

P 149**ESTABLISHING THE “CRITICAL RATIO” AS A MICROBIAL BIOMARKER FOR CHRONIC WOUND CLASSIFICATION/STATUS**

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Aim: To evaluate a biofilm model assay, in comparison to a standard Kirby Bauer technique, on the efficacy of antimicrobials for use in the management of wound infections.

Methods: Aerobic prokaryotes and *Candida albicans* were provided by the clinical laboratories, West Virginia University (WVU) hospitals. 48 hour monospecies biofilms were created by using 30% Poloxamer F-127 at 35°C and a comparative 18 hour Kirby Bauer technique using Muller Hinton agar was simultaneously assayed. Six antibiotics (E-strip - High and Low Concentration) were applied to either method, utilizing antibiotics profiles of the WVU intensive care unit (ICU). The biofilm elimination concentration (BEC) and the minimum inhibitory concentration (MIC) were determined and a “critical ratio” established. Based on accumulated data over the past three years, a 3-part “break-point” scheme was proposed: ≤ 1 Biofilm phenotype limited, “responsive,” $>1 - <5$, “indeterminate,” and ≥ 5 biofilm phenotype dominate “unresponsive.”

Results: The five featured isolated isolates included *Escherichia coli*, *Enterobacter cloacae*, *Pseudomonas aeruginosa*, *Enterococcus faecalis*, and *Staphylococcus aureus*. *E. faecalis* had the lowest ratio for all five antibiotics (<2) with *E. cloacae* the next lowest. *E. coli* had the highest ratio, >6 . *S. aureus* had two of five drugs >5 .

Conclusion: Chronic wound assessment, either clinically or microbiologically, is difficult. Here, we have linked a viable culture ratio to microbial phenotype and used it to classify wound colonization, which may correlate wound status and suggest optimum antibiotic and non-antibiotic therapy.