



**Federal Aviation
Administration**

COE CST Second Annual Technical Meeting: 295: Effects of EMI and Ionizing Radiation on Implantable Medical Devices

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November 1, 2012



Overview

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



Team Members

- PI: Jim Vanderploeg, MD (UTMB Aerospace Med.)
- Co-I: Tarah Castleberry, DO (UTMB Aerospace Med)
- Co-I: Richard Jennings, MD (UTMB Aerospace Med)
- Student: David Reyes, MD (UTMB Aerosp. Med.)
- Melchor Antuñano, MD (FAA CAMI)

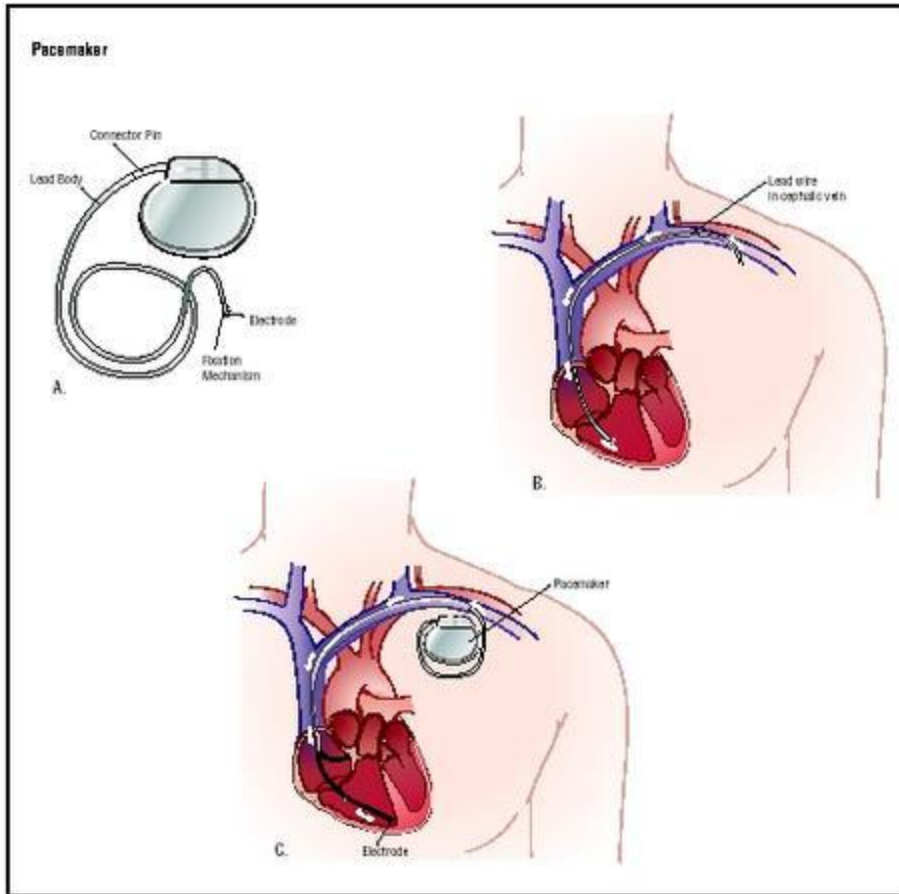
Purpose of Task

- Investigate known effects of electromagnetic interference (EMI) and ionizing radiation environments on the performance of implantable medical devices
- Extrapolate potential impacts on function of implanted medical devices in SFPs flying in spacecraft at suborbital and LEO altitudes

Objectives/Goals

- Characterize EMI and ionizing radiation environment that may impact implanted medical device performance
- Identify known effects of EMI and ionizing radiation on implanted medical devices
- Describe potential adverse impacts on performance of implanted devices
- Suggest mitigating strategies to adverse impacts

Implantable Devices



Research Methodology

- Problem
 - As the commercial market for flying SFPs escalates there very likely will be individuals who wish to fly who have implanted medical devices such as pacemakers, medication pumps, or nerve stimulators.
- Approach
 - Review what is known
 - Extrapolate to space environment
 - Identify mitigation strategies

Results or Schedule/Milestones

- This task is just getting underway with Dr. David Reyes as the student leading the effort

Quad Chart – Task 295

MAJOR MILESTONES – PAST

- Task is just getting underway

MAJOR MILESTONES - FUTURE

- Review literature and manufactures' information
- Evaluate potential of space flight environment on function
- Extrapolate adverse impacts on device performance
- Suggest mitigation strategies

SCHEDULE

- November – December 2012: Literature review
- January – February 2013: Space environment impacts
- March – April 2013: Identify mitigation strategies
- May 2013: Final report

BUDGET

- FY13 - FY14
- \$35K - \$0

Contact Information

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