

# 59 CLINICAL RESEARCH SQUADRON

## **MISSION**

The 59 Clinical Research Squadron mission was to be The DoD's Premier Clinical Research and Training Facility. The squadron was a leader in DoD clinical research, with approximately 600 human and animal research protocols in 2005.

## **LINEAGE**

59 Clinical Research Squadron

## **STATIONS**

Lackland AFB, Texas

## **ASSIGNMENTS**

## **COMMANDERS**

Col Douglas A. Apsey

## **HONORS**

**Service Streamers**

**Campaign Streamers**

**Armed Forces Expeditionary Streamers**

**Decorations**

## **EMBLEM**

## **MOTTO**

## **OPERATIONS**

Personnel from the 59th CRES continued their tradition of excellence by garnering several prestigious awards. SrA Crystal Schollard was a distinguished graduate from Airman Leadership School and received the Academic Achievement Award in December. Mr. Rudy Lewis was recognized as the squadron and group Category I1 civilian of the year. Capt David Watson was the squadron and group CGO of the year.

Three squadron members directly supported the war effort in Iraq by deploying in 2005. Capt David Watson, SrA Crystal Schollard (Snow), and SSgt Amanda Willett each served four months at Balad AB, Iraq.

Support Flight: Dr. Joseph Schmelz was the Flight Chief. In September, the 59th MDW became the first institution in of the DoD to initiate electronic research administration (eRA). The support flight secured external funding to purchase the BRAAN eRA program. Once fully implemented, the program will allow for a completely paperless system for submission and oversight of research at WHMC. It will streamline processes, resulting in faster review approval time and improve the institutions ability to oversee compliance.

The flight was instrumental in negotiating a TriService IRB sharing agreement with six other DoD institutions for the TriService HIV program. Once in place, this will be the largest interservice IRB sharing.

The flight led the merger of human and animal compliance functions. Efficiencies in manpower were realized immediately, all animal use forms were revised, a new review process was created, and all 48 active studies were updated.

The Operations Flight was responsible for all aspects of the animal care and use program (e.g., animal procurement, animal husbandry, animal health care, and performance of training and research procedures using animals) in the 59th CRES within the 59<sup>th</sup> MDW. During 2005, more than 500 residents and 150 staff members were trained in a variety of specialized medical and surgical skills, such as ECMO, ATLS, general surgery, emergency skills, and care and treatment of critically ill patients. Many of the recipients of this training were subsequently deployed to medical facilities where they provided first-level care to casualties from the conflict in Iraq, the war against terrorism in Afghanistan, and other locations around the world. In addition to this training, the flight supported approximately 45 research projects involving the use of animals as subjects. Examples of the research were continuation of the evaluation of the blood substitute HBOC-201; studies to evaluate new treatments for repair of ligaments of the knee; studies to evaluate new products that are expected to promote healing of wounds; evaluation of the efficacy of warming devices proposed for use in caring for patients in shock as they are being transported on cargo aircraft. Flight continued evaluation of methods for treating ventricular fibrillation and/or cardiac arrest, including a variety of drugs and electric shock given at different times; research examining more effective methods of treating patients using ECMO for a variety of severe lung diseases; and studies of the effects of many commonly taken herbal medications on length of recovery from surgical anesthesia and on the actions of Natural Killer (NK) cells.

The laboratory capabilities continued to expand with the acquisition of over \$350,000 in new research equipment used to support protocols in chemistry, toxicology, proteomics, microbiology, hematology, and molecular biology. Dr. Harvey Schwertner was awarded two U.S. patents and published papers in Clinical Therapeutics, Thrombosis Research, Advances in Clinical Chemistry, and Obstetrics and Gynecology. He was also selected as the Team Lackland nominee for the 2005 Air Force Exceptional Innovator of the Year Award.

Donna Hensley worked with the Air Force Clothing Office at Wright-Patterson AFB to evaluate the effectiveness of different bacterial disinfectants on four types of military issue boots. She gave presentations at three scientific meetings on the research findings. She also purchased a new rotary cell culture system which was developed by NASA and is capable of producing a microgravity culture environment.

David McGlasson supported 11 protocols and was the principal investigator on three of the protocols. He had 12 publications and presented 7 oral presentations and teleconferences. He was also named as the 2005 Scientific Researcher of the Year for the American Society of Clinical Laboratory Science. Patti Dixon added VersArray Chip Reading capabilities, new arachidonic metabolite measurement capabilities and new and improved flow cytometry capabilities for the measurement of apoptosis and NK cell modalities to the molecular biology section. The molecular biology section supports between 25 and 30 protocols per year.

Sandra Valtier added a Ianospray source to the ion trap mass spectrometer so it was capable of analyzing and identifying proteins and peptides. A Ciphergen protein chip and time of flight mass spectrometer using enhanced laser desorption/ionization (SELDI) technology were purchased to be used for the analysis of proteins and peptides. The squadron also completed the installation and equipping of the LRN laboratory. This laboratory is part of a national network used to isolate and identify bacterial pathogens.

Nursing Research Program: The Nursing Research Department at the 59th MDW led the DoD in operational nursing research that focused on caring for injured warfighters in field conditions and preparing nurses to deploy. Lt Col DeJong arrived in August 2005 as the Director of Nursing Research. Lt Col Dremsa was Senior Nurse Researcher and directed several studies during the year.

The Nursing Research Department had 15 active TriService Nursing Research Program (TSNRP) funded protocols. In 2005, 30% of TSNRP grants were awarded to WHMC investigators. The department's extramural grant support exceeded \$3.1M.

The AF Operational Test and Evaluation Center requested that the squadron evaluate two STV systems to assess their potential use in a deployed, hospital setting. The study demonstrated that one ventilator performed acceptably, while the other did not. Lt Col Teri Dremsa interviewed 40 CCATT members about providing patient care in a combat environment. Four major themes were identified. In a TSNRP-funded follow-on study, the data will be used to create a deployment readiness self-assessment instrument.

Lt Col Elizabeth Bridges, Lt Col Marla De Jong, Dr. Joseph Schmelz, and Capt Darcy Mortimer used a swine model to conduct a study about resuscitation of casualties. The goals of this TSNRP-funded study were to assess the ability of novel indices (near infrared spectroscopy, skeletal muscle oxygen saturation, pulse pressure variation, and systolic pressure variation) to detect occult hypoperfusion and to predict fluid responsiveness. Data from the 21 animals is being analyzed.

In a multi-center, TSNRP-funded study, Lt Col De Jong, Lt Col Richard Eaves, and Lt Col Dremsa collaborated with nurse scientists from the Navy, Army, and Public Health Service to capture experiential learning regarding nursing care during combat operations, provide narratives of lessons learned during combat practice that could assist in the design and teaching of combat health care, and create a collection of narratives around practice topics that could support scholarly activities.

Forty-three WHMC nurses participated in the study and data analysis was ongoing. Lt Col De Jong and Lt Col Dremsa continued to direct an evidence-based practice protocol designed to reduce ventilator-associated pneumonia. An educational intervention was ongoing to be followed by post intervention data collection and analysis. Col Michaela Shafer and Lt Col De Jong were the WHMC investigators assigned to another on-going multi-center, TSNRP-funded, study designed to explore associations among nursing structural indicators (staffing, skill mix, education, experience), explanatory variables (acuity, patient turnover), nursing outcomes (job satisfaction, needlestick injuries), and patient outcomes (falls, medication errors, pressure ulcer and restraint use prevalence, medication errors, patient satisfaction). Data was collected on several inpatient units.

Lt Col De Jong began a TSNRP funded study to investigate the relationship between anxiety and heart failure patient outcomes and examine the behavioral and physiologic mechanisms for any association between anxiety and increased morbidity and mortality in heart failure. Capt Mortimer conducted a study to identify problems experienced during the ground transport of CCATT patients and related factors associated with problems incurred.

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Sources

Air Force Historical Research Agency, U.S. Air Force, Maxwell AFB, Alabama.