# Goals and Objectives

## Academic Goals and Suggested Objectives
## for General Pediatrics Fellows:
## A Resource for Fellowship Programs

**NOTE:**

Required goals are marked with an asterisk. Specific learning objectives listed under the required goals are suggested, not required. Goals not marked as required are recommended, but will not fit every program.

Most programs will need to address goals in the clinical domain, and perhaps other domains, that are not included in this document. Additional goals on clinical and other topics can be accessed from the APA Educational Guidelines for Pediatric Residency, [www.ambpeds.org/egweb](www.ambpeds.org/egweb), and adapted to the fellowship level.

| Domain 1: Research |
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**REQUIRED GOALS**

| * GOAL: Research Design: Plan research projects that derive from testable research questions and/or hypotheses, and use sound methods for sampling, measurement, and analysis. |
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## Suggested Objectives:

1. Formulate research questions and generate hypotheses appropriate to those questions.

2. Clearly define variables for each hypothesis, and identify those variables as independent variables, dependent variables, mediators, or effect modifiers.

3. Develop sampling and recruitment strategies for a specified study population.

4. Identify and use methods to maximize the reliability and validity of research measurements, including selection of appropriate types of variables, and use of methods to assess and enhance reliability and minimize bias.

5. Define the significance of study results, including statistical and clinical significance, and the likelihood that the study results represent the truth. (for details, see Goal: Statistical Analyses, Objective 6).

6. Demonstrate knowledge of the design and implementation of randomized controlled trials.

7. Demonstrate knowledge of the design and implementation of observational studies.

8. Describe problems with inferring causality from results of observational studies and methods to enhance causal inferences.

9. Describe the design of studies of diagnostic or screening tests, calculate sensitivity, specificity, positive and negative predictive value, and likelihood ratios, and use receiver operating curves to determine best cut-offs for dichotomized test results.

10. Identify common implementation issues in clinical studies, and describe the role of pilot testing and quality control in the implementation of research protocols.

11. Use research databases to collect study information, using appropriate designs, software applications, and methods to minimize error in data entry.

\* GOAL: Clinical Epidemiology and Evidence-Based Medicine: Use the principles of clinical epidemiology and evidence-based medicine to critically appraise the medical literature, and make sound clinical decisions.

## Suggested Objectives:

1. Generate answerable patient-centered clinical questions to drive continued knowledge acquisition and support informed decision-making.

2. Identify and efficiently locate the best available information resources to address questions in clinical practice, and conduct computerized scientific literature searches in a planned and systematic fashion.

3. Describe and define the principles of clinical epidemiology, including incidence, prevalence, risk, prevention, diagnosis, harm, and prognosis. Use these principles to make clinical diagnostic decisions.

4. Assess the validity and strength of results of studies of:
   - Interventions for therapy and prevention
   - Diagnostic tests
   - Harm
   - Prognosis
   - Meta-analysis

5. Describe the precision of estimates of results of studies, using p values and 95% confidence intervals.

6. Apply the results of studies to clinical practice by determining whether the study subjects were similar to the patients being treated, whether all clinically important outcomes were considered, and
   - For treatment studies, describe whether the likely benefits are worth the potential harm and cost.
   - For studies of diagnostic tests, describe whether the test is available, affordable, accurate and precise in the present clinical setting, and whether the results of the test will change the management of the patient being treated.
   - For studies of harm, describe whether the magnitude of risk warrants an attempt to stop the exposure.
   - For studies of prognosis, describe whether the results of the study will lead directly to selecting therapy and/or are useful for counseling patients.

\* GOAL: Statistical Analyses: Utilize statistical techniques to organize information and make valid inferences from the results of data collection.

## Suggested Objectives:

1. Define the terms population and sample and describe how they differ.

2.  Describe the difference between nominal, ordinal, interval, and ratio scales of data measurement, as well as the difference between discrete and continuous data variables.

3.  Interpret the results of frequency distributions and graphs of those distributions.

4.  Define measures of central tendency (mean, median, mode), as well as measures of dispersion or variability (variance, standard deviation, range), and choose measures that are appropriate for different types of measured data.

5.  Define probability and describe its relationship to the normal and binomial distributions. Calculate z-scores and use the central limit theorem to describe the distribution of sample means.

6.  Define the significance of study results and the likelihood that the study results represent the truth.

    - Describe the convention of hypothesis testing, null and alternative.

    - Define Type I and Type II error, p value and effect size.

    - Use considerations of Type I and Type II error to determine how to set the level of statistical significance, or the alpha level.

    - Understand how to modify the p value to correct for multiple comparisons.

    - Compare directional (one-tailed) to non-directional (two-tailed) hypothesis testing and justify their use.

    - Define power and estimate power and sample size for a research study.

    - Calculate and interpret 95% confidence intervals for commonly used statistics.

    7.  Describe methods of testing hypotheses involving two samples: the use of the t statistic.

8.  Describe methods of testing hypotheses involving two or more samples: the use of analysis of variance (ANOVA) techniques (including post-hoc multiple comparisons and the use for ANOVA for repeated measures).

9.  Define correlation and regression techniques and their use in measuring and describing the relationship between variables.

10. Describe statistical methods for testing hypotheses using data that measures categorical frequencies or proportions and interpret results from such analyses: chi-square tests and related statistics.

11. Describe statistical techniques for testing hypotheses of ordinal data and interpret results of such analyses: Mann-Whitney, Wilcoxon, and Kruskal-Wallis tests.

\* GOAL: Responsible Conduct of Research. Conduct investigations and research-related activities that are professional; ethical; respect the rights, privacy and interests of human research subjects; and provide special protections for children and other vulnerable populations.

## Suggested Objectives:

1.  Acquire, manage, and share data collected for research purposes in a responsible and professional manner, maintaining high standards for protecting confidentiality, avoiding unjustified exclusions, sharing data, and adhering to copyright law.

2.  Effectively mentor less experienced research associates and actively seek out effective mentors to further one's own development.

3. Publish research findings in a responsible, collaborative, legal and ethical manner, assuring that published work is accurate, complete, clear, unbiased and free of misrepresentation; appropriately assigns authorship; fairly acknowledges the contributions of others; and clearly attribute words or ideas of others to the original authors.

4. Review the research of peers in a timely, competent and unbiased manner, declaring conflicts of interests when indicated and maintaining confidentiality of manuscripts under review.

5. Clearly communicate with collaborators about the shared research and terms of collaboration.

6. Conduct research involving human subjects in an ethical manner that includes respect for persons, beneficence and justice.

   - Treat individuals as autonomous agents and provide protection to those individuals with diminished autonomy.

   - Conduct research in such a way as to maximize possible benefits and minimize potential harm.

   - Select research subjects in an unbiased manner, neither exploiting populations that may be easily available or compromised, nor excluding patients who may benefit.

   - Obtain informed consent from research subjects that is given freely and is based on an understanding of risks and benefits.

   - Maintain confidentiality and privacy of data and patient records.

   - Describe the role of institutional review boards (IRBs), and properly prepare consent forms, applications, and protocol amendments to IRBs.

7. Provide special protections in research studies to vulnerable populations including children.

   - Define "minimal risk" for a healthy child and for a child with an illness. Conduct research on children only if it does not involve greater than minimal risk, unless the potential direct benefits to the child outweigh the risks.

   - Obtain informed assent from child subjects appropriate for the age and developmental level of the child.

   - Obtain informed consent from at least one parent or guardian for all research on minor children and adolescents, and from both parents for research that involves greater than minimal risk and has no direct benefit to the child.

   - Define emancipated and mature minor, and describe the role of IRBs and state laws in determining whether those minors may consent to research with waiver of parental consent.

   - Describe potential ethical concerns about financial incentives to children and parents for research participation and the pros and cons of different methods of compensation.

   - Explain the ethical concerns in providing finder's fees or bonuses to health care providers or research staff to enhance recruitment of children and adolescents.

8. Define research misconduct and differentiate between error and misconduct; describe procedures that protect informants ("whistleblowers") and subjects of allegations; and describe the responsibilities of research institutions and federal agencies in the inquiry, investigation and adjudication of alleged research misconduct.

9.   Define conflict of interest, financial or other obligations, and describe requirements for reporting conflicts to institutional authorities.

* GOAL: Scientific Communications. Summarize, present, and publish the results of research, in order to communicate, teach, and disseminate knowledge, using standard oral and written formats.

# Suggested Objectives:

1.   Describe the uniform requirements for manuscripts submitted to medical journals and the specific requirements of common pediatric journals.

2.   Identify the specific sections of a manuscript that is being prepared for publication in a medical journal, and describe the content of each section.

3.   Demonstrate the proper formatting of numerical results, including issues of numerical precision and methods of summarizing numerical data, reporting confidence intervals and p values, and reporting results of statistical analyses.

4.   Demonstrate the proper formatting of bibliographic information in a scientific manuscript.

5.   Choose the medical, psychological, or educational journal best suited for the publication of different types of research results.

6.   Describe how to address the concerns of journal reviewers and editors and to appropriately respond to their comments.

7.   Write and submit an abstract for presentation to a regional or national meeting.

8.   Prepare and present research results for oral and poster presentations.

9.   Explain how to translate the results of scientific studies for communications to lay audiences and the media.

10.  Use computer technology such as word processing, presentation, and bibliographic software to facilitate presentations and publications.

11.  Prepare and submit a manuscript for publication in a medical journal or book.

12.  Identify funding priorities of private and government funding agencies and prepare and submit a grant proposal for funding.

## OPTIONAL GOALS

GOAL: Advanced Statistical Analyses and Technical Expertise: Use advanced statistical techniques to make valid inferences from the results of data collection in complex research designs, and use computer software to assist in statistical analyses and database management.

# Suggested Objectives:

1.   Use and interpret multiple linear regression techniques to analyze relationships between one continuous dependent variable and multiple independent variables.

2.   Use and interpret logistic regression techniques to analyze relationship between one dichotomous dependent variable and multiple independent variables.

3.   Use and interpret survival analysis techniques to analyze data in which length of time before change of a discrete outcome varies.

4.  Use and interpret multivariate analysis of variance (MANOVA) to analyze data with two or more related dependent variables.

5.  Use and interpret factor analysis to explore relationships among variables and determine whether the pattern of results can be explained by a smaller number of underlying constructs.

6.  Use and interpret path analysis and structural equation modeling to look at causal relationships among multiple dependent and independent variables at the same time.

7.  Use statistical software such as SPSS, SAS, STATA and Epi Info for data management and statistical analysis.

GOAL: Qualitative Research. Design and implement qualitative research projects that describe naturalistic phenomena, and develop and revise research hypotheses using appropriate ethnographic and data reduction methods.

## Suggested Objectives:

1.  Describe the types of questions that qualitative methods are best suited to answer as compared to quantitative research, and how qualitative and quantitative methods may be combined to study a research question.

2.  Define three ethnographic methods commonly used in qualitative research-participant observation, ethnographic interviewing, and focus groups and list the advantages and disadvantages of each.

3.  Describe how audiotaping, videotaping, field notes, and unstructured or semi-structured interviews are used in ethnographic methods.

4.  Describe the role of the facilitator, the note-taker, the transcriber, and the coder in focus group research.

5.  Describe qualitative methods used to analyze documents such as essays, diaries, open-ended surveys, and medical records.

6.  Explain how qualitative methods are useful in educational research and evaluation of educational programs.

7.  Describe sampling methods in qualitative research and contrast them to sampling methods in quantitative research.

8.  Describe the reduction of qualitative data to themes and abstract topics through a coding process, and explain how this fits into the iterative process of qualitative research; define and explain the importance of data saturation.

9.  Explain how computer software programs facilitate the coding and organization of qualitative data.

10. Describe how the trustworthiness of qualitative research is verified through data, investigator, theory and method triangulation; respondent validation; and audit trails.

11. Describe the methods for effectively presenting qualitative research results, in contrast to methods typically used for quantitative data.

GOAL: Use of Secondary Databases. Analyze large datasets to answer clinical, epidemiologic, policy and health finance questions, using appropriate sampling and statistical methodologies.

## Suggested Objectives:

1.  Describe the types of information collected in major existing cross-sectional and longitudinal national survey datasets, and the advantages and disadvantages of using such data to answer research questions.

2. Provide examples of clinical, epidemiologic, and policy questions that individual national datasets may be used to answer.

3. Demonstrate expertise in obtaining datasets and associated documentation.

4. Describe how multistage probability sampling methods are used to analyze large datasets, including the importance of population parameter estimates and standard error estimates of sample parameters.

5. Use statistical software to account for sampling weights and design in the analysis of large datasets.

6. Describe the characteristics of health plan administrative datasets available for research, including sources of data, types of informational files, types of payers and issues of validity of data.

7. Explain how epidemiologic questions concerning disease rates and distribution, as well as questions concerning use of resources and resulting costs, may be answered using health plan administrative datasets.

8. Describe what types of quality of care studies may be performed using health plan administrative datasets.

9. List the strengths and limitations of electronic medical records and disease registries for answering research questions.

GOAL: Educational Research. Develop and use sound methods to investigate the content, processes, and outcomes of an educational program.

# Suggested Objectives:

1. Compare the goals and methods of program evaluation and educational research.

2. Compare the contributions and limitations of quantitative vs. qualitative methods in educational research.

3. Discuss the challenges of developing valid and reliable learner outcome measures, and describe approaches to overcoming some of these problems.

4. Discuss the pros and cons of using different study designs for educational research (e.g., observational vs. experimental; prospective vs. retrospective; randomized controlled vs. cohort vs. case-control).

5. Describe the important issues that direct the responsible conduct of educational research, including confidentiality, consideration of the learner as a "vulnerable subject," and the use of randomized control groups in the medical education setting.

6. Describe the typical challenges and special opportunities presented by research in medical education.

| Domain 2: Education |
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| REQUIRED GOALS |

* GOAL: Teaching. Effectively teach students, colleagues and other professionals, and lay groups, assessing learner needs, providing timely and constructive feedback, developing plans for improvement, and using sound evaluation tools and processes.

# Suggested Objectives:

1. Apply principles of adult learning theory to meet the specific needs of individual learners or groups of learners as a routine part of the educational process. These include:

- Assess the level of the learner

- Actively involve learners in the learning process

- Encourage mutual feedback
- Teach information in the context within which it will be applied, emphasizing the application as much as the acquisition of knowledge
- Encourage learners to be self-directed and to identify and pursue their own learning objectives
2. Describe one's own preferred teaching/learning style and consider how this may affect learners with different learning styles; offer learners choices when possible, including active learning options.

3. Effectively orient learners to a clinical education site or educational experience.

4. Identify in each teaching encounter your educational objectives and the learner's educational needs; use this information to direct your selection of content and teaching methods.

5. Develop a repertoire of teaching and supervision methods that enhance a learner's knowledge base, clinical skills, and attitudes/behaviors, including:
   - Bedside teaching
   - Teaching during work rounds
   - Lectures or case-based discussions using multimedia presentation methods
   - Role modeling for learners, with articulation of thought processes
   - Written instruction
   6. Demonstrate efficient and flexible use of time when teaching, adapting the mix of teaching and independent learning activities to optimize use of the time available.

7. Facilitate learning by maximizing participation of all learners in small group discussions and by summarizing the main teaching points of a discussion.

8. Listen carefully with minimal interruption to learners' presentations, whether one-on-one or during rounds.

9. Directly observe learners in clinical settings, using valid and reliable methods that assess their performance fairly. Provide useful feedback in a timely fashion.

10. Provide learners with sensitive, timely, constructive and behaviorally specific feedback, and follow-up by helping them develop plans to improve in identified areas of weakness or concern.

11. Identify and carefully assess problem learners, and develop with them a workable remediation plan; seek expert help when needed.

12. Evaluate the performance of learners based on pre-defined criteria, using evaluation methods that match the performance task. [see also Goal: Evaluation of Learners]

13. Maintain ethical standards in one's educational activities, maintaining learner confidentiality, avoiding excessive demands on students/learners, exercising fairness in evaluation, and strictly avoiding harassment and discrimination based on ethnicity, gender or sexual orientation.

14. Consistently use compassion and empathy in teaching and modeling the physician's role, recognizing the many factors that cause stress in the lives of physicians-in-training.

15. Use electronic resources (computer-assisted self-instruction, web sites, telecommunications) to enhance learners' understanding and retention of information and develop their skills in online knowledge acquisition.

16. Plan and lead workshops and other learning experiences for professional audiences that are sound and current in content, address clear educational objectives appropriate for the audience, and engage the audience in active learning that reinforces the relevance of the topic to them.

17. Give talks to lay groups that have a clear purpose, and simultaneously meet their learning needs, stimulate their interest, and inform them on subjects important in their world.

* GOAL: Evaluation of Learners. Develop and use sound methods and processes to evaluate learners, based on predefined learning goals and objectives.

## Suggested Objectives:

1.      Describe the typical effects of evaluation on the motivation and learning priorities of medical students and residents. Explain how learners benefit from knowing their learning goals at the start of an educational experience.

2. Define the primary qualities of sound learner evaluation methods, including validity, reliability, generalizability, feasibility, and usefulness to the learner.

3. Describe the key features of a sound evaluation form (e.g., specificity of content, explicit criteria for quality ratings, provision for written comments, knowledgeable use by evaluators).

4. State the importance of feedback as an essential element of the evaluation process, explaining how frequent and timely formative evaluation and follow-up promote learners' success at the time of summative evaluation. [see also Goal: Teaching]

5. Develop or select valid and reliable summative evaluation methods that are consistent with the learning objectives of the educational activity being evaluated.

6. Compare evaluation methods that are criterion-referenced vs. norm-referenced, and explain the appropriate use of each.

7. Compare the strengths and weaknesses of the following evaluation methods: written tests, global evaluations, direct observations with checklists, and multi-source (360 degree) evaluations.

8. Define competencies, performance indicators, goals and objectives, and explain their role in the evaluation of physicians.

9. List two specific examples of resident performance that fall within each of the six mandated ACGME competency domains: namely, patient care, medical knowledge, practice-based learning and improvement, interpersonal skills and communications, professionalism, systems-based practice.

10. Describe methods that are appropriate for evaluation of a learner's attainment of competence (knowledge, skills, attitudes) within each of the six mandated ACGME competency domains.

11. Explain why faculty development is critical to promoting the quality of a learner evaluation system.

### OPTIONAL GOALS

GOAL: Curriculum Development. Develop a systematic approach to planning educational activities and programs that includes goal setting, needs assessment and the development of learning objectives, teaching methods, and evaluation.

## Suggested Objectives:

1.      Describe a planned curriculum based on written goals and objectives, and assess its advantages over a curriculum that evolves without a systematic, written plan.

2.   Describe the cyclical process of curriculum design, which includes development of:

- Goals and objectives

- Needs assessment

- Learning methods and activities

- Evaluation methods

- Refinement of goals and methods, based on evaluation results

3.   Plan a learning experience, including these steps:

- Definition of intended outcomes and learning goals

- Environmental assessment of program needs, resources, and support from potential stakeholders

- Selection of activities that fit a time plan

- Description of faculty roles

- Development of instructional materials

- Development of evaluation tools and processes

- Faculty development

- Continuous evaluation and refinement over time

4.   Compare the strengths, weaknesses and appropriate applications of didactic, active, interactive, and experiential learning experiences.

5.   Explain why learning experiences are enhanced by authenticity, practicality, variety, and flexibility, and give examples of educational activities that meet these criteria.

6.   Develop instructional activities appropriate for individual learning, small group, and large group teaching settings.

7.   Describe the advantages of pilot testing a new learning experience, and strategies used to obtain early, informal evaluation data.

8.   Describe how you would find information on curricula developed by other programs, so you can build new activities on tested models.

9.   Discuss factors that can enhance or challenge educational innovation in a typical academic clinical setting.

GOAL: Program Evaluation. Develop and use sound methods to evaluate the content, processes, and outcomes of an educational program.

## Suggested Objectives:

1.      Explain why evaluation, including needs assessment, implementation monitoring, and summative evaluation, is a key to continuous quality improvement in an educational program.

2.   Explain why definition and prioritization of long term learner outcomes should be a focal part of program evaluation.

3.   Plan an evaluation system in advance of implementing a program or educational activity by defining the evaluation's purpose, primary questions, timeline, audience, methods, and processes.

4. Describe strategies that help to make evaluation systems efficient and economical.

5. Define and explain the importance of the following qualities of sound program evaluation methods: validity, reliability, generalizability, feasibility and positive impact on the program as whole.

6. Explain the strengths and weaknesses of different types of program evaluation data, including learner satisfaction ratings, faculty satisfaction data, pre-post intervention evaluations of learners, expert assessments, in-training and board test scores, and practice-based assessments of graduates.

7. Describe how a comprehensive program evaluation might assess learning outcomes, content and process of program components, and impact of the program.

8. Create effective course and program evaluation tools and processes to ensure continuous quality improvement in your educational activities.

| Domain 3: Career Development and Leadership |
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| REQUIRED GOALS |

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

## Suggested Objectives:

1. Demonstrate a consistent level of commitment, responsibility, and accountability in one's patient care, scholarly, and educational activities.

2. Place the needs of patients and society over one's own self-interest, despite competing personal, emotional, time, financial, or service constraints.

3. Consistently use compassion and empathy in one's roles as a physician, and demonstrate honesty, integrity, humility, and fairness in working with patients and families, learners, peers, staff, and professional colleagues.

4. Demonstrate respect, sensitivity and responsiveness to gender, age, ethnicity, culture, religion/spirituality, disabilities, and sexual orientation.

5. Maintain professional boundaries in one's professional relationships.

6. Recognize the range of differing health beliefs and values systems of patients/families from diverse cultural and ethnic backgrounds, and treat these differences with respect and sensitivity in patient care, research, and teaching activities.

7. Identify barriers to the provision of culturally appropriate services in your professional environment, and develop strategies to address these barriers.

8. Articulate one's own perspective by reflecting upon one's biases and feelings about patients and families, and use this knowledge to minimize sources of error and bias in patient care and all dealings with learners, peers and colleagues.

9. Demonstrate high moral, ethical, and legal standards in clinical practice, research and educational activities, and in one's private life. Identify and proactively manage situations that may lead to ethical or legal dilemmas for oneself, one's patients, and those whom one supervises.

10. Develop a healthy lifestyle, fostering behaviors that help balance personal goals and professional responsibilities. Recognize and respond to personal stress, fatigue and impairments that might interfere with professional duties; develop coping skills to effectively and constructively address such stressors.

11. Demonstrate commitment to appropriately inform and communicate with children and their families, learners, peers, staff, and colleagues; and negotiate respectfully any conflicts between one's own perspective and those of others in one's professional environment.

12. Recognize the limits of one's knowledge and expertise, and seek additional information and consultation as needed to reduce the likelihood of medical errors and professional conflicts. Demonstrate responsibility for maintaining competence and adapting to change in the midst of technological advancements, social changes, and new practice standards.

13. Promote justice in the health care system through education, research, or advocacy, including ensuring fair distribution of health care resources and elimination of health care disparities.

* GOAL: Habit of Life-long Learning. Demonstrate a commitment to self-assessment and improvement, and proficiency in the development and pursuit of life-long learning plans, including a personal plan for continuing education and recertification.

## Suggested Objectives:

1. Efficiently use effective approaches to acquiring needed information, and continually strive to integrate best evidence into one's daily practice.

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

3. Describe the requirements for certification and recertification by the American Board of Pediatrics, and identify recommended programs for exam preparation (e.g., AAP's PREP, ABP on-line program).

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

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.

6. Seek and incorporate feedback and self-assessment into a plan for professional growth and provide constructive feedback to others.

7. Demonstrate a habit of critical thinking, evidence-based decision-making and continuous quality improvement.

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

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

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

11. Discuss the major organizations that provide guidelines and standards for pediatric care, and identify where they publish their recommendations.

12. Develop networks and cultivate information sources among professional colleagues.

* GOAL: Career Planning. Formulate career plans to make the transition from training to independence in an academic setting.

## Suggested Objectives:

1. Identify one's personal and professional abilities and goals and assess how various career options will facilitate accomplishment of these goals.

2. Define the attributes of an effective mentor-mentee relationship and describe the responsibilities inherent in each role.

3. Identify potential sources of mentorship, within and outside your institution, including membership in a professional society (e.g., APA, AAP).

4. Identify and use one or more mentors for information and guidance in designing, implementing, and refining a career plan.

5. Make effective use of colleagues, mentors, and clinical experiences in diverse settings to investigate one's continuing career options (e.g., travel, volunteer experiences, attendance at professional meetings).

6. Obtain advice, as needed, for personal accounting, financial planning, and insurance coverage; recognize the importance of these factors in achieving personal and professional financial goals.

7. Define one's primary area or areas of scholarly expertise. Create and implement a plan for developing a thorough knowledge of the past and present literature in this field. [See also Goal: Habit of Life-long Learning]

8. Identify and implement optimal mechanisms and timetables for long term continuing education (workshops, professional development courses, CME, mentored experiences) as needed to fulfill one's career objectives.

9. Demonstrate knowledge of the mechanisms for obtaining licensure, board certification, recertification, hospital staff membership and privileges, medical malpractice insurance, membership in professional organizations, registration with state and federal controlled substance offices, and credentialing contracting with insurance plans, including Medicare, Medicaid, and UPIN numbers.

* GOAL: Academic Leadership and Administration. Practice the skills required to be a successful leader in the academic setting, including visioning, management, finance, interpersonal skills, and negotiation.

## Suggested Objectives:

1. Distinguish the goals, methods, and styles of a leader, in contrast to a manager.

2. As a future leader, assess your institutional environment (including the people within it) with an understanding of past events and future challenges, in order to develop a plan for change.

3. Effectively share your vision for change and gain support for it.

4. Conduct strategic planning collaboratively and follow through in a systematic manner.

5. Identify and analyze the barriers to organizational and personal change, and use effective methods to win support for new initiatives and make them happen.

6. Master the fundamentals of business accounting and basic financial principles.

7. Describe the roles of key personnel, facilities, and equipment in academic clinical setting.

8. Develop skills in the management of personnel, including individuals with a variety of work styles and personality types.

9. Delegate tasks when appropriate to enhance your own efficiency and/or provide growth opportunities for employees; provide ongoing support, constructive feedback, and rewards that acknowledge the value of delegated jobs to the organization.

10. Develop a repertoire of strategies to lead and motivate people.

11. Run meetings efficiently and get the job done with a minimum of interpersonal conflict.

12. Recognize that an academic practice is a business that needs a sound business plan and professional management.

13. Describe the financial power structures at your institution, and how resources are developed to build and sustain academic programs.

14. Review the financial mechanisms that operate within your department/division and identify the individuals in positions of control with whom you must interact to obtain needed resources.

15. Proactively manage your time, based on a balanced prioritization of activities that are important in the long term vs. urgent in the short term.

16. Explain the importance of learning the organizational culture of your institution in order to develop effective ways to work within it.

17. Identify and develop a network of people who can help you to succeed, and whom you can help to succeed.

18. Become skilled at using verbal and non-verbal communication skills to manage and motivate people and win their support for your agenda.

19. Develop skills in understanding and working effectively with the leadership style of your boss.

\* GOAL: Health Care Organization and Delivery. Understand the structure and functions of complex healthcare systems and models for the delivery of health care to children.

## Suggested Objectives:

1. Describe and give examples of key differences among health care service delivery models (e.g., HMO, Medicaid HMO, PPO, IPA), especially as they affect the pediatrician-patient interaction.

2. Summarize the main functions of the major federal health programs that affect children (e.g., SCHIP, EPSDT, WIC, VFC, VAERS).

3. Describe key features of care management organizations, such as:

- Capitation, carve-outs, withholds, gate keeping

- Cost-control measures

- Case-, disease-, and demand-management and their role in promoting quality of care and cost-control

- Implications of chronic disease/disability in capitated managed care contracts
- Strategies to mitigate financial risk and unwanted variation in practice
  4. Describe the concept of system integration, and define the roles of various components of the health care system (e.g., community health centers, academic health centers, private practices, home care agencies).
5. Discuss recent trends in health care delivery that affect pediatric practice (e.g., decreasing hospitalizations, increasing outpatient management of complex chronic diseases, growth of managed care, development of integrated delivery systems).
6. Identify and practice strategies that pediatricians can employ in a managed care system to advocate for services for their patients.

\* GOAL: Pediatric Advocacy. Understand and apply the principles and methods of child advocacy.

## Suggested Objectives:

1. Identify and disseminate advocacy information in order to enlist the support of others in your advocacy goals.
2. Implement and critically evaluate advocacy activities in order to advance the field in a scholarly fashion.
3. Communicate your ideas effectively to a variety of audiences, including community-based organizations, legislators, the media, and other key stakeholders.
4. Educate learners to develop and support advocacy programs as part of their future careers, effectively role model advocacy activities, and mentor trainees who conduct advocacy projects.
5. Describe the essential qualities of community partnerships, including shared vision, complementary strengths, willingness to collaborate, and agreed-upon boundaries; work effectively with community partners/agencies and as a member of multidisciplinary teams.
6. Articulate the principles and use the methods of population-based pediatrics to assess the needs and evaluate the health outcomes of your practice and community.
7. Incorporate advocacy activities in a variety of practice settings.
8. Define the different levels of advocacy as they pertain to patients, communities and the legislative process.

### OPTIONAL GOALS

GOAL: Career Management. Plan and manage your career in order to achieve career goals that fit your aspirations, values, and lifestyle preferences.

## Suggested Objectives:

1. Clarify the distinctions between promotion, advancement and career satisfaction, and identify the steps required for you to achieve the career goals that matter to you in your work setting.
2. Create an individual career development plan that takes into account your strengths and weaknesses; develop short-term and long-term goals and identify potential strategies to meet them.
3. Identify job opportunities that match your skills and interests, and assess your potential "fit" in a new institutional setting.

4. Describe the components of contract negotiation and strategies for conducting successful negotiations with a potential or current boss.

5. Study the hierarchical structure of power and influence at your institution, and develop strategies to achieve your goals that acknowledge your position in that structure.

6. Negotiate for changes in salary, resources and responsibilities based on an understanding of your boss's style and priorities, and the systems for promotion and advancement in place at your institution.

7. Identify regional and national opportunities for personal career growth and obtain support for such activities.

8. Develop a complete educational/administrative portfolio to supplement your curriculum vitae, and use it effectively for advancement and promotion.

9. Study good role models and use mentors effectively to help you meet the challenges of an academic career.

10. Master a repertoire of skills in time management, prioritize your tasks regularly, and develop a habit of punctuality in completing the most important tasks on your schedule.

11. Develop skills in both politics and networking, and use each appropriately in context.

12. Deal constructively in managing conflicts with and among supervisors, staff and trainees, seeking resolutions that promote productivity and good will.

13. Develop a good mentoring relationship with selected students, residents and junior colleagues, match your skills to their needs, and use good judgment in helping them to advance in their careers.

14. Build support systems that sustain you in all aspects of your life.

GOAL: Quality Improvement. Effectively use quality improvement methods to monitor and improve health care for children, including the care provided by one's own practice.

## Suggested Objectives:

1. Explain the role of local and national regulatory or accreditation programs in monitoring quality of care in hospital- and office-based settings (state and local departments of health, managed care organizations, JCAHO, NCQA, CLIA).

2. Use tools to assess the quality of pediatric practice (e.g., medical and functional health outcomes, patient satisfaction, health care costs), and describe the role of standards such as HEDIS measures in setting benchmarks for children's health care services.

3. Identify and evaluate the literature defining best practices in quality assurance.

4. Identify and analyze in one's own practice the factors that facilitate or inhibit the delivery of high-quality, cost-effective care for children (e.g., access to care, office management, medical record-keeping).

5. Review patient satisfaction reports and use them to identify areas for improvement within one's practice.

6. Practice continuous quality improvement (CQI) in one's practice, including these steps:

  - Use the structure, process, and outcomes framework to categorize quality assessment measures.

  - Develop a CQI plan using the Plan-Do-Check-Act paradigm.

  - Collect and analyze data to identify changes that might decrease unwanted variation in the outcomes of care.

- Implement these changes in one's practice, and plan for periodic reappraisals.

- Balance cost and quality in the medical decision-making process.

GOAL: Health Care Finance. Understand the principles and methods of health care finance.

## Suggested Objectives:

1. Compare and contrast methods of financing health care for children and their implications for patient care.

2. Explain insurance programs available to children from low-income families (e.g., Medicaid, Medicaid managed care, SCHIP). Discuss the variability in access to the programs among states and regions within states, and their impact on a pediatric practice.

3. Describe models of risk sharing (e.g., withholds and capitation arrangements) and their implications for insurance companies, physicians, and patients.

4. Discuss the ethical and practical implications of various incentive programs for health care providers aimed at reducing costs.

5. Discuss changes in service delivery that influence cost-of-care (e.g., mid-level practitioners, after-hours care, shift from inpatient to outpatient care, integrated health care systems, e-mail and telehealth). Analyze the effects of these changes on costs, time constraints, and quality of care.

6. Apply strategies to control costs in the daily care of patients in the hospital, outpatient and community care settings (e.g., use of generic drugs, discharge planning and case management when appropriate, restraint in ordering unnecessary tests).

GOAL: Health Policy. Understand child health policy including measures of child health and well-being, the formulation of strategies to effect change, and the appropriate agencies and levels of government necessary to influence policy.

## Suggested Objectives:

1. Identify standard measures of child health and well being and understand their strength and weaknesses.

2. Communicate the policy implications of standard measures of child health and well being.

3. Identify the components of child health policy, and the level (local, state or national) that mandates and implements a particular policy.

4. Identify and describe how the results of research might be applied appropriately to improve or initiate policies and social programs to benefit children.

5. Implement and critically evaluate policy activities in order to advance the field in a scholarly fashion.

6. Communicate policy ideas effectively to a variety of audiences, including community-based organizations, elected officials, the media, and other key stakeholders.

7. Describe the legislative process and identify specific ways in which physicians can participate in this process to create or improve public programs for children.

8. Skillfully use methods to influence legislation.

9. Demonstrate ability to translate technical, expert information into accessible information for policymakers.

GOAL: Use of Information Technology. Master the computer, Internet and other technological applications that make an academic physician efficient, informed, and well connected to colleagues.

## Suggested Objectives:

1.      Demonstrate facility with the use of common computer applications, including word-processing, spread sheet and database management, information retrieval, and e-mail.

2.   Describe the importance of computers for storage and retrieval of information, including data on publications, medical information, clinical decision support, and practice management.

3.   Appraise the quality of and efficiently use sound Internet sites to obtain medical information, scientific data, and reliable patient education materials.

4.   Proficiently use computerized library reference systems for retrieval of medical information.

5.   Use information technology to support patient care decisions and patient education, and 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).

6.   Skillfully access and use web-based educational resources for continuing education and enrichment of student and resident learning experiences.

7.   Use email and telephone to maintain a vital professional network and conduct business efficiently.

## Sources:

- 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. [accessed 6-12-07].

- Ambulatory Pediatric Association Faculty Development Program, Six Domains of Faculty Development . [accessed 6-12-07].

- Dreyer, B, Schonfeld, DJ. Draft Content Outline for a Curriculum in Research Education for Academic General Pediatric and Related Fellowship Programs, Version 4-30-05. link at bottom of page. [accessed 6-12-07].