1. **DURATION:** one month PLUS on-going research related activities. The one month long block is designed to augment a longitudinal project done on the resident’s discretionary educational time or through the ARM rotation.

2. **ELIGIBILITY:**
   i. PL-2 or PL-3.

3. **POSITIONS:** No more than 2 residents per block.

4. **FACILITIES/RESOURCES:**

5. **TEACHING STAFF:**

   Residents will identify and ask a faculty member to be sponsor their research rotation.

6. **GENERAL GOALS AND OBJECTIVES:**

   The Research Elective is a block rotation within the residency's longitudinal research curriculum. Residents who participate in the research elective must have a pre-approved research plan and concrete goals. Research may be clinical, bench, or educational.

   In addition to the resident's project specific goals and objectives, these additional objectives must be met during the rotation.

   Requirements:

   1. Successful completion or renewal of the CITI Research Certification.
   2. Attend a course on a reference management software such as EndNote or RefWorks. This may be a scheduled class at the USUHS LRC, the Darnall Medical Library, or a one-on-one session with one of our Clinical Librarians.
   3. Complete, by enrollment or audit, an on-line course in statistics or research methods that provides *real* reproducible skills in manipulating and analyzing data. The following courses meet the requirement; contact the PD if you find another one that meets the requirement.

   - PH207x: Health in Numbers: Quantitative Methods in Clinical & Public Health Research (edX; Stata software available through residency)
   - KlexploRx Explore Statistics with R (edX; R Software free as open-source)
   - SABR101x Sabermetrics 101: Introduction to Baseball Analytics (edX; R Software free as open-source)
   - PH525.1x: Statistics and R for the Life Sciences (edX; R Software free as open-source)
4. Complete, or complete a significant portion of, an academic project approved by your research mentor. This may include:

- Abstract suitable for submission to an academic conference
- Completion of a manuscript draft
- Completion of a literature review suitable for the background of an IRB application or submission for publication
- Completion of primary IRB application or required revisions
- Completion of the Biomedical Laboratory Research Course at Walter Reed Bethesda (usually held in March)
- Meaningful participation in a laboratory performing or learning bench science techniques

5. Submit a written research plan 28 days in advance of the start of the rotation for review and approval by the Research Oversight Committee.

7. COMPETENCY BASED GOALS AND OBJECTIVES:

**GOAL: Patient Care.** Provide family centered patient care that is developmentally and age appropriate, compassionate, and effective for the treatment of health problems and the promotion of health

**OBJECTIVES:**

a. Use one’s experiences in caring for patients to develop research questions
b. Consider health care delivery, management of specific disease processes, screening for diseases or other aspects of health care as an area to study

**GOAL: Medical Knowledge.** Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

**OBJECTIVES:**

a. Generate patient-centered clinical questions to drive knowledge acquisition when designing a research study.
   1. Identify one’s knowledge deficiencies and develop a system for generating and answering clinical questions based on patient cases.
   2. Use a standard format to phrase clinical questions (e.g., PICO = Patient/Problem, Intervention, Comparison Intervention, Outcome), to help in the performance of an efficient literature search in assessing what has already been studied.
   3. Assess the type of question being asked; in order to identify the type of study that would best answer the question.
b. Identify and efficiently locate the best available information resources to address one’s question in developing a research project.
2. Use methodological filters to limit searches to articles dealing with therapy, diagnosis, or prognosis.
3. Use professional reference software to organize references for scientific writing.
4. Use secondary sources (Cochrane, CAT databases, ACP Journal Club, etc.) to efficiently obtain evidence.
5. Use practice guidelines (e.g., www.guidelines.gov, AAP Practice Guidelines) to identify and review recommended care plans for a variety of common pediatric problems
   c. Select the appropriate study design to answer one’s question.
   d. Demonstrate familiarity with a professional statistical software package.
      a. Show how to load data into a software package.
      b. Use software to calculate means, medians and frequencies.
      c. Perform a t-test, non-parametric test, and chi-squared test.
      d. Interpret output for a linear and logistic regression.
   e. Know the indications for IRB approval including studies using patients, patient medical records, and other data specifically to patients that can compromise confidentiality.

**GOAL:** Communication Skills. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

**OBJECTIVES:**

a. Discuss project with advisor and appropriate consultants including statisticians and other specialists in research design and or scientific knowledge.
   b. Present one’s project as a forum at its conclusion.
   c. Write a scientific abstract for potential submission to a regional or national research meeting e.g., local research competition, pediatric academic societies, society of adolescent medicine, American academy of pediatrics.
   d. Strive to write one’s project into a scientific paper at the conclusion of the project.
   e. Lead a journal club presentation of an article that you choose.

**GOAL:** Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one’s patient care practice.

**OBJECTIVES:**

a. Compare one’s data to that previously collected and determine the differences.
   b. Read current literature to substantiate one’s findings.
   c. Determine the application to patient care that one’s study has and describe how patient care can be changed accordingly.
GOAL: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

OBJECTIVES:

a. Respect patients’ privacy of medical information in performing research.
b. Understand the function of an IRB and how it serves to protect patients.
c. Discuss the ethics of research, including subject recruitment, informed consent, patient privacy and the role of Institutional Review Boards.
d. In performing research that involves seeking information from patients and their families, respect privacy in obtaining such information.
e. Be honest in one’s report of data.
f. Present data in aggregate manner to eliminate identification of specific patients in one’s report.
g. Complete the IRB ethics training through CITI.

GOAL: Systems-Based Practice. Understand how to practice quality health care and advocate for patients within the context of the health care system.

OBJECTIVES:

a. Understand the costs of research.
b. Determine the best methods of performing research within the constraints of residency and the medical system.
c. Understand when research is appropriate and when it is not; considering the health of the patient, his/her understanding of the project, etc.
d. Advocate for research to promote understanding of various disease processes or ways to deliver care.

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