



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> Naveen Qureshi	<b>Project Number</b> <b>J1426</b>
<b>Project Title</b> <b>Doc, Is It Time to Throw That Tie Away?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objectives of this project were to determine whether doctors' ties are actually clean and how much bacteria grow on them. There have been many studies done that show that bacteria can easily be spread from patient to patient in a hospital. One of the ways in which bacteria are spread is through the contact of doctors with their patients. A common way of bacterial transfer from doctors to patients is through contact of the patient with a doctor's clothing. Ties were chosen because they may easily come into contact with a patient. <b>Methods/Materials</b> The materials used were 10 doctors wearing ties, sterile cotton swabs moistened with distilled water, nutrient agar plates, an incubator (23.89 degrees Celsius), two people who wear ties but do not work around sick people. The method used was to first swab a small area on each doctor's tie in the morning before he began seeing patients. These samples were then plated onto nutrient agar plates and incubated for twenty-four hours. The ties of these same doctors were swabbed again at the end of the day when the doctors had finished seeing patients. These samples were plated and incubated and the resulting bacterial growth counted twenty-four hours later. The same steps were followed for the control group. <b>Results</b> Three trials were conducted for each of the subjects in the experimental and control groups. The results for each trial were fairly consistent. The results showed that on average, the doctors' ties carried much higher amounts of bacteria at the end of the day than they did at the beginning of the day. There was an average growth of 35 colonies in the morning as compared to an average of 273 colonies at the end of the day. The control group had very different results. There was an average of only 0.17 bacterial colonies grown on these ties in the morning and an average of 6 bacterial colonies in the evening. <b>Conclusions/Discussion</b> The results of this study show that working in an environment where there are ill people present does make a difference in the levels of bacteria found on a person. The results show that there are, on average, much higher amounts of bacteria found on doctors' ties than on ties of people who do not work around sick people. The results also show that doctors' ties have significantly higher levels of bacterial growth on them at the end of the day than they do at the beginning of the day, which confirms my hypothesis.	
<b>Summary Statement</b> This study addressed the question of whether or not working around sick people affects the amount of bacteria present on that person.	
<b>Help Received</b> Mom bought materials and helped with project; Dad and his fellow colleagues let me test their ties; uncle (lawyer) & grandfather (professor) were the control group; Hemet Hospital Lab allowed me to use incubator; my brother Zaid helped with the photos; Mr. Post gave me insight and helpful advice	