



AUR Care and Equity in Radiology Research Academic Fellowship (CERRAF) Award

2024 Guidelines and Application Instructions

Objectives

This document provides fellows and sponsoring institutions background information on the purpose and goals of the AUR Care and Equity in Radiology Research Academic Fellowship (CERRAF) Award, performance responsibilities, and research guidelines. It also reviews the structure and administration of the program, financial accounting procedures, general requirements and application instructions.

Purpose

The CERRAF Award was initiated to help meet the scholarly and research support needs of radiology. The specific purpose of the CERRAF Award is to bring the benefits of radiological advances to medical practice and the public. The mission is twofold. First, it is to develop a cadre of academic radiologists trained in patient-oriented and health services research and demonstrate the value of such training to the field of radiology. Second, it is to provide an opportunity for a critical mass of young radiologists from a wide geographic distribution of academic health centers to receive excellent training in health services research and clinical research methodology.

The Fellowship also serves to develop the academic careers of its recipients through a program of mentoring and networking, each being a key element of professional success.

Areas of Interest

The CERRAF Board annually re-evaluates the research capacity needs in Radiology and Imaging Sciences to ensure that the Program continues to train high-caliber clinician-scientists who can meet research demands of tomorrow. The CERRAF Program will consider all proposals focused on health services research, care delivery and technology assessment. Applications in the following areas are of particular interest:

- health equity,
- implementation science,
- sustainability and climate science
- health services impact of artificial intelligence
- health policy

Fellowship Administration

The CERRAF Award provides generous financial support for investigators pursuing approved research programs. The program is overseen by a Board of Review that reviews all proposals for the strength of the research, the breadth and depth of related educational programs and the formal plan of the department for the long-term career growth of the Fellow. Up to three two-year fellowships will be awarded annually.

Conditions of the Fellowship Award

The CERRAF Award provides two-year fellowships of sufficient flexibility to meet current research training programs and clinical faculty appointments.

The CERRAF Award is \$70,000 (USD) for each of two years and is paid through the sponsoring institution to be used primarily for salary support for the Fellow. Up to \$10,000 of the stipend each year may be used by the Fellow to secure assistance in executing the project. An additional \$10,000 of the stipend total over the two-year fellowship can be used for coursework in an MPH or other degree program approved by the CERRAF Board of Review. Otherwise, the entire amount is to be used exclusively for the fellow's salary support. In return, the institution must make available not less than one-half (50%) of the Fellow's time exclusively specific to the approved CERRAF research.

The total salary may be supplemented by funds from other sources to meet the current pay scale of the sponsoring institution. The sponsoring institution is expected to develop plans for continuing the Fellow's appointment and research salary support beyond the award period.

The annual Fellowship term begins on July 1 and ends on June 30.

An important component of this Fellowship is the commitment of the sponsoring department and institution to make available formal educational programs, research opportunities, and in-kind support for the further development of CERRAF Fellows.

(NOTE: CERRAF Awards are given to the institutions, not the individuals. As a fellowship stipend, this award may not be used to fund institutional overhead [indirect] costs or mentor/collaborator effort.)

Fellow Requirements

The Fellow is personally responsible for the conduct of the approved research and educational program, and is in no sense an employee of either General Electric or the AUR. Continuation of the fellowship for a second year will be conditional upon successful completion of the first year as judged by the Board of Review.

Candidates must hold a M.D. degree (or equivalent) and be board eligible or certified in radiology. Individuals must have completed their terminal research degree or end of post-graduate clinical training, whichever date is later, within the past seven years.

Candidates should hold, or have been offered, an academic appointment in a radiology department of an accredited medical school or research institute in the United States or Canada. Acceptance of this award is contingent upon employment at the institution named in the application.

Candidates must not have been principal investigators on any single grant or contract totaling more than \$60,000.

Recipients of CERRAF Awards will be known as CERRAF Fellows. This title should be used in all publications, programs and other announcements related to the CERRAF Award during the term of the fellowship.

During the two-year period, the Board requires that all Fellows obtain a foundation in biostatistics, experimental design, assessment of medical technology, and selected aspects of epidemiology and health services research. (If a fellow has already obtained training in these areas, or has an advanced degree in one of these areas, this requirement may be waived.) An adequate educational program is a critical element in the awarding of a Fellowship.

CERRAF Fellows are required to hold membership in the Association of University Radiologists during the fellowship term. United States citizenship is not required.

Acceptance of one of the following grant awards precludes eligibility to accept any of the other grant awards during the same, or any subsequent, year: ARRS Scholar Award, ARRS/ASNR Scholarship, AUR Care and Equity in Radiology Research Academic Fellowship (CERRAF), or RSNA Research Scholar Grant.

Sponsoring Institution Requirements

The sponsoring institution is required to provide a program that reflects an overall commitment to the career development of the Fellow during and after the period of the award. The institution must indicate general plans for the Fellow for four years with a detailed plan for the original two years supported by the CERRAF Award.

It is expected that the institution will develop plans for continuing the Fellow's appointment and salary support beyond the award period.

At the time of the application, sponsoring institutions must provide a budget, approved by the department chair, specifying the anticipated direct costs to support the proposed CERRAF research project.

The sponsoring institution must identify preceptors who will oversee the Fellow's educational training program. While not required, the Board of Review has found it helpful for Fellows to have two preceptors, including one from radiology and another from a social science (e.g., biostatistics, health economics, health services research, etc.).

Sponsoring institutions must make available not less than one-half of the Fellow's time to pursue the approved CERRAF research.

A sponsoring institution may have only one active CERRAF Fellow at any time.

Submission Information

Timing: Application instructions are included in this document and can be accessed on the AUR website. The completed application and requisite supporting documents, must be submitted electronically to the AUR [via this link](#) by 12:00pm (Central Time) the third Friday in January in order to be considered for the academic year commencing the following July 1. Multiple applications can be submitted from a single institution; however, a maximum of one application per institution can be funded.

Process: Applications will be screened and scored by the Board of Review, and recipients will be announced before March 1. All decisions of the Board of Review are final. (New Fellows will be formally presented at the next annual meeting of the AUR; thus, successful nominees should make sufficient time available to attend.)

Criteria: The Board of Review will evaluate each application for the following:

1. Assessment of the nominee's qualifications and the institutional support (requirements outlined in the preceding paragraphs)
2. The quality of the proposed health services research; and
3. The formal educational program proposed by the nominee and institution.

Only nominations receiving high priority in all areas will be considered for award. Therefore, fewer than four fellowships may be awarded in any given year.

Research Guidelines

The proposed research program should emphasize technology assessment, outcomes research, quality of care, health services research, informatics and/or other related areas. Basic science research and retrospective reviews fall outside the scope of this fellowship program.

The research goals of the CERRAF Award are:

- To select the best qualified applicants based on their qualifications and commitment to academics, their institution's infrastructure and level of support and the strength of the research proposal.
- To provide structured mentoring, advising and financial support for the fellow's dedicated academic time.
- To insure that the fellow has an opportunity to access formal courses and training in clinical research methodology as well as appropriate mentoring and facilities.

- To emphasize research in radiology health services, technology assessment, outcomes and informatics, which are areas of critical importance for the future of radiology.
- To foster cooperative partnerships among the academic radiology community, health services researchers and future leaders in radiology research.

The research project proposal should:

1. Utilize modern, methodologically sound approaches for evaluating diagnostic technologies (i.e., conform with expectations for well-designed technology assessment studies modeled to NIH and AHCPH clinical research protocols and standards). Involvement of an institution's school of public health, health policy researchers, or division of technology assessment is strongly recommended.
2. Be of a scope that it can be brought to closure within the fellowship period.

In some instances, CERRAF Fellows may propose to contribute to methodological advancement by developing, applying and/or evaluating new approaches to the conduct of technology assessment, whether prospective evaluations of existing or new diagnostic technologies, or analysis of published data (i.e., meta analyses).

Application Instructions

Before your application can be considered, the following information must be provided. It is your responsibility to see that the information listed below is submitted [via this link](#) prior to the application deadline. The information must be submitted as one merged PDF file in the order noted below. It is the responsibility of the applicant to confirm electronic delivery.

- I. Cover letter/Letter of intent to include: the investigator's name; departmental address, phone number and email address; training dates; and faculty rank or position.
- II. Resubmission Information: Is this application based on a proposal submitted within the past two years? If yes, please provide brief details of the previous submission, including a summary of the reviewer comments and how each issue has been addressed in this proposal. (2 page limit)
- III. Research Plan to include:
 - Project Title
 - Abstract of Proposed Research Plan (300 word maximum)
 - Detailed Plan and Bibliography

Organize Sections of the Research Plan to answer these questions.

1. What do you intend to do?
2. Why is the work important?
3. What has already been done?
4. How are you going to do the work?
5. How will the proposed work advance the health services research field in radiology?

Do not exceed 7 pages (9 for reapplication; 2 page limit for resubmission information, 7 page limit for research plan), single spaced with ½ inch margins, 11 point Arial font for Sections A-E. Tables and graphs essential to the application must be included with the 7-page limit of Sections A-E. Adherence to the page limits is required. If your application exceeds the limit, it will be truncated.

- A. Title

- B. Specific Aims. State the broad, long-term objectives and describe concisely and realistically what the specific research described in this application is intended to accomplish and any hypotheses to be tested. (1 page limit)
- C. Significance, Innovation and Relationship to Health Services Research. Briefly sketch the significance and innovation to the present proposal, critically evaluate existing knowledge, and specifically identify the gaps which the project is intended to fill. State concisely the importance of the research described in this application by relating the specific aims to the broad, long-term objectives and to the field of health services research. (1 page limit)
- D. Progress Reports of Previous/Preliminary Research. A progress report is required if the application supplements or continues previous research work. Summarize previous study's specific aims and provide a succinct account of published and unpublished results indicating progress toward the achievement and the importance of the findings. Discuss any changes in the specific aims since the project was last reviewed competitively. Applications for new studies may use this section to provide an account of your preliminary studies pertinent to the application and/or any other information that will help to establish the experience and competence of the investigator to pursue the proposed project. List the titles and complete references to all publications, manuscripts accepted for publication, patents, invention reports and other printed materials. (1 page limit)
- E. Experimental Design and Methods. Outline the experimental design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed and interpreted. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims. Provide a tentative sequence or timetable for investigation. Point out any procedures, situations or materials that may be hazardous to personnel and the precautions to be exercised. (4 page limit)
- F. Literature Cited. List literature citations at the end of the research plan. Literature cited should provide evidentiary support for the proposed project. (No page limit)

- Letters of Recommendation

Department Chair Letter (1): Should include an institutional 4-year program to reflect commitment to the career development of the nominee (both the two year period of award period and subsequent two years):

1. Describe fully the applicant organization's plans for the candidate's support and research career development for the entire period of the proposed award. Include a description of the proposed status of the candidate in the department and his/her relationship to colleagues.
2. Describe the organization's plans for the candidate's supervision, guidance, counseling, or any other formal and informal training. Describe opportunities for interaction with investigators in other departments and, if appropriate, at other organizations.
3. Explain in detail how the award will make a difference in and enhance the candidate's research career development. Include a description of the candidate's expected teaching, clinical work and administrative duties during the period of the award and after the fellowship is completed.

Mentor Letters (2-3): Should provide an appraisal of the applicant's research ability, originality, professional qualifications, personality and character. The letters should include a description of the mentoring experience, roles, activities and duration of mentorship, including contact hours. Please provide enough information to allow the committee to determine if sufficient research and career development mentorship is locally available.

- Budget/Institutional Resources
 - A. Detailed Budget:
Provide a detailed account of direct costs for the proposed research project. The department chair must review and approve. (2) pages are recommended.
 - B. Other Sources of Support (pending and received):
Other non-conflicting sources of support for the proposed activity are encouraged and should be identified. Supplementation of funding from other grant sources must be approved by the Board of Review if not described in the original education plan. Awards from other sources may be approved if the investigator submits a satisfactory plan to address any budgetary overlap.
 - C. Award Payment Information:
To facilitate fund disbursement if the grant is approved, please supply the payee information and mailing address. This information is available through the institution's research administration office. The institution will serve as the fiscal agent.
 - Grant checks payable to: Include name.
 - Grant checks sent to: Include contact name, mailing address, phone number, and e-mail.

IV. Candidate's Standard NIH Biosketch
Include undergraduate and postgraduate study, internship and residencies (include specialty) as appropriate, Institution name and location, inclusive dates and degree(s) earned. In addition, list research and professional experience in chronological order, employment experience, academic honors and professional societies. Also include any current awards and pending support. Provide name of funding agency, including specific NIH institute, ID number, title, name of principal investigator, inclusive dates, and total funds awarded. Bibliographical citations should also be included.

V. Co-Investigators/Mentors/Preceptors (No more than 3)
Please list the preceptors' names, institutions, expertise, mentorship experience, roles and duties related to the project.

VI. Supplemental Information
Provide the following information in the order given below:

1. Career Plans. Provide a brief summary of your immediate and long-term career objective and plans. Explain how CERRAF would make a difference in, and enhance your development as an independent investigator. Do not exceed (2) pages.

2. Other Activities. Describe each of the activities, except research, to be engaged in during the proposed award period (2 years). Include a percentage of time involvement for each activity by year and explain how the activity is related to your career development. Do not exceed (2) pages.

3. Formal Education. Please provide information concerning the formal education or training program which you will undertake during fellowship. Do not exceed (2) pages.

4. Mentor's NIH Biosketch (Maximum of (5) pages for each mentor)

Accounting Procedures

CERRAF Awards will be paid directly to sponsoring institutions by AUR each July. Fellowship grants are limited to stipend funding only. The only accounting requirement is the annual certification by the radiology department chair that the award funding was used in accordance with program rules.

The awards are limited to stipend funding only. Up to \$10,000 of the stipend per year may be used for salary support of other project personnel and similar CERRAF research expenses. An additional \$10,000 of the stipend total over the two-year fellowship can be used for coursework in an MPH or other degree program approved by the CERRAF Board of Review over the two-year fellowship

Award Transfer/Termination Rules

Should a CERRAF Fellow move to a different institution during the term of an award, a request may be made to the Board of Review to transfer the prorated, unused portion of the award. An award may not be transferred to a different individual at the original institution.

A fellow may request that the term of the award be extended with no commitment of additional funding, pending submission of satisfactory project progress. The maximum length of time of the request cannot not exceed one year. Otherwise, funds unexpended on the termination date must be returned to AUR.

Grounds for the revocation of a CERRAF Award will be deemed to exist if:

- a. The sponsoring institution requests in writing that the award be terminated because of unsatisfactory performance of the Fellow or termination of his/her academic appointment
- b. The Fellow requests in writing that the award be terminated for any reason whatsoever
- c. The Fellow does not work in the related research area
- d. The Board of Review determines progress is unsatisfactory after evaluation of the first-year interim progress report.
- e. The institution fails to use the award for approved purposes
- f. For a cause established by due process of law

The revocation of an award shall not require repayment of funds previously expended.

Should a Fellow or institution elect to terminate an award on a date prior to that specified in the award notification letter, the CERRAF Program Manager shall be notified immediately in writing of that action and its effective date.

Professional Meetings

AUR Scientific Session Recognition – First-year and second-year Fellows are encouraged to present scientific presentations at the spring annual meeting of the Association of University Radiologists detailing the current results of their CERRAF research.

All fellows are expected to attend the AUR annual meeting to participate in RAHSR/CERRAF sessions.

Travel and living expenses, subject to AUR's travel policies, will be reimbursed upon submission of a complete expense report to the CERRAF Program Manager.

CERRAF Winter Retreat – First-year Fellows are required to discuss their research plans. Second-year Fellows are required to discuss their progress to date. Graduating Fellows will discuss their final research results at the annual CERRAF Winter Retreat. These presentations are critiqued by the Board of Review. Travel and living expenses,

subject to AUR's travel policies, will be reimbursed upon submission of a complete expense report to the CERRAF Program Manager.

Professional Career Development

Each of the components of the CERRAF Fellowship is designed to enhance the professional development of its recipients. In addition to the financial support, Fellows are provided with extensive mentoring, both within the sponsoring department and by members of the Board of Review. Fellows also have the opportunity to develop a network of professional relationships with current and past Fellows. Mentoring and networking have been shown to be two critical elements that facilitate individuals' professional development and academic advancement.

Progress Reports

Over the term of the CERRAF Award, periodic progress reports are required from each Fellow:

Fellows are required to deliver oral reports on their research plans and/or results at the CERRAF Winter Retreat conducted each February.

Each spring, new Fellows (those entering the program the following July 1) will present their research plans at CERRAF sessions conducted in association with the AUR Annual Meeting. First-year and second-year Fellows will participate in the sessions in a mentoring capacity as assigned.

A final progress report is required within 60 days after award completion. This report will cover the entire period of the award and include a list of any publications and/or presentations by the Fellow which grew out of CERRAF support.

A brief status report is requested from each Fellow three years after completion of the CERRAF Award indicating changes in professional status and areas of current research interest. An annual CV is also requested from each Fellow.

Program evaluation surveys will be sent periodically. Current and former fellows are asked to complete these surveys to ensure CERRAF

Certifications

Certain concurrent reports/certifications are required of the sponsoring institutions and preceptors by March 1 of each year:

1. A brief statement prepared and signed by each preceptor noting the Fellow's key accomplishments in their respective areas of mentoring and a summary of progress in meeting the research objectives.
2. A statement is required from the fellow stating that they received the contracted 50% protected time for the CERRAF research. This report must be signed by the department supervisor or chair.
3. A letter of evaluation from the radiology department chairperson directly to the CERRAF Program Manager within 60 days after completion of the award term.

Publication and Reprints

Publication responsibility remains with the Fellow. The results of any work supported by this award may be published without CERRAF review. However, the research must first be presented at the AUR scientific session and/or a CERRAF Winter Retreat prior to publication. A copy of each published manuscript must be submitted to the Board of Review chair.

For uniformity, the following title and acknowledgment is suggested for use with all published work directly supported by this award or other work prepared in whole or in part during the award period including, where appropriate and ethical, related scientific exhibits:

(Name), AUR CERRAF Fellow

(Affiliation/Institution)

and/or: This investigation was supported (in part) by an AUR Care and Equity in Radiology Research Academic Fellowship Award.

Patent Rights

For all inventions resulting from CERRAF research or training funds, title shall reside with the grantee institution unless it requests otherwise.

Recommended Publications/References

CERRAF Fellows are urged to read the following papers and reports prior to initiating their research projects. They provide a good understanding of the modern methods of technology assessment intended for CERRAF research:

- Eisenberg JM. Ten lessons for evidence-based technology assessment. *JAMA* 1999;282:1865-1869
- Fryback DG, Thornbury JR. The efficacy of diagnostic imaging. *Medical Decision Making* 1991;11:88-94
- Fuchs VA, Garber AM. The new technology assessment. *NEJM* 1990;323:673-677
- Gatsonis C. Standards in the Design, Conduct and Evaluation of Diagnostic Testing For Use in Patient Centered Outcomes Research. <http://www.pcori.org/assets/Standards-in-the-Design-Conduct-and-Evaluation-of-Diagnostic-Testing-for-Use-in-Patient-Centered-Outcomes-Research1.pdf>
- Gatsonis C, McNeil BJ. Collaborative evaluations of diagnostic tests: Experience of the Radiology Diagnostic Oncology Group. *Radiology* 1990;175:571-575
- Hillman BJ. Editorial: Technology assessment and radiology researchers. *Investigative Radiology* 1991;26:109
- Hillman BJ, Fryback DG, Holden RW, McNeil BJ, Moliter RM, Moss AA, Peck PV, Putman CE, Thompson WM. The General Electric-Association of University Radiologists Radiology Research Academic Fellowship (GERRAF): An industry academic collaboration to improve clinical research in radiology. *Investigative Radiology* 1993;28:395-397
- Holden RW, Brody WR, Franklen EA, Klatte EC, Maynard CD. Pathways to improved radiological research: An NIH workshop. *Investigative Radiology* 1991;26:111-114
- Hubbell SA. Importance of routine admission chest x-ray. *NEJM* 1985;312:209-213
- Hulley SB, et al. *Designing Clinical Research*. 3rd edition.
- Littenberg B. Technology assessment. *Academic Medicine* 1992;67:424-428
- McNeil BJ. Clinical research in radiology: Retaining control of traditional arenas. *Decision in Imaging Economics* 1990;32(5):24-29
- Pandharipande PV, Gazelle GS. Comparative Effectiveness Research: What It Means for Radiology. *Radiology* 2009;253:600-605; doi:10.1148/radiol.2533091286
- Phelps CE, Mushlin AI. *Med Decis Making*. 1988 Oct-Dec;8(4):279-89. PMID: 3185180 [PubMed - indexed for MEDLINE]

- Ransohoff DF, Feinstein AR. Problems of spectrum and bias in evaluating the efficacy of diagnostic tests. N Engl J Med 1978;299:926-930
- Solomon M, Bonham A. Ethical Oversight of Learning Health Care Systems: Hastings Center Report, Vol 43, no.1. 2013
- Tunis SR, Bass EB, Steinberg EP. The use of angioplasty, bypass surgery, and amputation in the management of peripheral vascular disease. NEJM 1991;325(8):556-562
- Webb WR, Gatsonis C, Zerhouni EA, Heelan RT, Glazer GM, Francis IR, McNeil BJ. CT and MR imaging in staging non-small cell bronchogenic carcinoma: Report of the Radiological Diagnostic Oncology Group. Radiology 1991;173(3):705-713

For more information, or questions about the CERRAF Award, please contact:

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