

<b><u>NAME OF ROTATION:</u></b>	Research Elective
<b><u>COURSE DIRECTOR:</u></b>	Iris Buchanan, MD Pager: 404-533-2235
<b><u>LOCATION:</u></b>	Various locations
<b><u>TRAINING LEVEL:</u></b>	PGY-2 or PGY-3
<b><u>LENGTH OF ROTATION:</u></b>	1 month

**COURSE DESCRIPTION:**

Participation in research during residency training can provide valuable experience regardless of ultimate career goals. The goal of the resident research program is for the resident physician to gain a greater understanding of the scientific method and the acquisition of new knowledge through a mentored research experience.

**GOALS, OBJECTIVES AND CORE COMPETENCIES:**

**GOAL 1:** Professional Communication and Collaboration. Communicate and collaborate effectively as part of a functional team with physicians, other health professionals, staff, and students.

**Objective 1.1:** Recognize the added value that effective teamwork can bring to the care of children

**Objective 1.2:** Communicate and work effectively with:

1. Members of an interdisciplinary health care team
2. Other health care professionals, including those in the community and complementary and alternative medicine providers who are treating the patient
3. Specialists (when functioning as the referring physician)
4. Referring physicians and primary care providers (when functioning as a specialist in the care of children)
5. Support and administrative staff
6. Medical students

**Objective 1.3:** Work collaboratively as a member of the health care team.

1. Know the various roles of team members and utilize their skills appropriately
2. Work effectively with team members by establishing mutually agreed upon goals, roles and procedures (decision making, role and goal negotiation, addressing team differences and conflicts)
3. Communicate effectively with members of the team
4. Demonstrate an appreciation of and respect for the contribution of each team member
5. Demonstrate skill in avoiding and reducing interpersonal conflict
6. Serve as a team member or team leader in the appropriate situations

**Objective 1.4:** Identify facilitating factors and barriers to effective teamwork.

**Objective 1.5:** Recognize and facilitate the role and contribution of each member of the health care team.

**Objective 1.6:** Demonstrate respect, sensitivity and responsiveness to colleagues' gender, age, ethnicity, culture, religion/spirituality, disabilities, and sexual orientation.

**Objective 1.7:** Demonstrate thoughtfulness, kindness, honesty, integrity, humility, and fairness in working with peers, other professionals, and staff.

**Objective 1.8:** Identify the roles and responsibilities of various health care providers and staff in the inpatient, outpatient, and community settings (e.g., PAs, PNs, RNs, LPNs, clerks, medical technicians, physical therapists, occupational therapists, speech therapists, audiologists, midwives, psychologists, attorneys and law enforcement personnel, other physicians such as family practitioners, pediatric specialists, psychiatrists, therapists, health educators, social workers, child life specialists).

**Objective 1.9:** Communicate effectively to transfer information and responsibility at the time of sign-in, sign-out, and change of service.

**Objective 1.10:** Communicate effectively in the following contexts:

1. Brief oral case presentations (e.g., at morning report/check-in, inpatient work rounds, clinic visits; phone contacts with primary provider or consultants)
2. Written, dictated, and computerized medical records (accurate, complete, timely, legal)
3. Letters of referral

4. Consultation reports
5. Oral presentations to healthcare professionals

**Objective 1.11:** Collaborate effectively with others on projects related to patient care, such as clinical research studies, quality assessment projects, or community advocacy projects.

**Objective 1.12:** Work with others in creative ways to improve children's health, taking into account special needs and opportunities.

**GOAL 2:** Medical Ethics. Understand basic principles in bioethics and identify issues that frequently lead to ethical dilemmas.

**Objective 2.1:** Identify issues that frequently lead to ethical conflicts such as:

1. Divergent perspectives on the interrelationship of health care with morality, religion, spirituality, humanism, and health and cultural belief systems.
2. The triadic relationship among patients, parents and physicians, and changes in this relationship as the child ages.

**Objective 2.2:** Define key principles used in ethical decision-making (autonomy, beneficence, nonmaleficence, justice, utilitarianism, etc.)

1. Consider ethical principles from the perspective of ethical decisions framed in absolute terms as well as in terms based on social justice theory.
2. Consider the potential conflicts between ethical decision-making and legal decision-making.
3. Consider patient rights in the context of minor, mature minor, or emancipated status; and in the context of federal and state statutes recognizing consent under special circumstances.
4. Consider the modern practice of medicine in light of the ethical principles enumerated in the original Hippocratic Oath and the more recent Charter on Medical Professionalism (Lancet Feb 2002).

**Objective 2.3:** Identify and describe the ethical principle(s) that serve as the foundation for the following clinical interactions and professional responsibilities:

1. Obtaining informed consent
2. Allowing for assent and emancipation
3. Reporting child abuse
4. Curative care

5. End of life and palliative care
6. Obtaining "Do Not Resuscitate" orders
7. Providing anticipatory guidance
8. Actively participating in morbidity and mortality conferences
9. Routinely engaging in self-reflection on past medical encounters
10. Competence and decision making capacity, addressing the issues of informed consent or assent, medical futility, unreasonable patient or family requests, and autopsy issues

**Objective 2.4:** Identify and describe the potential ethical dilemmas that one may face in pediatrics regarding each of the following:

1. Resuscitation of premature infants near the limits of viability
2. Treatment of disabled infants and children
3. Genetic testing and treatment
4. Providing confidential care to adolescents (pregnancy termination, substance abuse, contraception, etc.)
5. Forgoing/withdrawing life-sustaining treatment
6. Identifying and referring a patient as an organ donor
7. Recruiting, enrolling, and completing research in pediatric patients
8. Receiving gifts, meals, and CME conferences from pharmaceutical representatives
9. Receiving research funding from pharmaceutical companies.
10. Parent-child conflicts, especially with reference to withdrawal of care
11. Methods of physician payment, including of creation of a just fee schedule, the ethics of managed care and other payment options

**Objective 2.5:** Identify when one's own management goals for a patient are in conflict with the wishes of a family, and seek an appropriate arbitration process: call a team meeting, request an ethics consult, consult a social worker, seek a second opinion from a mentor, or (when appropriate) transfer care.

**Objective 2.6:** In the care of adolescent patients, identify patients who meet criteria for assent or emancipation; allow them to assume an active role in the medical decision-making, and provide confidential care for their medical conditions.

**Objective 2.7:** Identify diagnostic and therapeutic procedures that require informed consent and obtain informed consents prior to their initiation.

**Objective 2.8:** Consider public health issues in decision-making regarding treatment, e.g., should children be immunized against diseases that for them have low risk of morbidity and mortality in order to protect adults or the health care work force?

**Objective 2.9:** Identify when a patient's care needs change from curative to palliative; initiate discussion regarding this change in the treatment focus with the health care team, patient, and family.

**Objective 2.10:** Understand the criteria to diagnose brain death and consult with appropriate staff to identify and manage patients that meet these criteria.

**Objective 2.11:** Identify and discuss the ethical issues in medical education, such as confidentiality, fair evaluation, harassment, discrimination based on ethnicity, gender or sexual orientation, and excessive demands on students/learners.

**Objective 2.12:** Reflect on ethical issues encountered in your patient care experiences and share with colleagues so that you gain personal insight and identify ways to be more responsive to ethical issues.

**GOAL 3:** Medical-legal Issues. Understand legal issues that affect the practice of pediatrics.

**Objective 3.1:** Demonstrate willingness to learn about state and federal laws affecting medical care and the business aspects of practice. Decide when to obtain legal assistance and assess the appropriateness of the advice received.

**Objective 3.2:** Identify reasonable steps to reduce medical malpractice risk and liability; explain how to respond to a malpractice threat or claim.

**Objective 3.3:** Discuss key concepts about partnership, incorporation, contracts related to common practice arrangements and managed care contracts.

**Objective 3.4:** Discuss key principles and identify resources for definitive information about legal issues relevant to pediatricians, such as:

1. Patient-doctor relationship
2. Termination, withholding of medical care, and "abandonment" of the patient
3. Informed consent
4. Emergency care (EMTALA) and consent
5. Treatment of minors; special exemptions for treating adolescents with certain medical problems; implications of treatment without consent; emancipated minors
6. Refusal of treatment (patients' rights; special role of religious objections; legal options when parents refuse treatment or leave the hospital against medical advice)

7. Physician's relationship to other members of the health care team and responsibility for care they give
8. Divorce (implications on consent for medical care, release of information, financial responsibility for medical care)
9. Medical records/information (right of parents and children to access and amend information, what records to keep and how long, documentation of care)
10. Definition of malpractice (standard of care versus negligence).
11. Reporting of child and adult abuse and neglect
12. Death (legal definition of brain death, determination of, medical examiner cases, permission for autopsy)
13. Adoption (pediatrician's role; effect on access to medical records)
14. CLIA (office laboratory regulations)
15. OSHA regulations
16. Employees in medical practice settings (e.g., discrimination, disabilities, workman's compensation, etc.)
17. Mandatory state reporting of certain infections, diseases, and deaths
18. Immunizations (state laws and regulations; informed consent; federal laws regarding vaccine injury compensation and mandatory reporting)
19. Federal laws regarding prescription of controlled substances.
20. Medical dispensing and pharmacy laws
21. Pediatricians in court (summons, subpoenas, jury duty, serving as a medical witness)
22. Juveniles in the court system
23. Commitment to mental institution
24. HIV/AIDS testing, issues in school and work place
25. Drug testing and treatment programs (confidentiality, parental requests, etc.)
26. Organ donation
27. HIPAA regulations

**GOAL 4:** Habit of Life-long Learning. Develop knowledge, skills and attitudes needed for life-long learning and self-assessment, and recognize key issues about continuing education and recertification processes for pediatricians.

**Objective 4.1:** Demonstrate effective approaches to acquiring new or additional information.

**Objective 4.2:** Describe the processes for determining a staff physician's CME requirements necessary for maintaining hospital credentials and state licensure.

**Objective 4.3:** Identify recommended programs for preparation (e.g., AAP's PREP, ABP on-line program, etc.) and describe the requirements for certification and recertification by the American Board of Pediatrics.

**Objective 4.4:** Assess one's own strengths and weaknesses with respect to professional Objective 4 knowledge and skills, and identify a process to remediate or make allowance for them in information gathering, decision-making, and professional development.

**Objective 4.5:** Identify one's knowledge gaps in the course of providing patient care, and cultivate the habit of continuous inquiry to expand one's knowledge of medical advances.

**Objective 4.6:** Seek and incorporate feedback and self-assessment into a plan for professional growth as well as provide constructive feedback to others.

**Objective 4.7:** Demonstrate a habit of critical thinking, evidence-based decision-making and continuous, quality improvement.

**Objective 4.8:** Continually strive to integrate best evidence into one's daily practice.

**Objective 4.9:** Describe one's own style of learning, gathering and storing information, and decision-making, and translate this understanding into an approach to professional development.

**Objective 4.10:** Identify resources for up-to-date information related to general pediatrics (e.g., journals, texts, tapes, computer databases, continuing education courses, online resources, etc.) and discuss the specific utility of each for the general pediatrician.

**Objective 4.11:** Use information technology to optimize life-long learning (e.g., use PDAs, online information resources, curriculum guides, self-assessment tools and tracking systems).

**Objective 4.12:** Discuss the major organizations that provide guidelines and "standards" for pediatric care, and identify where they publish their recommendations.

**Objective 4.13:** Develop networks and cultivate information sources among professional colleagues.

**GOAL 5:** Generating Questions and Retrieving Information. Generate answerable clinical questions and use information technology to gather information and support decision-making and patient management.

**Objective 5.1:** Generate patient-centered clinical questions to drive continued knowledge acquisition and support informed decision-making.

1. Identify one's knowledge deficiencies and develop a system for routinely 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) in order to perform an efficient literature search.
3. Assess the type of question being asked in order to identify the type of study that would best answer the question.
4. Identify which questions are most important to address during or after a patient encounter, based on what is most important for patient care or one's own learning needs.

**Objective 5.2:** Identify and efficiently locate the best available information resources to address questions in clinical practice.

1. Conduct a computerized literature search using Medline, PubMed, or an equivalent method.
2. Use methodological filters to limit searches to articles dealing with therapy, diagnosis, or prognosis.
3. Use secondary sources (Cochrane, CAT databases, ACP Journal Club, etc.) to efficiently obtain evidence.
4. Use practice guidelines (e.g., [www.guidelines.gov](http://www.guidelines.gov), AAP Practice Guidelines) to identify and review recommended care plans for a variety of common pediatric problems.
5. Continually strive to integrate best evidence into one's daily practice.

**Objective 5.3:** Use information technology to support patient care decisions and patient education.

1. Demonstrate a basic understanding of common computer applications, including word-processing, database management, information retrieval, and E-mail.
2. Use Internet sites to obtain reliable patient education materials.
3. Describe the importance of computers for storage and retrieval of information, including data on publications, medical information, and practice management.

4. Describe the utility and methods of computerized library reference systems for retrieval of medical information, including access from the community practice setting.
5. Be alert to new developments in the application of technology to the practice of medicine (e.g., telemedicine, medical decision-making, computerized medical records, electronic information networks).

**GOAL 6:** Critical Reading and Application of Research. Appraise and apply scientific evidence to patient care and develop a basic understanding of clinical research design.

**Objective 6.1:** Locate, appraise, and assimilate evidence from scientific studies related to one's patients' health problems.

**Objective 6.2:** Assess the validity of articles addressing clinical questions about:

1. Therapy, including evaluation of benefits and harm, practice standards/protocols and cost-benefit analysis
2. Diagnosis, including the etiology or causation or the evaluation of a diagnostic test
3. Prognosis

**Objective 6.3:** Discuss principles for using common analytic and statistical methods.

1. Assess the validity of a meta-analysis and interpret the graphical depiction of the results.
2. Calculate the number needed to treat (NNT), a value useful for expressing the importance of a therapy article.
3. Construct a 2x2 table for a diagnostic test, and perform calculations of sensitivity, specificity, positive predictive value, and negative predictive value.
4. Calculate a likelihood ratio (LR), a value useful for expressing the importance of a diagnosis article.
5. Calculate and utilize a multi-level likelihood ratio for a diagnostic test.

**Objective 6.4:** Evaluate and apply high quality biomedical, epidemiological, and health services research to the daily practice of medicine.

1. Communicate the evidence to patients.
2. Make a clinical decision in the absence of "best" evidence or when there is conflicting evidence.

3. Evaluate the relative cost-effectiveness of various diagnostic tests or treatments.
4. Incorporate your appraisal of the evidence into your use or adaptation of a clinical guideline or disease management program.

**Objective 6.5:** Understand the process of clinical research and how one approaches formulating and answering a research question.

1. For common clinical problems in pediatric care, apply knowledge of study designs and statistical methods to the appraisal of clinical studies that have evaluated the efficacy and effectiveness of diagnostic and therapeutic methods.
2. For several treatments commonly used in pediatric care, describe and evaluate the research results in the literature that justify their use.
3. Identify issues that warrant further investigation in the pediatric care setting, types of studies appropriate for office-based research, and ways to identify potential resources for such research.
4. Describe the most common research designs used in clinical, epidemiological, and health services research (e.g., case report, case-control or cohort study, experimental designs), and discuss their strengths, weaknesses and appropriate applications.
5. Describe the common sources of error and bias in clinical research studies (e.g., sampling, patient selection, measurement error, confounding factors), and methods used to control for error.
6. Interpret scientific data, applying the principles and rules of significance, power, and control of type I and type II errors; in the context of a study, correctly assess p-values, confidence intervals, and measures of association (odds ratio, relative risk).
7. Differentiate between clinical and statistical significance.
8. Interpret results from a study that uses linear regression or logistic regression.

**Objective 6.6:** Discuss the ethics of research, including subject recruitment, informed consent, patient privacy and the role of Institutional Review Boards.

**Source.** Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: [www.ambpeds.org/egweb](http://www.ambpeds.org/egweb). [Accessed 06/23/2009]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.

**COMPETENCIES:**

**Competency 1: 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.

1.1: Gather essential and accurate information using the following clinical skills: medical interviewing, physical examination, diagnostic studies and developmental assessments.

1.2: Make informed diagnostic and therapeutic decisions based on patient information, current scientific evidence and clinical judgment, using clinical problem-solving skills, recognizing the limits of one's knowledge and expertise, gathering appropriate information and using colleagues and consultants appropriately.

1.3: Develop and carry out patient care plans, using principles of evidence-based decision-making and appropriate prioritization, and taking into account the needs, beliefs and resources of patient and family.

1.4: Effectively use common therapies within the scope of general pediatric practice, including a variety of prescription and non-prescription medications, intravenous fluids, and inhalation treatments, as well as special diets and nutritional supplements. Be familiar with therapies commonly used by subspecialists and other professionals who care for children.

1.5: Prescribe and perform competently all medical procedures considered essential for the scope of general pediatric practice; be familiar with those procedures commonly used by subspecialists and other professionals who care for children.

1.6: Counsel patients and families in a supportive manner so they can understand their illness or injury and its treatment, share in decision-making, make informed consent and participate actively in the care plan.

1.7: Provide effective preventive health care and anticipatory guidance to patients and families.

**Competency 2: 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.

2.1: Demonstrate that you know or can efficiently access the knowledge base needed for effective patient care.

2.2: Critically evaluate current medical information and scientific evidence and modify your knowledge base accordingly.

2.3: Recognize the limits of one's knowledge and expertise by seeking information needed to answer clinical questions and using consultants and referrals appropriately. Use this process to guide life-long learning plans.

2.4: Apply current medical information and scientific evidence effectively to patient care (e.g., use an open-minded, analytical approach, sound clinical judgment, and appropriate attention to priorities).

**Competency 3: Communication Skills.** Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

3.1: Communicate effectively in a developmentally appropriate manner with patients and families to create and sustain a therapeutic relationship across the broad range of socioeconomic and cultural backgrounds.

3.2: Communicate effectively with physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.

3.3: Develop effective approaches for teaching students, colleagues, other professionals and lay groups.

3.4: Work effectively as a member or leader of a health care team, and collaborate productively with professional organizations.

3.5: Serve as a consultant on pediatric matters to other physicians and health professionals.

3.6: Maintain comprehensive, timely and legible medical records.

**Competency 4: 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.

4.1: Use scientific methods and evidence to investigate, evaluate and improve one's own patient care practice; continually strive to integrate best evidence into one's daily practice of medicine.

4.2: Systematically assess the health care needs of one's practice population, and use this information to direct population-based problem-solving, with special attention to preventable morbidity and risk.

4.3: Demonstrate willingness and capability to be a life-long learner by pursuing answers to clinical questions, using journal articles, texts, information resources, patients, colleagues and formal teaching conferences.

4.4: Be prepared to alter one's practice of medicine over time in response to new discoveries and advances in epidemiology and clinical care.

4.5: Seek and incorporate feedback and self-assessment into a plan for professional growth and practice improvement (e.g., use evaluations provided by patients, peers, superiors and subordinates to improve patient care).

**Competency 5: Professionalism.** Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

5.1: Demonstrate commitment, responsibility, and accountability for patient care, including continuity of care.

5.2: Be honest and use integrity in your professional duties.

5.3: Consistently use compassion and empathy in one's role as a physician.

5.4: Maintain professional boundaries in one's dealings with patients, family, staff, and professional colleagues.

5.5: Place the needs of patients and society over your own self-interest.

5.6: Demonstrate sensitivity and responsiveness to patients' and colleagues' gender, age, culture, disabilities, ethnicity, and sexual orientation.

5.7: Meet high standards of legal and ethical behavior.

5.8: Develop a healthy lifestyle, fostering behaviors that help balance personal goals and professional responsibilities. Recognize and respond to personal stress and fatigue that might interfere with professional duties.

**Competency 6: Systems-Based Practice.** Understand how to practice quality health care and advocate for patients within the context of the health care system.

6.1: Know how types of medical practice and delivery systems differ from one another with respect to how they control health care costs, allocate resources, and assure quality.

6.2: Practice cost-effective health care and resource allocation that does not compromise quality of care.

6.3: Advocate for patients in one's practice by helping them with system complexities and identifying resources to meet their needs.

6.4: Work with health care managers and providers to assess, coordinate, and improve patient care, consistently advocating for high quality.

6.5: Advocate for the promotion of health and the prevention of disease and injury in populations.

6.6: Acknowledge medical errors and develop practice systems to prevent them.

**Source.** Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: [www.ambpeds.org/egweb](http://www.ambpeds.org/egweb). [Accessed 07/21/2009]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.

**PROCEDURES:**

None

**SCHEDULE:**

Resident must meet the course director 1 month prior to desired rotation month to discuss brief description of project, an overview of the hypothesis (or area to be examined), the methods that will be employed, and the expected outcomes and analytic methods that will be used. The elective must be approved by the course director. Residents will attend weekly assigned continuity clinic. Residents are required to attend all Grand Rounds, weekly didactic lectures, resident meetings, and participate in the regularly scheduled calls. Residents are scheduled to take one-week vacation during this rotation. A specific schedule will be discussed at the beginning of the rotation. The resident must obtain CITI certification for human subjects research prior to the start of the rotation ([www.citiprogram.org](http://www.citiprogram.org)). Residents must submit for IRB approval before conducting research.

**DIDACTIC SESSIONS:**

To be determined by the preceptor

**EVALUATION:**

The preceptor and resident will complete evaluation forms on the six core competencies.

**REFERENCES:**

- Selected articles
- Evidence- Based Medicine, 3<sup>rd</sup> ed. Glasziou, et al.