



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b>  <b>Jayna Patel</b>	<b>Project Number</b>  <b>S1522</b>
<b>Project Title</b>  <b>The Effect of Using Alcohol-Based Hand Sanitizer vs. Alcohol Hand Wipes on the Percent of Bacterial Reduction from Hands</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The purpose of this experiment was to determine how alcohol-based hand sanitizer and alcohol hand wipes compared in reducing bacteria from hands.</p> <p><b>Methods</b> There were ten subjects. The subjects' dominant hands were swabbed onto a petri dish with nutrient agar for the control amount of bacteria. The following day, the subjects' hands were swabbed after they rubbed "Purell Original Hand Sanitizer" on their hands to clean them. The day after that, the subjects' hands were swabbed after they cleaned their hands with a "CVS Instant Hand Sanitizer Wipe". The bacteria grew for 10 days, and then the percent of bacterial reduction between the control and experimental groups was calculated.</p> <p><b>Results</b> The average percent of bacterial reduction from hand sanitizer was 90.30%, and the average percent of bacterial reduction from hand wipes was 95.32%. The hand wipes were slightly more effective at removing bacteria from hands than the hand sanitizer.</p> <p><b>Conclusions</b> The difference between the two percent reductions was very minimal. The subjects who had extra grease from food on their hands before being tested on produced results where the hand wipes were more effective than the hand sanitizer. The subjects who were not eating before being tested on had results where both items produced relatively equal results. That suggested that both items produced similar results when used on visible clean hands, but that hand wipes work better than hand sanitizer when cleaning visibly dirty hands. This information can help people who are traveling decide which hand washing alternative would be best for them. It is also applicable to countries that do not have access to clean water.</p>	
<b>Summary Statement</b>  This experiment compared the effects of using alcohol-based hand sanitizer and alcohol based hand wipes on their ability to remove bacteria from hands.	
<b>Help Received</b>  None, I designed and performed the experiment myself.	