FACULTY SPONSOR'S NAME AND DEGREE: *Cynthia Santos MD*
PHONE: (718) 887 – 6530
DEPARTMENT AND INTERNAL MAILING ADDRESS: *Emergency Medicine, NJPIES 140 Bergan Street, Level G, Newark NJ*
E-MAIL: *cs1315@njms.rutgers.edu*

PROJECT TITLE (200 Characters max):

1) Emergency Department Alternatives to Opioids Program, Incorporating Innovative Strategies to Enhance Training and Utilization of Pharmacological and Alternative Pain Management Techniques.

2) Evaluation of a Multi-Entry Point Community Based Model for MOUD initiation and Continuity of Care Using an Opioid Response Team

HYPOTHESIS:
☐ *Implementation of a structured ED-based alternatives-to-opioids program incorporating pharmacologic (e.g., buprenorphine, ketamine, nitrous oxide, nerve blocks) and non-pharmacologic modalities (e.g., music therapy, virtual reality, guided meditation) will reduce opioid prescribing while maintaining or improving patient-reported pain outcomes.*
☐ *A mobile, community-based Opioid Response Team (ORT) utilizing a multi-entry point model (ED, EMS, community outreach, peer navigation) will increase initiation and retention in medication for opioid use disorder (MOUD), improve linkage to care, and reduce overdose-related morbidity.*

PROJECT DESCRIPTION (Include design, methodology, data collection, techniques, data analysis to be employed and evaluation and interpretation methodology)

Study 1: ED-ALT Program
Design: Prospective observational cohort study with retrospective chart review components.
Setting: Urban academic emergency department at University Hospital, Newark, NJ.
Population: Adult patients presenting with acute pain or opioid use disorder.
Data will be collected through:
- *Electronic medical record (Epic) extraction*
- *REDCap database*
- *Pain score documentation (pre- and post-intervention)*
- *Medication administration records*
- *Opioid prescribing at discharge*
- *Follow-up and referral data*

Interventions include:
- *IV/SL buprenorphine*
- *Sub-dissociative ketamine*
- *Nitrous oxide*
- *Ultrasound-guided nerve blocks*
- *Non-pharmacologic therapies (Virtual Reality, music therapy, guided relaxation)*

Primary Outcomes:
- *Change in pain scores*
- *Opioid prescribing rates*
- *ED length of stay*
- *MOUD initiation*

Data Analysis:
- *Descriptive statistics*
- *Logistic regression modeling*
- *Odds ratios with 95% confidence intervals*

- *Multivariable adjustment for demographic and clinical covariates*
- *Subgroup analysis (e.g., patients with OUD vs non-OUD)*

Study 2: Opioid Response Team (ORT)
Design: Mixed-methods program evaluation study.
Setting: Community-based mobile integrated health model serving Newark and Essex County.
Model Components:
- *Advanced Practice Nurse (APN) providing home-based or telehealth MOUD initiation*
- *Peer Navigators*
- *Community paramedicine*
- *Harm reduction distribution*
- *Linkage to primary care, behavioral health, and social services*

Data Collection:
- *MOUD initiation rates*
- *Retention at 30-, 90-, and 180-days*
- *Overdose reversal encounters*
- *Urine drug screening surveillance data (including fentanyl analogs and xylazine contamination trends)*
- *Social determinants of health screening data*
- *Referral completion rates*

Analysis Plan:
- *Descriptive statistics*
- *Odds ratios with 95% confidence intervals*
- *Multivariable adjustment for demographic and clinical covariates*
- *Community-level surveillance trend analysis*
- *Qualitative thematic analysis of patient engagement barriers*

Evaluation & Interpretation: Program effectiveness will be measured by improvements in MOUD engagement, reduction in overdose risk, and enhanced healthcare linkage among high-risk populations including individuals experiencing homelessness.

SPONSOR'S MOST RECENT PUBLICATIONS RELEVANT TO THIS RESEARCH:

Tran T, Imperato N, Dym A, Rosania A, Nelson L, Ramdin C, **Santos C**. The promising use of an emergency department observation unit to manage patients with opioid use disorder. Am J Emerg Med. 2025 Feb 6;92:152-155. doi: 10.1016/j.ajem.2025.02.007. PMID: 40112682

Spadaro, A., Nath, J., Mok, T., Chen, C., Nelson, L., & **Santos, C**. (2025). Parenteral Buprenorphine for Opioid Withdrawal: A Case Series. Journal of Studies on Alcohol and Drugs, 86(3), 410–415. https://doi.org/10.15288/jsad.24-00099. PMID: 39330952

Santos C, Ramdin C, Becceril J, Al Kik B, Jefri M, Nelson L. The impact of an emergency department peer navigator (EDPN) program in improving clinical outcomes and healthcare utilization in an urban setting. Am J Emerg Med. 2023 Jun;68:10-16. doi: 10.1016/j.ajem.2023.02.031. Epub 2023 Mar 2. PMID: 36905880.

Ramdin C, **Santos C**, Nelson L, Alcohol Use in Patients with Opioid Use Disorder Linked to and Undergoing Buprenorphine Treatment via a Peer-Navigator Program Based in an Urban Emergency Department, *Alcohol and Alcoholism*, Volume 58, Issue 1, January 2023, Pages 113–114, https://doi.org/10.1093/alcalc/agac061

<div align="center">

Summer Student Research Program
Project Description

</div>

THIS PROJECT IS: ☒Clinical ☐Laboratory ☐ Behavioral ☐ Other

THIS PROJECT IS CANCER-RELATED ☐
Please explain Cancer relevance

THIS PROJECT IS HEART, LUNG & BLOOD- RELATED ☐
Please explain Heart, Lung, Blood relevance

THIS PROJECT INVOLVE RADIOISOTOPES? ☐

THIS PROJECT INVOLVES THE USE OF ANIMALS ☐
　　　　PENDING ☐　　　　**APPROVED** ☐　　　　**IACUC PROTOCOL #**

THIS PROJECT INVOLVES THE USE OF HUMAN SUBJECTS? ☐
　　　　PENDING ☐ **APPROVED** ☒　　　　**IRB PROTOCOL # M**

THIS PROJECT IS SUITABLE FOR:
UNDERGRADUATE STUDENTS ☐ ENTERING FRESHMAN 　　　　　 ☐
SOPHMORES 　　　　　 ☐ 　 ALL STUDENTS 　　　　　 ☒

THIS PROJECT IS WORK-STUDY: 　　　 **Yes** ☐ 　 **or** 　 **No** ☒

THIS PROJECT WILL BE POSTED DURING ACADEMIC YEAR
 FOR INTERESTED VOLUNTEERS: 　　　 **Yes** ☒ 　 **or** 　 **No** ☐

WHAT WILL THE STUDENT LEARN FROM THIS EXPERIENCE?
Students will gain:
- *Exposure to emergency department–based addiction and pain management research*
- *Experience in REDCap database management and EMR data extraction*
- *Training in clinical research methodology and IRB processes*
- *Biostatistical analysis skills (logistic regression, survival analysis)*
- *Understanding of MOUD implementation science*
- *Experience working with peer navigators and community health models*
- *Opportunities to participate in manuscript preparation and abstract submission*
- *Insight into health equity and harm reduction strategies in urban populations*

Students will be mentored directly by Dr. Cynthia Santos and will participate in weekly research meetings, data review sessions, and structured academic mentorship.