



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

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| Name(s) Nithyasree Palakodety | Project Number 36143 |
| Project Title Exposure to Bad Air Quality, Bad Water Quality, and Toxic Mold: Do They Increase the Risk of Getting a Brain Tumor? | |
| Abstract Objectives/Goals The objective was to determine if bad air quality, bad water quality, and toxic mold could increase the risk factor of a person getting a brain tumor. Methods/Materials Computer with Excel, 30 cities chosen based on their air quality, water quality, and relative humidity. Relative humidity used as a proxy for mold exposure, Wonder CDC database used to find population of city and cancer count. About 500 data points used to perform a logistic regression analysis to find odds ratios (OR) and confidence intervals (CI). Analysis done for interaction levels of every combination of air quality, water quality and humidity as well. Results Results show that bad air quality has a negative correlation with brain cancer, meaning exposure to it lessens the chance of brain cancer. The correlation between bad water quality and brain cancer is inconclusive, because the results for each year were opposites. Mold was inconclusive as well as the interaction between all 3 variables. Conclusions/Discussion The results were close to the hypothesis but had a smaller OR than predicted, showing that the correlation was negative for 2011. The CI was also lower than predicted, showing that the results were more precise than the CI in the hypothesis. The results were opposite in 2012 except for air quality which stayed negative. 2012 results were less precise. The objective of the project was not accomplished. In the future, more testing should be done to find more accurate and reliable results. The results do not show whether these 3 variables slightly increase the chance of brain cancer. But since results were inconclusive, actions should still be taken to limit pollution and exposure to mold. | |
| Summary Statement The results of my project, aiming to find out whether bad air quality, bad water quality, and toxic mold could increase the risk of getting a brain tumor, were inconclusive, and more research needs to be done. | |
| Help Received I conducted the whole study by myself with help from my dad who edited my writing and helped me to research and plan my procedure. | |