



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Mizuki A. Olivarez</b>	<b>Project Number</b> <b>J1608</b>
<b>Project Title</b> <b>Effectiveness of Various Contact Lens Cleaning Methods against Staphylococcus aureus</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective is to determine the most effective method of contact lens cleaning against the bacteria staphylococcus aureus. <b>Methods/Materials</b> Necessary equipment and materials were obtained, sterilized, and prepared. 100 filter disks were inoculated with 50 micro liters of the corresponding liquid to each method and were dried throughout the course of my procedures. An isolate of staphylococcus was obtained from the swab sample of human skin flora and was cultured in the presence of multi-purpose solution,(Alcon Replenish), enzyme (Unizyme), and saline solution with a combination of an incubation of 45 degrees Celsius for 45 minutes. All bacteria and disks were then placed onto 20 tryptic soy agar plates. Any zone of inhibition was accurately measured and recorded. <b>Results</b> Multi-purpose method using Alcon Replenish was shown to be the most effective with an average zone of inhibition resulting to be 9.675 mm, followed up by hydrogen peroxide using 3 percent concentration, with the zone of inhibition being 8.125mm. Methods enzyme and thermal were shown to be ineffective. <b>Conclusions/Discussion</b> Non-compliance with contact lens may lead to the invitation of microbial flora such as staphylococcus aureus. The accumulation of this bacteria may act as a precursor towards bacterial infection in the eye during contact lens wear. To avoid such infections compliance towards cleaning and care to contact lens and accessories would be essential. Using the method of multi-purpose solution would be most effective than the other methods of cleaning such as thermal for it is absolutely ineffective in eradicating the bacteria s. aureus. This shows that not only is this bacteria able to withstand the heat of 45 degrees Celsius but also the duration of its exposure being 45 minutes. In conclusion this data suggests that the method of cleaning contacts with multi-purpose solution would be most effective in eradicating the bacteria s. aureus.	
<b>Summary Statement</b> Various contact lens cleaning methods (multi-purpose, enzyme, hydrogen peroxide, thermal) effectiveness against staphylococcus aureus.	
<b>Help Received</b> Used lab equipment at Pershing Middle, mentor assisted in drafting procedures and use of necessary equipment under supervision of Mrs. Marcarelli. Also, agar plates, hub, incubating units and safety equipment were also provided by Mrs. Marcarelli.	