

COVID-19 cluster investigation and control guidelines

22 May 2020

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Purpose

This document provides guidelines for the identification, investigation, reporting and control of clusters of COVID-19 infection, including the roles and responsibilities of:

- Public health units (PHUs)
- ESR
- The National Close Contact Service (NCCS)
- Healthline
- The National Covid-19 Cluster Coordinator
- The Office of the Director of Public Health (ODPH)
- Ministry of Health (the Ministry)

Context

Prior to COVID-19, *Guidelines for the Investigation and Control of Disease Outbreaks* (ESR, 2012) was the primary document used by PHUs, ESR and the Ministry for managing outbreaks.

Since the introduction of COVID-19 into New Zealand, PHUs, ESR and the Ministry have adapted their usual approach as COVID-19 requires a strengthened response in both investigating and controlling clusters.

The system has many moving parts including different databases and agencies. The approach needs to be meticulously joined up so that links between cases can be detected early and no cases or contacts are lost.

This operational document sets out the key elements for an extra-precautionary approach to cluster control and provides clarity around processes. There may be minor variations of processes across PHUs. Processes are continually being refined and enhanced, and the document will be updated as necessary.

Guiding principles for effective cluster control

- Respectful, skilful and timely case and contact interviews with daily follow ups.
- Support for people to remain in isolation/quarantine with the option to use formal isolation/quarantine facilities for high risk situations.
- Clarity on roles and responsibilities including who is leading the response for each cluster.
- National leadership and coordination of multi-region clusters.
- Excellent communication between agencies including clarity on the communications channels to be used and how to task between agencies.
- Prompt and thorough data collection for reporting, analysis and action.
- Ongoing review of information to look for linked cases.

Definition of a cluster

Standard definition: As per the Guidelines for the Investigation and Control of Disease Outbreaks (ESR 2012), any two or more linked COVID-19 cases.

Potential institutional cluster: In addition, a single case within a vulnerable residential institution such as a rest home, intellectual care home, or prison should be investigated and reported as a potential institutional cluster.

Identification of clusters

Clusters can be identified through several avenues.

PHU identifies

- A designated person from the PHU reviews information from new and recent cases daily to look for epidemiological links. (PHU may have additional IT capacity to scan for links.)
- A possible or definite cluster is identified.
- PHU can contact ESR to check for possible linked cases (e.g. word search on EpiSurv).
- If the cluster is likely to extend to other districts, inform the Ministry of Health National COVID-19 Cluster Coordinator via COVID-19_OutbreakCoordination@health.govt.nz.

NCCS identifies

- A designated person from the NCCS reviews information on new and recent cases. Contacts are referred to NCCS daily to look for epidemiological links (this is in development).
- A possible or definite cluster is identified.
- NCCS can contact ESR to check for possible linked cases (e.g. word search on EpiSurv).
- NCCS Coordinator alerts the relevant PHU by calling the on-call Medical Officer of Health.
- If the cluster is likely to extend to other districts, also inform the National COVID-19 Cluster Coordinator via COVID-19_OutbreakCoordination@health.govt.nz.

Other organisation identifies

- Institutional (e.g. rest home, hospital or prison) clusters will usually be reported directly to the relevant PHU.
- When businesses, schools or others identify a potential cluster (e.g. multiple cases in a workplace or a sudden increase in absenteeism), information will usually be reported directly to the relevant PHU.
- If another agency (e.g. Healthline or Ministry of Health) is the first to be notified, they must phone the relevant on-call Medical Officer of Health and email **COVID-19_OutbreakCoordination@health.govt.nz**

Clusters may also be identified by national surveillance. ESR will monitor these surveillance systems and promptly advise the National COVID-19 Cluster Coordinator and the relevant PHUs if increased cases or new linkages are detected. The surveillance systems currently active are:

- scanning free-text fields in EpiSurv notifications to check for references to any events flagged to ESR as a potential concern
- genotyping of SARS-CoV2 samples by ESR may provide useful information around links between cases
- enhancement of Healthstat for surveillance of primary care data
- enhanced event-based surveillance for outbreaks of ILI/acute respiratory infections
- the National Influenza Surveillance Programme that includes GP ILI sentinel surveillance and the community ILI participatory surveillance programme FluTracking (self-reporting), are currently being expanded and enhanced.

In addition, other surveillance systems under consideration include:

- Spatio-temporal analysis of COVID-19 and Influenza-like illness (ILI) surveillance data
- virologic enhanced community-based sentinel surveillance, using GPs and/or CBACs.

Investigation of cluster

1. Establish a cluster co-ordinator
 - Clusters which are within a DHB area or PHU district are followed up by that PHU. A PHU cluster coordinator must be identified for any potential or actual clusters.
 - If PHU capacity is exceeded, refer to the National COVID-19 Cluster Coordinator to lead (COVID-19_OutbreakCoordination@health.govt.nz).
 - Any complex, multi-district cluster may be coordinated by the National COVID-19 Cluster Coordinator.
2. Enter cluster as an outbreak on EpiSurv
 - The PHU should enter all clusters, other than household-only clusters, as an outbreak on EpiSurv before close of business.
 - All new cases linked to it should include the outbreak number.
 - In addition to an EpiSurv number, the cluster coordinator should determine a simple (but non-stigmatising) name for the cluster, e.g. Christchurch aged residential care facility 1, Wellington wedding or Private function Auckland.
 - For some clusters, there may be a significant sub-cluster within an institution. Where agreed with the Ministry and ESR, the cases in that sub-cluster should have the sub-cluster field updated on their individual case report forms with the sub-cluster name. A description of the criteria for inclusion in the sub-cluster should be included in the EpiSurv outbreak report.
3. Identify 'point of contact' for cluster
 - The PHU in the area where the cluster started should identify a designated 'point of contact' in the household, institution, business or community to establish clear communication:
 - for a workplace this is likely to be the manager or workplace wellness supervisor
 - for a community event e.g. wedding or other event this should be a responsible key person
 - for an institution, hospital or other facility this is likely to be the manager, infection control lead or incident controller. This person (and a backup) must be established.
 - The local Medical Officer of Health will make initial contact with the facility/institution where the cluster started.
4. Obtain a list of contacts
 - Obtain a list of other people who have been exposed to the common event or site from the point of contact including any potential apps.
 - Businesses have been asked to find ways to rapidly identify all contacts if requested – for example a list of customers at a venue at particular time, clients at an event, etc. This may be via registers or by electronic means e.g. Eftpos.
5. Identify and classify the source of the cluster

The cluster coordinator needs to ensure that all efforts are made to uncover how the index case for a cluster became infected and classify according to the following categories.

- **Imported cases:** Cases with a reported history of international travel within 14 days of onset.
- **Import-related cases:** Cases that have a reported link (close contact or epidemiological link) to an imported case.
- **Locally acquired case, epidemiologically linked:** Cases that have a reported link (close contact or other epidemiological link) to a locally acquired case with an unknown source.
- **Locally acquired case, source unknown:** Cases that have no reported history of international travel within 14 days of onset and no recorded epidemiological link to a source case. All possible avenues must be exhausted before using this category, e.g. repeated interviews to identify links, testing asymptomatic or minimally symptomatic contacts, etc.
- **Source of infection under investigation:** used until the classification is known.

The classification may change during the course of the investigation.

Classification of cluster containment

Reporting to the Ministry must indicate the current level of containment:

- **closed:** no new cases for 28 days after last case recovery date
- **dormant:** No new cases reported for 14 days
- **controlled:** cases are in isolation; all close contacts have been identified and quarantined AND there are no new cases likely to arise outside of the identified close contacts
- **uncontrolled transmission.**

Where there is unexplained or uncontrolled transmission, additional investigation and testing, including asymptomatic contacts, should be undertaken (see testing section below).

Testing

Testing in relation to a cluster should be comprehensive.

Promptly test close contacts of a cluster who fit the definition for suspect case, unless testing is not feasible/practical and the case can be classified and managed as 'probable'.

Promptly test casual contacts of a cluster who fit the suspect case definition. This will help to determine and limit the spread of the cluster.

Consider testing asymptomatic contacts especially:

- in a situation which is high risk for a large cluster, e.g. school, health care setting, supermarket, vulnerable residential setting
- where the source case is not known
- where there are no clear overseas links.

In an aged residential care cluster or other potential institutional cluster, testing of all residents, staff, and visitors is likely to be appropriate (see below, Special situations).

If the Medical Officer of Health is considering arranging testing for asymptomatic contacts in a cluster, they must inform the National COVID-19 Cluster Coordinator and discuss it with the local laboratory.

Closure of clusters

The criteria for determining transmission of a cluster to be closed has been reviewed and updated based on advice. A cluster is considered closed when there have been no new cases for two incubation periods (ie, 28 days) from the date when all cases complete isolation. The change may mean some already closed clusters will be reclassified to remain open.

An outbreak in aged residential care facilities is considered closed when there have been no new cases for two incubation periods (ie, 28 days) from the date when all cases complete isolation within a facility, the date of death or two negative PCR tests within 24 hours – whichever is earliest. Cases in household contacts of staff are not considered part of the facility outbreak but would be considered as part of the broader cluster.

National COVID-19 cluster coordination role

If a cluster is complex and multi-district or the PHU has requested national assistance with a cluster, the National COVID-19 Cluster Coordinator within the Ministry will lead the investigation. In this situation, roles need to be clearly defined:

- The National COVID-19 Cluster Coordinator will maintain an overview of the situation and provide direction to PHUs.
- PHUs will continue to follow-up all cases and household contacts in their area, and link them to the EpiSurv outbreak number.
- If the PHU has referred non-household close contacts of a potential cluster to NCCS, NCCS must provide prompt feedback on the findings to the referring PHU and to the National COVID-19 Cluster Coordinator.
- PHUs will advise the National COVID-19 Cluster Coordinator if they have identified additional cases/contacts in the cluster who are outside of their area. The National COVID-19 Cluster Coordinator will then inform the relevant PHUs of these cases and close household contacts for the PHU to follow-up, and will refer close non-household contacts to the NCCS.
- ESR will provide epidemiological analysis both during and after the cluster – number of cases, age, ethnicity, mode of spread. This analysis will be provided to the National COVID-19 Cluster Coordinator who will forward to all PHUs.
- The National COVID-19 Cluster Coordinator will be responsible for the final outbreak report and will rely on comprehensive information (on EpiSurv) from PHUs, as well as ESR analysis, to complete this task.

Communication channels

Regular

- A daily report from PHUs is to be sent to the Ministry for emerging issues by 10am via NHCCPHU@health.govt.nz.
- A daily 10am teleconference stand-up between the Ministry and PHUs.
 - National COVID-19 Cluster Coordinator notifies PHUs of new multi-district clusters
- The Ministry generates updated daily reports of current clusters with assistance from PHUs as required.

As required

- The National COVID-19 Cluster Coordinator contacts the relevant on-call Medical Officer of Health by phone regarding urgent cluster information.

- Timely communication between NCCS and PHUs is critical. Clear mechanisms and contact details need to be established between senior NCCS staff and nominated PHU staff.
- All media queries should be referred to the Ministry.
- Media may be able to assist by publicising details of events and times to assist with cluster control.

Special situations

Cross boundary issues

An example of a cross boundary issue is when a case had close contact with people at a premise in one PHU area, but that case (and any other potential cases) are from other PHU areas.

As this is a multi-district outbreak, the National COVID-19 Cluster Coordinator may be the lead and will do so in partnership with all PHUs where there are linked cases, including the PHU where exposure occurred.

The local Medical Officer of Health/PHU in the first instance should explain the situation to the premises manager and outline the process, but the Medical Officer of Health/PHU is not responsible for interviewing cases outside of their region.

High risk or complex clusters

Examples of high risk or complex clusters are groups of people who may be less able to comply with public health advice e.g. people with intellectual disability, mental illness, homelessness, gang members.

This is a high risk situation and local connections are essential. The local PHU will be able to identify people who can work with high risk groups either from their own workforce, from the DHB mental health/cultural support teams, or via the local CDEM welfare group. In these situations, it is usually preferable that the PHU follows up all cases and all contacts.

Aged residential care facilities or other vulnerable residential institutions

A single case within a vulnerable residential institution such as an aged residential care facility, should be considered as a potential institutional cluster. Rapid investigation and case finding should be led by the local Medical Officer of Health and be undertaken in partnership with the facility manager.

In addition to identifying potential sources of infection, it is important to identify:

- anyone who may have been exposed to the case while infectious
- where the source is unknown, anyone who may have passed it on to the case within the 14 days prior to onset of symptoms in the case.

Asymptomatic testing of all contacts (staff, residents and visitors) within this setting as a point in time assessment is appropriate, and recommended, in these circumstances. A negative test does not preclude someone from becoming infectious later in their 14 days since last contact with the case. They should be appropriately quarantined and closely monitored over the remainder of their quarantine period, particularly if their ability to recognise and report symptoms is compromised.

Information to know when an outbreak is considered closed in aged residential care facilities is in the closure of clusters section.

Documentation

- The National COVID-19 Cluster Coordinator will complete documentation and reporting for all multi-district clusters.
- For other clusters, the PHU cluster coordinator must complete documentation and reporting.
- The cluster coordinator updates the EpiSurv outbreak form (this is a generic form – only complete relevant details).
- Attach the detailed outbreak report on EpiSurv (see appendix 2 for suggested format).

Appendix 1: Case and close contact management

Case definitions

The **current case definitions for COVID-19** are on the Ministry of Health website.

The process for updating case definitions is:

- need for update identified
- change drafted by ODPH
- reviewed by Public Health subgroup of the Technical Advisory Group
- final version signed out by ODPH
- advisory sent to key parties including PHU, ESR, Healthline, NCCS, Primary Care etc.
- updated case definition document is published on the website.

Key advice for health professionals

The latest advice on how to identify and investigate any cases of COVID-19 as well as how to apply appropriate contact tracing and infection control measures is available in the **advice for health professionals** on the Ministry of Health website.

PHUs and the NCCS may seek further guidance from the Office of the Director of Public Health for complex situations using 0800 GET MOH.

Notification of cases

Cases are notified to medical officers of health in three main ways:

- Direct Lab Notifications (DLNs)
- clinical notification
- contact tracing (case finding or contacts subsequently becoming ill).

Initial case investigation

Initial case follow-up

- Usually cases are followed up by the PHU.
- If the PHU is at capacity, then refers case to NCCS via the National Close Contact Tracing Solution (NCTS) (contact NCCS to arrange training and access).
- NCCS follows up the referred case.
- NCCS feeds back information to PHUs when complete.

Timeframes

- PHU ensures the case is entered in EpiSurv straight away (if not a direct lab notification).
- PHU contacts the case (or parent/guardian) as soon as possible after notification. For notifications after 8pm, contact first thing the next day. (KPI is 24 hours, ideally sooner.)
- Information from the interview is to be entered on EpiSurv as soon as possible and on the day of the interview.
- If the case is to be transferred from a PHU to the NCCS, referral should occur within four hours of notification (note that NCCS hours are 8am to 8pm).
- NCCS should make contact with transferred cases as soon as possible (KPI is 24 hours from positive test notified to PHU – ideally sooner).
- If the case cannot be contacted within these timeframes make referral for police to visit (using the protocol “Escalation process for when a confirmed COVID-19 case cannot be reached”. A copy is available by emailing COVID-19_nccs_manager@health.govt.nz).

Investigation of case

- PHU/NCCS follow a standard interview process to establish the disease onset, identify close and casual contacts, etc.
- Identify source of illness:
 - ask detailed questions about activities and contacts in the previous 14 days
 - ask the case whether they are aware of any other potential or definite cases amongst their contacts.
- If no link to overseas travel or other notified cases can be identified, then:
 - continue probing for further detail until all options have been exhausted
 - testing of asymptomatic contacts should be used to help identify transmission route.

Case management

- All cases must be isolated and followed up daily.
- An assessment should be made of the person’s current clinical status and any pre-existing conditions, age, etc. to determine likelihood of severe illness.
- For cases that do not require hospital-level care, a risk assessment must be undertaken of:
 - the case’s ability and willingness to isolate
 - where isolation is best undertaken.
- Consider transfer to a dedicated isolation facility if:
 - isolation is not possible in the case’s current location (e.g. crowded living conditions)
 - an unwillingness to isolate is identified
 - there are vulnerable household members e.g. with co-morbidities, elderly, or those that work in vulnerable settings or with vulnerable people e.g. Aged Residential Care workers, health care workers etc.

Contacts

Follow up of close contacts

- Usually all household close contacts are followed up by the PHU.
- Other close contacts may be referred from the PHU to the NCCS, depending on capacity or type (e.g. flights) via NCTS.
- For contacts referred to the NCCS, they make the first follow up call to the referred close contact and then refer on to Healthline for daily follow up after successfully reaching the close contact.
- PHUs access up to date information on the status of referred contacts through the NCTS. PHUs should contact the NCCS to arrange access to the NCTS.

Timeframes

- PHU should transfer close contacts to the NCCS within four hours of identifying them, if being transferred.
- Household close contacts (or their parent/guardian) should be spoken to within 24 hours and of being identified by the case.
- Non-household close contacts (or their parent/guardian) should be spoken to within 48 hours and of being identified by the case.
- If the close contact cannot be reached within these timeframes:
 - PHUs should refer the close contact to the NCCS
 - NCCS will use their finders services.

Close contact management

- All close contacts must be quarantined and followed up daily to check for symptoms, address welfare issues, and adherence to quarantine.
 - The PHU is responsible for close contacts that haven't been referred to the NCCS.
 - Healthline is responsible for the daily follow up of NCCS referred close contact.
- A risk assessment of the close contact's ability and willingness to quarantine must be undertaken.
- Consider transfer to a dedicated quarantine facility if:
 - quarantine is not possible in the close contact's current location (e.g. crowded living conditions)
 - an unwillingness to quarantine is identified
 - the contact will be at risk of exposing high risk people if they become unwell (e.g. healthcare worker, lives with vulnerable people).
- If the NCCS or Healthline identifies that a close contact has become symptomatic and meets the clinical criteria for COVID-19, the close contact must be referred urgently back to the referring PHU for investigation, regardless of test result.

Casual contacts management

- A risk assessment of the casual contacts should be undertaken by the PHU/NCCS.
- If it's a high risk setting (e.g. aged care facility) then testing and quarantine of casual contacts may be required.
- If there is the need to raise awareness of risk of COVID-19 infection to a group of casual contacts, the PHU should arrange for information to be provided via email, notice, or the media. A venue manager or other 'point of contact' may be able to undertake this if given the correct information. Social media may also be useful for alerting and providing advice to casual contacts. Social media must be used with a high degree of caution and with respect for the privacy and dignity of individuals.

Appendix 2: Suggested cluster report template

Other report formats may be appropriate or adapted e.g. ARC report template

Information available in EpiSurv is marked ""*

ORF = Outbreak Report Form followed by field name*

CRF = COVID-19 Case Report Form followed by field name*

Outbreak number* (ORF*OutbreakNumber)

Cluster name (and any subclusters identified in episurv) (ORF*OutbreakName; CRF*SubCluster)

Date cluster closed (or projected to close) (Note: 28 days after last isolation date CRF*IsolatedToDate)

Date of report

Contact person for the report (ORF*OfficerName or other as indicated)

Outbreak definitions

(ORF*DefnLabConfirm)

(ORF*DefnConfirm)

(ORF*DefnProbable)

Total cases (ORF*NoTotal)

Probable (ORF*NoProbable; note: outbreak case definition may differ from individual cases. Will need to specify if using on standard definition)

Confirmed (ORF*NoLabConfirmed; see note above)

Hospitalised (ORF*NoHospital)

ICU admissions (collated from CRF*ICU)

Deaths (ORF*NoDied; do you want to specify all deaths or died from disease only)

Number of healthcare workers (collated from CRF*Healthworker)

Date outbreak reported (ORF*ReportDate)

Date first case notified (CRF*ReportDate of first case)

Earliest onset date (ORF*FirstDate)

Latest onset date (ORF*LastDate)

Epicurve

Setting(s) (include any healthcare facilities)

ORF*ExposureType and ExposureName fields)

Narrative description of cluster, which may include:

- Detailed analysis of any clusters identified within the outbreak (include generations and household clusters if applicable)
- Time line of key developments
- Whole genome sequencing and transmission chain
- Risk and protective factors

Source

Source investigation methods

Identification and management of close contacts, including any asymptomatic testing

Lessons learnt (consider challenges and successes)

Other comments