

Electronic Procedures for Medical Operations

Improving comprehension and delivery of medical care

Electronic procedures are replacing text-based documents for recording the steps in performing medical operations aboard the International Space Station. S&K Aerospace, LLC, has developed a content-based electronic system—based on the Extensible Markup Language (XML) standard—that separates text from formatting standards and tags items contained in procedures so they can be recognized by other electronic systems. For example, to change a standard format, electronic procedures are changed in a single batch process, and the entire body of procedures will have the new format. Procedures can be quickly searched to determine which are affected by software and hardware changes. Similarly, procedures are easily shared with other electronic systems. The system also enables real-time data capture and automatic bookmarking of current procedure steps.

In Phase II of the project, S&K Aerospace developed a Procedure Representation Language (PRL) and tools to support the creation and maintenance of electronic procedures for medical operations. The goal is to develop these tools in such a way that new advances can be inserted easily, leading to an eventual medical decision support system.

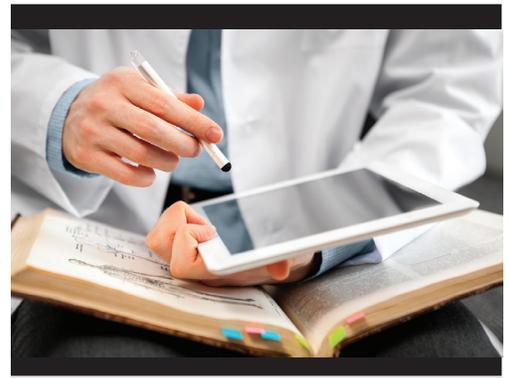
Applications

NASA

- ▶ International Space Station
- ▶ Space exploration vehicles

Commercial

- ▶ Hospitals
- ▶ Emergency medical technicians
- ▶ Firefighters
- ▶ Park rangers
- ▶ Pilots



Phase II Objectives

- ▶ Review medical operations workflow and existing medical procedures
- ▶ Review and update the PRL definition for the next-generation XML for medical procedures
- ▶ Design and prototype a medical equipment database
- ▶ Develop requirements for the procedure display
- ▶ Develop and use a test plan for evaluating the system editor
- ▶ Conduct an evaluation of the prototype
- ▶ Conduct market research for commercial applications

Benefits

- ▶ Improves the comprehension and delivery of medical procedures to flight medical officers and crew
- ▶ Enables a greater degree of coordination with flight surgeons and biomedical engineers on the ground
- ▶ Facilitates easier construction and maintenance of medical procedures

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