

Opportunity Title: CDC Summer Fellowship in Simulations of Vaccines Efficacy
Against Infectious Disease

Opportunity Reference Code: CDC-OD-2024-0021A

Organization Centers for Disease Control and Prevention (CDC)

Reference Code CDC-OD-2024-0021A

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A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- One educational or professional recommendation. Your application will be considered incomplete, and will not be reviewed until one recommendation is submitted.

All documents must be in English or include an official English translation.

Application Deadline 5/19/2024 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

CDC Office and Location: A research opportunity is available in the Centers for Disease Control and Prevention (CDC).

The Centers for Disease Control and Prevention (CDC) is one of the major operation components of the Department of Health and Human Services. CDC works to protect America from health, safety and security threats, both foreign and in the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

Selected candidates must either live within a 50 mile radius of an approved CDC duty location or be able to relocate before the start of the appointment.

Research Project: Vaccines are a core part of infectious disease prevention and control. Measuring a vaccine's efficacy --in preventing infection, transmission, symptoms, hospitalization, or death— is important to understanding how to use it for disease response. Vaccine efficacy can be measured in clinical trials like those used for other drugs. However, infectious disease is unpredictable, and estimates of vaccine efficacy from traditional clinical trial designs can be biased, suggesting a vaccine is more or less effective than it really is, or sometimes even making a vaccine appear harmful when it is actually protective.

In this project, the fellow will develop a suite of simulations for vaccine clinical trials. These simulations will demonstrate how biases arise, develop estimates of effect size of these biases, and re-evaluate real-world vaccine trial data. This suite should be response-ready, ready to run in the case of a novel infectious disease.

Learning Objectives: The fellow will be embedded in the Medical



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Countermeasures & Variants team at the CDC's Center for Forecasting and Outbreak Analytics. They will learn about infectious disease modeling and vaccinology. They will gain experience in researching collaboratively with modelers and programmers, building high-quality code and using GitHub to collaborate on a shared codebase.

Mentor(s): The mentor for this opportunity is Scott Olesen (ulp7@cdc.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: May 20, 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 10 weeks, but may be renewed upon recommendation of CDC and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: Stipend rates may vary based on numerous factors, including opportunity, location, education, and experience. If you are interviewed, you can inquire about the exact stipend rate at that time and if selected, your appointment offer will include the monthly stipend rate.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and CDC. Participants do not become employees of CDC, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical distancing, testing, vaccination).

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email ORISE.CDC.OD@ornl.gov and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing a doctoral degree in the one of the relevant fields.

Preferred skills:

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- Proficiency or fluency in R or Python
- Interest in learning about vaccine biology, clinical trial design, and network modeling
- Prior knowledge about vaccine and vaccine trials

Eligibility • **Degree:** Currently pursuing a Doctoral Degree.

Requirements • **Academic Level(s):** Post-Master's.

• **Discipline(s):**

- **Chemistry and Materials Sciences** ([12](#))
- **Computer, Information, and Data Sciences** ([17](#))
- **Engineering** ([27](#))
- **Life Health and Medical Sciences** ([51](#))
- **Mathematics and Statistics** ([11](#))
- **Physics** ([16](#))

Affirmation I certify that I have not previously been employed by CDC or by a contractor working directly for CDC. I understand that CDC does not permit individuals with a prior employment relationship with CDC or its contractors to participate as trainees in the ORISE program. (Exceptions may be granted for individuals who, since the previous CDC employment, have obtained a new STEM degree which necessitates training in a new field.)