OVERVIEW:

In the past year the Space Station Freedom prototype was advanced through a major restructuring effort and passed significant design milestones. The efforts to baseline medical functions have been successful, resulting in cohesive, well-integrated components of the medical care system. This panel presents the results of recent efforts to solidify health care planning and provisions for the Space Station Freedom. Included are reports from clinical studies performed on Space Shuttle, KC-135 zero-gravity, and ground-based laboratories.

DELIVERY OF CARDIOPULMONARY RESUSCITATION IN THE MICROGRAVITY ENVIRONMENT. M. R. Barratt* and R. D. Billica*.

ADVANCED CARDIAC LIFE SUPPORT (ACLS) UTILIZING MAN-TENDED CAPABILITY (MTC) HARDWARE ONBOARD SPACE STATION FREEDOM.

A PROTOTYPE CREW MEDICAL RESTRAINT SYSTEM (CMRS) FOR SPACE STATION FREEDOM. S. L. Johnston*, E.T. Eichstadt, and R.D. Billica*.


INTRODUCTION.

Surgical techniques in microgravity are being developed for the Health Maintenance Facility (HMF) on Space Station Freedom (SSF). The procedures and prototype hardware, which include a medical restraint system, a surgical overhead isolation canopy, a surgical device, and a regional laminar airflow environment, were evaluated. This was accomplished by realistic surgical simulations involving both mannequins and animals during KC-135 parabolic flight and in a high fidelity ground based HMF mockup.

RESULTS.

Animal surgery in the environment of microgravity allowed the observation of unique arterial and venous bleeding characteristics for the first time. The ability to control bleeding and prevent cabin atmosphere contamination was also demonstrated. CONCLUSIONS. The procedures and prototype hardware tested provided valuable information and should be investigated and developed further. The use of standard surgical techniques are possible in microgravity if the principles of personnel and supply restraint and operational field containment are adhered to.