



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Katherine E. Dang	Project Number J1210
Project Title The Effect of Various Ailments on the Vibration of the Tympanic Membrane	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The Objective of this project is to determine which of the three selected ailments (Acoustic Neuroma, Acute Otits Media, and cerumen) will prevent the Tympanic Membrane from vibrating the most.</p> <p>Methods/Materials Three representations of Ailments are placed in/on a small plastic bowl, with a latex balloon covering the opening of the bowl. One representation is a balloon filled with air taped to the bottom of the bowl (Acoustic Neuroma), the other is peices of paper placed on the rim of the latex surface (cerumen), and the last is vegetable oil that fills the entire bowl (Acute Otits Media). A grain of rice is placed in the center of latex surface, above a reference point (a dot). Then a speaker is placed one inch above the latex surface, play a song through the speaker for one minute. Measure the distance between the grain of rice and the reference point. Record the data and perform 4 more trials for each ailment (when finished, there should be 5 trials for each ailment).</p> <p>Results The data averages collected from the "Acoustic Neuroma" experiment showed that the grain of rice moved the farthest from the reference point (the greater the distance traveled means there was more vibration, therefore the Acoustic Neuroma affected the membrane the least). Also the data from each individual trial in the "Acute Otitis Media" experiment showed the grain of rice moved the least distance in comparison to the other Ailments.</p> <p>Conclusions/Discussion To conclude, according to my experiment, the amount the Tympanic Membrane vibrates generally depends on the distance of an ailment in relation to the Tympanic Membrane.</p>	
Summary Statement My Project is about how different Ailments/obstructions affect the vibration of the Tympanic Membrane.	
Help Received Aunt Purchased Supplies, Mother helped select colored paper used on the board.	