



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Matthew P. Szilagi</b>	<b>Science Fair Use Only</b>  <h1 style="margin: 0;">J1229</h1>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>Too Much for Too Little?</b>	<b>Division</b> <u>X</u> <b>Junior (6-8)</b> _ <b>Senior (9-12)</b>
<b>Preferred Category</b> (See page 5 for descriptions.) <b>12 - Microbiology</b>	
<b>Abstract</b> (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p><b>Objective:</b> The purpose of this experiment is to show that bacterial infections can be treated using older antibiotics and be just as effective as using newer ones. Understanding that treatment with proper and least potent antibiotics will minimize the mutation of bacteria and thus keep scientists from having to develop stronger agents to control infections.</p> <p><b>Methodology:</b> The main procedure in this experiment was to treat 2 common bacterial strains with various antibiotics and compare bacterial inhibition. The bacteria used were serratia marcescens (gram -) and escherichia coli (gram -). Bacteria was transferred using a streaking technique to nutrient agar plates. Antibiotic soaked filter disks were placed onto the agar and the plates were incubated at 95 degrees for 48 hours. The experimental variables of this project were the 6 different antibiotic agents used. The dependent variable was the amount of bacterial inhibition, which was measured and compared.</p> <p><b>Results:</b> Results showed that in some cases the older, less expensive antibiotics were as effective in inhibiting bacterial growth as the newer, expensive ones. Some of the expensive agents caused a more equal inhibition of both bacterial strains than the less costly ones. The greatest inhibition occurred with ciprofloxacin, which was very effective against both bacterial strains.</p> <p><b>Conclusion:</b> In some instances, the older agents were just as effective in inhibiting bacterial growth, however it seems that the newer agents had better coverage for both strains. Antibiotic treatment to cover mixed infections is most effective with agents that show a greater deal of inhibition. Physicians will treat with agents that show the most effective result when dealing with these mixed infections.</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) This project was about treating bacteria with various classes of antibiotics to measure the inhibition of growth.	
<b>Help Received in Doing Project</b> (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Father helped type report, obtain bacterial strains, and antibiotics.	