

EVALUATION OF CARDIOVASCULAR RISK SCORES APPLIED TO NASA'S ASTRONAUT CORPS

I Jain, JM Charvat, M VanBaalén, LR Lee, ML Wear Lifetime Surveillance of Astronaut Health, NASA Johnson Space Center, Houston, TX

PURPOSE: In an effort to improve cardiovascular disease (CVD) risk prediction, this analysis evaluates and compares the applicability of multiple CVD risk scores to the NASA Astronaut Corps which is extremely healthy at selection.

METHODS: Three common CVD risk scores (Framingham General CVD 10-year Risk, Framingham Coronary Heart Disease (CHD) 10-year Risk, and PROCAM 10-year Risk of Acute Coronary Event) were compared to the CVD risk score generated by the electronic medical record (EMR) used in NASA's Flight Medicine Clinic. Risk scores were obtained from annual physical exam data taken on each individual from selection into the Astronaut Corps through death or current status. A CVD outcome was defined as revascularization, myocardial infarction, stroke, or CHD death. Descriptive analyses and logistic regression were conducted.

RESULTS: Mean differences in risk scores were on the magnitude of 2% among the four risk scoring methods; however, the ranges between each score were as high as 50%. Four logistic regression analyses found all risk scoring methods to be a significant predictor of CVD ($p < .001$).

CONCLUSION: A similar ability to predict cardiovascular disease was found among the four risk scores even though there were large discrepancies in each of the four scores. The three external risk scoring methods examined do not appear to be superior to the NASA EMR-generated risk score. Additional CVD risk methods and other novel CVD risk factors are being explored for more precise CVD risk assessment in this healthy population.