



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Gabrielle A. Evey</b>	<b>Project Number</b> <b>S1108</b>
<b>Project Title</b> <b>Paper Toilet Seat Covers: Health Necessity or Environmental Detriment?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> A study was previously conducted to identify the bacterial strains on public toilet seats. The data indicated that the bacteria on toilet seats are largely normal skin flora, including Staphylococcus species. Due to the low infection risk, paper toilet seat covers are not a public health necessity. This project aims to measure the number of people who use paper toilet seat covers in public restrooms and how much these products increase the amount of paper waste entering the sewage stream. 50 percent of people surveyed will report using paper toilet seat covers, and these products will increase the amount of paper waste in each toilet flush by 75 percent.</p> <p><b>Methods/Materials</b> Trials were conducted at public restrooms to document the percentage of people that used paper toilet seat covers, as well as the number of toilet paper sheets used per flush. Paper toilet seat covers and sheets of one-ply toilet paper were measured on a gram scale. These masses were used to calculate the number of toilet paper sheets equivalent to one paper toilet seat cover. That value and the average amount of toilet paper used per flush were used to calculate the percent increase in paper waste entering the waste stream.</p> <p><b>Results</b> 51 percent of persons surveyed used a paper toilet seat cover and toilet paper sheet usage averaged 14 sheets per toilet flush. One toilet seat cover is equal to approximately seven sheets of toilet paper. Therefore, use of a toilet seat cover increases the amount of paper products entering the waste system by 50 percent.</p> <p><b>Conclusions/Discussion</b> The high percentage of persons using these products makes the applications of this project relevant to water conservation. An additional study was conducted to determine the amount of water retained by paper toilet seat covers. The result of this study indicated paper toilet seat covers require 8 ounces of water, or 4 percent of the total water in a toilet flush, to be moved through the sewage stream. Based on this 8 ounce figure, the University of California system is wasting enough water with paper toilet seat covers to fill 5 Olympic sized pools, suggesting these products are a detriment to the environment.</p>	
<b>Summary Statement</b> Paper toilet seat covers are not a health necessity due to low bacterial risks, and the water waste caused in the sewage system makes them an environmental detriment.	
<b>Help Received</b> Previous bacterial research conducted at Edwards AFB Medical Clinic	