

## **MRSA on the decline..... tasks of an NRC for staphylococci 2.0**

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**Background:** Fortunately, in recent years we have seen a continuous decrease in MRSA rates in hospitals, but also in outpatient settings. This is the case in Germany, but also for large parts of Europe and beyond. At the same time, we are encountering an increasing number of isolates of *S. aureus* and other staphylococcal species with multi-resistance or resistance to antibiotics of the last resort at the NRC.

**Materials:** Since the beginning of the 2000s, the NRC for Staphylococci has been analysing between 2500 and 4500 staphylococcal isolates annually from submissions of local laboratories and from a wide variety of studies. All incoming isolates are phenotypically characterized and subjected to resistance testing using broth microdilution according to EUCAST. In addition, all *S. aureus* isolates are typed using *spa*-typing. Since 2015, WGS has been increasingly used for molecular characterization of isolates. For *S. aureus* and *S. capitis*, core genome MLST (cgMLST) schemes are available for molecular typing. For other species, we use in-house ad hoc cgMLST schemes to analyse strain relatedness. Since 2020, all MRSA from blood cultures are subjected to WGS.

**Results:** Alongside the development of MRSA rates, MRSA submissions have decreased over time. These submissions in part still relate to outbreak analyses, but also to classic surveillance tasks that can be processed with NGS at significantly higher resolution. On the other hand, submissions of MSSA with "unusual" resistance phenotypes or resistance to last resort antibiotics are increasing. We are also seeing an increase in submissions of coagulase-negative staphylococci, which often show multidrug resistance phenotypes. These are often *S. epidermidis*, but also increasingly other species (*S. haemolyticus*, *S. hominis*, *S. capitis*, *S. pettenkoferi*....).

**Discussion:** Infections with MRSA and *S. aureus* still pose a significant risk to patients and challenge infection prevention and control. Thus, constant surveillance remains essential. However, in recent years, we have noticed a significant change in the requests addressed to the NRC for staphylococci. It will be interesting to see to what extent the shifting focus on MSSA and multi-resistant coagulase-negative staphylococci is also reflected in a change in clinical perception of these staphylococcal variants. In any case, the NRC will be prepared to perform appropriate surveillance functions now and in future.