence-Based Practice Tutorial  
<http://healthlinks.washington.edu.offcampus.lib.washington.edu/>

**Enclosure 2.** Example Agenda for the Applied Research Training Course

Day One

Introduction Why Do Research?  
Formulating the Research Question  
Statistical/Computer Assistance  
Searching the Literature  
Break  
Study Design  
Basic Statistics  
Lunch (Buffet)  
Writing for Publication  
Poster Presentations  
Break  
Qualitative Research

Day Two

Day 2 Introduction  
Qualitative Research  
Research Operations Service  
Procedures and Regulatory Compliance (Animal Use)  
Break  
Legal Issues for Federal Researchers  
Funding Resources  
Break  
Procedures and Regulatory Compliance (Human Use)  
Break  
Principal Investigator Perspective (Clinical Trials)  
Role of Research Pharmacist  
Health Outcomes  
Protocol Support Group  
Closing Remarks / Questions

**Enclosure 3.** Research and additional EBM Resources

- Uniformed Services Academy of Family Physicians (USAFP) website  
<http://www.usafp.org>, Research Tools section
  - Research Planning and Design (“Every Doc Can Do Research”)
  - Abstract Writing and Submission Tips
  - Presentation Tips
  - Publication Tips
- EBM Resources at the Centre for Evidence Based Medicine:  
<http://www.cebm.net/category/ebm-resources/tools/>
- Evidence Based Toolkit from AAFP at  
<http://www.aafp.org/journals/afp/authors/ebm-toolkit/jc-toolkit.html>
- Translating Research Into Practice at <https://www.tripdatabase.com/>
- University of Washington Primary Care Research Network at  
<https://www.iths.org/investigators/find-collaborators/primary-care-research-network/>
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