AWARD NUMBER: W81XWH-21-1-0833

TITLE: Does Prophylactic Local Tobramycin Injection Lower Open Fracture Infectio

PRINCIPAL INVESTIGATOR: Arun Aneja, MD, PhD

CONTRACTING ORGANIZATION: University of Kentucky Research Foundation

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Fort Detrick, Maryland 21702-5012

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4. TITLE AND SUBTITLE

Does Prophylactic Local Tobramycin Injection Lower Open Fracture Infection Rates?

5a. CONTRACT NUMBER

5b. GRANT NUMBER
W81XWH-21-1-0833

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

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5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

University of Kentucky Research Foundation
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8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Army Medical Research and Development Command
Fort Detrick, Maryland 21702-5012

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Approved for Public Release; Distribution Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

Background: This study addresses the Clinical Trial Award (CTA) focus area of Translation of early research findings under the category of fracture related infection (FRI). Open extremity fractures (OEFs) sustained from traumatic injuries are higher risk for FRI and nonunion due to damage of the soft tissues, impaired bone vascularity and healing, and diminished host defenses against bacteria.

Hypothesis/Objective: This study tests the hypothesis that administering a local dose of tobramycin injection in combination with systemic perioperative intravenous (IV) antibiotic prophylaxis will reduce the rate of FRI one year after OEF fixation surgery. This study will also determine bacterial speciation and antibiotic sensitivity among study patients who develop FRI, as well as nonunion status among all participants.

Specific Aims:
Aim 1: Determine if a local dose of tobramycin (2 mg/mL) injection in combination with systemic perioperative IV antibiotic prophylaxis will reduce the rate of FRI one year after OEF fixation surgery.
Aim 2: Determine if local tobramycin injection has a negative effect on OEF union.
Aim 3: Compare bacterial speciation and antibiotic sensitivity among study patients who develop FRI between the control and treatment groups.

Study Design: This is a randomized clinical trial that will enroll 600 participants (300 in the control cohort, and 300 in the treatment cohort) over a three-year period at two Level I trauma centers, with the final year dedicated to data interpretation. The primary outcome will be presence or absence of FRI, while secondary outcomes will be nonunion status, bacterial speciation and antibiotic sensitivity in patients that develop FRI. The patients will be followed for one year to determine outcomes of interest.

15. SUBJECT TERMS

Open Extremity Fracture; Fracture Related Infection; Superficial Site Infection; Tobramycin; Antibiotic; Aminoglycoside; Injection; Nonunion; Bacterial Speciation; Prophylaxis

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
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Unclassified	Unclassified	Unclassified	Unclassified	15	**19b. TELEPHONE NUMBER** *(include area code)*

TABLE OF CONTENTS

1. **INTRODUCTION:** *Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.*

This study is a randomized clinical trial that tests the hypothesis that administering local tobramycin injection in combination with systemic perioperative intravenous (IV) antibiotic prophylaxis will reduce the rate of FRI one year after OEF fixation surgery. This study will also determine bacterial speciation and antibiotic sensitivity among study patients who develop FRI, as well as nonunion status among all participants.

Specific Aims:
Aim 1: Determine if a local dose of tobramycin (2 mg/mL) injection in combination with systemic perioperative IV antibiotic prophylaxis will reduce the rate of FRI one year after OEF fixation surgery.
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2. **KEYWORDS:** *Provide a brief list of keywords (limit to 20 words).*

Open Extremity Fracture; Fracture Related Infection; Superficial Site Infection; Tobramycin; Antibiotic; Aminoglycoside; Injection; Nonunion; Bacterial Speciation; Prophylaxis

3. **ACCOMPLISHMENTS:** *The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction.*

What were the major goals of the project?
List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

The Major Tasks of the project include:
Major Task 1: Acquire protocol approvals
- Milestone Achieved: Local IRB approval at UK and VUMC (11/8/2021; Continuing Review approved 3/17/2022)

Major Task 2: Prepare for data collection
- Milestone Achieved: Manual of Operations created (11/24/2021)
- Milestone Achieved: Research staff trained (11/23/2021)

Major Task 3: Participant recruitment and evaluation
- Milestone Achieved: 1st participant consented, screened, and enrolled (1/11/2022)
- Milestone to be Achieved: Last participant screened, consented, and enrolled
- Milestone to be Achieved: Last participant, last study visit

Major Task 4: Data analysis and dissemination of results
To date, we have enrolled 192/600 patients (32% enrollment completed) and completed 70% of specific objectives.

What was accomplished under these goals?

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met. Description shall include pertinent data and graphs in sufficient detail to explain any significant results achieved. A succinct description of the methodology used shall be provided. As the project progresses to completion, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

1. Accomplishments:

What were the major goals of the project?
Major Task 1: Acquire protocol approvals (Completed 100% of specific objectives)
Major Task 2: Prepare for data collection (Completed 100% of specific objectives)
Major Task 3: Participant recruitment, evaluation (32% enrollment completed; 192/600 patient enrolled to date, 70% of specific objectives completed.)
What was accomplished under these goals?
Major Task 1: Acquire protocol approvals
Regulatory Approvals
- Local IRB approval at the University of Kentucky (11/08/2021, IRB# 65241)
- HRPO approval (11/12/2021, HRPO Log numbers E02454.1a)
- Trial posted on clinicaltrials.gov (10/8/2021, NCT04964947)

Coordinate with sites for material transfer agreements or clinical trial agreements submission
- Original Timeline (Months 1-3)
- Status: Completed (11/15/2021)

Refine eligibility criteria, exclusion criteria, screening protocol
- Original Timeline (Months 1-3)
- Status: Completed (11/16/2021)

Finalize consent form & human subjects protocol
- Original Timeline (Months 1-3)
- Status: Completed (11/17/2021)

Coordinate with Sites for UK IRB review
- Original Timeline (Months 1-3)
- Status: Completed (11/05/2021)

Submit amendments, adverse events and protocol deviations as needed
- Original Timeline (As Needed)
- Status: Completed (11/16/2021)

Major Task 2: Prepare for data collection
Develop REDCap database to record subject information test data management, and quality control prior to enrolling patients
- Original Timeline (Months 1-3)
- Status: Completed (11/23/2021)

Finalize procedures for IDS drug preparation, concealment, and block randomization
- Original Timeline (Months 1-2)
- Status: Completed (11/29/2021)

Finalize procedures for surgeon injection training
- Original Timeline (Months 1-2)
- Status: Completed (11/17/2021)

Finalize surgeon training for data collection (infection, nonunion endpoint)
- Original Timeline (Months 1-3)
- Status: Completed (11/17/2021)

Finalize research team training (research coordinator and personnel) on study procedure and end point collection (bacterial speciation and antibiotic resistance)
- Original Timeline (Months 1-3)
- Status: Completed (11/23/2021)

Modify existing Manual of Operations with data collection methods and intervention specifics
- Original Timeline (Months 2-3)
- Status: Completed (11/24/2021)

Major Task 2: Prepare for data collection, continued
Milestone Achieved: Manual of Operations created
- Original Timeline (Month 3)
- Status: Completed (11/24/2021)

Site Initiation Visit with research and clinical staff (Monitor: Eben Carroll, MD)
- Original Timeline (Month 3)
- Status: Completed (11/29/2021)

Milestone Achieved: Research staff trained
- Original Timeline (Month 3)
- Status: Completed (11/23/2021)
  - Research coordinator (Matthew Kavolus, 11/22/2022)
  - Physician Sub-Investigators (Drs. Matuszewski, Moghadamian, Primm, Srinath training completed 11/17/2021)
- In the Statement of Work, we stated that the Site Initiation Visit would be completed by the study Monitor Dr. Eben Carroll. Due to the recent COVID-19 restrictions in place at our institute this meeting was conducted virtually with Drs. Arun Aneja (PI), Eben Carroll, Arnold Stromberg, Brooke Herdon, Cale Jacobs, Matthew Kavolus and William Obremskey on 11/29/2021.

Major Task 3: Participant recruitment, evaluation
Milestone Achieved: 1st participant consented, screened and enrolled
- Original Timeline (Month 4)
- Status: Completed (01/11/2022)

Continue subject recruitment (target accrual rate: 4 participants/week)
- Original Timeline (Months 4-36)
- Status: Incomplete/Ongoing

Follow patients for one year
- Original Timeline (Months 4-36)
- Status: Incomplete/Ongoing

Meetings with full research team
- Original Timeline (Quarterly)
- Status: Completed (05/16/2022); Attempted meeting with full research team on 9/8 but now rescheduling due to conflicts

Create DSMB report
- Original Timeline (Every 4 Months)
- Status: Incomplete

Clinical site monitoring (Eben Carroll)
- Original Timeline (Every 6 months)
- Status: Completed (3/18/2022)

Data quality audits
- Original Timeline (Every 6 months)
- Status: Completed (03/01/2022, 09/01/2022)

Coordinate with sites for annual IRB report for continuation review
- Original Timeline (Annually)
- Status: Completed (03/17/2022)

What opportunities for training and professional development has the project provided?
If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. "Training" activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. "Professional development" activities result in increased knowledge or skill in one's area of expertise and may include workshops, conferences, seminars, study groups, and individual study. Include participation in conferences, workshops, and seminars not listed under major activities.

The project has allowed opportunities for training and professional development for our research staff at the University of Kentucky. Our three current research coordinators consist of one postdoctoral research fellow and two medical students currently taking gap years to conduct research. All three researchers are aspiring orthopaedic surgeons who are interested in conducting research as part of their future practice. Participating in this study has allowed them to learn how to successfully design and implement a multi-site randomized controlled trial, how to collaborate with multiple stakeholders, and how to effectively budget a Department of Defense sponsored study. Additionally, these researchers also receive one-on-one mentorship from the PI regarding their pursuits in becoming orthopaedic surgeons, clinical and basic science research, work-life balance, and mental/physical wellness. These researchers have also served as mentors to medical students who have assisted us with this study. Our team has implemented a sustainable, team-oriented approach for pursuing our research endeavors, and this project is the embodiment of the hard work our team puts in on a daily basis.

How were the results disseminated to communities of interest?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the results were disseminated to communities of interest. Include any outreach activities that were undertaken to reach members of communities who are not usually aware of these project activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.

Nothing to Report.

What do you plan to do during the next reporting period to accomplish the goals?
If this is the final report, state "Nothing to Report."

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

Enrollment: We will continue to have research staff onsite to screen 7 days per week at the participating hospitals. Screening is conducted through fracture conference each morning, daily communication with consulting providers, and the trauma census during the afternoons.
- Regulatory: We will complete our first DSMB report, which will be submitted shortly after this annual report.
- Continue clinical site monitoring with Karen Bowen/Dr. Eben Carroll
- Continue full team meetings: Virtual conferences with the entire research team at both sites.
- Continued training for Co-Investigator participation as needed.
- Continue to refine screening/recruiting methods to maximize enrollment.
- Continue performing consistent data quality audits.

4. **IMPACT:** D*escribe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:*

What was the impact on the development of the principal discipline(s) of the project?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research in the principal disciplinary field(s) of the project. Summarize using language that an intelligent lay audience can understand (Scientific American style).

Nothing to Report.

What was the impact on other disciplines?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

Nothing to Report.

What has been the impact on technology transfer?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including:
- *transfer of results to entities in government or industry;*
- *instances where the research has led to the initiation of a start-up company; or*
- *adoption of new practices.*

Nothing to Report.

What was the impact on society beyond science and technology?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:

- *improving public knowledge, attitudes, skills, and abilities;*
- *changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or*
- *improving social, economic, civic, or environmental conditions.*

Nothing to Report.

5. **CHANGES/PROBLEMS:** *The PD/PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, "Nothing to Report," if applicable:*

Changes in approach and reasons for change
Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.

We have had one change in approach/study design, which took place prior to the first participant being enrolled. This study was originally designed to have a "Tobramycin + Standard of Care" arm and a "Placebo + Standard of Care" arm. Due to surgeon hesitancy with injecting placebo (normal saline) and feasibility, the decision was made to modify the second arm (control group) to be "Standard of Care." This change was approved by the local IRBs at both UK and VUMC, as well as HRPO prior to it being implemented in the study design.

Actual or anticipated problems or delays and actions or plans to resolve them
Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Our research team at UK has encountered an issue with Pharmacy, Investigational Drug Services, and the OR nursing staff, where the study drug is not being properly documented as administered in patients' electronic medical record (EMR). Our research team is correctly documenting the study drug administration in our REDCap database. We are actively working with Investigational Drug Services, Pharmacy Billing, and the Clinical Research Support Office at UK to resolve this issue, which should be resolved in the next two weeks. Our plan is to move the study drug order in each patient's Medication Administration Record, so that the nurses have an easier time finding where to document the study drug administration within the EMR.

Changes that had a significant impact on expenditures
Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

Nothing to Report.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents
Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.

Significant changes in use or care of human subjects

As previously mentioned, we have changed the control group from "Placebo + Standard of Care" to solely "Standard of Care." There was surgeon hesitancy with injecting placebo (normal saline) into a traumatic wound that may already be at risk of infection, edema, and increased compartment pressures. Due to these reasons, it was decided to do away with the placebo (normal saline) and have the control group be a simple Standard of Care group. This change was approved by both local IRBs at UK and VUMC, as well as HRPO prior to the first participant being enrolled. This change was made to better the care of human subjects and decrease the risks of injecting normal saline into a traumatic wound. Thus far, we have no significant deviations, unexpected outcomes, adverse events, or additional changes to report.

Significant changes in use or care of vertebrate animals

Nothing to Report.

Significant changes in use of biohazards and/or select agents

Nothing to Report.

6. **PRODUCTS:** *List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state "Nothing to Report."*

- **Publications, conference papers, and presentations**
  Report only the major publication(s) resulting from the work under this award.

  Journal publications. *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

  Nothing to Report.

Books or other non-periodical, one-time publications. *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Nothing to Report.

Other publications, conference papers and presentations. *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (*) if presentation produced a manuscript.*

Nothing to Report.

- **Website(s) or other Internet site(s)**
  List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

Nothing to Report.

- **Technologies or techniques**
  Identify technologies or techniques that resulted from the research activities. Describe the technologies or techniques were shared.

Nothing to Report.

- **Inventions, patent applications, and/or licenses**
  Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.

Nothing to Report.

- **Other Products**

  Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment and /or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:

  - *data or databases;*
  - *physical collections;*
  - *audio or video products;*
  - *software;*
  - *models;*
  - *educational aids or curricula;*
  - *instruments or equipment;*
  - *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
  - *clinical interventions;*
  - *new business creation; and*
  - *other.*

Nothing to Report.

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?

Provide the following information for: (1) PDs/PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort). If information is unchanged from a previous submission, provide the name only and indicate "no change".

Example:

Name:	*Mary Smith*
Project Role:	*Graduate Student*
Researcher Identifier (e.g. ORCID ID):	*1234567*
Nearest person month worked:	*5*
Contribution to Project:	*Ms. Smith has performed work in the area of combined error-control and constrained coding.*
Funding Support:	*The Ford Foundation (Complete only if the funding support is provided from other than this award.)*

Name: Arun Aneja, MD PhD
Project Role: PI (University of Kentucky)
Researcher Identifier (e.g. ORCID ID): 0000-0002-1507-6863
Nearest person month worked: 12
Contribution to Project: Dr. Aneja has worked on all aspects of project including regulatory approvals, staff training, data collection procedures, enrollment and screening procedures, and protocol manuscript preparation.

Name: William Obremskey, MD
Project Role: Co-PI (Vanderbilt University Medical Center)
Researcher Identifier (e.g. ORCID ID): 0000-0002-8942-1842
Nearest person month worked: 12
Contribution to Project: Dr. Obremskey has worked on all aspects of project including regulatory approvals, staff training, data collection procedures, enrollment and screening procedures, and protocol manuscript preparation.

Name: Cale Jacobs, PhD
Project Role: Co-I (University of Kentucky)
Researcher Identifier (e.g. ORCID ID): 0000-0002-9300-5550
Nearest person month worked: 12
Contribution to Project: Dr. Jacobs has worked on all aspects of project including regulatory approvals, staff training, data collection procedures, and enrollment and screening procedures. Dr. Jacobs left the University of Kentucky at the end of September 2022, to serve as the Director of Outcomes Research at Mass General Brigham. He will no longer be serving as key personnel for this project.

Name: Brooke Herndon, PhD
Project Role: Co-I (University of Kentucky)
Researcher Identifier (e.g. ORCID ID): 0000-0003-1149-3683
Nearest person month worked: 12
Contribution to Project: Dr. Herndon is the clinical pharmacist for the project and has been involved with finalizing, randomization, drug administration, and enrollment procedures.

Name: Arnold Stromberg, PhD
Project Role: Co-I (University of Kentucky)
Researcher Identifier (e.g. ORCID ID): 0000-0003-0336-9789
Nearest person month worked: 12
Contribution to Project: Dr. Stromberg is the team's biostatistician and has been involved with the study design and implementing the randomization procedures and and assisted with protocol manuscript preparation. He will be involved throughout the project and will be responsible for all analyses performed at the conclusion of the trial.

Name: Eben Carroll, MD
Project Role: Monitor/Consultant (Atrium Health Wake Forest Baptist)
Researcher Identifier (e.g. ORCID ID): 0000-0001-8773-3319
Nearest person month worked: 12
Contribution to Project: Dr. Carroll has overseen all aspects of the project including regulatory approvals, staff training, data collection procedures, and enrollment and screening procedures during the initiation phase of the study.

Name: Matthew Kavolus, MD
Project Role: Research Coordinator
Researcher Identifier (e.g. ORCID ID): 0000-0002-3712-1792
Nearest person month worked: 9
Contribution to Project: Dr. Kavolus was involved in finalizing data collection procedures, enrollment and screening procedures, and preparation of the protocol manuscript for OTA-I. He was directly involved with the day-to-day screening and enrolling process, assuring treatment administration, data collection and entry, patient follow up, troubleshooting, and organizing virtual conferences. Dr. Kavolus left the University of Kentucky at the end of May 2022 to begin his orthopaedic surgery residency in Atlanta, GA. He will no longer be serving as key personnel on this project.

Name: Austin Foster, MD
Project Role: Research Coordinator
Researcher Identifier (e.g. ORCID ID): 0000-0003-3875-5401
Nearest person month worked: 4
Contribution to Project: Dr. Foster has been involved in finalizing data collection procedures, enrollment and screening procedures, and in preparation of the protocol manuscript for future submissions. He is and will be directly involved with the day-to-day screening and enrolling process, assuring treatment administration, data collection and entry, patient follow-up, troubleshooting, and organizing virtual conferences.

Name: Karen Trochez, M.L.A.S.
Project Role: Research Coordinator
Researcher Identifier (e.g. ORCID ID):
Nearest person month worked: 12
Contribution to Project: Karen Trochez has been involved in finalizing data collection procedures, and organizing all aspects at VUMC. She will be involved in enrollment and screening procedures and attends quarterly meetings. She is and will be directly involved with the day-to-day screening and enrolling process, assuring treatment administration, data collection and entry, patient follow up, troubleshooting, and organizing virtual conferences.

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

If the active support has changed for the PD/PI(s) or senior/key personnel, then describe what the change has been. Changes may occur, for example, if a previously active grant has closed and/or if a previously pending grant is now active. Annotate this information so it is clear what has changed from the previous submission. Submission of other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. The awarding agency may require prior written approval if a change in active other support significantly impacts the effort on the project that is the subject of the project report.

Nothing to Report.

What other organizations were involved as partners?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that were involved with the project. Partner organizations may have provided financial or in-kind support, supplied facilities or equipment, collaborated in the research, exchanged personnel, or otherwise contributed.

Provide the following information for each partnership:
Organization Name:
Location of Organization: (if foreign location list country)
Partner's contribution to the project (identify one or more)
- *Financial support;*

- *In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff);*
- *Facilities (e.g., project staff use the partner's facilities for project activities);*
- *Collaboration (e.g., partner's staff work with project staff on the project);*
- *Personnel exchanges (e.g., project staff and/or partner's staff use each other's facilities, work at each other's site); and*
- *Other.*

Vanderbilt University Medical Center (VUMC)
1215 21st Ave South
Nashville, TN 37232
PI: William Obremskey, MD (WO)
Partner's Contribution to Project: Collaboration, Partnering enrollment site

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: *For collaborative awards, independent reports are required from BOTH the Initiating Principal Investigator (PI) and the Collaborating/Partnering PI. A duplicative report is acceptable; however, tasks shall be clearly marked with the responsible PI and research site. A report shall be submitted to for each unique award.*

QUAD CHARTS: *If applicable, the Quad Chart should be updated and submitted with attachments.*

9. APPENDICES: *Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.*