

SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Safety of Vehicules and Ground Segment for Aerospace Missions (1)

Author: Dr. Melchor Antunano
U.S. Federal Aviation Administration (FAA), United States

APPLICATION OF A MEDICAL SAFETY MANAGEMENT SYSTEM APPROACH FOR
COMMERCIAL HUMAN SPACEFLIGHT OPERATIONS

Abstract

This presentation will describe a practical approach to apply a modern Safety Management System (SMS) approach to manage the medical risks associated with human participation in commercial spaceflight. Space travel exposes individuals to an operational environment that is more hazardous than what is currently experienced onboard today's commercial airline transports. Despite significant aerospace technological achievements and ongoing efforts to promote the development of commercial human spaceflight operations, the emerging commercial spaceflight industry must address a number of actual and potential medical risk factors in order to promote the health and safety of crews and passengers. An emphasis on medical safety will also help decrease potential liability in case of an in-flight incident or accident. System Safety originated in the aerospace industry in the 1960s as an organized approach to control risks and/or losses. Due to its success, this approach was adopted by other industries. System Safety in the aerospace industry evolved into what is known today as a Safety Management System (SMS). SMS is becoming a standard throughout the aerospace industry worldwide. The principles of an effective SMS are Safety Policy, Safety Risk Management, Safety Assurance and Safety Promotion. SMS emphasizes safety management as a fundamental business process to be considered in the same manner as other aspects of business management. SMS requires the organization itself to examine its own daily operations and the decisions around those operations. SMS allows an organization to adapt to changing conditions (economical, technological, regulatory, etc.). SMS promotes the continuous improvement of safety through specific methods to predict hazards based on collected data. Organizations use this data to analyze, assess, and control risks. A successful SMS includes: 1) A structure of systems to identify, describe, communicate, control, eliminate and track risks to promote safety, and 2) A formal, top-down business-like approach to manage risks that includes systematic procedures, practices, and policies for the management of safety. SMS represents a shift from a reactive to a proactive safety approach. SMS is based on continual analysis of operations to identify risks and implement necessary actions to prevent an incident or an accident. SMS includes requirements that enhance the safety attitudes of an organization by changing the safety culture of leadership, management, and employees. The timely and effective application of a SMS to manage the medical risks associated with spaceflight would significantly impact the successful initiation and continued viability of the emerging commercial human spaceflight industry.