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DOI: <https://doi.org/10.1016/j.pathol.2020.10.021>

Absence of *mecC* methicillin-resistant *Staphylococcus aureus* in a tertiary hospital in Singapore

Sir,
Methicillin-resistant *Staphylococcus aureus* (MRSA) are important causes of community acquired and hospital acquired infections. Contact precautions are required to prevent spread from colonised patients to non-colonised patients. Screening for and detection of colonisation is key for infection control purposes. The most common genetic basis for methicillin resistance is the acquisition of the *mecA* gene coding an altered penicillin-binding protein (PBP)-2A. Divergent β -lactam resistance conferring *mecA* homologues such as *mecB*, *mecC*, and *mecD* are also known.¹

MRSA screening in our hospital is performed using nasal, axilla, and groin swabs inoculated on MRSA Select II agar (Bio-Rad, USA). Although discrepancies between cefoxitin and oxacillin results are more apparent in MRSA harbouring *mecC* (cefoxitin resistant, oxacillin susceptible), cefoxitin remains highly reliable for phenotypic detection.² To investigate the molecular epidemiology of MRSA in Singapore, polymerase chain reaction (PCR) screening for *mec* genes was performed as previously described for *mecA*,³ *mecC*⁴ and *mecB*⁵ on all included isolates. Between April 2018 and June 2020, a total of 2902 screening isolates from 2482 patients were included. All isolates were confirmed as *S. aureus* with Bruker MALDI Biotyper (Bruker, USA) and were *mecA*-positive (2902/2902; 100%). *mecC* and *mecB* were not detected, confirming *mecA* as the dominant mechanism of methicillin-resistance in MRSA in our hospital. A previous

meta-analysis indicates $\approx 0.004\%$ (95% CI 0.002–0.007) *mecC* prevalence in humans and in animals it is higher at $\approx 0.098\%$ (95% CI 0.033–0.174).⁶ We did not detect any *mecC* in our clinical setting.

mecC-positive isolates have been found to belong to two predominant lineages, CC130 and ST425.⁷ Although *mecC* MRSA is found from humans and animals, both CC130 and ST425 lineages are adapted to animal hosts suggesting a zoonotic link with acquisition of *mecC* MRSA.⁷ In Singapore, for geographical reasons, agriculture and farming are not major economic activities. The absence of *mecC* in our population reflects the limited direct contact with livestock and ruminants. Reports of *mecC* in Asia have so far been restricted to single case reports from animals.^{8,9} One isolate from a domestic cat has also been described in Australia.¹⁰

In summary, *mecC* remains undetected in Singapore, with scant reports in neighbouring countries. PCR-based commercial assays such as Xpert MRSA NxG (Cepheid, USA), BD MAX StaphSR Assay Kit (Becton Dickinson, USA) and artus MRSA/SA QS-RGQ Kit (Qiagen, Germany) have incorporated *mecC* detection but this is unlikely to improve the yield of detection in our local population.

Conflicts of interest and sources of funding: The authors state that there are no conflicts of interest to disclose.

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DOI: <https://doi.org/10.1016/j.pathol.2020.11.006>