“Super bugs” have become a problem in the world today. MRSA, thought to originate only in hospitals, is now found in communities as a new strain CA-MRSA. “Super lice” have become resistant to traditional medical treatments. This study addressed the experimental hypothesis that repeated exposures of anti-microbial agents found in over the counter hand washing products such as Triclosan .43%, Triclosan .11%, Tetra sodium EDTA, and Alcohol 60% to the bacteria E. coli would result in resistance as measured by a decrease in the zone of inhibition. The hypothesis that the E. coli would develop a resistance was supported. The second hypothesis that the resistance would be transferred through a conjugation assisted by a plasmid can be inferred because of the rapid ability of E. coli to overcome the anti-microbial agents. The experimental results indicated that resistance was evident in just nine weeks with a significant decrease in the zone of inhibition at Week 5. In conclusion, it was quite surprising to find a resistance forming so early in the study. This “quick” adaptation of E. coli to overcome the anti-microbial effects of Triclosan .43% may suggest that resistance can form faster than we thought. This has an impact on our responsibility to introducing different agents into the environment, and how it might affect the way we look at hand washing. We need to be responsible and cautious in how and what we use, when it comes to anti-bacterial agents.