Academic Primary Care Fellowship Competencies, Goals and Objectives

1. Research Skills
    a. Research design
    b. Clinical epidemiology and evidence-based medicine
    c. Statistical analysis
    d. Health services research
    e. Responsible conduct of research

2. Teaching Skills
    a. Techniques for teaching learners of different levels
    b. Evaluation of learners

3. Communication Skills
    a. Scientific communications
    b. Business communication
    c. Networking

4. Professionalism
    a. Habit of life-long learning
    b. Career planning
    c. Self-evaluation

5. Leadership and Management Skills
    a. Academic leadership and administration
    b. Health care organization and delivery
    c. Advocacy

Modified from:

http://academicpeds.org/aboutUs/about_AGP.cfm

http://www.nationalpostdoc.org/?CoreCompetencies+

AHRQ LHS Competency Domains

Domain 1: Research Skills

A. Research Design-GOAL: Plan research projects that derive from testable research questions and/or hypotheses, and use sound methods for sampling, measurement, and analysis.

Objectives:

1. Formulate feasible research questions that are based in the literature and generate hypotheses appropriate to those questions.
2. Describe conceptual or theoretical framework that supports the research question.
3. Clearly define variables for each hypothesis, and identify those variables as independent variables, dependent variables, covariates, mediators, or effect modifiers.
4. Select a study design that is appropriate to answer the selected question.
5. Develop sampling and recruitment strategies for a specified study population.
6. 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.
7. Define the significance of study results, including statistical and clinical significance, and the likelihood that the study results represent the truth.
8. Demonstrate knowledge of the design and implementation of randomized controlled trials.
9. Demonstrate knowledge of the design and implementation of observational studies.
10. Describe problems with inferring causality from results of observational studies and methods to enhance causal inferences.
11. Identify common implementation issues in clinical studies, and describe the role of pilot testing and quality control in the implementation of research protocols.
12. Use research databases to collect study information, using appropriate designs, software applications, and methods to minimize error in data entry.

B. Clinical Epidemiology and Evidence-Based Medicine GOAL: Use the principles of clinical epidemiology and evidence-based medicine to critically appraise the medical literature and inform study design.

Objectives:

1. Describe and define the principles of clinical epidemiology, including incidence, prevalence, risk, prevention, diagnosis, harm, and prognosis.
2. Assess the validity and strength of results of studies:
    - Interventions for therapy and prevention
    - Diagnostic tests
    - Meta-analysis and systematic reviews

- Surveys
- Observational Studies
- Secondary databases (see Appendix A)

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

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

Objectives:

1. Understand and apply fundamental biostatistical and epidemiological skills (see Appendix B).
2. Basic skills in statistical programing, ideally intermediate skills.

D. Health Services Research GOAL: Using principles of HSR and implementation science to design and interpret research studies in health care delivery.

Objectives:

1. Familiarity with the following key health services and outcomes research concepts:
   - Organization of health care in the US
   - Financing of health care in the US
   - Access to care
   - Quality of care
   - Cost of care
   - Outcomes
   - Insurance and benefits design
   - Health systems design
   - Vulnerable populations
   - Equity and disparities
   - Social and behavioral determinants of health
2. Evaluate the strengths and weakness of **all** of the following research designs and apply one or more of the following research designs:
   - Quasi experimental design
   - Qualitative research (see appendix B)
   - Implementation and dissemination science
   - Secondary databases (see appendix C)
   - Pragmatic research

3. Understand the structure and functions of complex healthcare systems:
    - Describe and give examples of key differences among health care service delivery models (e.g., HMO, Medicaid HMO, PPO, IPA).
    - 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).

4. Innovation of health care delivery -get from grant

E. 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.

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. 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.
3. Clearly communicate with collaborators about the shared research and terms of collaboration.
4. 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.
5. Provide special protections in research studies to vulnerable populations including children.

6. 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.
7. Define conflict of interest, financial or other obligations, and describe requirements for reporting conflicts to institutional authorities.

Domain 2: Teaching Skills

A. Teaching GOALS: 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.

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. 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.
4. 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
5. 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.

6. Evaluate the performance of learners based on pre-defined criteria, using evaluation methods that match the performance task.

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

Objectives:

1. Describe the typical effects of evaluation on the motivation and learning priorities of learners. 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, and 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.

C. Curriculum Design GOALS: Develop a draft curriculum for either an educational program or to implement research findings.

Objectives:

1. Describe the six step process (Kern) of curriculum development.
2. Analyze the importance of the sequence when developing materials.
3. Write objectives to employ action verbs.

Domain 3: Communication Skills

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

Objectives:

1. Write and submit an abstract for presentation to a regional or national meeting.
2. Prepare and present research results for oral and poster presentations.
3. Prepare and submit a manuscript for publication in a medical journal or book.
    a. Identify the specific sections of a manuscript that is being prepared for publication in a medical journal, and describe the content of each section.

b. 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.
c. Demonstrate the proper formatting of bibliographic information in a scientific manuscript.
d. Choose the medical, psychological, or educational journal best suited for the publication of different types of research results.

4. Describe the uniform requirements for manuscripts submitted to medical journals and the specific requirements of common journals.
5. Describe how to address the concerns of journal reviewers and editors and to appropriately respond to their comments.
6. Identify funding priorities of private and government funding agencies and prepare and submit a grant proposal for funding.
7. Become skilled at using verbal and non-verbal communication skills to manage and motivate people and win their support for your agenda.

B. Business & Networking Communication GOALS: Use communication skills for advancement of career and organization.

Objectives:

1. Communicate your ideas effectively to a variety of audiences, including community-based organizations, legislators, the media, and other key stakeholders.
2. Explain how to translate the results of scientific studies for communications to lay audiences and the media.
3. Identify and develop a network of people who can help you to succeed, and whom you can help to succeed.

Domain 4: Professionalism

A. Habit of life-long learning GOAL: Demonstrate a commitment to self-assessment and improvement, and proficiency in the development and pursuit of life-long learning plans.

Objectives:

1. Efficiently use effective approaches to acquiring needed information, and continually strive to integrate best evidence into one's daily practice.
2. Demonstrate a habit of critical thinking, evidence-based decision-making and continuous quality improvement.
3. Develop networks and cultivate information sources among professional colleagues.

4. Work effectively in interdisciplinary teams in all domains (research, education, clinical, management).

B. Career Planning GOAL: Formulate career plans to make the transition from training to independence in an academic or public health setting.

Objectives (all elements of the Individual development plan IDP):

1. Identify one's personal and professional abilities and goals and assess how various career options will facilitate accomplishment of these goals.
2. Identify potential sources of mentorship, within and outside your institution, including membership in a professional society.
3. Identify and use one or more mentors for information and guidance in designing, implementing, and refining a career plan.
4. Solicit feedback as a mentee and a mentor.
5. Prepare an elevator speech and cover letters.
6. Identify realistic and aspirational goals for career next steps.

C. Self-evaluation GOAL: Demonstrate a commitment to self-improvement.

Objectives:

1. 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.
2. Cultivate the habit of continuous inquiry to expand one's knowledge.
3. Seek and incorporate feedback and self-assessment into a plan for professional growth and provide constructive feedback to others.
4. Describe one's own style of learning, gathering and storing information, and decision-making, and translate this understanding into an approach to professional development.
5. Identify the environments and support systems needed to reach one’s potential.

Domain 5: Leadership and Management Skills

A. 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.

Objectives:

1. Proactively manage your time, based on a balanced prioritization of activities that are important in the long term vs. urgent in the short term.
2. Distinguish the goals, methods, and styles of a leader, in contrast to a manager.
3. Develop skills in the management of personnel, including individuals with a variety of work styles and personality types.
4. Develop a repertoire of strategies to lead and motivate people.
5. Run meetings efficiently and get the job done with a minimum of interpersonal conflict.
6. Identify and practice strategies that physicians can employ in a managed care system to advocate for services for their patients.

C. Advocacy GOAL: Understand and apply the principles and methods of patient advocacy.

Objectives:

1. 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.
2. 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.
3. Articulate the principles and use the methods of population-based health to assess the needs and evaluate the health outcomes of your practice and community.

D. Quality Improvement GOAL: Understand and apply the principles of quality improvement.

Objectives:

1. Understand the relationship between clinical practice and population health.
2. Understand how to leverage data to drive practice change.

Map of Curriculum to Educational Goals

Legend for Learning Activities

AS- Academic Seminar
CR- CREST
IN-Innovations in Primary Care
IPC-Inter-professional Communication
JC- Journal Club
MS- Master of Science
PL- Prevention Lecture
QI- Quality Improvement
RIP- Research in Progress
TS- Teaching Seminar

Domain 1: Discipline-Specific Conceptual Knowledge	
Principal Educational Goal	Learning Activity
Domain 2: Research Skills	
Principal Educational Goal	Learning Activity
A. Research design	MS
B. Clinical epidemiology and evidence-based medicine	MS, CR
C. Statistical analysis	MS
D. Health services research	MS
E. Responsible conduct of research	MS, CR
Domain 3: Teaching Skills	
Principal Educational Goal	Learning Activity
A. Techniques for teaching learners of different levels	TS
B. Evaluation of learners	TS
Domain 4: Communication Skills	
Principal Educational Goal	Learning Activity
A. Scientific communications	AS, JC, RIP
B. Business communication	AS, IPC, JC, RIP
C. Networking	AS
Domain 5: Professionalism	
Principal Educational Goal	Learning Activity
A. Habit of life-long learning	AS
B. Career planning	AS
C. Self-evaluation	AS, TS
Domain 6: Leadership and Management Skills	
Principal Educational Goal	Learning Activity
A. Academic leadership and administration	IN, QI
B. Health care organization and delivery	IN, PL, QI
C. Advocacy	AS, PL

Appendix A: Secondary Databases

Analyze large datasets to answer clinical, epidemiologic, policy and health finance questions, using appropriate sampling and statistical methodologies.

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.

Appendix B: Population Health

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.

Appendix C: Qualitative Methods

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.