**Title: Comparative evaluation of two automated systems for diagnosis of bloodstream infections in patients at the Hospital São Rafael - Salvador, Bahia.**

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**Abstract:**

The BSI (bloodstream infection) is considered one of the most common infections that affect hospitalized patients, especially in intensive care units and it has been regarded as one of the leading causes of death worldwide with rates of at least 55%. The incidence of severe sepsis in Brazilian hospitals had increased 8-13% compared to the data published in the last decade. The rapid and accurate diagnosis is needed, aiming antimicrobial treatment early and safe to ensure better clinical outcomes. The performing blood cultures using automated systems is considered the most efficient method for detecting this type of infection and the detection time of microorganisms growths is crucial and can be a determining factor in patient prognosis. The aim of this study was to compare the detection time between two automated systems for blood culture: BacT/ALERT®3D (bioMerieux - France) and BD BACTEC™ (Becton Dickinson Diagnostic Instrument Systems, Sparks, Md). We evaluated a total of 672 bottles of blood cultures, 336 for each system including positive bottles for Gram negative, Gram-positive cocci and yeasts. When we calculate the average detection time in hours of each bacterial group on both automated systems, we observed that BacT/ALERT®3D presented a shorter detection compared to BD BACTEC™ for *S. aureus* (15.5 vs. 17h), coagulase-negative *Staphylococcus* (21 vs. 26h), *Enterococcus* spp. (18 vs. 16h), Enterobacteriaceae (13 vs. 17h) and non-fermenters (19 vs. 22h), as well as yeast (34 vs. 40h). The BD BACTEC™, showed lower detection time relative to the BacT/ALERT®3D only for genus *Streptococcus* (19 vs. 12 h). Our results suggest faster blood culture positivity of samples when using the BacT/ALERT®3D in relation to the BD BACTEC™ for the most prevalent microorganisms in the bloodstream infections, showing to be more efficient in laboratory diagnosis of sepsis.

**Keywords:** blood culture, bacteremia, BacT/ALERT®3D, BD BACTEC™.

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