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CAN COMPUTER GENERATED ECG INTERPRETATIONS BE RELIED UPON WHEN PERFORMING LARGE SCALE ECG SCREENING OF YOUNG ADULT ATHLETES?

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
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Session Title: ECG/Ambulatory Monitoring - Hereditary Syndromes & General Populations
Abstract Category: 30. ECG/Ambulatory Monitoring Signal Averaging
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Background: ECG screening of young adults (YA) for conditions associated with sudden cardiac death (SCD) is vigorously debated. An obstacle to large scale screening is the potential lack of sufficient skilled interpreters to read the number of ECGs screening may generate. Since ECGs are performed as a screening tool and not as part of a clinical evaluation of a symptomatic patient, it has been suggested that the computer generated ECG interpretations (cgECG) could be used instead of a physician interpretation during screenings. We sought to determine the accuracy of the cgECG interpretations during an ECG screening program.

Methods: Since 2006 over 48,000 ECGs have been performed by the YH4L® screeing program. This study is an analysis of 480 ECGs performed on a single day's testing in March, 2010. Tracings were performed on GE Marquette MAC machines and were read by a single physician with experience interpreting over 40,000 screening ECGs in YA. The physician interpretation was used as the "gold standard".

Results: Of 480 ECGs, 413 were correctly interpreted by the ECG machine (86%). Of these 413, 401 were "normal" and 12 were "abnormal".

Of the 480 cgECG interpretations, 67 were incorrect (14%). Of these, 65 were false postive and 2 were false negative.

Conclusions: cgECG interpretations have a true positive rate of only 86% and an unacceptably high false negative rate of 14% and therefore physician over reading is necessary when performing ECG screenings on YA.

cgECG interpretations	Physician interpretation	
	Abnormal	Normal
Abnormal	12	65
Normal	2	401