Rapid PCR testing for SARS-CoV-2 on GeneXperts
Clinician factsheet – 6 July 2020

Overview
NSW Health Pathology is currently providing SARS-CoV-2 (COVID-19) Nucleic Acid Diagnostic testing at twelve NSWHP laboratories, including ICPMR Westmead, Prince of Wales Randwick, Concord, Lismore, Liverpool, Nepean, Royal Prince Alfred, Royal North Shore, John Hunter Hospital, Dubbo, Wagga Wagga and Bega, using a variety of platforms.

NSW Health Pathology has Cepheid GeneXperts in 37 laboratories throughout NSW, including all larger regional laboratories. These instruments provide rapid PCR diagnosis (approximately 60 minutes) and have been used to provide rapid flu testing. A limited number of cartridges to allow rapid on-site SARS-CoV-2 testing is now available at metropolitan, regional and rural sites with GeneXperts. These sites are: Westmead, Blacktown, Blue Mountains, Lithgow, Bathurst, Mount Druitt, Nepean, Bega, Broken Hill, Wagga Wagga, Griffith, Goulburn, Orange, Dubbo, John Hunter Hospital, Armidale, Taree, Gosford, Tweed, Tamworth, Coffs Harbour, Lismore, Calvary Mater Newcastle, Royal North Shore, Campbelltown, Liverpool, Bowral, Fairfield, Bankstown, Randwick, Wollongong, St George, Royal Princess Alfred, Concord Hospital, Kempsey, Grafton and Cooma.

Indications for Rapid SARS-CoV-2 testing
Rapid SARS-CoV-2 testing of nasopharyngeal swabs should be considered in high risk patients where an urgent result is required (within one to four hours).

Testing can only be requested by a Consultant, preferably following discussion with the on-call NSWHP Microbiologist or Infectious Diseases physician. Request forms should indicate the consultant authorising testing.

Testing criteria:
Acutely unwell inpatients (including patients in the Emergency Department) with recent onset of respiratory symptoms/pneumonia (particularly if pregnant) OR patients with unexplained sepsis developed in hospital

AND

Requirement for a rapid result to inform clinical management (i.e. treatment or transfer) OR urgent public health intervention.

Conventional rather than rapid testing should be performed for:

- Outpatients, community presentations
- Inpatients with known FLU/RSV or other viral infections
- Known contact of a cluster (who require self-isolation)
- Clinical trial subjects
- Convalescent testing in patients in whom SARS-CoV-2 has previously been detected, including staff prior to returning to work.
Results will be reported on the eMR as:

- **DETECTED** – N gene with or without E gene identified
- **DETECTED PRESUMPTIVE** – E gene only identified
- **INVALID** – failed result (testing will be repeated locally)
- **NOT DETECTED** – N gene and E gene negative

All results will be treated as critical results and communicated to the ordering clinician as per local procedures.

Supplementary conventional multiplex PCR testing will be performed on the same sample where a DETECTED PRESUMPTIVE result has been obtained and for repeat INVALID results. A sample will be sent to ICPMR for whole genome sequencing for DETECTED and DETECTED PRESUMPTIVE cases.

**Process for arranging local rapid SARS-CoV-2 testing:**

1. Following patient assessment and authorisation by the responsible Consultant (preferably with discussion with an Infectious Diseases physician or microbiologist), NSW Health Pathology’s laboratory staff should be telephoned and notified of the urgent test request.
2. Requesting clinicians must provide a pager or mobile number to allow the laboratory to notify the urgent result.
3. A nasopharyngeal swab should be taken from the patient as per the accompanying document (Collection of nasal and throat swabs for respiratory virus testing)
4. Place the request form with patient identification, clinical and test request details into the side pocket of the biohazard bag.
5. Transport the sample to the local NSW Health Pathology laboratory for testing as soon as possible. If there is any delay in transport to the laboratory, store and transport the sample at 4°C.
6. Once received, the sample will be tested on-site or at a referral laboratory. Results will be communicated to the referring clinician by the laboratory when testing is complete and posted on the eMR.
7. Where a result is positive (DETECTED or DETECTED PRESUMPTIVE), the requesting clinicians should follow local protocols for infection control. The laboratory will notify the local Public Health Unit of all DETECTED or DETECTED PRESUMPTIVE results.

**Further information**

Should you need further information about rapid diagnostic testing for Rapid SARS-CoV-2 testing please contact the local Microbiologist or Professor Robert Lindeman ([Robert.Lindeman@health.nsw.gov.au](mailto:Robert.Lindeman@health.nsw.gov.au), phone 0420770701)

Further updates will be provided as required.