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VERIFICATION AND IMPLEMENTATION OF A RAPID ANTIGEN TEST FOR SARS-COV2 DETECTION IN CLINICAL SETTINGS IN SYDNEY LOCAL HEALTH DISTRICT (SLHD)

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Background: Rapid antigen detection tests (RADTs) offer an alternate diagnostic testing modality for SARS-CoV2.

Methodology: A prospective verification study was conducted in SLHD, to assess the diagnostic performance of the Panbio™ COVID-19 RADT compared to conventional NAAT methods. The study was conducted on 81 patients.

Results: The overall sensitivity and specificity for the RADT was 65.2% (95% CI 42.7–83.6%) and 100% (95% CI 93.8–100%) respectively. The sensitivity increased to 100% (95% CI 63.06–100%) at high viral loads (Ct ≤25) which are seen in the earlier stages of infection (within 7 days of onset). Current published literature supports the use of RADT for the detection of early infection.^{1,2}

Discussion: Currently, we prefer RADTs for regular (at least twice weekly) surveillance testing in predetermined asymptomatic patients. Serial testing multiple times a week increases the sensitivity of antigen tests.³ In the current low prevalence setting for COVID-19, secondary testing by nucleic acid amplification test for positive RADT results is done to detect false positive results. Based on our study we have implemented the Panbio™ RADT for SARS-CoV2 testing at POC in predetermined testing populations with advantages of improved turnaround times and early detection of infectious cases.

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DIRECT TUBE COAGULASE TESTING ON BLOOD CULTURES IN SUSPECTED STAPHYLOCOCCAL BACTERAEMIA

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Background: *Staphylococci* are common isolates from blood cultures, appearing as Gram positive cocci (GPC) in clusters. The most clinically important species, *Staphylococcus aureus*, is

identified by a positive tube coagulase or latex agglutination from plate culture, whereas less virulent species are mostly negative. This initial distinction may influence clinical management, but can take up to 48 hours. We proposed tube coagulase testing directly on blood culture broth at the time of flagging, which may reduce the time to reporting coagulase activity by 12 or more hours.

Methods: From July to September 2021, all positive blood cultures with GPC in clusters had a tube coagulase test at the time of flagging. If coagulase positive after 4 hours, the treating clinician was informed. Change in management was recorded including antibiotic adjustment and referral to an infectious diseases physician.

Results: 126 blood cultures were included in this study. Ten were positive by tube coagulase test at 4 hours; clinical management was altered by this result in five cases.

Conclusion: The infrequency of *S. aureus* isolates compared to other *Staphylococcus* species, coupled with low rate of clinical impact of the coagulase result, make the direct tube coagulase test on blood culture broth ineffectual in our laboratory.

IDENTIFICATION OF VIBRIO PARAHAEMOLYTICUS OUTBREAKS BY BACTERIAL CULTURE OF FAECAL SPECIMENS

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Vibrio parahaemolyticus is a cause of foodborne diarrhoea commonly associated with ingestion of seafood. Many laboratories use multiplex PCR assays to screen for bacterial faecal pathogens, which are narrow spectrum and miss uncommon pathogens. Our laboratory continues to perform culture, which has the advantage that strain typing and susceptibilities can be performed if needed. In 2021, we identified 33 cases as part of at least two outbreaks of *V. parahaemolyticus* by bacterial culture in our laboratory. Isolates were referred for genetic analysis and outbreak investigation.

As a result, two separate clusters were identified; the first occurring in Feb-May and the second from Sept-Nov. Within the first cluster of 14 cases, 11 were highly related on genomic sequencing, suggesting acquisition from a common source. The second cluster included 67 cases, of which MLST was available for 49. Two MLST were identified that suggested this outbreak is distinct from the earlier cluster. As a precautionary measure, oyster production areas of Coffin Bay were closed. These *V. parahaemolyticus* cases were identified through the routine bacterial culture of faecal specimens, and notification was initiated by our laboratory given the high index of suspicion for an outbreak. We recommend that this organism be notifiable in Victoria.

EUCAST RAPID ANTIBIOTIC SUSCEPTIBILITY TESTING METHOD FOR BLOOD CULTURES – IMPLEMENTATION IN A PRIVATE LABORATORY SETTING

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