



SHP Student Interns for Research and Scholarly Activities Project Proposal Form

Instructions:

Please fill each box to the right of the required fields, obtain the required signature and return via email to Michele Sisco (mcoral@shp.rutgers.edu) by **March 24, 2025**.

If you are sending attachments, please ensure your contact information is added to all your forms.

Please note if you are a Non-Resident Alien to see the tax withholdings:
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Faculty Contact Information:

Date submitted:	27th March 2026
Faculty Name:	Dr Rahul Mittal
Department/Program:	Deaprtment of Health Informatics
Telephone number:	
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Project Detail:

Project Title: (56 characters max)

Treatment Intensification and BP Control in EHR

Hypothesis:

Patients with hypertension and type 2 diabetes who experience faster treatment intensification after uncontrolled blood pressure will achieve earlier and higher rates of blood pressure control. A generative AI framework that models longitudinal clinical trajectories and simulates treatment strategies will accurately predict near-term outcomes and identify more

Description:

(Include design, methodology, data collection, techniques, data analysis to be employed, evaluation and interpretation methodology for research component)

This study will use a retrospective cohort design leveraging longitudinal electronic health record (EHR) data from the Rutgers Clinical Research Data Warehouse (CRDW). The cohort will include adults with hypertension and type 2 diabetes who have repeated outpatient blood pressure measurements $\geq 130/80$ mmHg.

The primary exposures will include (1) time to treatment intensification following an initial uncontrolled blood pressure measurement and (2) therapeutic inertia, defined as the proportion of visits with uncontrolled blood pressure without medication adjustment.

Outcomes will include time to blood pressure control and the proportion of patients achieving control at 3 and 6 months. Secondary outcomes will include medication burden and selected adverse events (acute kidney injury, hyperkalemia, syncope).

Statistical analyses will include time-to-event models (e.g., Cox regression) to evaluate time to control, and logistic regression to assess control at fixed time points. Associations between intensification timing and outcomes will be adjusted for demographic and clinical

Specific Student Responsibilities:

- Define cohort and extract structured EHR data
- Clean and organize longitudinal BP and medication data
- Define treatment intensification events and therapeutic inertia
- Perform statistical analyses (time-to-event and regression models)
- Conduct exploratory predictive modeling
- Interpret findings in clinical context
- Prepare abstract and/or manuscript draft

Start / end date of project: 1st June 2026 to 15th August 2026

WHAT OTHER EDUCATIONAL OPPORTUNITIES ARE AVAILABLE TO STUDENTS?

(e.g., journal club, seminars, clinic, rounds)

WHERE DO YOU PLAN TO PRESENT OR PUBLISH THE FINDINGS WITH THE STUDENT?

(e.g., national or state meetings, newsletter or journal, SHP poster day)

The student will participate in regular research mentorship meetings focused on study design, statistical methods, and interpretation of findings. Additional educational opportunities include participation in departmental research seminars, journal clubs focused on cardiovascular and outcomes research, and exposure to clinical discussions related to hypertension management and chronic disease care. The student will also receive training in EHR-based research, including cohort construction, longitudinal data analysis, and interpretation of real-world

Findings will be submitted for presentation at institutional research forums (e.g., Rutgers Research Day) and national or regional conferences such as the American Heart Association (AHA) Scientific Sessions or American Society of Hypertension (ASH) meetings. We also plan to prepare a manuscript for submission to a peer-reviewed

CHECK ALL APPROPRIATE BOXES BELOW AND PROVIDE REQUESTED INFORMATION.

This project is: clinical laboratory behavioral survey educational

Other: please specify _____

This project involves the use of human subjects (including chart review, retrospective studies and questionnaires).

Pending Approved IRB Protocol Number _____

IRB approval must be obtained by June 2025

Are you an Employee at RU? ***Yes*** ***No***

Are you a Non-resident Alien? ***Yes*** ***No***

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Signature of Department Chair

Date