Rapid PCR testing for SARS-CoV-2

Recommended criteria for GeneXpert SARS-CoV-2 testing for priority patients
23 April 2020

NSW Health Pathology has provided SARS-CoV-2 (COVID-19) nucleic acid diagnostic testing since late January 2020. Testing is currently provided from nine NSWHP laboratories with expertise in molecular diagnostics, including ICPMR Westmead, Prince of Wales Randwick, Concord, Lismore, Liverpool, Nepean, Royal Prince Alfred Hospital Camperdown, Royal North Shore and John Hunter Newcastle using a variety of testing platforms.

Accredited testing is also being performed by the Elizabeth Macarthur Agriculture Institute (EMAI) for NSW Health Pathology.

At present our total capacity is approximately 6500 tests/day, with turnaround times under 24 hours in metropolitan hospitals. Maintaining clinically appropriate turnaround times to regional and rural sites is particularly challenging.

We review our testing strategy and capabilities daily to continue to meet evolving statewide needs and to make most efficient use of specialist diagnostic test kits and consumables, which remain in high global demand.

Expanding on-site testing in NSWHP regional and rural labs

Rapid PCR testing has always been part of NSW Health Pathology’s strategy to help combat this pandemic. Expansion of our testing capabilities continues to be matched to clinical need for patient care and safety.

NSW Health Pathology has GeneXperts (manufactured by Cepheid) in over 30 laboratories throughout NSW, including all larger regional laboratories. These instruments provide rapid PCR diagnosis (approximately 60 minutes) and have been used in recent years to provide rapid influenza A, B and RSV diagnosis. GeneXperts have been interfaced to our laboratory information systems at most sites.

Testing uses solid-state single-use cartridges and can be performed by laboratory staff with limited microbiological training.

Cepheid has now developed a new SARS-CoV-2 cartridge, which NSW Health Pathology has evaluated and we’re satisfied with its performance.

These are in short supply globally. NSW Health Pathology has now secured a weekly supply chain for these new cartridges and can provide rapid testing for priority patients.

Expanding rapid PCR testing is important where urgent clinical care is required to address logistical challenges and timeframes for transporting samples from regional and rural facilities to metro labs.

As such, the first allocation of cartridges has been distributed to Broken Hill, Wagga Wagga, Orange, Coffs Harbour and Tamworth.

We are now also able to distribute cartridges to further regional sites and some metropolitan centres to support further urgent testing needs.
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Most testing will continue to be performed by one of the referral laboratories, with transport of samples using existing courier networks.

The following guidelines for the use of rapid PCR tests have been developed in consultation with the NSW Health Pathology Microbiology Clinical Stream.

Testing can only be requested by a Consultant, preferably following discussion with the on-call NSWHP Microbiologist or Infectious Diseases clinician.

These recommendations will remain under review to ensure they are in line with the evolving SARS-CoV-2 (COVID-19) pandemic.

Rapid testing should be considered for patients meeting the following criteria:

- In an acutely unwell inpatient with new onset respiratory symptoms/pneumonia or
  OR
- Unexplained sepsis developed in hospital, particularly if pregnant
  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.

For questions or more information, please contact:

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