CONTRACT NUMBER: W81XWH-16-D-0024

TITLE: Type O Whole blood and assessment of AGE during prehospital Resuscitation (TOWAR) Trial

PRINCIPAL INVESTIGATOR: Jason Sperry

CONTRACTING ORGANIZATION: University of Pittsburgh
Pittsburgh, Pennsylvania 15213

REPORT DATE: OCT 2022

TYPE OF REPORT: Annual

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

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
OCT 2022	Annual Report	16SEP2021 to 15SEP2022

4. TITLE AND SUBTITLE

Type O Whole blood and assessment of AGE during prehospital Resuscitation (TOWAR) Trial

5a. CONTRACT NUMBER

5b. GRANT NUMBER
W81XWH-16-D-0024

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Jason L. Sperry, Meghan Buck, Hunter Skroczky, Laurie Silfies, Natalie Rogers

E-Mail: sperryjl@upmc.edu; buckml@upmc.edu; skroczkyh@upmc.edu; silfiesl@edc.pitt.edu; rogersnb@upmc.edu

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

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

University of Pittsburgh
Pittsburgh, Pennsylvania 15213

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

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

TOWAR is a proposed 6-year (4-year enrollment) multicenter, open label, pre-hospital, randomized trial utilizing 10 level-1 trauma centers designed to determine the efficacy and safety of low titer whole blood resuscitation as compared to standard of care resuscitation in patients at risk of hemorrhagic shock and to appropriately characterize the hemostatic competency of whole blood relative to its age.

Specific aims are to determine whether prehospital low titer whole blood as compared to standard prehospital resuscitation results in lower 30-day mortality and results in lower early mortality, blood and blood component transfusion requirements, incidence of coagulopathy, improved hemostasis and platelet function and to determine whether prehospital whole blood (age > 14 days) as compared to young whole blood (age ≤ 14 days) is associated with equivalent clinical outcomes, hemostasis, prevention of coagulopathy, and platelet function in patients at risk of hemorrhagic shock.

15. SUBJECT TERMS
Trauma; Prehospital; Low-Titer Whole Blood; Whole Blood Age

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USAMRDC
U	U	U	UU	15	19b. TELEPHONE NUMBER *(include area code)*

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

TABLE OF CONTENTS

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

TOWAR is a proposed 6-year (4-year enrollment) multicenter, open label, pre-hospital, randomized trial designed to determine the efficacy and safety of low titer whole blood resuscitation as compared to standard of care resuscitation in patients at risk of hemorrhagic shock and to appropriately characterize the hemostatic competency of whole blood relative to its age. The principle secondary outcome will be the age of whole blood and its association with all primary and additional secondary outcomes including 3-hour mortality, 6-hour mortality, in hospital mortality, death from hemorrhage, death from brain injury, blood and blood component transfusion requirements in the initial 24 hours, incidence of Multiple Organ Failure (MOF), incidence of nosocomial infection, incidence of acute respiratory distress syndrome (ARDS), time to hemostasis, incidence of coagulopathy by TEG, incidence of allergic/transfusion reaction and measurements of platelet and overall patient hemostatic function. Trial will utilize prehospital agencies at ten LITES Network sites and will enroll a total of 1,020 subjects.

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

Trauma; Prehospital; Low-Titer Whole Blood; Whole Blood Age

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 purpose of Task Order 0007 is to perform an open-label, multicenter prehospital randomized trial among trauma patients at risk of hemorrhagic shock requiring up to two units of whole blood initiated in prehospital phase of care, comparing prehospital low titer whole blood to standard prehospital resuscitation.

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.

- CCC/DCC held monthly site coordinator calls.
- The University of Pittsburgh IRB Representative continued working through the reliance process. 8 of 9 sites have executed agreements – pending Louisville site
- Notification of SECARMY approval of the waiver was received on 01-DEC-2021.
- Successful In Progress Review (IPR) meeting held on 17-DEC-2021!
- As of 25-MAY-2022, all sites have fully executed sub-contracts with the University of Pittsburgh.
- Study MOP was finalized and posted to the LITES Network website on 15-JUN-2022.
- USAMRDC, CDMRP, and ORP HRPO conducted a successful site visit of the TOWAR study at the University of Pittsburgh on 21-22-JUN-2022. Site Assessment Visit (SAV) – routine monitoring visit report received 28-JUL-2022.
  - No regulatory deficiencies or concerns
  - Commended us on monitoring, CC/PD toolkit, PMs w/ comprehensive knowledge to execute TOs, thorough process for reviewing AEs, external sites SOP review for onboarding, implementation of Florence.
- Sites are actively working through their Community Consultation & Public Disclosure activities/efforts.
  - Qualtrics Campaigns have been completed for all sites consultation efforts.
  - As of, 27-SEP-2022, all sites have DoD approval of their Press Release.
- Study materials (hangtags, posters) were created for participating sites and associated EMS. These will be distributed prior to study start.
- EMS training slide deck & quiz was created through the University of Pittsburgh's HSConnect portal and site-specific links are available.
- In the event of Whole Blood shortages, an SOP was developed to describe the procedure to follow if bases randomized to whole blood cannot be stocked with 2 units each.
  - Each base can be stocked with one unit of whole blood until two units are available.
  - If all participating bases cannot be stocked with at least one unit each, available units should be allocated to the bases with the highest enrollment numbers.
- Instructions were created to describe the invoicing process for Rh Immune Globulin for women of childbearing potential who receive study WB.
- University of Pittsburgh's Education and Compliance Support office
  - Pre-launch review (RISE) was held on 04-OCT-2021.
  - Multi-Center Application and returned it on 27-JAN-2022.
  - Project Manager responded to comments on 17-FEB-22 and the revised monitoring plan was accepted on 28-FEB-2022

DCC & eDCF (electronic Data Collection Forms)

- DCC finalized mapping variables for eDCF development in 2022 Q1.
- DCC generated forms within the MATRIX eDCF system and testing was completed in APR/MAY-2022.
- The QR code survey for enrollment notification was developed in Pitts REDCap.
- Randomization scheme was developed by the statistician on 31-MAR-2022.
- Finalized the Q by Qs for the MATRIX database & the file was uploaded to the Document Library on the LITES website
- DCC continued regular database maintenance and responded to help tickets.

sIRB & OHRO (formally HRPO)

- Annual sIRB renewal approval was obtained on 07-DEC-2021.
- OHRO continuing review documents for E02452 Series were submitted on 28-JAN-2022 – acknowledgement received on 25-FEB-2022.
- Protocol Modifications
  - Version 5: minor edits for clarity and correcting typos
  - Version 6: minor edits for clarity, trial sites updated, SOPs
  - Version 7: minor edits for clarity
  - Version 8: modified to allow sites to transfuse either O+ or O- whole blood for the study

EMS & FWA:

- All FWA numbers have been confirmed!
- Local IRB documentation if an IAA is not required has been collected from the required seven sites (Houston, Mississippi, MetroHealth, Cincinnati, Knoxville, Vanderbilt, and Seattle).
- Two sites require executed IAAs. As of AUG-2022, all agreements have been executed!

IDSMB:

- Board members were finalized, and the initial meeting was held on 24-JAN-2022 – final letter was received on 03-MAR-2022.
  - The Board vote for the study to begin as is and approved the IDSMB Charter.
- Modification to address DSMB comments regarding process for inadvertently enrolled minors was sIRB approved and sent to Board on 13-APR-2022. Board acknowledgement received on 26-MAY-2022 & no further action is required.
- Next meeting is scheduled for 31-OCT-2022.

FDA/IND

- Annual report was submitted to the University of Pittsburgh's IND & IDE Support (IIS) office on 19-NOV-2021.
  - In response to the IND Annual report, the FDA requested the Investigator Brochure for WB & participating sites 1572 forms.
  - Response was submitted to the University of Pittsburgh's IND & IDE Support (IIS) office on 16-DEC-2021.
- FDA/IND Protocol Amendment was submitted on 15-APR-2022 (protocol version 6, consents, IRB approval and documents in support of New Investigator). Notification of acceptance was received on 05-MAY-2022.

Participating Site Progress: onboarding on-going

Progress:	Pittsburgh	Houston	Mississippi	MetroHealth	Cincinnati	Knoxville	Louisville	Vanderbilt	Alabama	Seattle
CC/PD Initiated	27-APR-2021	20-JUL-2022	27-AUG-2021	27-AUG-2021	21-OCT-2021	21-OCT-2021	27-AUG-2021	21-OCT-2021	27-JUL-2022	07-MAR-2022
Results to sIRB	09-JUL-2021	02-AUG-2022	TBD	27-JUN-2022	31-AUG-2022	TBD	TBD	03-AUG-2022	TBD	27-JUN-2022
sIRB Approval	22-JUL-2021	12-AUG-2022	TBD	13-JUL-2022	15-SEP-2022	TBD	TBD	12-AUG-2022	TBD	13-JUL-2022
MATRIX Training	12-APR-2022	N/A	TBD	03-AUG-2022	05-OCT-2022	TBD	TBD	N/A	TBD	27-JUL-2022
Site Initiation Visit	06-APR-2022	TBD	TBD	24-AUG-2022	Pending	TBD	TBD	16-SEP-2022	TBD	08-AUG-2022
OHRO Submission	25-FEB-2021	Pending	Pending	Pending	30-SEP-2022	Pending	Pending	30-SEP-2022	Pending	11-JUL-2022
OHRO Approval	17-DEC-2021	TBD	TBD	TBD	Pending	TBD	TBD	Pending	TBD	02-SEP-2022
Study Activation	15-APR-2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	08-SEP-2022
Enrollment Began	19-APR-2022	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	12-SEP-2022

Enrollment (as of 30-SEP-2022)	Total: 39 (goal = 1,020)	IMV-01	IMV-02
University of Pittsburgh	35	28-APR-2022	16-SEP-2022
University of Tennessee Health Science Center at Knoxville	*Not open to enrollment*	N/A	N/A
University of Texas Health Science Center at Houston	*Not open to enrollment*	N/A	N/A
University of Louisville	*Not open to enrollment*	N/A	N/A
Vanderbilt University	*Not open to enrollment*	N/A	N/A
University of Mississippi Medical Center	*Not open to enrollment*	N/A	N/A
University of Cincinnati	*Not open to enrollment*	N/A	N/A
MetroHealth Research Institute	*Not open to enrollment*	N/A	N/A
University of Alabama at Birmingham	*Not open to enrollment*	N/A	N/A
University of Washington - Seattle	4	08-NOV-2022	TBD

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.

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."

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.

- Prepare In-Progress Review (IPR) presentation for 14-NOV-2022.
- Sites to continue working on their consultation and disclosure activities/efforts.
- Submit site-specific community consult and public disclosure results for full sIRB approval.
- Submit Sites & EMS agency for initial OHRO approval.
- Conduct MATRIX training & SIVs as sites approach study start.

Travel Reporting: no travel conducted in the past quarter.

- University of Washington's first Interim Monitoring Visit (IMV) is anticipated to be scheduled in the upcoming quarter.
- Plans have not yet been solidified but we expect a minimum of 3 LITES personnel to attend/conduct the IMV in-person.

Cumulative to Billing Period: 30-SEP-2022	**Travel Funds Budgeted**	**Cumulative Actual Spent**	**Remaining Balance**
Upcoming Travel for Quarter:	**Traveler Name**	**Destination/**	**Estimated Date**

OCT-2022 to DEC-2022		Purpose	of Travel
	Elizabeth Gimbel	Seattle, WA IMV-01	NOV-2022
	Hunter Skroczky	Seattle, WA IMV-01	NOV-2022
	Meghan Buck	Seattle, WA IMV-01	NOV-2022

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?
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 was 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.

Nothing to report.

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.

Community consultation typically relies on a variety of in-person consultation activities. CCC is working diligently with sIRB and reaching out to community organizations to determine opportunities for conducting meaningful community consultation amidst pandemic restrictions. ▪ sIRB suggestions for limited in-person activities during COVID: - Virtual meetings are as effective as in-person activities - Aim to join existing meetings (PTA, City Council, etc.) ▪ CCC suggests starting with social media efforts and advertisements (i.e., press release, newspaper ads, etc.)
TN-Knoxville participating site: ▪ Initiation of community consultation and public disclosure efforts at this site are delayed due to a pending sub-contract with the main UT Health Science Center in Memphis. Activities/efforts cannot start until it's been fully executed.

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

Nothing to report.

Significant changes in use or care of vertebrate animals

Not applicable to TO 0007

Significant changes in use of biohazards and/or select agents

Not applicable to TO 0007

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.)*

Personnel Listing: see page 15

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.*

Nothing to report.

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 **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.

Quad Chart: see page 15

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.

Annual and final reports are submitted to: https://ers.amedd.army.mil/

AND
One Copy: Contract Specialist, Ronnie Sanford
Email: ronald.s.sanford2.civ@health.mil

One e-Copy: Science Officer Sandy Snyder
Email: sandy.j.snyder.civ@health.mil

Personnel Listing (as of 30-SEP-2022)

W81XWH-16-D-0024 / W81XWH-20-F-0383			
Department	**Personnel Name**	**UPitt Role**	**T0 % Effort**
Surgery	Brown, Joshua B	Co-PI	5%
Surgery	Gimbel, Elizabeth	Assistant Project Manager	5%
Emergency Medicine	Guyette, Francis X III	Co-PI	12%
Surgery	Hayes, Hannah E	Clinical Researcher II	10%
Surgery	Neal, Matthew D	Co-PI	4%
Epidemiology (GSPH)	Panthalukaran, Tina B	Data Management Assistant	100%
Epidemiology (GSPH)	Silfies, Laurie N	Systems Engineer IV	13%
Surgery	Skroczky, Hunter L	Health Professional III	50%
Surgery	Sperry, Jason L	Co-Investigator	23%
Epidemiology (GSPH)	Wisniewski, Stephen R	Co-PI	2%
Pathology	Yazer, Mark Harris	Co-Investigator	5%

YEAR 2 QUAD CHART

Linking Investigations in Trauma and Emergency Services – TO7

17052001-TO7/W81XWH-16-D-0024, W81XWH20F0383

Type O Whole blood and assessment of AGE during prehospital Resuscitation (TOWAR) Trial - LITES Task Order 0007

PI: Jason Sperry MD MPH **Org:** University of Pittsburgh **Award Amount: $13,097,305**

STUDY AIMS

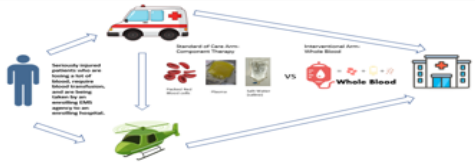
Determine the efficacy and safety of low titer whole blood resuscitation as compared to standard of care resuscitation in patients at risk of hemorrhagic shock and to appropriately characterize the hemostatic competency of whole blood relative to its age:

I. Whether prehospital low titer whole blood as compared to standard prehospital resuscitation results in lower 30-day mortality in patients at risk of hemorrhagic shock.

II. Whether old prehospital whole blood (age > 14 days) as compared to young whole blood (age ≤ 14 days) is associated with equivalent clinical outcomes, hemostasis, prevention of coagulopathy, and platelet function in patients at risk of hemorrhagic shock.

III. Whether prehospital low titer whole blood as compared to standard prehospital resuscitation results in lower early mortality, blood and blood component transfusion requirements, incidence of coagulopathy, improved hemostasis and platelet function in patients at risk of hemorrhagic shock.

Multi-center, open label, prehospital randomized trial



ACCOMPLISHMENTS

- ✓ Enrollment N (as of SEP-2022) = 39
- ✓ Pitt performance site opened to enrollment & also enrolled their first pt. on 19-APR-2022.
- ✓ UW performance site received OHRO approval on 02-SEP-2022 and opened to enrollment on 12-SEP-2022.
- ✓ Sites are continuing to work through CC/PD activities/efforts.
- ✓ USAMRDC, CDMRP, and ORP HRPO conducted a successful site visit of the TOWAR study in JUN-2022.

Timeline and Cost

Activities CY	SEP-20	21	22	23	24	25	26
Startup, Hiring, IRB approval, Contracts, Single IRB organization, Database creation, site selection							
6-year (4-year enrollment), 1020 patients							
1/3 enrollment; interim analysis							
2/3 enrollment; interim analysis							
Data analysis and publication							
Estimated Budget	91K	91K	2.6 M	2.6 M	2.6 M	2.6 M	2.6 M

Updated: (University of Pittsburgh 14-OCT-2022)

Goals/Milestones

CY20 Goal – Study Development & Staffing
- ✓ Base Hiring & Budget negotiation

CY21 Goal – Study Startup & Site Selection Community consultation and public disclosure
- ✓ FDA IND approval
- ✓ Site selection
- ✓ Single IRB approval
- ✓ SecArmy EFIC waiver approval

CY22 Goal – Begin patient enrollment (N=1020)
- ✓ Data base creation and CRF completion, data dictionary
- ✓ OHRO approval – on-going | granted for study, Pitt, & UW
- ✓ Site Initiation Visits & eDCF taining– on-going
- ✓ Begin Patient enrollment – Pitt & UW performance sites only

CY23 Goal – Patient enrollment
- ❑ Reach accrual goal for 1/3 interim analysis
- ❑ Enrollment
- ❑ Reach accrual goal for 2/3 interim analysis

CY24 Goal – Patient Enrollment
- ❑ Finish enrollment
- ❑ Data analysis and publication

Budget Expenditure compared to Actual thru 30-SEP-2022
- Actual Expenditures: $906,447.85
- Scheduled Expenditures: $4,365,768.45