



EISENHOWER HEALTH

EISENHOWER HEALTH GME PROGRAMS' RESEARCH & QI CURRICULUM

Educational Goals:

- Understand the fundamentals of research including basics of research design, data analysis (biostatistics), public policy, economics, health education, designing trials, recruiting subjects, responsible use of informed consent, standards of ethical conduct of research, clinical epidemiology, and outcomes analysis.
- Gain hands-on experience with conducting a clinical research project including research design (where feasible), data analysis, subject recruitment, data collection, data analysis, and manuscript preparation.
- Provide sufficient exposure to research to allow trainees to make an informed decision about pursuing a career involving research.
- Provide sufficient exposure to research to allow trainees to critically assess basic and clinical research literature and to be competent in using available medical informatics systems. Bibliographic retrieval and critical appraisal skills are of paramount importance.
- Become a co-author on a published manuscript or abstract, or present research or quality improvement and safety project at a local or national meeting.
- Actively and meaningfully participate in a team quality improvement project.
- Work effectively with inter-professional teams on continuous quality improvement.
- Apply continuous quality improvement to patient care.
- Disseminate work in scholarly format.
- Make a difference in the safety and quality of care of our current and future patients.
- Become proficient in the critical appraisal of a journal article and present at a journal club.
- Give a senior trainee lecture at noon conference or a Grand Rounds presentation.



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Teaching Methods

- Seminars & Workshops
- Quality Improvement Morbidity & Mortality Conferences
- “Principles of Scientific Inquiry” Workshop Series
- Journal Clubs
- Scientific Conferences
- Online Courses
- Books & Articles
- One-on-One meetings

ACGME Core Competencies

- Patient Care
The trainee must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems & the promotion of health. By the end of the longitudinal experience, the trainee will be expected to:
 - Use their experiences in caring for patients to develop research questions
 - Consider health care delivery, management of specific disease processes, screening for diseases, or other aspects of health care as an area to study
 - Demonstrate competence by following standards for patient care & established guidelines and procedures for patient safety, error reduction, and improved patient outcomes
- Medical Knowledge
The trainee must demonstrate knowledge of established & evolving biomedical, clinical, epidemiological, and social behavioral sciences, as well as the applications of this knowledge to patient care. By the end of the longitudinal experience, the trainee will be expected to:
 - Generate patient-centered clinical questions to drive knowledge acquisition when designing a research study
 - Identify & efficiently locate the best available information resources to address one’s question in developing a research project
 - Select the appropriate study design to answer one’s question



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- Know the indications for Institutional Review Board (IRB) approval, including studies using patients, patient medical records, and other data specific to patients that can compromise confidentiality

- Practice-Based Learning & Improvement

The trainee must demonstrate the ability to investigate & evaluate their care of patients, to appraise & assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. By the end of the longitudinal experience, the trainee will be expected to:

 - Compare one's data to that previously collected and determine the differences
 - Read current literature to substantiate one's findings
 - Determine the application to patient care that one's study has and describe how patient care can be changed accordingly

- Interpersonal & Communication Skills

The trainee must demonstrate interpersonal & communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. By the end of the longitudinal experience, the trainee will be expected to:

 - Discuss projects with advisors and appropriate consultants, including statisticians and other specialists in research design and/or scientific knowledge
 - Present one's project at a forum at its conclusion
 - Write a scientific abstract and submit it to a local, regional, or national research meeting
 - Strive to write one's project into a scientific paper at the conclusion of the project

- Professionalism

The trainee must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. By the end of the longitudinal experience, the trainee will be expected to:

 - Respect patients' privacy of medical information in performing research
 - Respect privacy in obtaining information from patients and their families while performing research



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- Understand the function of an Institutional Review Board (IRB) and how it serves to protect patients
 - Discuss the ethics of research, including subject recruitment, informed consent, patient privacy, and the role of IRBs
 - Be honest in one's report of data
 - Present data in an aggregate manner to eliminate identification of specific patients in one's report
- System-Based Practice
The trainee must demonstrate an awareness of & responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. By the end of the longitudinal experience, the trainee will be expected to:
 - Understand the costs of research
 - Determine the best methods of performing research within the constraints of residency and the medical system
 - Understand when research is appropriate and when it is not, considering the health of the patient along with the patient's understanding of the project
 - Advocate for research to promote understanding of various disease processes or ways to deliver care

Assessment Methods

- Monthly or Annual evaluation by the course director.
- Monthly or Annual evaluation by the resident.

Educational Resources

Quality Improvement

- ACP Quality Improvement Curriculum([ACP Advance Curriculum | ACP Online](#))
- [IHI Open School Online Courses Curriculum | IHI - Institute for Healthcare Improvement](#) (Some of the courses are free for all)
- [Take the Lead on Healthcare Quality Improvement | Coursera](#) (Free)



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Research

- CITI training on Good Clinical Practice for Clinical Trials with Investigational Drugs and Devices (U.S. FDA Focus) [Required for all trainees]
- CITI training on conflict of interest [Required for all trainees within Eisenhower GME]
- IRBNet Registration (Eisenhower IRB System: www.irbnet.org) [Required]

Institutional Review Board Procedures

- Eisenhower [IRB Administrator](#): Kristi Vaughn
 - irb@emc.org or 760-837-89014
- Eisenhower IkeNet [IRB](#) information
- Eisenhower IkeNet [Getting Started with Research](#)
- Eisenhower IRB System: www.irbnet.org
- Eisenhower IkeNet [IRB Policies & Procedures on LuciDoc](#)

Research Methodology & Design Books

- Patten, ML (2017). *Understanding Research Methods: An Overview of the Essentials*.
- Cresswell, JW & Cresswell, JD (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage Publications

Research Methodology & Design and Statistics Articles

- Torres D, Normando D. Biostatistics: Essential Concepts for the Clinician. Dental Press J Orthod. 2021 Mar 10;26(1):e21spe1.
 - doi: 10.1590/2177-6709.26.1.E21SPE1
 - PMID: 33729294
 - PMCID: PMC8018753
- Jones JB. Research Fundamentals: Statistical Considerations in Research Design: A Simple Person's Approach. Acad Emerg Med. 2000 Feb;7(2):194-9.
 - doi: 10.1111/j.1553-2712.2000.tb00529.x
 - PMID: 10691082
- Khan AM, Goel A. Basics of Statistical Comparisons. Indian Pediatr. 2021 Oct 15;58(10):987-990. Epub 2021 Apr 20.
 - PMID: 33876781



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- Jehan F, Kazi AM. Basic Study Designs in Health Research. J Pak Med Assoc. 2012 Apr;62(4):408-11
 - PMID: 22755295
- Wright S, O'Brien BC, Nimmon L, Law M, Mylopoulos M. Research Design Considerations. J Grad Med Educ. 2016 Feb;8(1):97-8.
 - doi: 10.4300/JGME-D-15-00566.1
 - PMIC: 26913111
 - PMCID: PMC4763399

Online Resources

- American College of Physicians (ACP) High Value Care Curriculum – <https://www.acponline.org/clinical-information/high-value-care>
- American College of Physicians (ACP) Writing a Research Abstract - <http://www.acponline.org/membership/residents/competitions-awards/acp-national-abstract-competitions/guide-to-preparing-for-the-abstract-competition/writing-a-research-abstract>
- American College of Physicians (ACP) Guideline for Poster Presentations – <http://www.acponline.org/membership/residents/competitions-awards/acp-national-abstract-competitions/guide-to-preparing-for-the-abstract-competition/preparing-a-poster-presentation>
- Agency for Healthcare Research and Quality (AHRQ): What Is Comparative Effectiveness Research – <https://effectivehealthcare.ahrq.gov/products/ceer-methods-4th-symposium/overview>
- Guidelines for Reporting Outcomes in Trial Reports: The CONSORT-Outcomes 2022 Extension – <https://jamanetwork.com/journals/jama/fullarticle/2799401>
- International Committee of Medical Journal Editors (ICMJE) Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals – <https://www.icmje.org/recommendations>
- PRISMA Transparent Reporting of Systematic Reviews and Meta-Analyses – <http://www.prisma-statement.org>
- STROBE Statement Strengthening the Reporting of Observational Studies in Epidemiology – <https://www.strobe-statement.org>
- Reporting Guidelines for Different Types of Studies – <https://www.equator-network.org>



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Writing & Presentation Resources

- Kallestinova ED. How to Write Your First Research Paper. Yale J Biol Med. 2011 Sep;84(3):181-90
 - PMID: 21966034
 - PMCID: PMC3178846
- Liumbruno GM, Velati C, Pasqualetti P, Franchini M. How to Write a Scientific Manuscript for Publication. Blood Transfus. 2013 Apr;11(2):217-26. Epub 2012 Dec 21
 - doi: 10.2450/2012.0247-12
 - PMID: 23356975
 - PMCID: PMC3626472
- Gemayel R. How to Write a Scientific Paper. FEBS J. 2016 Nov;283(21):3882-3885.
 - doi: 10.1111/febs.13918
 - PMID: 27870269
- Forero DA, Lopez-Leon S, Perry G. A Brief Guide to the Science and Art of Writing Manuscripts in Biomedicine. J Transl Med. 2020 Nov 10;18(1):425.
 - doi: 10.1186/s12967-020-02596-2
 - PMID: 33167977
 - PMCID: PMC7653709
- Busse C, August E. How to Write and Publish a Research Paper for a Peer-Reviewed Journal. J Cancer Educ. 2021 Oct;36(5):909-913.
 - doi: 10.1007/s13187-020-01751-z
 - PMID: 32356250
 - PMCID: PMC8520870
- How to Give a Dynamic Scientific Presentation – <https://www.elsevier.com/connect/how-to-give-a-dynamic-scientific-presentation>
- Kirchoff, B. (2021) [How to Tell a Compelling Story in Scientific Presentations](#). Nature. 600(7890),S88-S89.

Journal Club Resources

- Users' Guides to the Medical Literature – JAMA
 - [I. How to Get Started](#)
 - II. How to Use an Article about Therapy or Prevention.



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- [A. Are the Results of the Study Valid?](#)
- [B. What Were the Results and Will They Help Me in Caring for My Patients?](#)
- [III. How to Use an Article about a Diagnostic Test](#)
 - [A. Are the Results of the Study Valid?](#)
 - [B. What are the Results and Will They Help Me in Caring for My Patients?](#)
- [IV. How to Use an Article about Harm](#)
- [V. How to Use an Article about Prognosis](#)
- [VI. How to Use an Overview](#)
- [VII. How to Use a Clinical Decision Analysis](#)
 - [A. Are the Results of the Study Valid?](#)
 - [B. What are the Results and Will They Help Me in Caring for My Patients?](#)
- [VIII. How to Use Clinical Practice Guidelines.](#)
 - [A. Are the Recommendations Valid?](#)
 - [B. What Are the Recommendations and Will They Help You in Caring for Your Patients?](#)
- [IX. A Method for Grading Health Care Recommendations](#)
- [X. How to Use An Article Reporting Variations in the Outcomes of Health Services](#)
- [XI. How to Use an Article About a Clinical Utilization Review](#)
- [XII. How to Use Articles about Health-Related Quality of Life](#)
- [XIII. How to Use an Article on Economic Analysis of Clinical Practice](#)
 - [A. Are the Results of the Study Valid?](#)
 - [B. What are the Results and Will They Help me in Caring for My Patients?](#)
- [XIV. How to Decide on the Applicability of Clinical Trial Results to Your Patient](#)
- [XV. How to Use an Article about Disease Probability for Differential Diagnosis](#)
- [XVI. How to Use a Treatment Recommendation](#)
- [XVII. How to Use Guidelines and Recommendations about Screening](#)
- [XVIII. How to Use an Article Evaluating the Clinical Impact of a Computer-Based Clinical Decision Support System](#)



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- XIX. Applying Clinical Trial Results
 - [A. How to Use an Article Measuring the Effect of an Intervention on Surrogate End Points](#)
 - [B. Guidelines for Determining Whether a Drug is Exerting \(More Than\) a Class Effect](#)
- [XX. Integrating Research Evidence with the Care of the Individual Patient](#)
- [XXI. Using Electronic Health Information Resources in Evidence-Based Practice](#)
- [XXII. How to Use Articles about Clinical Decision Rules](#)
- XXIII. Qualitative Research in Healthcare.
 - [A. Are the Results of the Study Valid?](#)
 - [B. What are the Results and How Do They Help me Care for My Patients?](#)
- [XXIV. How to Use an Article on the Clinical Manifestations of Disease](#)
- [XXV. Evidence-Based Medicine: Principles for Applying the Users' Guides to Patient Care](#)
- How to Use an Article about Genetic Association
 - [A. Background Concepts](#)
 - [B. Are the Results of the Study Valid?](#)
 - [C. What are the Results and Will They Help Me in Caring for My Patients?](#)
- [How to Use an Article About Quality Improvement](#)

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