INITIATIVE 2 TITLE: Development of Novel Research Software for Health Research (R21 Clinical Trial Not Allowed)
INITIATIVE TYPE: New
ACTIVITY CODE: R21

Objective: Funding opportunity inviting collaborative applications to support development of novel research software for health research.

DESCRIPTION: This funding opportunity is part of ODSS's Research Software Excellence program and intended to enable exploratory/developmental research for innovative and novel early-stage research software tools, methods, and algorithms to improve the acquisition, analysis, visualization, or interpretation of data across the health research continuum. The emphasis will be on high innovation and potential impact on realizing "Gold-Standard" health research. In particular, the proposed software must be potentially transformative for NIH-mission relevant research and have potential for impactful adoption across health domains.

Applications must propose highly novel software, computational methods, or algorithms, and target unmet needs in basic, preventive, diagnostic, translational, epidemiological, health disparities, and/or clinical research that may have potential for broad use across various health research fields. For existing research software, proposed projects must offer the potential for substantial enhancements over current approaches and/or add qualitatively new research capabilities not currently available to the research community. The application must provide a value proposition by clearly defining the unmet need(s) and how the proposed research software will be benchmarked and validated to assess its scientific abilities. The proposed research software must also demonstrate adoption of software engineering best practices, including addressing security considerations for use with sensitive data. Other specific eligibility criteria and terms of award may apply to ensure appropriate use of this funding mechanism and program. Applications will be reviewed by a CSR special emphasis panel.

KEY ASPECTS INCLUDE: We propose up to $275,000 in direct costs per award for a maximum of two years. Travel expenses will be allowed up to $2,500/year. A set aside of $3 million for FY 2027 is planned with an expectation to fund approximately 8-10 grants in the first year (exact number contingent on appropriations and number of highly meritorious applications). ODSS requests approval of the proposed concept for a 3-year cycle with 2 receipt dates each year.

IMPORTANCE: Scientific software has become essential for the interpretation and analysis of complex, large-scale biomedical and behavioral data. Not only is reuse and sustainability of software tools and platforms in NIH-funded research limited to a specific project, there are no dedicated opportunities to innovate with potential for applications across health domains. Hence the need for a dedicated funding opportunity to allow for innovation that is transformative. This initiative is part of the collection of NOFO's, catalyzing the ability of NIH-supported researchers to innovate, adopt and benefit from modern practices and philosophy of software sustainability and reusability, as well as support for the research software engineer, all as a vital part of optimizing the crucial role of research software in the health research continuum.

HISTORY: Through the current program, ODSS has developed a foundational framework for research software sustainability by investing in both the people who develop it and the practices that support it. The R50 mechanism has supported the careers of dedicated to research software engineers, while the R03 has extended support for sustainability-focused best practices at the project level.

Taken together, these efforts have established structured support for the people and practices underlying research software. What remains missing, however, is a dedicated mechanism to drive innovation in the software tools, methods, and algorithms themselves. Across the NIH, this gap has gone largely unaddressed, with NCI's ITCR program standing as the sole exception. This NOFO is therefore modeled after ITCR. Expanding this approach as an NIH-wide NOFO would address the gap identified by the Council of Councils and represent a natural next step in maturing the sustainable software program ODSS launched in 2024, completing the arc from supporting people and practices to now fueling methods innovation through this R21**.**

CONCEPT CLEARANCE DATE:

COUNCIL REMARKS: