A NOVEL METHOD FOR HEART DISEASE PREDICTION

QUESTION	DESCRIPTION
WHO DOES THE PROBLEM AFFECT	Children, parents, and grandparents often share similar health problems. If a particular disease runs in your family, you may have inherited factors that put you at risk. Inherited risk factors are passed down from parent to child by way of genes. All humans have the same genes, but different people have slightly different versions of these genes. Sometimes genetic differences cause disease. In rare cases, changing a single gene is enough to cause disease. But more often disease results from the combined effects of minor changes in multiple genes. Each gene then contributes in a small way to the symptoms. .

WHAT ARE THE BOUNDARIES OF THE PROBLEM	Common diseases result from the combined effects of multiple genes and environmental factors. This complexity makes it very difficult to predict whether or not an individual will inherit disease.

WHAT IS THE ISSUE	One challenge is that the number of genes contributing to so-called "polygenic" diseases is usually not known. The number of genes carried by parents or children that can increase risk is also not known. And environmental factors can greatly vary an individual's risk of developing disease.

WHEN DOES THE ISSUE OCCUR	Because most common diseases involve more than one gene, inheritance patterns are varied and complex. If a parent has a disease, it does not necessarily mean a child will develop the same disease. So risk can be estimated but not calculated.

WHERE IS THE ISSUE OCCURRING	Information in a family medical history must be used to assign an individual to a low, medium, or high risk group. Risk is estimated by comparing an individual's family history to data collected from large families affected by a disease. Persons in each risk group share characteristics that correlate with a certain probability of developing a disease.

WHY IS IT IMPORTANT THAT WE FIX THE PROBLEM:	Even if you don't have access to medical information from your biological family, it's still useful to complete a history using your guardian family. Family histories capture more than just genetic risk factors. They also capture cultural, social, and environmental risk factors shared by a family that can contribute to disease.