Letters to the Editor

Preoperative Prophylactic Antibiotics: Brief Historical Note

To the Editor:

It is now well established that antibiotics administered perioperatively can effectively prevent incisional wound infections. Original data in animals suggested that the antibiotics should be administered prior to the time of the initial incision and that if administered four or more hours afterward there was a complete loss of protection.[1,2] Recently, an observational study showed that administration of the preoperative antibiotic was most effective if given in the "window" period of 0 to 2 hours before the incision is made.[3] The rate of infection increased on either side of the optimal window: administering the prophylactic antibiotic more than two hours before or at longer times after the incision progressively increased incisional wound infection rates.

Accompanying the New *England Journal of Medicine* article was an editorial that I wrote attempting to put the observational study in context.[4] I subsequently received three references and correspondence from Gabriel P. Seley, MD, which he said "...will cover all the facts...[to help document] . ..that I was the one who first suggested preoperative antibiotic use in surgery and used it with good results."

Dr. Seley may in fact be right to claim priority, and I throw the historical gauntlet down for those who think otherwise. In 1939, "The Use of Sulfanilamide in Surgery of the Colon and Rectum: Preliminary Report," by John H. Garlock and Gabriel P. Seley was published in *Surgery*.[5] The work was conducted primarily by Dr. Seley at the Mt. Sinai Hospital in New York under the direction of Dr. Gregory Schwartzman. Bacterial cultures were taken of the retroperitoneal and pericolonic tissue of the bowel wall and from the mucosal surface of the neoplasm. Hemolytic streptococci and *Escherichia coli* were found commonly in untreated patients.

In a study with historical controls, Dr. Seley then administered sulfanilamide for three days preoperatively (15 grains every 4 hours). Two of 21 patients died, one major infection occurred, and some patients convalesced smoothly despite "gross spilling." Importantly, no *Streptococcus hemolyticus* was recovered in any operative cultures of the 21 cases. Garlock and Seley concluded cautiously, however, that "the number of cases reported herewith is not sufficient to warrant definite conclusions."

In a subsequent report in 1941, Seley and Colp extended their practice of perioperative antibiotics for colon surgery to gastric surgery.[6] Two years later, in 1943, there was a proceedings document in which it was specifically reported that there was a "striking diminution of the numbers of streptococci and *B welchii* in cases treated preoperatively with sulfanilamide...The monthly rate from peritonitis in 123 colon and rectal operations thus treated was 4% against 10% mortality reported in the literature."[7]

Dr. Seley surely did not perform a randomized controlled clinical trial but appears to have had the idea of preoperative prophylactic antibiotics for colon surgery more than 50 years ago, only a few years after sulfanilamide was discovered. Moreover, his idea was scientifically based on the best microbiological evidence available and his observations carefully stated. At this point, it would seem reasonable that we recognize a pioneer of microbiology and surgery, Dr. Gabriel P. Seley.

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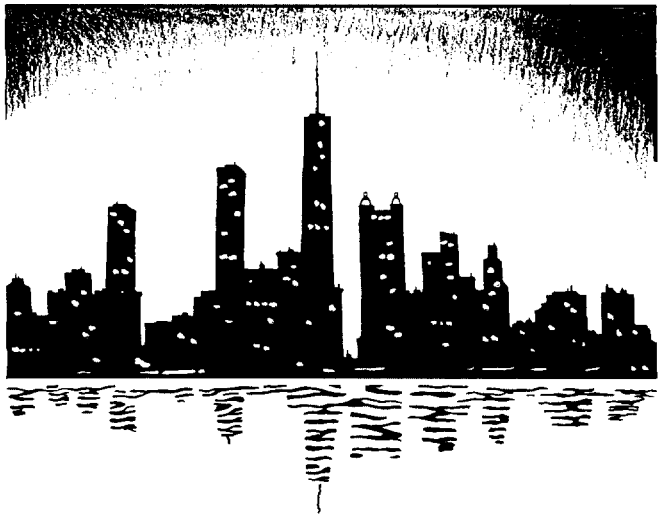
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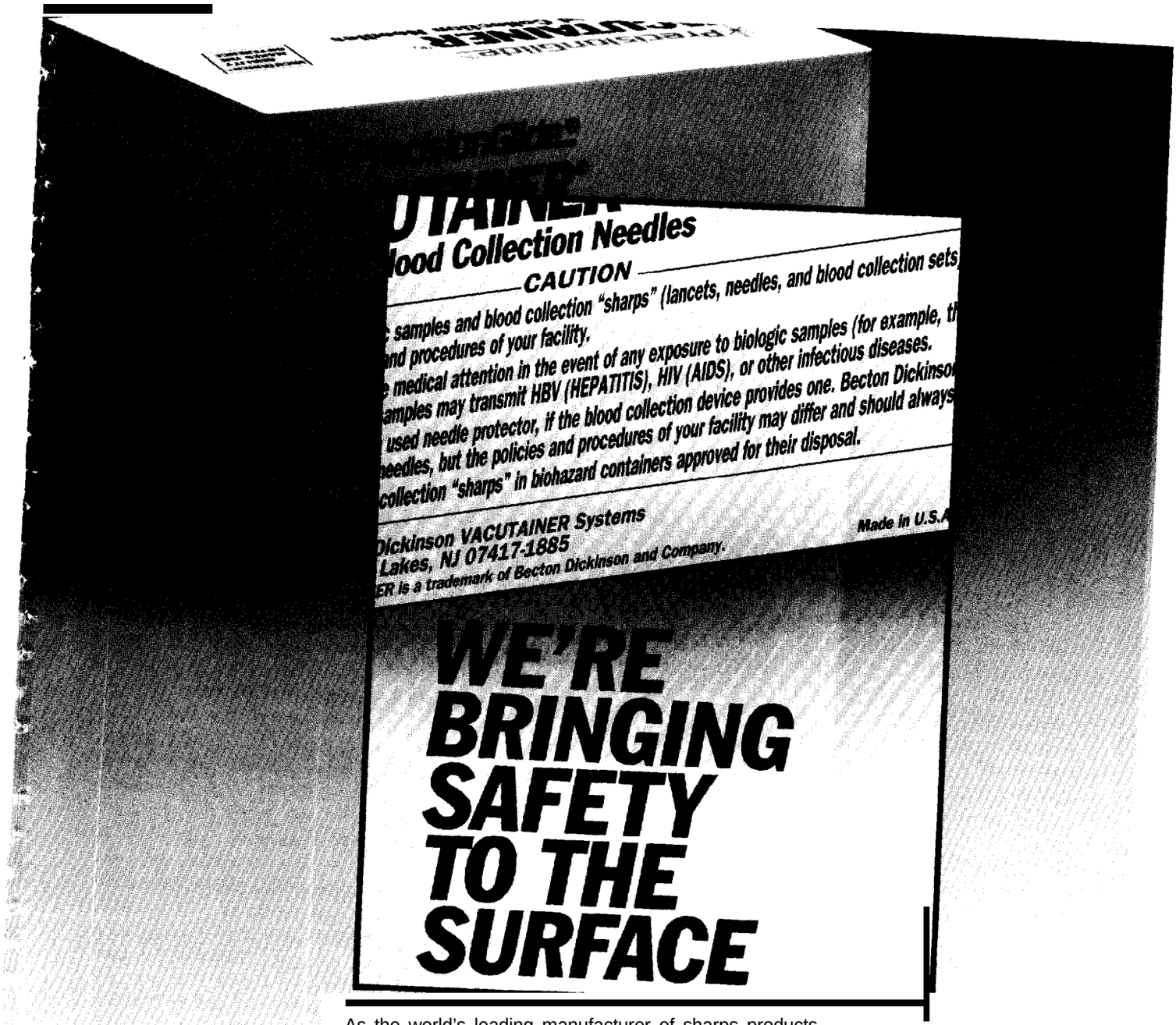
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