**AD**_____

**AWARD NUMBER:** W81XWH-14-2-0160

**TITLE:** Early Exercise in the Burn Intensive Care Unit Decreases Hospital Stay, Improves Mental Health, and Physical Performance

**PRINCIPAL INVESTIGATOR**: Oscar E. Suman, PhD

**RECIPIENT:** The University of Texas Medical Branch at Galveston

**REPORT DATE:** Oct 2019

**TYPE OF REPORT:** Annual

**PREPARED FOR:** U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

# REPORT DOCUMENTATION PAGE

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| **1. REPORT DATE** *(DD-MM-YYYY)* | **2. REPORT TYPE** | **3. DATES COVERED** *(From - To)* |
|---|---|---|
| Oct 2019 | Annual | 09/15/2018 - 09/14/2019 |

**4. TITLE AND SUBTITLE**

Early Exercise in the Burn Intensive Care Unit Decreases Hospital Stay, Improves Mental Health and Physical Performance

**5a. CONTRACT NUMBER**

**5b. GRANT NUMBER**
W81XWH-14-2-0160

**5c. PROGRAM ELEMENT NUMBER**

**6. AUTHOR(S)**
Oscar E. Suman, PhD

Professor, Department of Surgery
The University of Texas Medical Branch at Galveston
Email: oesuman@utmb.edu

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

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

The University of Texas
Medical Branch
301 University Boulevard
Galveston, Texas 77555-0156

**8. PERFORMING ORGANIZATION REPORT NUMBER**

**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
U.S. Army Medical Research
And Materiel Command
Fort Detrick, MD 21702-5012

**10. SPONSOR/MONITOR'S ACRONYM(S)**

**11. SPONSOR/MONITOR'S REPORT NUMBER(S)**

**12. DISTRIBUTION / AVAILABILITY STATEMENT**

Approved for Public Release; Distribution Unlimited

**13. SUPPLEMENTARY NOTES**

**14. ABSTRACT**
Prolonged inactivity accompanying stays in the burn intensive care unit (BICU) and hospital worsen muscle loss/weakness and lengthen hospitalization. We hypothesize that a personalized, structured, and quantifiable exercise program (MP10) will improve these variables over standard-of-care (SOC), as exercise has well documented effects on maintaining/improving muscle strength, which should shorten hospitalization. Thus, we will characterize: (Aim 1) what is SOC throughout hospital stay across the US and (Aim 2) outcomes in burn in-patients. Over 4 years, we will enroll 96 patients (24 per site; MP10 n=64 and SOC n=32) aged 18-60 years with ≥30% TBSA burns. MP10 will begin ~4-5 days after the first surgery after admit (or when the burn surgeon deems mobilization safe) and continue for the entire BICU and hospital stay. MP10 will take place on weekdays in the morning and afternoon. In the morning, patients will participate in a 10-minute leg-crank ergometry session (Monark leg ergometer), starting with a load (watts) eliciting a 3-5 rating on the Borg Rated Perceived Exertion (RPE) scale. The number of revolutions in 10 minutes and minute-by-minute muscle and respiratory effort RPE will be noted. In the afternoon, patients will participate in a 10-minute arm crank ergometry session, which will be done similarly to lower body exercise. Endpoints are lean body mass, cardiopulmonary and muscle endurance, length of BICU, ventilator and hospital stay, and Quality of Life. Within- and between-group comparisons will be performed. A successful MP10 can be a platform for future rehabilitation programs in burns or trauma.

**15. SUBJECT TERMS**
Exercise, burns, standard of care, MP10, early exercise, lean mass, muscle strength, 6-minute walk

| **16. SECURITY CLASSIFICATION OF:** | | | **17. LIMITATION OF ABSTRACT** | **18. NUMBER OF PAGES** | **19a. NAME OF RESPONSIBLE PERSON** |
|---|---|---|---|---|---|
| **a. REPORT** | **b. ABSTRACT** | **c. THIS PAGE** | | | USAMRMC |
| Unclassified | Unclassified | Unclassified | Unclassified | 30 | **19b. TELEPHONE NUMBER** *(include area code)* |

**STANDARD FORM (SF) 298:** A sample SF 298 is provided at https://mrmc.amedd.army.mil/rrpindex.asp. The abstract shall be provided in Block 14 and shall state the purpose, scope, and major findings and be an up-to-date report of the progress in terms of results and significance. Abstracts will be submitted to the Defense Technical Information Center (DTIC) and shall not contain proprietary information. Subject terms are keywords that may have been previously assigned to the proposal abstract or are keywords that may be significant to the research.

Pages shall be numbered. The number of pages shall include all pages that have printed data (including the front cover, SF 298, table of contents, and all appendices). Page numbers must match the numbering shown on the Table of Contents.

**TABLE OF CONTENTS**

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

The title of this project is "Early Exercise in the Burn Intensive Care Unit Decreases Hospital Stay, Improves Mental Health and Physical Performance". It has four sites: UTMB-Galveston, TX; AISR-San Antonio, TX; UTSW-Dallas, TX; UC-Davis. The prolonged inactivity that occurs in the burn intensive care unit (BICU) and hospital, results in worsening of muscle loss, muscle weakness, and in increased BICU and hospital stay. We need to reduce this time to speed up resuming normal physical activities, returning to work or to professional duties. To this end, we have two aims: **Aim 1**: to characterize, via a survey(s) the Standard of Care of in-patient care (BICUs, on ventilator, step down from BICU) across the U.S. **Aim 2**: to assess the efficacy of a personalized, structured, and quantifiable exercise program (MP10) implemented typically 4 to 5 days after the first surgical operation after admit (or when burn surgeon deems mobilization to be safe), and during the entire BICU, on ventilator and in-hospital stay in burned individuals.

2. **KEYWORDS:** Provide a brief list of keywords (limit to 20 words).

Exercise, burns, standard of care, MP10, early exercise, lean mass, muscle strength, 6 minute walk

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

**What were the major goals and objectives 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.*

This report covers SEP 15, 2018 to SEP 14, 2019.

Aim 1: to characterize, via a survey(s) the Standard of Care of in-patient care (BICUs, on ventilator, step down from BICU) at the 4 sites (UTMB-Galveston, USAISR, UTSW-Dallas, UC Davis)
**Aim One has been completed**.

Publication:
Strength and Cardiorespiratory Exercise Rehabilitation for Severely Burned Patients During Intensive Care Units: A Survey of Practice. Cambiaso-Daniel J, Parry I, Rivas E, Kemp-Offenberg J, Sen S, Rizzo JA, Serghiou MA, Kowalske K, Wolf SE, Herndon DN, Suman OE.
J Burn Care Res. 2018 Oct 23;39(6):897-901.

Aim 2: to assess the efficacy of a personalized, structured, and quantifiable exercise program (MP10) implemented typically 4 to 5 days after the first surgical operation after admit (or when burn surgeons deems mobilization to be safe) and during the entire BICU, on ventilator and in-hospital stay in burn individuals. Aim 2 is ongoing.

**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) Major activities

**For Report Period: 15-SEP-2018 to 14-SEP-2019**

Study Site: UTMB/SHC-GAL (Galveston, TX)
Study Coordinator: Angela Agudelo, PT
As of DEC 03-2019, UTMB/SHC-GAL has IRB approval only to review/enter data from all 4 sites. The original approval for this study and enrollment of patients has stopped. It is now awaiting the decision of independent statistical evaluation. An external consultant (Ankura) reviewed the study/project and offered suggestions of corrections, but did NOT find any major issues that would merit not going forward with the project. A copy of this report was sent to the DOD by UTMB, but also by the PI-Suman

The approval period for this research protocol begins on 30-Aug-2018 and lasts until 10-Aug-2019.
This document was sent to HRPO on October 11, 2018. UTMB's IRB is closed at the moment. New IRB to review data is IRB# 14-0432.045 until December 1, 2019.

**Study Site: UTMB/SHC-GAL PI-Oscar Suman, PhD**
Study Coordinator: Angela Agudelo, PT

The University of Texas-Medical Branch IRB approved continuation of the protocol effective from 30 August 2018 to 10 August 2019. The HRPO received this continuing review report on 7 September 2018.

This study is currently approved closed and has enrolled 64 patients. For Y5Q3, ZERO subjects were enrolled. As of Y5Q3 ending 14 MAR 2019, the total number of subjects enrolled at this site is 64 (60 pediatric and 4 adults). No adverse events have been reported.

See comments under Changes/Problems for UTMB about clinical hold issued. A letter about the clinical hold was sent to the DOD on 13 January 2019.

**Study Site: UC-Davis/SHC-NCA (Sacramento, CA) PI – Soman Sen, MD**
Study Coordinator and Senior Therapist: Ingrid Parry, MS, PT
Study Coordinator: Lynda Painting, BS, CCRP, CCRC
Progress for UC-Davis; as of October 11, 2018 UCD/SHC-NCA has IRB approval. Expiration date is **12/13/2018**

The HRPO received a continuing review report for the subject protocol on **18 January 2018.** The University of California, Davis Institutional Review Board (IRB) approved continuation of the protocol on **December 14, 2017 to December 13, 2018** inclusive.
Progress for UC-Davis is that they have IRB approval and HRPO approval. They have also enrolled **six subjects during this report period (5 completed the study and one is currently enrolled)** and continue to screen and enroll subjects.

UC-Davis, IRB renewal submitted and approved for period **December 14, 2017 to December 13, 2018 (IRB #734894-17)**. The IRB closed the protocol effective June 3, 2019. This action was taken because:
• The protocol is permanently closed to enrollment.
• All subjects have completed all protocol-related interventions.
• Collection of private identifiable information is completed.
• Analysis of private identifiable information is completed.

This study is currently approved to enroll 24 subjects. As of the date of the continuing review report submission, the total number of subjects enrolled at this site is now **14**. UC-Davis has stopped enrollment until the report from UTMB is finalized. he study will only analyze data or continue with enrollment depending on the findings of the statistics expert at UTMB.

Up to **10-11-18: UC-Davis/SHC-NCA have enrolled 14 total** (all years and quarters combined), for **Y4Q4,** No adverse events have been reported.

The HRPO received a continuing review report for the subject protocol on **18 January 2018**. The University of California Davis Institutional Review Board (IRB) approved continuation of the protocol on **14 December 2017; this approval will expire on 13 December 2018.**

UCD received from Englar, Nancy E CIV USARMY MEDCOM USAMRMC (USA) on Tuesday, July 23, 2019 8:48 AM, the following email. "To: 'soman.sen@ucdmc.ucdavis.edu' <soman.sen@ucdmc.ucdavis.edu>

All,

Please note: HRPO closure is RESCINDED while an external site investigation is ongoing. The file for A-18468.b will remain open at HRPO until further notice.

Nancy Englar, MHL, BSN, CIP
Human Subject Protection Scientist
Human Research Protection Office
Office of Research Protections
US Army Medical Research and Development Command
Phone: 301-619-2242 (DSN 343-2242)
Email: nancy.e.englar.civ@mail.mil

Report on enrollment as of OCT 11-2019 N= 14 all pediatric.

**Study Site: UT Southwestern (Dallas, TX) PI – Karen Kowalske, MD**
Study Coordinator: Cindy Dolezal, PT, DPT
The HRPO received a continuing review report for the subject protocol on 14 May 2018. The University of Texas Southwestern Institutional Review Board (IRB) approved continuation of the protocol on 9 May 2018; this approval will expire on 15 May 2019.

<u>The UTSW site had IRB approval until May 15, 2019. Presently study is closed to enrollment, but will reopen only to analyze data if needed.</u>

The UTSW site has enrolled two subjects in Y4Q1 period and another 2 subjects in the Y4Q2 period. To summarize all of UTSW enrollment up to this date in Y4:

Subjects 1 and 2 were withdrawn 4/4/2016 when UTSW was notified regarding needing approval from HRPO. Subject 3 withdrew 2/28/2017 and subject 5 withdrew 5/30/2017, both not wanting to continue participation after 5 and 3.5 months, respectively. Subject 4 is the only one that was enrolled and completed ICU stay (1/17/2017 and completed 2/6/2017). Subject 6 withdrew on 2/6/2018 when asked to do the 6mWT due to pain from SOC therapies. Subjects 7, 8, and 9 completed the study on 4/6/2018, 5/24/2018, and 5/17/2018, respectively.

Screening was suspended after 9 April 2018 due to an agreement between Drs Kowalske and Suman where it was noted extremely low enrollment during previous 3+ years. No more participants were enrolled after 12 April 2018. The last study procedure was done on 24 May, 2018. There were 171 patients screened from 1 March 2016 to 9 April 2018. Nine subjects were enrolled, but 2 did not have HRPO approval. Of the 7 subjects enrolled during the HRPO approved period, only 4 subjects completed the study and 3 subjects withdrew their consent. No adverse events have been reported. NONE enrolled in Y5Q3 and none during this annual report.

**Study Site: USAISR PI-Julie Rizzo, MD**
Study Coordinator: Melody Vargas

All activities are being devoted to enroll patients. NCE will be sought, depending on UTMB's results.

To date, ISR has enrolled 5 patients (3 MP10, 2 SOC). They stated that they will continue to participate and try to enroll.

**Approved HRPO assigned protocol numbers**

**Study Site**: UTMB/SHC-GAL HRPO Log Number **A-18468.a**
**Study Site**: UC-Davis (Sacramento, CA) HRPO Log Number **A-18468.b**
**Study Site**: UT Southwestern Med Ctr HRPO Log Number **A-18468.c**
**Study Site**: Parkland Health and Hospital HRPO Log Number **A-18468.d**
**Study Site**: USAISR (San Antonio, TX) HRPO Log Number **Not Available**

**Total accrual ALL SITES**
**N = 87; peds = 74 ; adults = 13**

**Total accrual as of date for each site**
**Study Site**: UTMB/SHC-GAL HRPO Log Number **A-18468.a**
N=60 total number of patients enrolled
The CRADA with UTMB was extended through 9/14/19.

**Study Site**: UC-Davis (Sacramento, CA) HRPO Log Number **A-18468.b**
N= 14 total number of patients enrolled (2 in Y4Q2 period). MP10 =8 and SOC = 5 (1 withdrawn)
Completed UC-Davis: MP10= 10 SOC=4
The CRADA with UC Davis was extended through 09/14/2019.

**Study Site**: UT Southwestern Med Ctr (Dallas, TX) HRPO Log Number **A-18468.c**
N= 3 patients enrolled and completed for Y4 (all Qs).
**Study Site**: Parkland Health and Hospital System HRPO Log Number **A-18468.d**
N=No patients enrolled Please note that UTSW and Parkland will count as one for purposes of accruals.
*****note: UTSW will not participate in the NCE request, and no CRADA will be completed.**

**Study Site:** USAISR (San Antonio, TX) HRPO Log Number **Not Available**
N = 1 patient enrolled, 4 in this annual report. Total n = 5.
The CRADA with USAISR was extended through 5/18/19.

**What opportunities for training and professional development has the project provided?**

*"Nothing to Report."*

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

*"Nothing to Report."*

4. **IMPACT:** Describe 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?**

*"Nothing to Report."*

*"Nothing to Report."*

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

*"Nothing to Report."*

5. **CHANGES/PROBLEMS:** The Project Director/Principal Investigator (PD/PI) is reminded that the recipient organization is required to obtain prior written approval from the awarding agency Grants Officer 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.*

There no changes yet on the objectives and scope. HOWEVER, we are in a state of uncertainty. The study is closed to enrollment at the present. We are waiting for an unknown to the PI independent statistician to review some of the data collected and for a suggestion (or mandate?) to continue to enroll or to stop enrolling and perform final analyses for publication/dissemination. At the moment it is unknown when this will be.

**Actual or anticipated problems or delays and actions or plans to resolve them**
*UTSW had problems in all 4 years recruiting and enrolling patients. Despite efforts from Dr. Kowalske, enrollment did not improve. NCE will NOT be requested for UTSW or Parkland.*

For UTMB, as of July 9, 2019, we remain in the status of temporary suspension. We reported this suspension to the DOD on January 13, 2019. UTMB IRB and Shriners Headquarters in Tampa, FL implemented suspensions of all burn research activities as of 28 November 2018 for pediatric patients at Shriners and as of 4 December 2018 for pediatric and adult patients admitted to UTMB. This was due to concerns raised in an unrelated to this DOD funded study being conducted at Shriners. There is an active IRB investigation during this suspension and we do not know when the investigation will conclude, when the suspension will end, or the potential later impact to this DOD study.

The suspension most likely affected in this quarter numerous patients. However, because we remain unable to access electronic charts and can't seem to obtain information when requested, we are limited in offering details. In this Y5Q3 and (Y5Q4 = annual), the number of patients admitted to Shriners and/UTMB that were age 7 and up and burns greater than 30% is not known, as we have no access to these records for research purposes.

We believe that we will be able to use data already collected since initiation of this project. This is due to an external audit conducted on this study which found NO MAJOR problems with the study, and gave us "green light" to move forward.

The IRB at UTMB for this study is closed. We will reopen with a new IRB when UTMB notifies us of lifting the suspension of this study. To date we have not heard anything. Similarly, UCD/SHC-Northern California also closed the IRB for this study. The intent is to reopen an IRB at UCD only (no Shriners). This is in the works.

**On July 17, 2019**, there was a conference call to try to understand status of project.
The summary of 17-Jul-2019 teleconference (with some post teleconference remarks added for clarity) is as follows:
1. Participants included UTMB business official Toni D'Agostino and PI Dr. Oscar Suman, and MRDC personnel including USAMRAA Grants Officer Elena Howell, Program Manager at CDMRP Dr. Akua Roach, Science Officer at CDMRP Dr. Eva Lai, and HRPO Reviewer Stephanie Mizell.

2. UTMB to continue audit of study research records. Ankura Consulting is scheduled to be at UTMB the last week of July and Toni D'Agostino will provide an update in early August regarding when the audit of this award (UTMB IRB protocol 14-0432) will be completed to USAMRAA Grants Officer, and copy CDMRP staff and HRPO staff.

3. UTMB/PI to submit protocol closure to existing UTMB IRB protocol 14-0432 to HRPO. Completed; received 17-Jul-2019. The protocol will remain open at HRPO. UTMB/PI must report audit findings, including reportable events, to the IRB and to HRPO promptly for review; upon audit findings submission, HRPO will complete review and issue closure acknowledgement memo when no further actions are required.

4. UTMB to submit a 2nd NCE request for the purpose of keeping the award active to complete outstanding actions and potentially to restart the study. Include in submission to the USAMRAA Grants Officer for review and approval: 1) attachment of letter from the Provost lifting the suspension and noting items that need to be completed prior to restarting the project, similar to the Branski award for NCE, 2) attachment of Ankura Consulting's audit of Dr. Suman's study, 3) corrections taken to address any deficiencies reported in the audit, 4) balance of funds remaining on award, and 5) attachment of a revised SOW.

5. UTMB/PI to submit a new protocol for access and analysis of previously collected data under IRB 14-0432. This new task shall be listed as one of the actions to be completed in the above NCE request, and added in the revised SOW for review and approval by the USAMRAA Grants Officer. In the revised SOW this new task shall be noted as contingent upon the audit findings supporting the study continuation (i.e. to include, but not

limited to, indication that prior data collected at UTMB/Shriners are usable, valid, and compliant for data analysis).

6. UTMB/PI to submit a new protocol to enroll adults only with 10% TBSA burns minimum to UTMB IRB, then to HRPO for review and approval. Requirements similar to point 5 above, and also in the NCE request letter: 1) provide justifications for the change (30% to 10% burns), 2) why additional enrollment is needed, and 3) evidence to support the enrollment goal as outlined in the revised SOW and schedule can be completed including the data analysis. Only upon award modification released, if approved then UTMB/PI may submit protocol to UTMB IRB, followed by submission to HRPO for review and approval.

The revised SOW needs to have 1) an updated enrollment table and date for when new enrollments at UTMB be completed/closed and when enrollments at ISR will be completed/closed, 2) methods by which the data shall be transmitted from the other participating sites (UCD, UTSW/Parkland, and ISR) to UTMB for analysis and when the transmission will occur, and 3) anticipated date for when data analysis will begin and be completed for final report.

7. For site UC Davis (A-18468.b), protocol site closure was submitted and the HRPO acknowledged site closure on 10-Jul-2019. HRPO acknowledgement of UC Davis site closure will be retracted since UTMB serves as both the coordinating and data center; thus, HRPO will not issue closure acknowledgement memo until after the UTMB audit findings are submitted for review and determined that no further actions are required.

8. For site UTSW (A-18468.c) / Parkland (A-18468.d), the PI stated that enrollment had been suspended by agreement with UTSW/Parkland prior to UTMB institution suspension, but protocol remains active for data analysis to be conducted. UTMB/PI shall communicate to UTSW/Parkland sites that it has closed the study at UTMB, and its plan for this study. Also, the continuing review (CR) is past due and must be submitted to HRPO; the CR report should include update on enrollment suspension with date and reasons for the suspension and the lead site closure.

9. The site ISR is allowed to continue with its enrollment (M-10579, A-18468.e). Correction, since UTMB serves as both the coordinating and data center, so when UTMB closed the study protocol any active sites supporting the UTMB study will also need to stop enrollment. Thus, UTMB/PI shall communicate to ISR that it has closed the study at UTMB and inform the ISR to suspend its enrollment and notify the IRB and HRPO if subjects are currently enrolled or in follow-up. The study protocol at ISR site may remain open, but under suspension, and submit continuing review upon due. Pending the findings of the audit, the study protocol at the other sites (e.g. ISR and UTSW) will need to be closed later.

10. Question for UTMB – If the audit findings indicate that the prior data are usable, it is unclear if the data collected at Shriners site will be accessible for analysis later since the Shriners site is separate from UTMB.

11. Guidance for the Final Technical Report. The final technical report shall explain why the studies were closed prior to study completion, e.g. high level summary about the UTMB burn research suspension, and to report how the study was impacted by the suspension, including changes made as a result of the suspension and audit findings, etc

**On October 4, 2019,** the PI-Dr. Suman, received the following email from Dr. Lai.

"…..We recommended that the PI and a biostatistician review the current data if possible to re-assess if the 96 target number still holds or actually based on current data, the threshold for statistical significance may be lower or higher. So have that done if possible.

Also sketch out a revised SOW with updated timeline that includes the following: 1) if you propose to continue enrollment but in adults only, 2) also include timeline for obtaining IRB approval and HRPO approval, 3) any other additional preparatory tasks that need to be executed, i.e. UTMB mandates from the GCP audit recommendations, 4) number of additional subjects needed (based on the biostatistician data reviewed) and to be recruited/enrolled over how many months, and 5) data analysis.

Also need separate from the revised SOW, if you want to propose changing the inclusion criteria from 20% to 10% TBSA burns, provide justification and rationale for the reduction and how this change may impact the study's objectives and results. Also include in this same letter, how the proposed revised SOW is executable, meaning specifically realism of recruiting/enrolling the subjects proposed (i.e. helpful if provided number of current admitted burn patients likely meeting inclusion criteria would be helpful)……"

We will wait for the decision (may be a suggestion) from the statistics experts, and then contact Dr. Lai for permit to proceed with next steps.

If the next step is to proceed with final analyses and dissemination, we will work with all 4 sites to do this. If the next step is to enroll more adults, then we will proceed with 3 sites (UCD, UTMB, USAISR), and will complete a revised SOW with updated timeline that will include the following:
1) continue enrollment but in adults only, 2) timeline for obtaining IRB approval and HRPO approval, 3) complete other additional preparatory tasks that need to be executed, (i.e. UTMB mandates from the GCP audit recommendations), 4) the projection of the number of additional subjects needed (based on the biostatistician data reviewed) and to be recruited/enrolled over how many months, and 5) plan for data analyses.

We will also propose changing the inclusion criteria from 20% to 10% TBSA burns, and will provide justification and rationale for the reduction and how this change may impact the study's objectives and results. We will also discuss how the proposed revised SOW is executable, meaning specifically realism of recruiting/enrolling the subjects proposed (i.e. helpful if provided number of current admitted burn patients likely meeting inclusion criteria).

For the UTMB initiated and mandated suspension, at the present, we do not know the exact impact. This is due to continued inability to access records from Shriners admissions due to suspension of human research and ALL computer files being confiscated by Shriners. As for UTMB, we also do not have the ability to access such records as ALL burn related research has been suspended. We cannot state impact of suspension in this quarter nor have the number of potential participants in this project. At Shriners, we could not find anyone to help due to vagueness of what can be done or not done due to suspension.

All sites have been in contact by phone or email with Dr. Suman on the following: 1. Status of IRB 2. Status of being able to enroll 3. Status on being able to keep the project active for data analysis later.

Dr. Suman will provide a report/plan to Dr. Lai on each site and the status of the site specific project for each site with the intent of being able to join all sites data for public health dissemination and manuscript submission, once the statistical report is completed and known to Dr. Suman.

On November 25, 2019, de-identified data from all 4 sites was entered into an Excel spreadsheet. This data was then emailed to UTMB's compliance office, IRB office and OSP office on Monday, November 25, 2019 1:27 PM. It was sent

This completes the section "Actual or anticipated problems or delays and actions or plans to resolve them"

**Changes that had a significant impact on expenditures**
Lack of enrollment at UTSW/Parkland and at USAISR has prevented appropriate expenditure of funds. Funds from UTSW/Parkland will be applied to UTMB and UC-Davis. The suspension from 12/6/18-July 2019 necessitated reversal of expenses that had previously posted to the project.

**Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents**
NONE

**Significant changes in use or care of human subjects**
NONE

**Significant changes in use or care of vertebrate animals.**

*Not applicable.*

**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.**

  *NONE*

  **Books or other non-periodical, one-time publications.**
  ***None***

  **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*

  Submitted to the 2019 American Burn Association 51st International Conference in Las Vegas, and obtained acceptance of two abstracts pertaining to this study (AIM 2). The titles were:

  1. *Safety of an Aerobic Exercise Program in the Burn Intensive Care Unit.
  2. *Effects of Rehabilitation in Severely Burned Children in the Burn Intensive Care Unit

Both were withdrawn per order of compliance office and Provost. Both abstracts were based only on single center data, not the other 3 sites, and involved only pediatric patients.

**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. In addition to a description of the technologies or techniques, describe how they will be 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. State whether an application is provisional or non-provisional and indicate the application number. 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**

| |
|---|
| *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."*

***Personnel effort was charged to the project only through 12/6/2018.***

*For UTMB:*
*Name:* *Oscar Suman*
*Project Role:* *Project Director*
*Researcher Identifier (e.g. ORCID ID): not applicable*
*Nearest person month worked:* *0.24 cal months (2%)*
*Contribution to Project:* *Dr. Suman continues to perform work in the area of maintaining regulatory compliance, monitoring exercise testing, and preparation of SOC survey.*

*Name:* *Jong O. Lee*
*Project Role:* *Co-investigator*
*Researcher Identifier (e.g. ORCID ID): not applicable*
*Nearest person month worked:* *0.12 cal months (1%)*
*Contribution to Project:* *Dr. Lee is a burn surgeon and have been key in providing excellent guidance to Dr. Suman in the deciding when it is medically/surgically safe to start MP10 exercise sessions, as well as the PT/OT sessions (SOC).*

*Name:* *Michael Serghiou*
*Project Role:* *Consultant*
*Researcher Identifier (e.g. ORCID ID): not applicable*
*Nearest person month worked:* *not applicable*
*Contribution to Project:* *Mr. Serghiou has provided guidance to Dr. Suman in the preparation of the Survey of SOC.*

*Name:* *Ronald Mlcak*
*Project Role:* *Consultant*
*Researcher Identifier (e.g. ORCID ID): not applicable*
*Nearest person month worked:* *not applicable*
*Contribution to Project:* *Dr. Mlcak has provided guidance to Dr. Suman in the preparation of the protocol to the IRB on exercise in the ICU.*

*Name:* *Angela Agudelo*
*Project Role:* *Exercise Trainer*
*Researcher Identifier (e.g. ORCID ID): not applicable*
*Nearest person month worked:* *1.32 cal months (11%)*
*Contribution to Project:* *Angela Agudelo has provided the exercise training sessions and visiting sessions to all patients in the MP10 project, as well as assisted in assessments.*

### Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

*This project was suspended retroactively to 12/6/18 by the institution and effort has been pro-rated to reflect this in the above section.*

*Dr. Suman: the following projects were retroactively suspended or ended early:*

*R01 HD049471 (Suman) – 5/2/18 suspension date*
*W81XWH-09-2-0194 (Suman/Wolf) – 5/2/18 suspension date*
*R01 GM056687 (Herndon) - 5/2/18 suspension date*
*R01 GM112936 (Finnerty) – 5/2/18 suspension date*
*W81XWH-15-1-0143 (Branski) – 12/6/18 suspension date*
*P50 GM060338 (Herndon) – 5/2/18 suspension date*
*SHC 70900 (Finnerty) – 10/24/18 end date*

*Dr. Lee: the following projects were retroactively suspended:*
*CON27440 Mediwound (Lee) – closed September 2019*
*W81XWH-14-2-0162 (Finnerty) – 12/6/18 end date*
*R01 GM112936 (Finnerty) – 5/2/18 suspension date*
*W81XWH-15-1-0143 (Branski) – 12/6/18 end daet*
*P50 GM060338 (Herndon) – 5/2/18 suspension date*
*SHC 70900 (Finnerty) - 10/24/18 end date*
*SHC 85101 (Suzuki) – 12/31/18 end date*

*Effort ended on this project effective 11/30/18: UL1 TR001439 (Urban)*

***Dr. Lee is not currently working on this project.***

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

Organization: University of California – Davis
Location: 1850 Research Park Dr. Ste. 300, Davis, CA 95618-6153
Contribution to the Project: Collaboration

Organization: The University of Texas Southwestern Medical Center at Dallas
Location: 5323 Harry Hines Blvd., Dallas, TX 75390-9105
Contribution to the Project: Collaboration

Organization: US Army Institute of Surgical Research
Location: 3698 Chambers Pass, Ft. Sam Houston, TX 78234-6315
Contribution to the Project: Collaboration

## 8. SPECIAL REPORTING REQUIREMENTS

**COLLABORATIVE AWARDS:** For collaborative awards, independent reports are required from BOTH the Initiating 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 **https://ers.amedd.army.mil** for each unique award.

**QUAD CHARTS:** If applicable, the Quad Chart (available on https://www.usamraa.army.mil) 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.

**Other Support**

**Suman, Oscar E**

**Current**
Non

**Inactive**

W81XWH-14-2-0160 (Suman) 09/15/14-09/14/19 1.56 cal mths
Dept of Defense $223,001 **(NCE pending)**
"Early Exercise in the Burn Intensive Care Unit Decreases Hospital Stay, Improves Mental Health and Physical Performance"

Goal: To obtain a successful, quantifiable exercise program (MP10) which can be a platform for future rehabilitation programs in burns or trauma.

Aims: 1) To characterize what is Standard of Care throughout hospital stay across the US. 2) To characterize outcomes in burn inpatients.

Role: Principal Investigator
Contact: Doug Medcalf, 301-619-2394, douglas.a.medcalf.civ@mail.mil

2R01 HD049471 (Suman) 02/01/15-01/31/20 2.28 cal mths
National Institutes of Health $64,560
"Oxandrolone and Exercise: A Potent Therapy in the Rehabilitation from Burns"

Goal: To identify evidence-based therapeutic interventions that are clinically effective in the rehabilitation and recovery of severely burned children.

Aims: 1) To determine the physiological therapeutic efficacy of exercise training/rehabilitation plus oxandrolone relative to exercise alone; 2) To determine the biochemical consequences of combined exercise training/rehabilitation and oxandrolone relative to those of exercise alone.

Role: Principal Investigator
Contact: Robert F. Tamburro, 6710B Rockledge Dr, Bethesda, MD 20817, 301-480-2619, robert.tamburro@nih.gov

Overlap: None