



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Mahnur A. Bharucha</b>	<b>Project Number</b>  34703
<b>Project Title</b> <b>Sound Asleep? Effects of the Continuous Positive Airway Pressure (CPAP) on Obstructive Sleep Apnea</b>	
<b>Objectives/Goals</b> I performed this experiment in order to determine whether using the Continuous Positive Airway Pressure (CPAP) appliance would help reduce the dangerous symptoms of patients suffering from Obstructive Sleep Apnea by at least fifty percent. <b>Methods/Materials</b> To verify this, I conducted a survey at the Sleep Center of Orange County which is a sleep clinic located in Irvine. The survey was comprised of questions relating to certain symptoms associated with sleep apnea as well as additional questions indicating whether these symptoms have improved after using the CPAP machine or not. In this questionnaire, I also included a list of questions regarding the enhancement of daily life before and after using the CPAP device. For this study, a total of one hundred and twenty-two patients participated by filling out the survey. Using Microsoft Excel 2010, each question/factor was organized into a table in order to find out the average of all the answers. Later, I organized it into graphs to ease the analysis and to determine whether the hypothesis was correct or not. <b>Results</b> The results showed that my hypothesis was proven correct. I found that 98% of the patients felt that their snoring decreased, and 87% of the patients reported that their fragment sleep was reduced. Restless Sleep was reduced by 89%, daytime sleepiness was reduced by 81%, and general fatigue was reduced by 79%. Reduction in irritability was experienced by 83% and morning headaches were reduced by 92%. Moreover, lessening in paroxysmal nocturnal dyspnea was experienced by 97% patients. After averaging the numbers and percentages, I found out that the patients symptoms' were reduced by 87%. Thus, it could be inferred that the patients symptoms' were reduced more than 50%. <b>Conclusions/Discussion</b> The hypothesis was supported by the results. The CPAP machine does help patients improve their symptoms. The average percent of improvement seen in patient were more than fifty percent. Therefore, the CPAP machine is very efficient for the patients who suffer from Obstructive Sleep Apnea.	
<b>Summary Statement</b> Effects of the continuous positive airway pressure (CPAP) on obstructive sleep apnea.	
<b>Help Received</b> My mother helped me with the board; Dr. Aceela Muqri helped me with making the survey; The Sleep Center of Orange County helped me conduct my surveys; My dad helped me with the graphs; My sister helped me proofread my report.	