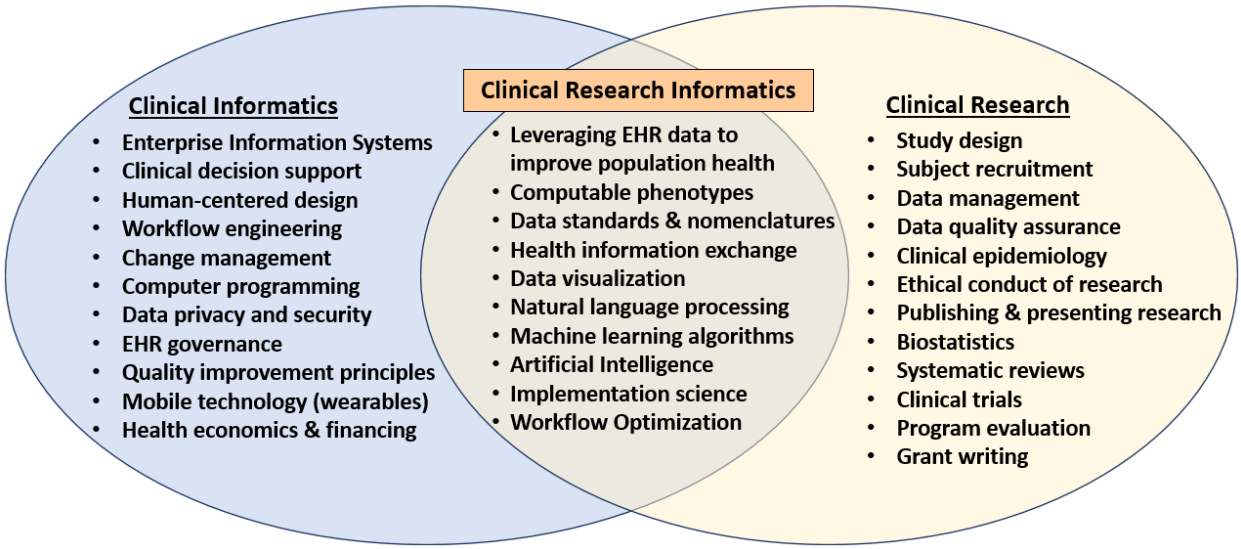
Clinical Research Informatics Postdoctoral (CRISP) Fellowship

Frequently Asked Questions (updated by Mary Whooley MD, 2/1/2025)

What is the difference between clinical research informatics and clinical informatics?

Clinical informatics and clinical research informatics are two of the five domains of biomedical informatics supported by the American Medical Informatics Society. The key difference is a focus on operations vs. research. **Clinical Informatics** is the application of informatics and information technology to deliver healthcare services. It is often referred to as applied clinical informatics or operational informatics (as might be practiced by a Chief Medical Informatics Officer). **Clinical Research Informatics** leverages data science and clinical research methods to conduct studies using digital and electronic healthcare data. Its academic investigations answer scientific questions, translate data into knowledge, and improve healthcare through dissemination of results. This figure illustrates the overlap between the two disciplines.

Overlap between clinical informatics, clinical research informatics and clinical research



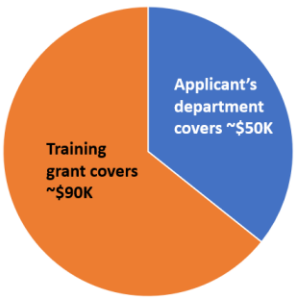
Will the CRISP fellowship make me board eligible in clinical informatics?

The CRISP fellowship alone does not confer board eligibility in Clinical Informatics. However, the CRISP fellowship could be combined with the 2-year ACGME-accredited UCSF clinical informatics fellowship or (through June 2025) the American Board of Preventive Medicine's Practice Pathway to obtain board certification.

What is the postdoctoral fellow stipend?

CRISP fellow stipends are based on the on the NIH stipend scale, which is published annually and increases by about 2% per year. The fellow's department is responsible for covering about one third of the fellowship cost, including the difference between the NIH stipend scale and the UCSF clinical training scale.

Estimated Cost of Fellowship



How much must the clinical department contribute?

Two thirds of the fellow's funding is provided by a training grant from the National Center for Advancing Translational Science. However, some costs (e.g., tuition expenses beyond the NIH allowance) cannot be charged to the training grant and must be covered by the applicant's home department. The exact amount varies by fellow but ranges up to $50,000 per year. Revenue generated from the fellow's clinical activities (up to 20% effort) can be used to offset these costs.

How is the CRISP fellowship structured? All CRISP fellows complete a program comprised of six central elements:

1. Mentored research project. CRISP provides education in the methods of clinical research informatics within a unique environment where fellows learn from nationally recognized faculty, seasoned investigators, and innovators. CRISP fellows are expected to complete at least one research project (leading to a publication and presentation) during their training. CRISP fellows have a wide range of opportunities to work with electronic health record (EHR) data, including UCSF's (EPIC-based) data warehouse, Zuckerberg San Francisco General's (EPIC-based) data, the VA's national (Veterans Health Information Systems and Technology Architecture and Cerner) data repository, and claims data from the Center for Medicare and Medicaid Services.

2. Clinical informatics didactic sessions. CRISP fellows participate in a joint weekly seminar with UCSF Clinical Informatics fellows. Topics cover the five Clinical Informatics Subspecialty Domains of Practice as published by the American Medical Informatics Association **(Appendix)**.

3. Work in progress (WIP) seminars. CRISP fellows attend regular WIP seminars with the Learning Health System Embedded Scientist Training and Research Program. The group discusses works-in-progress being conducted by fellows who are using EHR data to conduct health system quality improvement projects. Seminars highlight the challenges of using EHR data for research, including the lack of standardized methods for ensuring that data quality, completeness, and provenance are sufficient to assess the appropriateness of its use for research. Discussion topics include methods for linking with and integrating data from heterogeneous sources, evaluation of artificial intelligence tools to improve workflow and clinical outcomes, use of computable phenotypes for both pragmatic clinical trials and observational investigations, data governance to control the quality and security of enterprise data, and promotion of national standards for representing and using clinical data.

4. Career development seminars. CRISP fellows participate in quarterly Fellows in Advanced Skills Training in Clinical Research (FAST CaR) seminars. FAST CaR seminars ensure that clinical fellows pursuing a career in clinical research have foundational skills in scientific writing, evidence presentation, research dissemination, professional networking, and readiness to compete for research faculty positions. Sessions include topics such as managing time, setting priorities, balancing work-life demands, writing manuscripts, conducting peer review of manuscripts, responding to reviews, choosing a journal, deciding on authorship order, obtaining grants, negotiating for resources, and securing a job. Clinical research fellows from many other UCSF T32 programs also participate in FAST CaR, promoting workforce development and interdisciplinary collaboration.

5. Clinical experience. A key feature of CRISP is embedding clinicians (physicians, nurses, dentists, physical therapists, pharmacists) within the health system that they are working to improve. For this reason, CRISP postdoctoral fellows must apply from within a clinical department that specifies how the fellow will be involved in clinical care. The goal is for the fellow to devote (no more or less than) 20% effort to patient care so that s/he will learn to leverage their knowledge of medicine, data systems, and analytics to identify and address pressing questions in need of timely answers. Notably, research need not be conducted at the same site as clinical activities. For example, a dermatologist might care for patients at UCSF but conduct research on melanoma using VA data. By focusing on timely clinical issues, clinical research informaticians directly inform learning healthcare systems and improve quality of care.

6. Completion of Training in Clinical Research Certificate or Master's in Health Data Science degree, including tailored didactic coursework. Under the guidance of the CRISP director and the fellow's mentor, each CRISP fellow creates a structured career development plan tailored to their level of training. Based on this plan, an individualized trajectory of coursework and other programmatic activity is developed, including submission of a first-author manuscript for publication and presentation of research findings at a national meeting.

Appendix. Clinical Informatics Subspecialty Domains of Practice

Silverman et al, 2019, https://doi.org/10.1093/jamia/ocz051

Domain 1: Fundamental Knowledge and Skills

Fundamental knowledge and skills which provide clinical informaticians with a common vocabulary, basic knowledge across all Clinical Informatics domains, and understanding of the environment in which they function.

Domain 2: Improving Care Delivery and Outcomes

Develop, implement, evaluate, monitor, and maintain clinical decision support; analyze existing health processes and identify ways that health data and health information systems can enable improved outcomes; support innovation in the health system through informatics tools and processes.

Domain 3: Enterprise Information Systems

Develop and deploy health information systems that are integrated with existing information technology systems across the continuum of care, including clinical, consumer, and public health domains. Develop, curate, and maintain institutional knowledge repositories while addressing security, privacy, and safety considerations.

Domain 4: Data Governance and Data Analytics

Establish and maintain data governance structures, policies, and processes. Incorporate information from emerging data sources; acquire, manage, and analyze health-related data; ensure data quality and meaning across settings; and derive insights to optimize clinical and business decision making.

Domain 5: Leadership and Professionalism

Build support and create alignment for informatics best practices; lead health informatics initiatives and innovation through collaboration and stakeholder engagement across organizations and systems.

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Domains, tasks, and knowledge for clinical informatics subspecialty practice: results of a practice analysis

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CLINICAL RESEARCH INFORMATICS POSTDOCTORAL (CRISP) FELLOWSHIP

https://crisp.ucsf.edu

	1) Mentored research project
	2) Training in Clinical Research (TICR) courses: • Advanced Training in Clinical Research Certificate, • Master of Science Degree in Health Data Science (MiHDAS), • Master in Advanced Studies (MAS) Degree in Clinical Research, or • Tailored course selections from Training in Clinical Research program
	3) Weekly didactic sessions with UCSF Clinical Informatics Fellows
	4) Fellows Advancement Skills Training in Clinical Research (FAST-CaR) Career Development Seminars
	5) Regular works in progress seminars
	6) Clinical experience (20% effort)