



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Yousef Joseph; Nicholas Mah	Project Number 34391
Project Title Modeling a Blood Glucose Determination Using Surface Conductivity	
Abstract Objectives/Goals The objective of our project is to determine if it is possible to determine a person's blood sugar levels through surface conductivity. The purpose of this project is to model a noninvasive method for blood glucose level determination. Methods/Materials The method for measuring blood glucose levels through noninvasive means is to use dialysis tubing as a model for the skin. Five bags of dialysis tubing would be filled with varying concentrations of glucose and water for the control and the experimental. The dialysis tubing would be submerged in beakers filled with distilled water. Before the dialysis tubing is inserted, the conductivity of each beaker would be measured. The main difference between the control and experimental groups is that the experimental group contains a .3M solution of NaCl in the beaker that the dialysis tubing is submerged in. After approximately 20 minutes, the conductivity of the beakers would be measured and compared to each other and their original conductivity to see if there was a change caused by the diffusion of the dialysis tubing. Results Analysis revealed that the control was relatively static with fluctuations. In terms of the experimental, results showed a decrease in conductivity that was measured by a voltmeter. These results pertain to our objective in that the data obtained showed that a method for measuring blood glucose level could possibly act as a model for topical measurement. Conclusions/Discussion The results supported our initial hypothesis in that the experiment showed how surface conductivity could act as a possible method for determining blood glucose levels. The possibility of a topical method of measuring blood glucose levels would have a great impact in the medical industry.	
Summary Statement This project aims to propose an alternate method of measuring blood-sugar levels.	
Help Received Mother helped make board	