Family Medicine Artificial Intelligence and Machine Learning Faculty Support

REQUEST FOR PROPOSAL

Area of Interest	Artificial Intelligence/Machine Learning (AI/ML)
Purpose	The American Board of Family Medicine (ABFM) Foundation seeks proposals from Family Medicine Departments/Divisions for grants to support hiring an AI/ML researcher who would be embedded in the Family Medicine Department/Division. ABFM Foundation funding would cover four years and would require institutional commitment for a fifth year. The purpose of this request for proposal (RFP) is to enhance the capacity for AI/ML methods in Family Medicine to study primary care research questions using real-world, primary care data.
Budget	Individual projects requesting up to $500,000 for a study period of 4 years ($125,000/year) will be considered. The ABFM Foundation will award up to 4 projects.
Geographic Coverage	National, United States
Eligibility	This program is open to all post-doc (MD, PhD, or equivalent) researchers embedded in or connected to Family Medicine Departments/Divisions at academic medical centers or other healthcare organizations. A fuller description of eligible applicant institutions and proposal requirements is detailed on page 3.
Project Term	4 years: September 1, 2022 – August 31, 2026
Key Dates and Deadlines	• Letter of Intent: March 25, 2022 • Proposal Due: April 29, 2022, 11:59 PM Eastern • Review of Full Proposals by Expert Review Panel: May 2022 • Anticipated Full Proposal Notification Date: June 2022
How to Apply	1. Submit a letter of intent by **March 25, 2022**, to danaprice@theabfm.org. Please refer to the LOI instructions beginning on page 4. 2. Following a review of all letters of intent, the ABFM Foundation will invite some applicants to complete a more substantial application. The final application is due **April 29, 2022**. Each application will be reviewed and scored by an expert review panel. Please refer to the enclosed Grant Application Form for information regarding proposal formatting.
Questions	The ABFM Foundation leadership will host an informational webinar on **March 10, 2022, from 1:00-2:00 PM Eastern**. This session will provide potential applicants the opportunity to ask questions in advance of submitting the required LOI and application. Please register at: https://us02web.zoom.us/webinar/register/7516448579781/WN_Kau9LDnmS4OQHybR2YjPKQ

Study Overview

The American Board of Family Medicine (ABFM) Foundation seeks proposals from Family Medicine Departments/Divisions to compete for four, 4-year grants to support hiring an AI/ML researcher who would be embedded in the Family Medicine Department/Division and collaborate with current research staff. **Awards would be in the amount of up to $500,000 total, with $100,000 per year in annual salary support, $10,000 maximum for indirect costs, and $15,000 for other project related expenses.** This funding level is targeted to support a post-doctoral researcher with excellent training and motivation to start a research career and pursue additional grant funding. Proposals must identify a mentor who is an established AI/ML researcher. Mentors can be local or remote and ABFM Foundation can facilitate connection with established AI/ML researchers**.** Proposals must include one or more projects using real-world primary care data to answer primary care research questions. Grantees would have preferential access to national PRIME Registry data, under appropriate data use agreements, but may also propose using related clinical data registries/repositories. Proposals would also have to describe a plan for developing an R01-level application by the third year. Proposals would have to commit to a fifth year of salary support for the AI/ML researcher as a condition of the award. Successful institutions would be invited to use ABFM data assets, under appropriate data use agreements, and to collaborate with the ABFM research team learning about those assets and possibly framing a project.

The PRIME Registry (https://primeregistry.org/) is the largest primary care clinical registry in the United States inclusive of practices in 47 states and patients in all 50 states. The resulting data set, the American Family Cohort, consists of electronic health record data for ~6 million patients. For a sizeable cohort of practices and patients the data go back ten years. The Stanford University Center for Population Health Studies manages these data and enable virtual access for outside researchers after approval by Stanford, the ABFM and with IRB approval. Other data may be available. Awardees will also have expectations for attending annual convenings and may have additional meeting obligations to coordinate with a larger AI/ML funding effort. Expenses for these will be covered by the ABFM Foundation. This project is part of the larger ABFM Foundation **Enterprise Artificial Intelligence and Building Long-term Capacity (EnAIBL-Capacity)** for Family Medicine Program.

The intentions of this RFP are to:

1) Ask and answer questions of high relevance to practicing primary care clinicians of real-world primary care data using AI/ML methods;
2) Build capacity for AI/ML methodology in family medicine departments/divisions and build access to institutional data and informatics resources;
3) Build collaborations between departments/divisions for AI/ML capacity;
4) Seed subsequent research proposals; and

5) Seed development of AI/ML clinical decision support tools derived and tested on real-world primary care data.

Expected Outcomes:
- One AI/ML researcher embedded for at least 5 years (per department/division),
- Two proposals for externally funded research (per department/division), and
- Three peer-reviewed publications (per department/division).

Eligibility Criteria

This program is open to all post-doc (MD, PhD, or equivalent) researchers embedded in or connected to Family Medicine Departments/Divisions at academic medical centers or other healthcare organizations. Qualified candidates are those with excellent training and motivation to start a research career and pursue additional grant funding.

Proposals must:
1. Identify a mentor who is an established AI/ML researcher. Mentors can be local or remote, and the ABFM Foundation can facilitate connection with established AI/ML researchers.
2. Describe a plan for developing an R01-level application by the third year.
3. Commit to a fifth year of salary support for the AI/ML researcher as a condition of the award.
4. Include one or more projects using real-world primary care data to answer primary care research questions.

Grantees may use this award to augment funding for a project already funded through another grant. The ABFM Foundation requires that the applicant organization has adequate infrastructure to assure ethical conduct of research, protection of research participants, and appropriate data protections.

Sample Research Questions

The following research questions are exemplars of the kinds of primary care questions of interest to the ABFM Foundation and are only listed to give applicants a sense of the range and types of questions of interest. As stated, successful applicants will have access to the PRIME Registry data but can propose to use other data to address important primary care questions. We encourage applicants to identify at least one question to be investigated using AI/ML methods applied to real world primary care data either alone or in conjunction with other data.

A. What are the patient, physician, or practice level characteristics that are stable and robust indicators of the core functions of primary care for higher healthcare quality?

B. What are the interacting effects of individual disease complexity vs. individual social needs vs. community social determinants in risk adjustment?

C. Which combination of medications improve outcomes relative to risk for patients with diabetes and other conditions?

D. What is the relationship between Body Mass Index and Hemoglobin A1c? Is there a BMI threshold at which two or more medications are more likely to be needed? Which diabetes medications are associated with weight loss in primary care?

E. Are there continuity and/or comprehensiveness thresholds or combinations that predict greatest reduction in healthcare costs?

Project Term and Available Funding

The ABFM Foundation's AI/ML research support grant program will fund four research projects for four years, with project terms beginning on September 1, 2022, and ending by August 31, 2026. Awards would be in the amount of up to $500,000 total, with $100,000 per year in annual salary support, $10,000 maximum for indirect costs, and $15,000 for other project-related expenses. Proposals would have to commit to a fifth year of salary support for the AI/ML researcher as a condition of the award. The ABFM Foundation will award up to 4 projects.

Application Process

The application process has two phases. Phase 1 is a letter of intent. Following a review of all letters of intent, we will begin Phase 2 by inviting some applicants to complete a more substantial application. Each application will be reviewed and scored by an expert review panel. Applications will be evaluated on the scientific merit of the research question and methods; the degree to which the experience of the key personnel is related to the project activities, the appropriateness of the overall cost to the project goals and duration; and the project's potential for sustainable benefit. All of the application materials for this RFP can be found in the enclosed materials.

Letter of Intent Instructions

Submitted letters of intent (LOI) are to briefly describe how the research will advance the field of AI/ML in family medicine; the research question and methods; the linkages between the research study and a partnering healthcare organization (if applicable), and implementation approaches.

The ABFM Foundation leadership will host an information session on **March 10, 2022, from 1:00-2:00 PM Eastern**. This session will provide potential applicants the opportunity to ask questions in advance of submitting the required LOI and application. To attend this informational session, please register at the link below:

https://us02web.zoom.us/webinar/register/7516448579781/WN_Kau9LDnmS4OQHybR2YjPKQ

The LOI must be submitted in a Word document electronically to danaprice@theabfm.org by the principal investigator (PI) no later than March 25, 2022.

The LOI should be no more than **two pages** and should list the following:

1. Title of the Study
2. Department, Institution, and PI or Family Medicine Research Lead
3. AI/ML methodologist candidate or institutional strengths that could lead to finding an internal candidate and/or mentoring

4. Purpose of the research project, specifically stating:
   a. The research goal(s)
   b. Research methods
   c. Description of potential primary care data sources or examples of related research
   d. Description of how a grant would support capacities that might not otherwise be possible and potential for enhancing the department's research and future funding success.

Note: Reviewers of the LOI have considerable experience in AI/ML and its intersection with healthcare, so please do not include background or summary statements that describe the importance of AI/ML in healthcare or the significance of the problem your project will address as it relates to AI/ML in healthcare.

Grant Application Instructions

The enclosed **Grant Application** includes forms as well as narrative sections that must all be completed according to instructions.

Applicants must submit their application electronically to the ABFM Foundation (danaprice@theabfm.org) by **April 29, 2022**.

Your electronic submission should contain <u>FOUR</u> files only. Please do not include a cover letter.

1. **Grant Application Form.** The application should be saved as a PDF file and labeled "PILastName_app_AIML_2022" e.g., Smith_app_AIML_2022.

2. **CV/Biosketches.** All CVs and or biosketches of key personnel should be housed in one PDF file labeled "PILastName_CVandbiosketches"

3. **Letters of Support.** All letters of support should be housed in one PDF file labeled "PILast Name_Letters of Support."

4. **Institution/Organization W-9s and IRS Determination Letter (if applicable).** All W-9s and IRS Determination letters should be housed in one PDF file labeled "PILastName_W-9s"

About the ABFM Foundation

The purpose of the **ABFM Foundation** includes, but not limited to its controlling function to serve the American Board of Family Medicine, Inc. (ABFM), by participating in public policy evaluation, efforts and reform and in the research and/or funding of research in or related to:

- Improving the quality of medical care available to the public
- Establishing and maintaining standards of excellence in the primary care specialties
- Improving the standards of medical education and training, including transformational graduate medical education in primary care

- Determining by evaluation the fitness of specialists in family medicine who apply for and maintain certificates with ABFM
- Participation in efforts for the improvement of medical care and the physician reporting of quality information and measures, including those programs and initiatives mandated by the United States Government and governed by the U.S. Centers for Medicare and Medicaid Services, or the similar agencies of the United States Government
- Quality improvement programs and modules for primary care physicians, including by not limited to the utilization of programs and modules in multispecialty disciplines
- The development of new and expanded computer architecture and programs for use in the primary care medical specialties