- **Core 2. Epidemiology and Prevention of CV Disease: Physiology, Pharmacology and Lifestyle**
  - **Session Title: ECG Markers of CVD Risk I**

Abstract 16848: Evolving Standards for Athlete ECG Interpretation Result in Declining Abnormal Rates

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Abstract

Introduction: ECG screening of athletes is believed to be effective in addressing the issue of sudden cardiac death (SCD) in young athletes. One criticism against screening has been the concern for a high percentage of abnormal ECG findings recently reported to be as high as 21.8%. The prevalence of conditions believed to be responsible for SCD is 0.3-0.7%. Since 2007 there have been several modifications of interpretation standards.

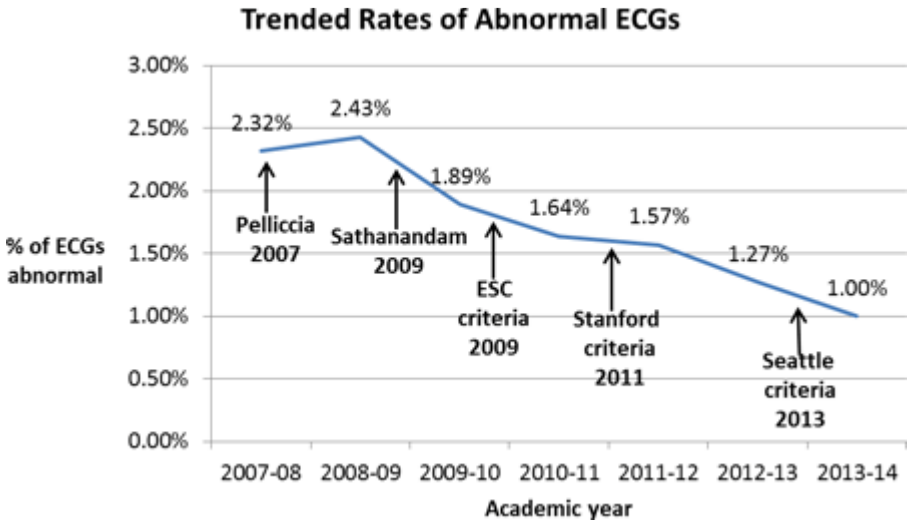
Hypothesis: We hypothesized that these changing standards in addition to increased experience reading screening ECGs would reduce the abnormal ECG rate in our screening program and bring it closer to the expected prevalence of SCD causing conditions.

Methods: The Young Hearts for Life (YH4L) ECG screening program has been performing ECGs on young athletes in the Chicago region since 2006. Interpretation was limited to six cardiologists experienced in the interpretation of adolescent ECGs and possessing knowledge of the ECG changes that occur in conditions associated with SCD. Two of these cardiologists read 90% of the total ECGs during the study. As new standards and research for interpretation were published, they were

incorporated into the YH4L screening protocol. The annual abnormal rate for screening ECGs was compiled from 2006-2014.

Results: A total of 108,057 ECGs were performed from 2006-2014 on young athletes age 14-19. The abnormal ECG rate gradually declined as the new interpretation standards were employed (see graph). The highest abnormal ECG rate of 2.43% was seen in the early period of the screening program (2007) compared to the rate of 1.00% seen during the most recent ECG screening (2014). The abnormal ECG rate was reduced by 59% over the 8 year time period ($p<0.001$).

Conclusions: Greater experience and evolving standards for interpretation of screening ECGs in young athletes have resulted in a 59% reduction in abnormal rates found in the YH4L screening program. This rate is closer to expected prevalence of SCD causing conditions.



Key Words:

Author Disclosures: **J.C. Marek**: None. **K.A. Marek**: None. **J. Davis**: None. **Z. Sinno**: None. **F. Zimmerman**: None.