1145-AB-2071 **Bryan E Adams*** (bryan.adams@usma.edu), Department of Mathematical Sciences, 646 Swift Road, West Point, NY 10996. *Determining mathematically based thresholds from wearable sensors: Insights from NHANES accelerometer data.*

Wearable sensors frequently generate large datasets. To develop meaningful public health guidelines, these data need to be translated to easily understood thresholds. Receiver operating characteristic (ROC) curve analysis was applied to the National Health and Nutrition Examination Survey (NHANES) 2005-2006 accelerometer-derived step data to determine steps/d and peak 30-min cadence as diagnostic screening values (i.e., thresholds) for metabolic syndrome. Optimal thresholds for peak 30-min cadence and steps/d were derived that, when exceeded, predicted the absence of metabolic syndrome. A decision tree analysis was performed to delineate criteria for at-risk versus healthy populations. The area under the curve (AUC) used to classify the absence of metabolic syndrome was 0.65 for steps/d and 0.67 for peak 30-min cadence. The 95% confidence intervals for both AUCs were above 0.50. The optimal steps/d threshold was 5508 steps/d and the optimal peak 30-min cadence threshold was 70 steps/min. These applied methods demonstrate that data from wearable sensors can be used to create clinically interpretable daily physical activity goals. (Received September 24, 2018)