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Title of Talk: The Use of Statistical Methods and Data Mining in Applied Mathematical

Abstract:

Until the development of formalism, mathematical theory was related to real applications. The purpose of this research project is to use different statistical models to examine relationships in the data of a clinical trial. The data include demographic variables, treatment variables, clinical measurements, and quality of life data. We will use different techniques, including linear models, tests for categorical data, and kernel density estimation. By using these techniques, we will show the effectiveness of the placement of pacemakers and implantable cardioverter defibrillator (ICD) on patients, health. Alternate placing of ICDs and Pacemakers on certain places of the heart may prove more beneficial to patients than first thought. Through analyzing the data, we will be able to determine if the overall quality of life improves with the alternate placement. Linear Models and Chi-Square tests will aid in this analysis. Data mining techniques such as neural network analysis and C.5 rule induction will also be used. This application of mathematical processes illustrates the importance of mathematics in numerous fields.