CHANCE Graphic Display Contest: Burtin's Antibiotic Data

The year 2008 marks the 100th anniversary of the birth of Will Burtin (1908–1972). Burtin was an early developer of what has come to be called scientific visualization.

In the post-World War II world, antibiotics were called "wonder drugs," for they provided quick and easy cures for what had previously been intractable diseases. Data were being gathered to aid in learning which drug worked best for which bacterial infection. Being able to see the structure of drug performance from outcome data was an enormous aid for practitioners and scientists alike. In the fall of 1951, Burtin published a graph showing the performance of the three most popular antibiotics on 16 bacteria.

The data used in his display are shown in Table 1. The entries of the table are the minimum inhibitory concentration (MIC), a measure of the effectiveness of the antibiotic. The MIC represents the concentration of antibiotic required to prevent growth in vitro. The covariate "gram staining" describes the reaction of the bacteria to Gram staining. Gram-positive bacteria are those that are stained dark blue or violet; whereas, Gram-negative bacteria do not react that way.

Contest: Submit a graphical illustration of these data and an accompanying written description of the graph. The graphs are due January 1, 2009. The three best entries will be published in *CHANCE*, and the authors will receive a complimentary one-year subscription (extension) to *CHANCE*. If multiple authors submit a winning entry, one author will receive the subscription. Winners will be announced in Volume 22, Issue 2. Entries will be judged by representatives of *CHANCE*'s editorial board based on clarity, insightfulness, succinctness, originality, and aesthetic appeal.

Please email your entries to Howard Wainer (*hwainer@ NBME.org*), preferably as a PDF file, by the due date given above. Include "*CHANCE* graphics contest submission" in the subject line. **C**

Table 1—Burtin's Data

Bacteria	Antibiotic			Gram Staining
	Penicillin	Streptomycin	Neomycin	
Aerobacter aerogenes	870	1	1.6	negative
Brucella abortus	1	2	0.02	negative
Brucella anthracis	0.001	0.01	0.007	positive
Diplococcus pneumoniae	0.005	11	10	positive
Escherichia coli	100	0.4	0.1	negative
Klebsiella pneumoniae	850	1.2	1	negative
Mycobacterium tuberculosis	800	5	2	negative
Proteus vulgaris	3	0.1	0.1	negative
Pseudomonas aeruginosa	850	2	0.4	negative
Salmonella (Eberthella) typhosa	1	0.4	0.008	negative
Salmonella schottmuelleri	10	0.8	0.09	negative
Staphylococcus albus	0.007	0.1	0.001	positive
Staphylococcus aureus	0.03	0.03	0.001	positive
Streptococcus fecalis	1	1	0.1	positive
Streptococcus hemolyticus	0.001	14	10	positive
Streptococcus viridans	0.005	10	40	positive