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THE EPIDEMIOLOGICAL ANALYSIS OF THE UNITED STATES AIR FORCE AEROMEDICAL EVACUATIONS (AE) OF ILL AND INJURED SUPPORTING OPERATION DEEP FREEZE IN ANTARCTICA

L'ANALYSE ÉPIDÉMIOLOGIQUE DES ÉVACUATIONS AÉRIENNES DE L'ARMÉE DE L'AIR DES ÉTATS-UNIS (AE) DES MALADES ET DES BLESSÉS OPÉRATION DE SOUTIEN DEEP FREEZE EN ANTARCTIQUE

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Introduction: Operation DEEP FREEZE is one of the military's most difficult peacetime missions due to the harsh Antarctic environment, its austere location and limited resources. Using its C-17 and LC-130 aircraft, the U.S. Air Force (USAF) performs the bulk of aeromedical evacuations of U.S. Antarctic Program (USAP) patients. There are no previous epidemiological studies looking at Antarctic patient evacuations. This study examines epidemiological trends in USAF Antarctic evacuations, with the intent of improving how the USAF equips and trains for its support of the USAP.

Methods: We reviewed all evacuation records, both paper and electronic, from the past 5 operational seasons between 2011 and 2016. These records were pulled from the U.S. Transportation Command's [TRANSCOM] Regulating and Command and Control Evacuation System (TRAC2ES) and Joint Task Force – Support Forces Antarctic Surgeon's (JTF-SFA SG) records.

Results: In the past 5 seasons, there were 89 patients evacuated. The top three diagnosis categories included musculoskeletal trauma (n=26, 29%), GI requiring general surgery (n=19, 21%), and acute cardiopulmonary disorder (n=15, 17%). The three most common individual diagnoses were fracture/dislocation (n=15, 17%), acute abdomen (n=14, 16%), and suspected Acute Coronary Syndrome (n=11, 12%). 12% of evacuations (n=11) required a physician on the transport team. Most of the evacuated patients were younger than 30 (n=23, 26%) or in their 50s (n=22, 25%). The distribution of injuries and illness requiring aeromedical evacuation (AE) was roughly consistent throughout the seasons, whereas the distribution of patient demographics varied more. There were no in-flight medical emergencies, and all the patients reached Christchurch, New Zealand without en-route deterioration.

Discussion: Although there are significant gaps in these data, this study presents a first step in understanding the epidemiology of AE from the Antarctic. Future data will further improve the efficiency of medical support both for the USAP specifically, but also advance other peacetime missions in austere locations.