

## ***Administrative Supplements for P30 Cancer Centers Support Grants (CCSG) to Stimulate Research in Machine Learning and Artificial Intelligence Tools that extract Real-World Data and Evidence from Electronic Health Records at NCI-designated Cancer Centers***

### Background:

A hallmark of NCI-designated cancer centers is that the science conducted at these institutions embodies transdisciplinary science and state-of-the-art research. The resources and computing environments of centers encourage multidisciplinary teams to creatively solve difficult problems and ensure solutions are implemented at a relatively fast pace. The NCI would like to leverage these scientifically rich environments and invites teams of biomedical informaticians, data scientists, clinical researchers, and others to develop the capacity within their institutions to generate tools that rapidly and completely extract quality Real-World Data (RWD) from electronic health records (EHRs).

To help address the growing need for biomedical informaticians, NCI is launching a Cancer Informatics Scholars Program. This administrative supplement supports NCI Cancer Informatics Scholars focused on Real-World Data and Evidence.

### Purpose and Goals:

#### Cancer Informatics Scholar focused on Real-World Data and Evidence

NCI's Office of Cancer Centers is offering supplemental funding to the P30 Cancer Center Support Grant (CCSG) to stimulate research in machine learning and artificial intelligence tools that can extract Real-World Data (RWD) from EHRs at NCI-designated cancer centers. It is expected that at the end of the project period, sites selected to receive these supplemental awards will share their tools (i.e. newly developed or reused) with others in the community.

Scholars will develop AI models or a set of tools that rapidly addresses the completeness and quality of EHR data based on two specific cancers. Scholars will develop their algorithms around one common and one rare cancer of the Scholar's choosing (e.g. prostate cancer and brain tumors, respectively). The EHR data and analyses must be executed within the institutional architecture and no data sharing is expected. Key performance measures for each cancer site chosen include: (1) how quickly the tool(s) can parse all elements (listed below) from the EHR for a given patient; (2) how quickly and accurately the tool(s) can reconcile across both syntactic and semantic data constructs for a given variable (e.g., race, performance status, etc.); (3) the ability to develop a human-readable summary table that includes the variables below; (4) validation approaches for the tool and/or AI approach; and lastly, (5) the portability and interoperability of the tool(s) to prepare a standardized, anonymous analytic dataset for exchange using the Fast Healthcare Interoperability Resources ([FHIR](#)) data standard. Scholars are expected to develop a toolset or repurpose an existing/open-source tool(s) that can extract this information from EHRs across the two cancer types they selected. At the end of the supplement period, meritorious Scholars will be invited to demonstrate their tool sets on a *de novo* cancer data set.

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**The descriptive EHR fields listed below must be abstracted by your tool(s).**

- A. Race
- B. Ethnicity
- C. Age at Diagnosis
- D. Sex
- E. Smoking Status
- F. Performance Status (Zubrod/ ECOG or Karnofsky scale)

**The common endpoints, listed below, are strongly encouraged to be calculated by your tool(s).**

- A. Response Rate
- B. Tumor Shrinkage
- C. Time to Progression-free survival or Recurrence-free survival
- D. Overall survival
- E. Disease-free survival
- F. Time to first treatment
- G. Time to treatment discontinuation (of frontline regimen)
- H. Time to next treatment

For Centers applying to both the NCI Clinical Informatics Scholar Administrative Supplement and the Federated Learning Administrative Supplement, the algorithms and methodologies proposed and implemented must be either different or complementary.

## Eligibility and Budget

- A. Supplement applications will be due July 1<sup>st</sup>, 2023.
- B. Awards will be made in September 2023.
- C. The NCI anticipates awarding 2 – 3 total supplemental awards.
- D. Supplement budget requests may not exceed \$300,000 in total costs.
- E. Supplements are 1 year in duration.
- F. This opportunity is open to all NCI-Designated cancer centers.
- G. Cancer Centers whose P30 CCSG will be on a merit extension at the time the award is made in September of FY23 are eligible to apply.
- H. Cancer Centers whose P30 CCSG will be on a cost extension at the time the award is made in September of FY23 are not eligible.
- I. Any proposal that cannot be completed within the 1-year time frame will be viewed as non-responsive.
- J. Allowable costs include funding for the NCI Cancer Informatics Scholar and his/ her team and the costs for supplies, including computing time. Large pieces of equipment cannot be purchased through this supplement.
- K. Teams that have already submitted an NIH grant application like the Projects described above should not resubmit a similar application through this supplement mechanism.

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- L. Only one supplement request to this solicitation per center will be considered.

## Application Submission Format

Applications must be submitted electronically via eRA Commons to the parent award (P30) using [PA-20-272](#) “Administrative Supplements to Existing Grants and Cooperative Agreements (Parent Admin Supplement)” on or before **July 14, 2023**. Your submission should follow the instructions in the funding opportunity announcement, including the following:

**Research Plan (5 pages) please include the following elements:**

- A. The title of the supplement in parenthesis (NCI Cancer Informatics Scholar)
- B. The research proposal should address questions that can be tested by using EHRs collected from patients at the Cancer Center and affiliated healthcare facilities.
- C. Proposed research may include computational and clinical elements using RWD from clinical notes and records collected from patients at the Cancer Center and affiliated healthcare facilities.
- D. Description of the background, preliminary data (if available), relevant cancer center infrastructure, data sources, and research teams.
- E. Analyses and models that include a diverse population across the spectrum of age, sex, and race are encouraged.
- F. Leadership of projects by junior or mid-level investigators is encouraged.
- G. Please submit a separate SF424 biosketch form(s) for the NCI Cancer Informatics Scholar.

### **1. Detailed budget and justification**

- A. Please use the SF424 forms to document your funding request.
- B. The application must include a 5-page **RESEARCH PLAN**.
- C. Appendices and attachments are not allowed.
- D. For tracking purposes, please notify [NCIClinicalInformatics@nih.gov](mailto:NCIClinicalInformatics@nih.gov) when you submit your application (but please do not send the application itself).

## Evaluation Criteria

Administrative supplements do not receive peer review. Instead, NCI staff will evaluate each supplement request to determine its overall merit. Supplements will be reviewed for quality and responsiveness to application criteria outlined above in the **RESEARCH PLAN SECTION** and **PURPOSE AND GOALS SECTION** of this Funding Announcement.

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## Awards

The number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications.

## Reporting Requirements

As part of the annual progress report of the parent NCI Cancer Center Support Grants include information on what has been accomplished via the administrative supplement during the funding period.

## Questions

For inquiries about the scientific objectives and goals of this NCI Cancer Informatics Scholar administrative supplement, please email [NCIClinicalInformatics@nih.gov](mailto:NCIClinicalInformatics@nih.gov).

## Pre-Submission NCI Clinical Informatics Scholar Webinar Material:

<https://cbiit.webex.com/cbiit/j.php?MTID=mfd3adc2e292073cd578fc3242337a27f>

Monday, June 5, 2023, 1:00 PM | 1 hour | (UTC-04:00) Eastern Time (US & Canada)

Meeting number: 2304 720 2266

Password: Eu8ixrYn@28

Join by a video system

Dial [23047202266@cbiit.webex.com](tel:23047202266)

You can also dial 173.243.2.68 and enter your meeting number.

Join by phone

1-650-479-3207 Call-in toll number (US/Canada)