

# Noting paper

## COVID-19 – SURVEILLANCE

To: COVID-19 Ministerial Group			
Date	8/04/2020	From	National Health Coordination Centre

### Purpose

To outline the approach to surveillance that has been adopted by the Ministry of Health, and to note strengths and limitations of key surveillance options.

### Recommendations

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| 1. <b>Note</b> the plan for surveillance of COVID-19                             | YES / NO |
| 2. <b>Note</b> mechanisms that are currently in place for COVID-19 surveillance. | YES / NO |
| 3. <b>Note</b> key activities in progress for COVID-19 surveillance              | YES / NO |

### Contact for telephone discussion if required:

Name		Position	Telephone
Signed out by	Dr Ashley Bloomfield	Director-General of Health	s.9(2)(a)
Signed out by	Maree Roberts	Deputy Director-General System Strategy and Policy	
Lead author	Dr Tom Love	NHCC Intelligence Advisor	

# COVID-19 – SURVEILLANCE

## Purpose

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1. To provide information on the surveillance approach to COVID-19, and outline key elements of surveillance that are currently operational and planned for the short- and middle-term.

## The surveillance approach

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2. Disease surveillance is the ongoing systematic collection, analysis, and interpretation of data, closely integrated with the timely dissemination of these data to those responsible for preventing and controlling disease. Surveillance is a core component of communicable disease control. It provides information on new cases to support Keep It Out and Stamp It Out activity, on disease risks across the population, and on the effectiveness of the response.
3. The Ministry of Health has developed a surveillance plan based upon the fundamental principles of communicable disease control. The plan outlines the current and future components of COVID-19 surveillance. It identifies the specific sources of information that will be used, and the analysis that will be conducted to inform front line responses and high level decision making.
4. The surveillance plan was developed with expert advice from the Epidemiology Subgroup of the Technical Advisory Group convened by the Ministry of Health. This group includes the external expertise of Prof Michael Baker (University of Otago), Dr Annette Nesdale (Wellington Regional Public Health), Assoc Prof Patricia Priest (University of Otago), Prof Nigel French (Massey University), Prof Chris Bullen (University of Auckland), Dr Virginia Hope (ESR). It is consistent with expert public commentary, including that by communicable disease epidemiologists and public health specialists at the University of Otago.
5. The approach to surveillance for COVID-19 is based on:
  - a) Existing surveillance systems for notifiable diseases operated by Regional Public Health Units and ESR. This system is currently providing the case numbers and details that are being regularly reported.
  - b) Existing surveillance mechanisms for influenza-like-illness (ILI)
  - c) Additional surveillance based on COVID-19 testing, ensuring the best testing coverage of symptomatic patients, particularly in populations with high risk. This is being implemented through general practice, Community Based Assessment Centres (CBACs) and laboratories, which are joining their systems to allow the data to be collected and shared. All patients who are in hospitals and have symptoms of respiratory illness are also being tested.
  - d) Wider sampling across the community of asymptomatic cases, possibly targeted to specific localities or population groups. This approach will not produce useful short term

surveillance information, but will complement other surveillance mechanisms in the medium term.

## Elements of surveillance currently in place

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6. The immediate surveillance activity for COVID-19 is based upon the following elements:
  - a) Existing ILI surveillance conducted by ESR on behalf of the Ministry of Health, including sentinel practices, patient reports of symptoms to Flu Tracker, and reports of symptoms to HealthLine. This is currently operational and functioning as usual.
  - b) The core communicable disease surveillance system, operated at the frontline by PHUs, which feed information on positive COVID-19 cases through to ESR and the Ministry of Health via the EpiSurv database. This is currently operational and functioning as usual, with efforts underway to ensure timely data entry, which is under some pressure arising from the high number of cases.
  - c) Contact tracing data, which provides information on confirmed cases and their contacts, and how these emerge as clusters. This is being collected by the National Contact Tracing Centre in a newly-developed information system.
  - d) A regular survey, linked back to participants in the New Zealand Health Survey, has been developed and is in place for monitoring ongoing attitudes and mood relevant to COVID-19.
  - e) ESR is conducting genetic surveillance of COVID-19 samples via whole genome sequencing in order to understand which of the eight known strains are important in New Zealand.

## Next Steps

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### Short-term implementation for COVID-19 surveillance

7. New COVID-19 surveillance mechanisms are being stood up rapidly.
  - a) A national dataset is being developed for COVID-19 lab tests to be able to access both positive and negative test results across New Zealand. Expected to be running by 20 April 2020, this dataset would allow the Ministry of Health to link further valuable information about people being tested for COVID-19 symptoms. This will also allow epidemiologists at the Ministry of Health to calculate rates and trends of disease with clearer oversight at a local level, on its impact on key populations including Maori and Pacific people, and on its impact based on socioeconomic deprivation.
  - b) A national dataset is being developed for CBACs, to monitor for equitable health outcomes based on representativeness of the population. Where there is an indication that key populations, particularly Māori, are not being tested in sufficient volume to support accurate monitoring of COVID-19, DHBs will be asked to extend their efforts to test symptomatic people in those populations. It is expected that this database will be in operation by 10 April 2020.

8. These mechanisms are about enabling key data to be available. This will help to reduce potential duplication of data, and ensure that reported data is consistent and robust.

**Medium-term options for COVID-19 surveillance**

9. When COVID-19 prevalence is higher, there will be value in measuring the level of that prevalence in the community. This will allow an assessment of the prevailing level of immunity among the population, and the risk of infection-spread from that point. Options for prevalence testing include:
  - a) Antibody testing from a random sample in the community. This would be oversampled for high risk groups in the population, such as Māori and Pacific people, in order to ensure that conclusions about immunity and future risk consider the particular risks faced by those populations.
  - b) Surveillance of prevalence in the population following the initial wave of infection. This will be likely to take the form of an immunology study of randomly sampled people in the population. However, this approach will not be beneficial unless the prevalence of COVID-19 increases
  - c) s 9(2)(g)(i) [REDACTED]
10. The Ministry of Health will continue to work with public health experts to understand at what point these surveillance options would be required.

**Surveillance reporting**

11. The Ministry of Health will complete its initial surveillance report next week, with independent replication of results and comment from the Technical Advisory Group, to support advice for the Cabinet meeting on 20 April 2020. This will be generated by a team of analysts and expert epidemiologists from the Ministry of Health, ESR and other agencies. The analysis will be replicated by an independent group in order to provide quality assurance and to allow high confidence in the results and interpretation.
12. Surveillance reports will provide systematic information on the progress of the COVID-19 pandemic in New Zealand, including local and regional breakdowns of incidence and prevalence of the disease, and analysis of any emerging clusters. This core information will be the basis for advice on the risk faced by the population at the current level of lockdown, and for estimates of how that might change under other population management options.
13. The standard notifiable disease surveillance system, operated by ESR, provides data back to PHUs and to the National Contact Tracing Centre for managing cases when they are discovered.
14. s 9(2)(g)(i) [REDACTED]

## Limitations of COVID-19 test surveillance

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15. Surveillance of COVID-19 is limited by the performance of the available tests for the disease and the underlying community prevalence of the disease. Understanding the strengths and limitations of the available tests is fundamental to accurate interpretation of COVID-19 surveillance, and to assessing the true usefulness of different testing options. Misinterpreting these issues comes with a high risk of false assurance from testing regimes that are not well designed. This presents a risk of policy advice being based on inaccurate or misleading information.
16. The swab-based tests that are currently being conducted in New Zealand are based on swabs of a patient's naso-pharyngeal passage (where the back of the nasal canal meets the throat) that then undergo laboratory analysis. § 9(2)(g)(i)  
[REDACTED]
17. Antibody tests, also referred to as immunology tests, are a blood test that aims to find antibodies to COVID-19, indicating that a person has been exposed to the disease. These tests are not generally appropriate for diagnosis, because the quality of these tests is poorer than the swab-based tests. A suitable laboratory antibody test is being developed and is likely to be available in New Zealand in June.
18. The portable, near-patient versions of antibody tests that are available to date only have sensitivities of 30% or lower – far less sensitive than swab-based tests currently in use. While there has been prominent mention of near-patient antibody tests in international media, these tools have very limited value, and risk providing misleading information and inaccurate results, for diagnosis, case management and surveillance.
19. When a disease is rare, the imperfections in testing methods matter more, and there is an increased risk of producing misleading results. Only when the general prevalence of the disease is common enough to get a large number of positive results is it possible to adjust for the known imperfections of a test, and then find an accurate result that can support decisions.
20. If New Zealand's testing and contact tracing of patients with COVID-19 symptoms is working well, then the disease will be uncommon in those without symptoms. Random testing of people without symptoms in the community will not provide useful additional information and could potentially provide misleading information and inaccurate results. § 9(2)(g)(i)  
[REDACTED]