



**Federal Aviation
Administration**

COE CST Second Annual Technical Meeting:

Development of a Minor Injury Severity Scale (MISS) for Orbital Human Spaceflight

Richard T. Jennings, MD



November 1, 2012



Overview

- Team Members
- Purpose of Task
- Research Methodology
- Results or Schedule & Milestones
- Next Steps
- Contact Information

Team Members

- Jonathon Clark, MD Baylor College of Medicine, Center for Space Medicine
- James Vanderploeg, MD, UTMB
- James G. Cushman, MD, UTMB (resident)
- James Gerlach, AST-400 FAA POC
- TBD Additional Partners



Purpose of Task

This proposal responds to an FAA AST request to investigate and develop a Minor Injury Severity Scale (MISS) for Orbital Human Space Flight. Injury severity scoring reduces complex and variable patient data to a single number. This value is intended to accurately represent the injured person's degree of critical illness. The project will conduct the background research and literature review and then develop the MISS for Orbital Space Flight that identifies unacceptable injuries in the course of non-nominal operations.



“ Wow! That must have been some landing.”



COE CST Second Annual Technical Meeting (ATM2)
October 30 – November 1, 2012





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Research Methodology

- Review the medical literature and evaluate existing injury scoring systems that may be useful. Papers to be reviewed include those from the field of space medicine, surgical/trauma care in space, and medical emergencies in spaceflight and analog environments.

Research Methodology

- Identify the rules and assumptions that drive development of the MISS. Ground rules might include the principles:
 - Do no physical harm during nominal/normal operations.
 - Risk may be accepted during non-nominal activities.
 - No permanent injury should be sustained in the performance of the non-nominal activity.
 - Hazards should be mitigated to the extent necessary to prevent permanent injury.
 - No non-nominal operation shall have a life-threatening hazard without a mitigation strategy.

Research Methodology

- The final stage of this research project focuses on defining and developing the Minor Injury Severity Scale and suggesting potential mitigation strategies to optimize the safety of crew members and SFPs.

Results and Deliverables

- Initial findings presented at FAA COE ATM
- A final report that will be submitted to the FAA COE CST and AST
- Findings will be submitted for presentation at the annual scientific meeting of the Aerospace Medical Association to be held in May 2014.
- The final report or additional papers may be submitted for publication in *Aviation, Space, and Environmental Medicine*

Summary

- This project is just underway
- Total FAA funding in FY13 is limited to 7K

Budget

| Budget | | | | | |
|---|---------------------|--------|-----------|------------|----------|
| Category | | | | | |
| | | | FAA Funds | Cost Share | Total |
| | Role | Effort | | | |
| | PI | 5% | \$7,197 | \$7,197 | \$14,394 |
| | Resident Researcher | 5% | \$3,430 | \$0 | \$3,430 |
| | Admin. Support | 1% | \$0 | \$657 | \$657 |
| | Admin. Support | 1% | \$0 | \$438 | \$438 |
| Personnel Total | | | \$10,627 | \$8,292 | \$18,919 |
| Other Expenses: | | | | | |
| J. Clark, MD: Co-Investigator. Baylor College of Medicine – Center for Space Medicine (fee-for-service) | | | \$14,191 | \$0 | \$14,191 |
| Waived Indirect Costs | | | \$0 | \$17,548 | \$17,548 |
| Other Expenses Total | | | \$14,191 | \$17,548 | \$31,739 |
| OVERALL TOTAL | | | \$24,818 | \$25,839 | \$50,658 |

TASK # 294. Minor Injury Severity Scale

MAJOR MILESTONES - PAST

- Funding Start June 30, 2012

MAJOR MILESTONES - FUTURE

- Review Literature
- Prepare MISS Document
- Present Data Aerospace Medical Assn

SCHEDULE

- December 31, 2012 Review Literature
- June 30, 2012 Finalize MISS Document
- October 31, 2013 Abstract Submission AsMA
- May 2014, Presentation AsMA

BUDGET

- FY13 - FY14 - FY15 - FY16 - FY17
- 07K - \$00K - \$00K - \$0 - \$0

Contact Information

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