New Zealand Microbiology Network (NZMN) Updated position statement on saliva testing for SARS CoV-2 in New Zealand

16 September 2021

Summary of recommendations

- Nasopharyngeal swabs (NPS) are the preferred sample type for detection of SARS-CoV-2 by Nucleic Acid Amplification Test (NAAT), for high-risk scenarios (eg. high index of suspicion cases and contact screening). A combined anterior nares & throat swab or a saliva sample for NAAT are acceptable alternatives.
- Asymptomatic surveillance of SARS-CoV-2 requires appropriate frequency of testing whether by saliva or NPS NAAT. Saliva may improve acceptability of more frequent testing.
- The overall performance of a system of asymptomatic surveillance, including access to and frequency of testing, and actions taken on results of testing, are more important components of a screening regimen than the sample type used for NAAT.
- Clinical microbiologist oversight, robust processes for timely reporting of results to relevant stakeholders, appropriate validation/verification, quality assurance and IANZ accreditation are required as for all diagnostic tests.

Background

The preferred sample type for detection of SARS-CoV-2 in Aotearoa New Zealand (NZ) is currently a NPS for NAAT due to the well-established high sensitivity and specificity and high throughput of this method for detecting symptomatic and asymptomatic individuals with COVID-19. High sensitivity has been the most important assay parameter in the elimination strategy era in New Zealand. Whilst NPS is preferred, a combined anterior nares & throat swab is already an acceptable alternative that fits into high throughput workflow. [1]

Saliva NAAT for detection of SARS-CoV-2 is a dynamic area of research and implementation. Saliva NAAT assays are now used in many countries. Meta-analyses of saliva testing for SARS-CoV-2 [2-6] indicate that saliva has similar sensitivity for detection of SARS-CoV-2 as NPS, however this may vary depending on the saliva collection method,[7] processing and the NAAT assay used as well as on time from onset of infection, [8] and whether the comparator is NPS or nasal swabs or both.

Role of saliva NAAT in asymptomatic surveillance programmes

The components of an asymptomatic surveillance programme are important and influence overall performance. These include: access to and frequency of testing, sample transport time and conditions, turnaround time for results and actions taken on results of testing. Audit of the programme should be performed to ensure it is performing as intended. The design of such programmes, such as frequency and modality of testing, may need revision in response to different stages of the pandemic in Aotearoa NZ and features of the dominantly circulating strain of SARS-CoV-2.

Frequency of NAAT testing is an important component of SARS-CoV-2 surveillance programmes regardless of the sample type; [8] reducing intervals between tests can pick up infected individuals earlier and potentially limit chains of transmission, and this is particularly relevant with SARS-CoV-2 variants with short serial interval such as the delta variant. NZMN recommends testing at least twice a week for these reasons, regardless of sample type for NAAT.

A lesser consideration in surveillance programmes is the ability of the test modality to detect whether an individual has been infected since their last test. There is some evidence to suggest that NPS may be preferable where longer intervals between tests e.g. 1 week are used.[8]

In order to reduce intervals between tests, and to improve compliance and choice, alternatives to NPS should be offered to individuals undergoing asymptomatic surveillance. Saliva is one of the suitable alternative sample types.

Saliva NAAT as a diagnostic assay for symptomatic testing

A recent survey by the Royal College of Pathologists of Australasia reported over two thirds of New Zealanders did not seek testing when they had symptoms consistent with COVID-19.[9] Although not explored in this survey it is possible that NPS is one of the barriers to people presenting for testing; offering alternative sample types as a diagnostic test option in the community could improve population coverage by increasing the overall number of people tested.

Saliva could potentially be an alternative sample type for use as a diagnostic test when a swab is not tolerable, and where individuals would otherwise not be tested. However not all labs may be able to offer saliva testing depending on capacity and workflow.

Oversight

NZMN recommends and emphasises the need for clinical microbiologist oversight in any saliva NAAT testing programme.

Methodology and validation

Any saliva NAAT or pooling of saliva samples (which may be necessary to support high volume NAAT testing)[10] needs appropriate laboratory validation/verification. These requirements may change depending on demand in order to meet public health needs. The performance of a test or pooling strategy should meet the requirements of its intended use. Method validation/ verification needs to include the sample collection method that will be used, as there are varied approaches to saliva collection.

Reporting & Quality Assurance

Accurate and timely reporting of results is critical. Interfacing laboratory information systems with clinical, public health and ESR data repositories should be facilitated for those performing saliva testing. There should be participation in an EQA programme for SARS-CoV-2 NAAT which includes saliva as a sample type. All diagnostic laboratories processing saliva NAATs should be IANZ accredited to the ISO 15189 standard.

References

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