

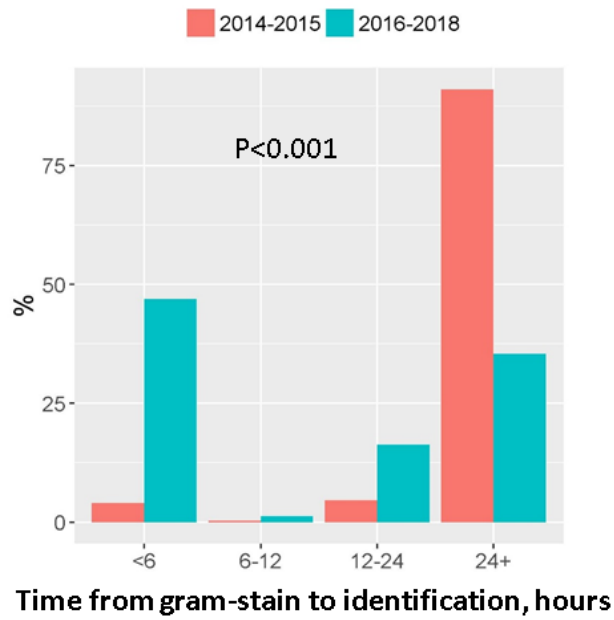
**00447 Improved patient outcome following the implementation of rapid microbial identification via MALDI-TOF in adult patients with bloodstream infection**Hila Zadka<sup>1</sup>, Eli Raykhshtat<sup>1</sup>, Boris Urale<sup>1</sup>, Ahuva Weiss-Meilik<sup>1</sup>, Amos Adler\*<sup>1</sup><sup>1</sup> Tel Aviv Sourasky Medical Center , Tel Aviv-Yafo, Israel

**Background:** Prompt identification of bloodstream infections (BSI) pathogen is essential for the selection of appropriate treatment. Several studies have tried to provide technical solutions for rapid microbial identification (RMI). Since January 2016, we initiated RMI of positive blood cultures at the Tel-Aviv Sourasky Medical Center by analyzing "young" bacterial colonies using MALDI-ToF. The new practice was reported to staff but no change in antimicrobial stewardship policy was implemented. Our goal was to study the effect of RMI of positive blood culture on patient outcome measures.

**Materials/methods:** A retrospective-cohort study of hospitalized, adult patients with positive blood culture that were subjected to RMI (January 2016-April 2018) vs. patients that were not subjected to RMI (January 2014-December 2015). Outcome variables were analyzed once per hospitalization and included: 1) the presence of negative culture by day 3 of BSI; 2) length of stay (LOS); 3) Transfer to ICU; 4) in-hospital mortality. Co-variables included: 1) age; 2) sex; 3) Charlson comorbidity index (CCI); 4) admitting service; 5) surgical procedure during hospitalization. Time-to-identification (TTI) was defined as the interval from gram-stain reporting to final identification.

**Results:** The study included 1461 and 2702 cases that met the inclusion criteria in the pre- and post-intervention periods, respectively. Patients in the pre-intervention periods were significantly younger (69.6 vs. 71.5 years,  $p=0.003$ ) and had lower CCI (severe score- 33.1 vs. 42.4%,  $p<0.001$ ). There were similar rates of gram-negative, gram-positive, anaerobes, *Candida* spp. and polymicrobial infections, but higher rate of contaminants in the pre-intervention period (12.5 vs. 9.5%,  $p=0.003$ ). The median TTI decreased from 47.5 to 21.2 hours ( $p<0.001$ ), with 47% of cultures identified within 6 hours (figure). Post-intervention, the median LOS declined from 10.82 to 9.84 days ( $p=0.023$ ), the rate of ICU transfer declined from 13.4 to 11.6% ( $p=0.118$ ) and the mortality rate declined from 20.9 to 18.2% ( $p=0.041$ ). The differences between the median LOS and ICU transfer rate were statistically significant in multivariate analysis (all episodes) but the decline in mortality remained significant only in mono-bacterial episodes.

**Conclusions:** The decrease in TTI via RMI was able to improve patient outcome, even without change in antimicrobial stewardship policy.



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