

**TITLE:** THE IMPACT OF COVID-19 PANDEMIC IN *STAPHYLOCOCCUS* SPP. COLONIZATION AMONG PREGNANT WOMEN ATTENDING A SINGLE MATERNITY IN RIO DE JANEIRO, BRAZIL

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**ABSTRACT:**

The emergence of multidrug-resistant (MDR) pathogens is a public health threat. Methicillin-resistant *Staphylococcus* (MRS) is a leading cause of nosocomial infections and has been associated with neonatal infections, being the anovaginal colonization of pregnant women the main source of vertical transmission. The COVID-19 pandemic has been modifying personal behavior, the usage policy of antibiotics, and thus may have been contributing to MDR emergence. We determined MRS anovaginal colonization rates among pregnant women attended at a single maternity in Rio de Janeiro, Brazil before (January 2019 to March 2020; 521) and during (May 2020 to March 2021; 285) the pandemic. Anovaginal specimens (806) were streaked onto chromogenic media after a pre-enrichment step and colonies were identified by MALDI-TOF MS. Antimicrobial susceptibility was evaluated according to CLSI. Detection of *mecA* and SCC*mec* typing was assessed by PCR. Overall, 215 (26.6%) samples were positive for MRS, including 9 distinct species. *S. haemolyticus* was the most prevalent (MRSH, 181; 84.2%), followed by *S. epidermidis* (MRSE, 11; 5.1%), *S. saprophyticus* (MRSS, 7; 3.3%) and *S. aureus* (MRSA, 5; 2.3%). MRS anovaginal colonization rates among pregnant women increased from 8.6% before to 59.6% during the onset of COVID-19 (Figure 1). SCC*mec* type V was the most frequent among MRS (54.9%) and a high proportion of isolates (41.9%) could not be typed (NT) due to new combinations of *ccr* and *mecA* genes (being the combination *ccr* type 2, *ccr* type 5 and *mecA* class C genes the most common). The rate of SCC*mec* NT strains increased from 26.7% to 45.9% comparing before and during the pandemic. A total of 110 (51.2%) MRS strains were resistant to at least 3 different classes of antimicrobial agents, from which 64 (58.2%) harbored SCC*mec* type V. The increasing rates of MRS colonization among pregnant women included in the study indicate the need for continuing surveillance of this important group of multidrug-resistant pathogens within maternal and neonatal population and highlight possible effects of the pandemic in the dynamic of bacterial infectious diseases.

**Keywords:** Antimicrobial resistance; SARS-CoV-2; Methicillin-resistant *Staphylococcus* spp.; Pregnant woman; SSC*mec* typing

**Development Agency:** BactiVac Network; CAPES; CNPq; FAPERJ