Poster Title: **Evaluation of Anaerobic Infections at a Community Teaching Hospital**

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Purpose: Anaerobic or mixed anaerobic infections account for a small, but significant portion of hospital acquired infections. Pathogenic anaerobes may manifest as abscesses, are often found in wounds or the intra-abdominal cavity, may cause aspiration pneumonia, and are often associated with surgery or trauma. Understanding the nature of anaerobic infections at our institution may aid our antibiotic stewardship program (ASP) in optimizing empiric antibiotic therapy for our patients. The purpose of this study is to evaluate the characteristics and microbiology of anaerobic infections at our community teaching hospital.

Methods: A report generated from the TheraDoc software identified 135 patients who cultured positive for anaerobic bacteria between November 2023 to August 2024. Subjects treated with antibiotics for their anaerobic infection will be included in this analysis. Those considered to be colonized without an active anaerobic infection or did not receive anaerobic antibiotic therapy will be excluded. Data collection will include patient demographics, cultures and sensitivities, infection source and type, and antimicrobial utilization. Observational statistics will be employed for pathogen type, culture source and infection type, and specific antibiotic treatment for this investigation. Investigators will examine data and report findings in an effort to enhance our hospital's ASP. Approval by the institutional review board at AtlantiCare Regional Medical Center was obtained.

Results & Discussion: A total of 140 anaerobic cultures were obtained from 135 patients, of whom 100 (74%) had polymicrobial cultures, with 93% involving aerobic pathogens. Community-acquired infections were identified in 76% of patients. Eighteen anaerobic genera were detected, including five gram-positive rods, six gram-positive cocci, and seven gram-negative rods. Blood cultures accounted for 59 (42%) of the anaerobic cultures, yielding 68 isolates, predominantly *Bacteroides* and *Cutibacterium*. Abscess cultures (n=30, 21%) contained 44 anaerobes, mainly *Prevotella*, *Bacteroides*, and *Fusobacterium*. Tissue and wound cultures (n=22, 16%) yielded 25 anaerobes, with *Prevotella*, *Peptostreptococcus*, and *Bacteroides* being most common. Bone and joint (n=14, 10%), abdominal (n=13, 9%), and lung (n=2, 2%) cultures contained 15, 22, and 3 anaerobes, respectively, with *Bacteroides* and *Prevotella* predominating across most sites. Overall, *Bacteroides* and *Prevotella* were the most prevalent anaerobes identified. Interestingly, *Cutibacterium* were identified in 11 blood cultures as well as 4 other sources. Further investigation into the *Cutibacterium* bacteremias may be warranted.

Conclusion: Our findings highlight the polymicrobial nature of most anaerobic infections, emphasizing the need for broad-spectrum antibiotics that effectively target both aerobic and anaerobic pathogens. Our ASP will reassess empiric antibiotic treatment recommendations for different indications based on these findings.