



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Robert R. Calvo	Project Number J1405
Project Title Which Bandage Inhibits Bacterial Growth Most Effectively?	
Abstract Objectives/Goals My project title was "Which type of bandage will most effectively inhibit bacteria growth"? I tested five types of bandages, Curad Silver bandages, BandAid Antibiotic bandages, BandAid Heavy Duty bandages, BandAid Sports Strips, and Nexcare Comfort bandages. I thought antibiotic bandages would inhibit bacteria growth most effectively because they have been shown to do so in various studies. Methods/Materials In a laboratory setting, I removed the adhesive from each bandage. I firmly wiped the pads against measured lengths of skin and placed the pads in labeled trypticase soy agar plates. The plates were incubated for 48 hours. After 48 hours, I examined the pads for bacterial growth. I measured the colonies on each pad using a metric ruler and approximated the amount of surface area covered. In my second trial, I tested Curad Waterproof Silver Gel, Curad Silver, BandAid Antibiotic, and Nexcare Comfort bandages. Unfortunately, within a few minutes the Silver Gel pads curled away from the agar, and the Silver Gel bandages had to be eliminated from the test. Results The BandAid Heavy Duty, BandAid Sports and Nexcare Comfort bandages did not claim to keep off bacteria, and they did not. The Antibiotic bandages kept off nearly 100% of the bacteria. Silver bandages did not seem to inhibit bacteria growth well. The label on the package of the Silver bandages said that they would. So I decided to investigate at a sixty power (60x). At this power I saw that the bacteria covered nearly every space on the pad between the silver mesh. The bacteria grew everywhere except directly on the silver threads! This meant that the bandage pad was covered with bacteria! Conclusions/Discussion Ordinary bandages such as BandAid Heavy Duty, BandAid Sports and Nexcare Comfort offered no protection from bacterial growth. The Antibiotic bandages did what they were supposed to do and destroyed the bacteria. The results for Curad Silver bandages were striking. The makers of the Curad Silver bandages stated that these bandages would have antibacterial properties. While it was true that the bacteria did not grow directly on the silver threads, there was absolutely no zone of inhibition. The bacteria grew right against the edges of the threads. Possibly since the metal was a solid, it did not transfer any antibacterial properties to the surrounding area. If you are trying to prevent infection, my advice is to use Antibiotic bandages.	
Summary Statement My project tested and compared five types of bandages, including Curad Silver bandages, and BandAid Antibiotic bandages to try to discover which bandage would inhibit bacterial growth most effectively.	
Help Received I would like to give a special thanks to my teacher for all of her time and knowledge, to Dr. Soo Hoo for the use of his lab and expertise, and also to my parents for all their help and support. I could not have done it without them. Thank you to Paula Tashjian, R.N. and wound care nurse specialist.	