

 QUALITY OF CARE AND OUTCOMES ASSESSMENT

**FREE SOFTWARE IMPROVES ACCURACY OF PEDIATRIC EKG DECREASING ERROR BY 45%**

ACC Poster Contributions  
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**Background:** EKG changes dynamically during childhood turning its interpretation into a challenging task. A computer-aided systematic approach had been proposed by us (Molina, MS et al. Ann Noninvasive Electrocardiol. 2007;12:237-45) and we aim to validate it in order to release the program as a freeware.

**Methods:** Having only pediatric cardiologists and performing an increased number of EKGs, we randomized 15 specialists in 3 groups to analyze 13 normal and 7 abnormal EKGs. They were oriented to evaluate the 16 standard segments and provide a diagnosis. These groups were defined as Free (FE), Guided (GE) and Computer-aided (CAE), considering that FE and GE could use the Davignon table, but GE was supposed to use a caliper. CAE should use a caliper and enter the data into the software. The answers were compared to control provided by 2 independent and concordant specialists after planimetry. Anova was performed with Stata.

**Results:** As in the pilot study error was reduced ( 45%,  $p < 0.0001$ ) with the use of the software when compared to either FE or GE, but there was no difference between FE and GE (Errors GE 11.6, FE 10.7 and CAE 6.2%). The software also increased the EKG interpretation Sensitivity and Positive and Negative Predictive Values ( $p < 0.01$ ,  $p < 0.01$  and  $p < 0.05$ ).

**Conclusions:** Computer-aided Evaluation of Pediatric EKG was more accurate than routine evaluation. This may represent a great improvement for an inexpensive, non-invasive and universally available test in a world where healthcare costs are needed to be reduced.

Performance	FE	GE	CAE
Sensitivity	69%	58%	84%
Specificity	91%	93%	95%
Positive Predictive Value	53%	57%	71%
Negative Predictive Value	95%	93%	97%