COVID-19:
Interim Public Health guidance for the management of COVID-19 outbreaks

V1.0 May 12th

2020

Contents

1 Summary

This is interim guidance and will be updated to reflect the changing situation.

An outbreak of COVID-19 can happen in a variety of settings e.g. the home, community, residential care facilities, hospitals and the workplace. In general, the surveillance definition of an outbreak of COVID-19 is:

- two or more cases of illness consistent with COVID-19 infection in a setting and at least one person is a confirmed case of COVID-19
  OR
- two or more cases of illness consistent with COVID-19 infection in a setting and there is a strong suspicion that it is caused by COVID-19 (do not report as outbreak of acute respiratory infection (ARI) at this time)

However, due to the variation in settings of outbreaks, the vulnerability of those involved or potential for increased transmission, a more sensitive definition of an outbreak may be used for public health action. For example, in residential care facilities (RCF) a single suspected case of COVID-19 should prompt immediate public health action.

Laboratory testing should be arranged as quickly as possible. However, it is not necessary to wait for laboratory test results before beginning initial investigation, contacting Public Health and implementing control measures.

For setting specific guidance please see the following supplemental documents:

- Interim guidance for the management of COVID-19 in Residential Care Facilities
- Supplemental guidance for the management of outbreaks in the acute hospital setting
- Supplemental guidance for the management of outbreaks in general community settings – in progress

Note: Infection prevention and control precautions guidance should be followed during the preparedness and response phases of all outbreaks.

2 General approach to outbreak management

There are five crucial elements in developing an effective, standardised approach to the investigation and management of outbreaks of Coronavirus disease 19 (COVID-19). These crucial elements are:

1. Effective pre-planning and preparation;
2. A very high degree of clarity regarding governance structures and the roles and responsibilities of all stakeholders involved in outbreak management;
3. Robust collaborative arrangements between partner organisations;
4. Clear, simple and unambiguous communications policies and pathways within and between partner organisations;
5. A well-developed outbreak plan which clearly describes the above components.

Partner organisations should familiarise themselves with one another's roles and responsibilities during outbreak management; this is best achieved through clear lines of communication and training.

This operational plan describes roles and responsibilities of a range of organisations tasked with the identification, investigation and control of outbreaks of COVID-19, at local, regional, national and international level.

This Plan should be used in conjunction with other relevant plans and guidance for COVID-19. This information is available from the following links:

- HSE-HPSC
- HSE Hub
- Department of Health

2.1 Aim and scope of the plan

The aim of this plan is to ensure a rapid, effective and coordinated approach to the identification, investigation and control of an outbreak of COVID-19, regardless of setting. The

plan describes the continuum of outbreak management, from initial detection to the formal declaration of the end of the outbreak and written review of lessons learned.

The plan identifies the roles and responsibilities of key stakeholders, describes managerial and organisational aspects of the COVID-19 outbreak response, and outlines communication, investigation and control procedures.

NB: The protection of public health takes priority over all other considerations, and this must be understood by all members of the Outbreak Control Team (OCT). Appendix A outlines an example of membership of the OCT.

The objectives of this plan are:

- To provide an overarching framework for investigation and management of COVID-19 outbreaks.
- To ensure that outbreaks of COVID-19 are effectively and rapidly identified, verified, investigated, brought under control and, where necessary, procedures put in place to reduce the likelihood of similar outbreaks occurring in the future.
- To ensure that legislative controls are applied appropriately and correctly, in consultation with relevant partners.

2.2 Legislative obligations and role of Medical Officer of Health

Under the Infectious Disease Regulations 1981, all medical practitioners, including clinical directors of diagnostic laboratories, are required to notify the Medical Officer of Health (MOH) of cases and outbreaks of Notifiable Infectious Diseases. It is the legislative responsibility of the MOH to "make such enquiries and take such steps as are necessary or desirable for investigating the nature and source of such infection, for preventing the spread of such infection and for removing conditions favourable to such infection."[1] The role of the MOH includes convening an OCT, which should comprise the necessary expertise to manage/control

[1] INFECTIOUS DISEASES (AMENDMENT) REGULATIONS 2020, S.I. No. 53 of 2020
Health (Preservation and Protection and other Emergency Measures in the Public Interest) Act 2020, Number 1 of 2020

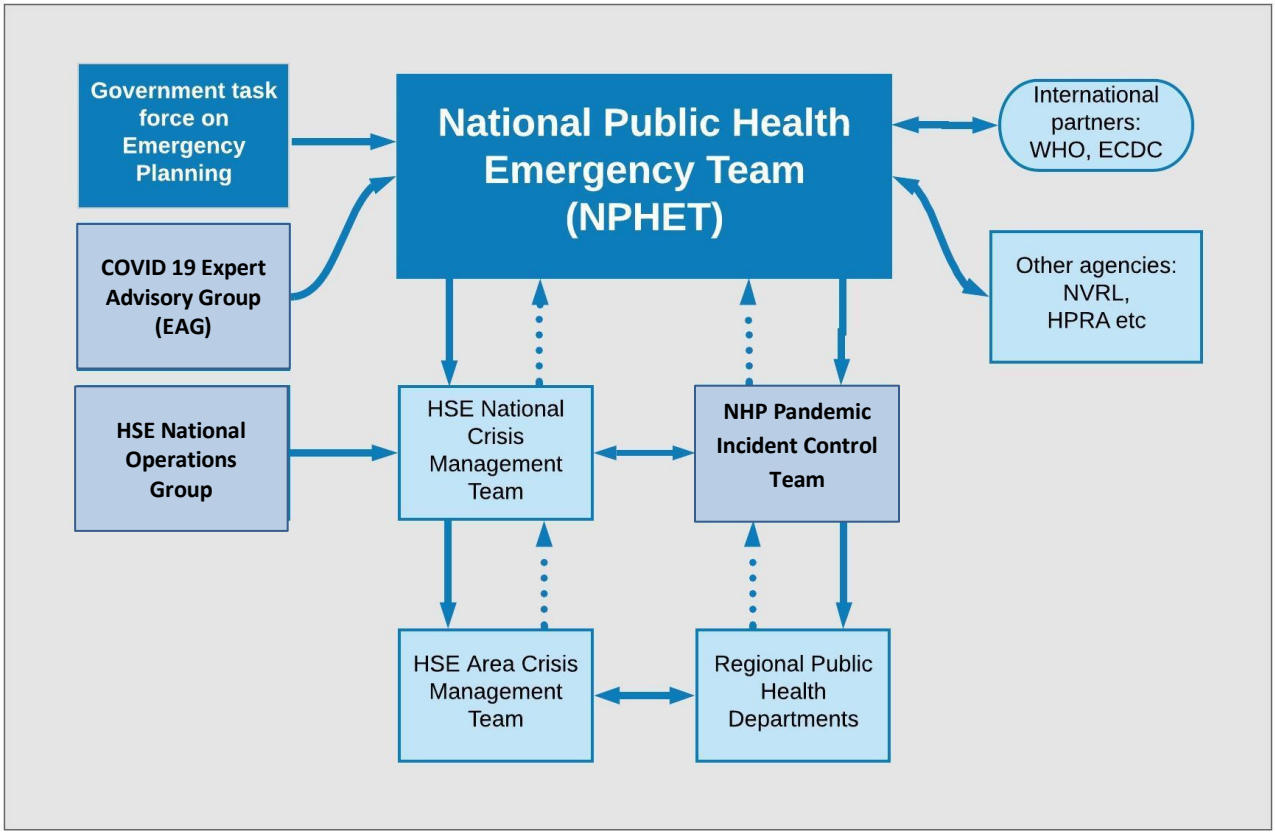
the outbreak. In investigating an outbreak of a notifiable infectious disease, the OCT must always be aware of the possibility of legal proceedings arising from the incident and should therefore take whatever steps are necessary to maintain chain of evidence that may be required for subsequent legal action.

Appendix B lays out the relevant legislation governing the notification and management of outbreaks of notifiable infectious diseases.

2.3 Roles and responsibilities

A brief description of national and regional groups involved in the development and operationalisation of the pandemic plan is outlined in **Appendix C**. Figure 1 gives an overview of the structure.

Figure 1: Overarching pandemic response structure



3 COVID-19 Background information

The virus which causes COVID-19 is called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and belongs to the broad family of viruses known as coronaviruses. It was first identified in the Wuhan province in China in December 2019 and a global pandemic event was declared in March 2020. [2] In Ireland, COVID-19 was added to the Infectious Diseases Regulations in February 2020 [3] and in March 2020 Medical Officers of Health were granted authority for the detention and isolation of persons in certain circumstances to help control the spread of COVID-19.

3.1 Transmission

As with other respiratory viruses, the transmission of SARS-CoV-2 is thought to occur primarily through respiratory droplets generated by coughing and sneezing, and through contact with contaminated surfaces. [4] The role of airborne transmission in the spread of SARS-CoV-2 is not yet fully understood. [5] Certain procedures, known as Aerosol Generating Procedures (AGP), can create the potential for airborne transmission. Further information on AGPs and COVID-19 is available on the HPSC website.

Individuals are considered most infectious while they have symptoms.[6] The degree of infectiousness of individuals depends on the severity of their symptoms and stage of their illness. Higher levels of virus have been detected in cases with severe illness compared to mild cases. [7]

[2] Coronavirus disease (COVID-2019) situation reports. Geneva: World Health Organization, 2020 (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
[3] https://www.hpsc.ie/notifiablediseases/listofnotifiablediseases/
[4] Morawska L. Droplet fate in indoor environments, or can we prevent the spread of infection? Indoor Air. 2006;16:335–347.
[5] Fineberg, H.V. Rapid Expert Consultation on the Possibility of Bioaerosol Spread of SARS-CoV-2 for the COVID-19 Pandemic (April 1, 2020). in: The National Academies Press N.R.C., ed. Washington, DC: The National Academies Press, National Research Council 2020; 2020
[6] https://www.ecdc.europa.eu/en/covid-19/questions-answers
[7] Pan Y, Zhang D, Yang P, Poon LLM, Wang Q. Viral load of SARS-CoV-2 in clinical samples. The Lancet Infectious Diseases. 2020.

Current evidence suggests that SARS-CoV-2 can be transmitted from pre-symptomatic or asymptomatic individuals. [8] Peak levels of viral loads are detected around the time of symptom onset. [9] In general, virus remains detectable in respiratory secretions for up to eight days in moderate cases and longer in severe cases of COVID-19. SARS-CoV-2 has also been detected in faeces, urine, blood and saliva samples from infected individuals although it is not clear that these represent a significant transmission risk.[10]

3.2 Incubation period

Current estimates suggest that the time between exposure to the virus and developing symptoms (incubation period) is from five to six days but can range from 1 to 14 days. [11]

3.3 Survival in the environment

The SARS-CoV-2 virus has an outer coating called a lipid envelope. The presence of the lipid envelope means that virus is likely to survive for shorter periods outside the human body compared to a non-enveloped virus like Norovirus (Winter vomiting virus). The virus is easily killed by common household cleaning products including bleach and disinfectants. Survival on environmental surfaces depends on the type of surface and the environmental conditions. One study using a SARS-CoV-2 strain showed that it can survive for up to 72 hours on plastic, for 48 hours on stainless steel and for up to eight hours on copper when no cleaning is performed. [12] However, the levels of virus declined very quickly over the time period.

3.4 Clinical features of COVID-19 [13]

Most people with COVID-19 will have mild disease and will recover. A minority will develop more serious illness. People at higher risk of developing serious illness include:

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[8] Bai Y, Yao L, Wei T, et al. Presumed Asymptomatic Carrier Transmission of COVID-19. *JAMA.* 2020;323(14):1406–1407. doi:10.1001/jama.2020.2565

[9] https://www.hiqa.ie/sites/default/files/2020-04/Evidence-Summary_COVID-19_duration-of-infectivity-viral-load.pdf

[10] Chen Y, Li L. SARS-CoV-2: virus dynamics and host response. Lancet Infect Dis. 2020.

[11] https://www.jwatch.org/na51083/2020/03/13/covid-19-incubation-period-update

[12] van Doremalen, N. et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N. Engl. J. Med*. https://doi.org/10.1056/NEJMc2004973 (2020).

[13] Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China [published correction appears in Lancet. 2020 Jan 30;]. *Lancet*. 2020;395(10223):497–506. doi:10.1016/S0140-6736(20)30183-5

- Older people – the risk increases progressively in people above the age of 60 years and is particularly high among individuals aged in their 70s and 80s
- Those who are immunocompromised
- Those with underlying medical conditions

The interim case definition is on the HPSC website.

The most common signs and symptoms of COVID-19 are available on the HSE website.

3.5 Laboratory testing

- Laboratory testing enables confirmation of COVID-19.
- Testing for SARS-CoV-2 is performed in the same way as testing for influenza. A viral swab is collected from the throat and nasopharynx. Only one swab is used to collect both samples, with the throat site sampled first.
- When testing is performed, ensure the correct swab type is taken (viral swab) and it is appropriately labelled. There must be two patient identifiers on both the swab and request form such as Name and date of birth (DOB). Details on the swab and request form must match each other. Ensure that an outbreak code, contact name and telephone number (mobile preferably) for the person requesting the test (typically a clinician) are clearly visible on the request form. Deliver the sample to the testing laboratory as soon as possible.
- No diagnostic test is 100% sensitive and specific. If a test result comes back as "SARS-CoV-2 not detected", this is not definitive confirmation that the person is not infected with the virus. If the person in question remains unwell with no alternative diagnosis then a diagnosis of COVID-19 is still possible.

4 COVID-19: Management of the outbreak

4.1 Planning

- Each Department of Public Health should identify a lead for COVID-19 preparedness and response coordination. The lead should be a person with sufficient authority to ensure that appropriate action is taken and may require the support of a team including a liaison person for the outbreak setting.

- Acute and community settings must have COVID-19 preparedness plans in place to include planning for isolating confirmed or suspected cases (including temporary conversion of day rooms etc to facilitate such), cohorting of cases (keeping people with COVID-19 separate from those without COVID-19), enhanced infection prevention and control (IPC) measures, staff training, establishing surge capacity and promoting case and family communication.
- Where possible, each ward or floor should try and operate as a discrete unit or zone, meaning that staff and equipment are dedicated to a specific area and are not rotated from other areas (this includes night duty). This practice will help to reduce risk of transmission in the event that COVID-19 is introduced into the facility and will allow outbreak response measures to be targeted in zones, further mitigating risks. This may not always be feasible in smaller facilities, but consideration should be given as to how closely the facility can align to these recommendations.
- Facilities should ensure the availability of supplies including tissues, alcohol based hand rub (ABHR), hand wipes, cleaning products (including disinfectants) and personal protective equipment (PPE) and liaise with local CHO management if there is difficulty in obtaining such supplies.
- A set of standards for managing outbreaks is outlined in Appendix D.
- A checklist of key interventions for the prevention and management of a COVID-19 outbreak can be found in Appendix E.

For more setting specific guidance on preparedness and response to COVID-19 outbreaks please see the following supplemental documents:

- Interim guidance for the management of COVID-19 in Residential Care Facilities
- Supplemental guidance for the management of outbreaks in the acute hospital setting
- Supplemental guidance for the management of outbreaks in general community settings – in progress

Note: Infection prevention and control precautions guidance should be followed during the preparedness and response phases of all outbreaks.

4.2 Outbreak investigation objectives and functions

The primary aims of outbreak investigation are to:

- Control the outbreak,
- Mitigate the effects of the outbreak, and
- Stop the outbreak by preventing further cases of COVID-19.

The primary objectives of outbreak investigation are to:

- Determine/confirm that it is a COVID-19 outbreak,
- Identify the pathway(s) of transmission,
- Prevent generation of further cases,
- Plan and implement priority interventions/control measures to mitigate the effect of the outbreak,
- Bring the outbreak to an end
- Produce an outbreak report at the end of the outbreak

The key functions in managing outbreaks include the following:

- Identification and initial response;
- Investigation;
- Risk assessment;
- Surveillance, notification and reporting;
- Risk management;
- Risk communication;
- Audit, evaluation and documentation.

4.2.1 Identification and initial response

On recognition of an outbreak the following steps are important:

- all relevant agencies with a responsibility for the investigation and management of the incident are informed;

- steps are taken to gather further information about the cases and how they may have been exposed;
- an initial risk assessment is undertaken;
- urgent control measures are put in place to protect public health.

Informed by an initial risk assessment and in consultation with relevant stakeholders, the MOH should decide whether specific control measures are required. These should be implemented as soon as possible and should not necessarily await the convening of an OCT.

4.2.2 Investigation

From the information gathered from the initial investigation, it may be possible to form a working hypothesis about the route of exposure, level of exposure, nature and size of the population exposed or likely to be exposed, and the degree of risk to public health. The MOH will then decide how to progress a more comprehensive investigation.

The investigation should typically consist of three elements:

- an epidemiological investigation;
- an investigation into the nature and characteristics of the outbreak;
- a specific investigation into how cases were exposed (e.g. hygiene in healthcare settings, no PPE) to inform control measures.

4.2.3 Risk assessment

Based on the findings from the investigation and an assessment of the effectiveness of control measures taken, the MOH / OCT should assess the ongoing risk to the public and to patients if the outbreak is in a hospital or similar community facility. The purpose of this assessment is two-fold, to assess: (i) whether exposure is ongoing, and (ii) the impact of exposure (numbers affected and severity).

Risk assessment essentially entails appraising the evidence collected in the incident investigation and determining whether it indicates that there is an ongoing significant threat to public health. The risk assessment should be dynamic and regularly reviewed by the MOH and should include the following considerations:

Severity: Dynamically assessed degree of foreseeable harm that may be caused to individuals or to the population and possible issues with recovery in the aftermath of the outbreak.

Confidence: Knowledge, derived from all sources of information, that confirms the existence and nature of the threat and the routes by which it can affect the population.

Spread: The size of the actual and potentially affected population.

Interventions: The availability and feasibility of population interventions to alter the course and influence the outcome of the event.

Context: The broad environment, including media interest, public concern and attitudes, expectations, pressures, strength of professional knowledge and external factors including political decisions. (STEEP criteria – social, technological, economic, environmental, political).

Conclusions derived from the risk assessment are principally a matter of professional judgement. However, for reasons of public accountability and understanding, it is essential that this process is as transparent as possible. The MOH/OCT should discuss and record in writing the outcome of the risk assessments. Once the risk has been assessed, a decision should be made on how the risk is likely to be perceived by the public. This should inform the development of specific public communications about the risk and how it is being mitigated.

4.2.4 Outbreak Control Team

- All outbreaks of COVID-19 must be reported to the regional Medical Officer of Health (MOH) at the Department of Public Health at the earliest opportunity.
- The MOH from the Regional Department of Public Health has the responsibility to investigate and manage the outbreak of the COVID-19.
- The OCT should assist the MOH in discharging this responsibility. Ideally, the OCT should have regular, active involvement of a Public Health Doctor. However, if that is not practically possible, following initial consultation and advice from Public Health the OCT should liaise on a regular basis with the regional Department of Public Health to provide updates on outbreak progress and seek further advice as appropriate.

- The OCT configuration should be decided at local level and will depend on available expertise.
- An OCT chair should be agreed (ideally the OCT should be chaired by a Public Health doctor).
- Every member of the OCT should have a clear understanding of their roles and responsibilities.
- The frequency required for the outbreak meeting should be decided and they should be carried out remotely.
- Public Health will formulate a case definition, assign an outbreak code and decide whether an on-site visit is required.
- The facility should inform the Health Information and Quality Authority (HIQA) as per usual protocols and/or the Mental Health Commission and local CHO as appropriate.

Before the first meeting of the OCT, the local incident team should gather as much information as possible to include:

- A line list of all cases and staff. Template can be found in **Appendix F**.
- Identify the total number of people ill (cases & staff) and the spectrum of symptoms.
- Identify those who have recently recovered, developed complications, been transferred to acute hospitals and all deaths.
- Information on laboratory tests, including the number of tests taken and the date sent to the laboratory.
- Determine if the number of symptomatic cases varies between units/floors/wards or if the outbreak is confined to one unit only.
- Use the case definitions for possible, probable and confirmed COVID-19 available on the HPSC website.
- A checklist for outbreak management can be found in **Appendix G.**

4.3 Monitoring outbreak progress

- Monitoring the outbreak will include ongoing surveillance to identify new cases and to update the status of ill cases.

- The nominated facility/unit liaison person should update the line listing with new cases or developments as they occur and communicate this to the MOH/OCT on a daily basis or more frequently if major changes occur, in line with Public Health recommendations until the outbreak is declared over.
- The review of this information should examine issues of ongoing transmission and the effectiveness of control measures.
- Institute active daily surveillance for fever or respiratory symptoms, including cough, in cases and staff for 28 days after the date of onset of symptoms of the last COVID-19 case.

4.3.1 Surveillance, notification and reporting

- An Outbreak Log should be opened and maintained. In addition, a brief daily situation report (SitRep) should be maintained on all larger/more significant outbreaks. Detailed recording of all aspects of the outbreak and its management must be undertaken.
- Detailed minutes should be taken at every meeting of the OCT. The minutes should document all decisions taken, actions agreed and the person/people with responsibility for executing each action. The minutes will remain confidential.
- Individual members of the OCT should keep personal logs of their activities and include details of information received, conversations held and meetings attended.
- All documentation, including computer-generated information, relating to the outbreak must be treated as confidential and be retained with regular back-ups of electronically stored information.
- A nominated person will be responsible for documentation of all the events and information related to the outbreak plan. An initial report will be completed as soon as is reasonably possible (usually within 48 hours of an outbreak ending) and a final report suitable for publication completed at the end of the investigation.
- In addition to providing an accurate record of outbreak control activities, this report will facilitate identification of points of interest and learning from the outbreak.

4.3.2 Maintaining an outbreak database

- Outbreak cases should be entered directly into the Computerised Infectious Disease Reporting (CIDR) system. Cases should then be linked to the outbreak in CIDR in a timely manner to ensure that an up-to-date picture of the evolving situation is maintained.
- Clear protocols should be agreed on how information gathered on the outbreak is managed. Any changes should be communicated to all those involved in managing information and data.
- All data received by any member of the OCT, data on individual cases as well as aggregate data, should be passed to the relevant individuals in a timely manner and using a standardised format/updated line listing sheet.
- Timeframes for return of information for inclusion in the database on cases/contacts should be agreed. Updated data on individuals from the database should be circulated to members of the OCT.
- There should be agreement at the first OCT meeting regarding how, when and by whom test results should be communicated to people tested/screened during the outbreak.
- Screening results should be communicated as soon as possible – timely communication of test results will facilitate return to work of staff etc, and will minimise the potential anxiety associated with waiting for a test result.

4.4 Risk management

The principal objective of control measures is to reduce the risk to public health. Control measures may be directed at the source of the exposure and/or at affected persons to prevent secondary exposure.

Specific control measures will vary according to the type of incident. In summary they may include the following:

- advising specific groups or the general public on how to avoid and minimise risks e.g. appropriate use of PPE;
- delivering healthcare interventions to prevent the transmission or development of illnesses or their complications;
- implementing hygiene measures which reduce or eliminate contamination e.g. respiratory and hand hygiene;

- review the current standards of practice to identify areas for immediate improvement; curtailing normal daily activities or services e.g. physical distancing, cohorting.

4.5 Risk communication

Communication is a critical component of a comprehensive pandemic response, including in the management of outbreaks. The purpose and complexity of communication with stakeholder groups evolves as the pandemic progresses. Directors of communication and press officers at national, regional and acute hospital levels must ensure that a communication strategy is developed and incorporated into each agency's all-hazards risk management plan. A comprehensive strategy should cover two broad categories: external communications to the public and media, and internal communications to all health care workers within the health system.

4.6 Declaring the outbreak over

In order to declare that a COVID-19 outbreak is over, a setting should not have experienced any new cases of infection which meet the case definition for a period of 28 days (two incubation periods).

4.6.1 Re-opening of facilities

An outbreak is considered closed after 2 incubation periods – i.e. 28 days from the last case being diagnosed or becoming symptomatic. Once the outbreak is closed, a facility can re-open.

Prior to re-opening cleaning of corridors, living, communal spaces, empty bedrooms and cohort spaces in accordance with IPC recommended cleaning should be maximised.

4.6.2 Immunity to COVID-19

Immunity to COVID-19 cannot be presumed[14] so any organisation/facility can be susceptible to further new cases of infection that need to be identified and treated with the approach outlined in the outbreak management plan.

[14] https://www.who.int/news-room/commentaries/detail/immunity-passports-in-the-context-of-covid-19

- Physical distancing, hand hygiene and respiratory etiquette measures should be facilitated at all times.
- Congregate meals and activities within facilities can be re-commenced, as long as physical distancing measures can be maintained.
- Re-opening of communal areas should be configured such that physical distancing can be maintained.

4.6.3 Staffing

Staffing measures to reduce the risk of new infection being brought in to the facility should continue, as outlined in HSE occupational health guidance (i.e. changing clothing, handwashing, self-exclusion if symptomatic etc).

Preparedness for a further outbreak should be re-established, as per this outbreak plan.

4.7 Audit, evaluation and documentation

In general, the following points should be considered when reviewing the lessons learned from an outbreak:

1. Was the outbreak recognised early?
2. Was there prompt identification and control of the source of the outbreak?
3. Was there prompt identification and control of the routes of transmission?
4. Were any secondary cases identified?
5. Was transmission from secondary cases prevented?
6. Were risk factors identified that would prevent future outbreaks?
7. Were any particular problems identified which need addressing?
8. Were any lessons learned for future outbreaks and should the major outbreak plan be revised accordingly?

Lessons learned and recommendations should be specific and directed at the appropriate department/organisation(s) and be realistic (feasible actions). A clear distinction should be made between what is good practice and what is a legal requirement.

- Strengths - areas of good practice;

- Weaknesses - shortcomings in the outbreak response;
- Opportunities - areas for improvement and recommendations on how this can be achieved.

Appendix A: Roles and responsibilities of OCT members[15]

Professional	Roles and Responsibilities
Medical Officer of Health*	• The person taking responsibility for OCT chair would be decided at the group's first meeting, but usually it would be the MOH*. • The MOH has the authority to detain and isolate of persons in certain circumstances to help control spread of COVID-19. • Directs and co-ordinates management of outbreak • Ensures each member of the control team understands his/her role • Be available throughout the outbreak for consultation and advice. • Ensure timely communication between members of the OCT and other parties. • Ensure that an outbreak report is written and that lessons identified are disseminated • Communicate with relevant stakeholders during the outbreak. Highlight priority to the Clinical Director of Health Protection and advocate if necessary for additional resources to manage the outbreak. • Provide local epidemiological expertise in conjunction with epidemiologist • Maintain heightened surveillance of the infection to evaluate the effectiveness of interventions. • Audit management of local outbreaks in conjunction with OCT members • Develop materials for training purposes from lessons identified (outbreak) • Prioritise/assign activities to team members • Conducts briefing meetings (frequency dependent on size/seriousness of outbreak) about the outbreak status • Facilitates outbreak interventions • Facilitates communication with health care providers and institutions involved with the outbreak (e.g., childcare centres, schools, hospitals) • Facilitates communications with other stakeholders *Routine Functions* • Chairs or appoints chair for OCT • Schedules OCTs • Establishes/agrees meeting agenda

[15] Not every outbreak will require every member as indicated above – the above would relate to a larger and more serious outbreak but even in a smaller outbreak, the roles/responsibilities will essentially be those above

Epidemiologist	• Tracks surveillance data for disease trends • Establishes baseline disease data • Formulates case definitions • Maintains a line listing of cases • Provides daily status reports about case ascertainment and counts • Reviews case report /investigation forms to ensure completeness of data collection *Routine Functions* • Reports surveillance data updates • Provides updates on case database • Reports updates from other sources (other HSE Areas from ECDC, etc)
Microbiologist	• Provides baseline microbiological data • Provides information on proper collection of clinical specimens • Coordinates submission of specimens to the laboratory • Provides expert microbiological opinion on clinical and microbiological aspects of disease • Appraise capacity of laboratory to respond to outbreak and advocate for additional resources if necessary • Identify and help implement locally appropriate and acceptable control measures in conjunction with OCT • Provide expert advice on use of specialist diagnostic methods • Arrange further testing at appropriate reference laboratories if required *Routine Functions* • Updates on laboratory results • Reports on capacity of laboratory to maintain service • Provides expert opinion on case identification • Provides expert opinion on effectiveness of control measures
ID Physician	• Facilitate confirmation and investigation of outbreaks through supporting enhanced surveillance and focused epidemiological studies. • Appraise capacity of local services to respond to outbreak and advocate for additional resources if necessary • Review and amend/adapt clinical management protocols as appropriate for the outbreak • Identify and help implement locally appropriate and acceptable control measures in conjunction with OCT *Routine Functions* • Updates on clinical outcomes

	• Reports on capacity of hospital to maintain service • Provides expert opinion on case identification and control measures
Health Protection Nursing	• Key member of the wider multidisciplinary team (MDT) managing and controlling outbreaks of infectious diseases (notifiable and non-notifiable) in a wide variety of settings. • Undertake risk assessments in private and public facilities using recognised audit tools.
IPCN	• Be a member and attend the outbreak Control Team meetings • Provides advice on Infection Prevention and Control issues identified following investigation and provide updates • Provide Infection Prevention and Control education/training as required to healthcare staff pertaining to the outbreak • Provide Infection Prevention and Control Consultancy as required • Co-ordinate the formulation of Infection Prevention and Control Guidance as required with other relevant key stakeholders and support the implementation. • Monitor and Audit Infection Prevention and Control practices e.g. Hand Hygiene and standard precautions • Collaboration with key stakeholders and be a Clinical leader and provide support to staff
Information Manager	• Reviews alerts, fact sheets and reporting reminders • Ensures the availability of appropriate educational tools and materials, including developing them when necessary • Maintains liaison between HSE Comms and OCT • Prepares/reviews press releases • Responds and provides public information to media inquiries • Ensures the availability of appropriate educational tools and materials, including developing them when necessary *Routine Functions* • Reports on public information activities • Provides updates on development of comms material • Carries our comms functions as directed by OCT
Administrative Assistant	• Distributes meeting agendas • Records minutes and keeps records of meetings • Assures after-hours building and cellular phone access • Ensures communications with OCT are maintained (emails, teleconferences etc) *Routine Functions* • Takes meeting minutes • Sends out meeting reminders • Reserves meeting space

IT Assistant	• Assists in the creation of an outbreak database or modifies existing database • Provides support for IT problems • Assists in data entry • Ensures OCT is provided with necessary equipment e.g. computers, phones, copiers, etc.
Other suggested membership depending on the outbreak setting, size	• Occupational health supports • Community services general manager • Area crisis management representative • Manager or CEO of the facility

Appendix B: Principal infectious disease legislation; Ireland

Health Act, 1947. No. 28/1947

Health Act, 1953. No. 26/1953

Infectious Diseases Regulations, 1981. S.I. No. 390/1981

Infectious Diseases (Amendment) (No. 3) Regulations 2003. S.I. No. 707/2003

Infectious Diseases (Amendment) Regulations,2007. S.I. No. 559/2007

Infectious Diseases (Amendment) Regulations, 2011: S.I. No. 452/2011

INFECTIOUS DISEASES (AMENDMENT) REGULATIONS 2020, S.I. No. 53 of 2020 Health (Preservation and Protection and other Emergency Measures in the Public Interest) Act 2020, Number 1 of 2020

Appendix C: Roles and responsibilities during COVID-19 pandemic response

Department of Health

At all times, the lead responsibility for specific emergency planning functions remains with the relevant Lead Government Departments (LGDs). The Department of Health (DOH) is responsible for pandemic planning and response.

Government Task Force on Emergency Planning

The Government Task force on Emergency planning provides policy and direction, and co-ordinates and oversees all emergency planning activities.

National Public Health Emergency Team (NPHET)

The NPHET is the interface between the DOH and the Health Service Executive (HSE) during the response phases of the COVID-19 pandemic and is chaired by the DOH. It coordinates the pandemic response at national level, and guides and advises the regional response. It is comprised of DOH and relevant senior management HSE representatives.

Health Service Executive (HSE) Board

The Board is the governing body of the Health Service Executive (HSE), accountable to the Minister for Health for the performance of its functions with the Chief Executive Officer accountable to the Board as set out in the Health Service Executive (Governance) Act 2019. Its key priorities include:

- Developing and implementing an effective Corporate Governance Framework, incorporating clinical governance, and a performance management and accountability system during the COVID-19 pandemic.
- Developing a plan for building public trust and confidence in the HSE and the wider Health Service.

HSE National Crisis Management Team

The HSE National Crisis Management Team (NCMT) is a Strategic Level Leadership Team with roles and responsibilities including preparation for, and management of, the HSE's response to the COVID-19 pandemic. It is comprised of HSE national directors and key leaders responsible for the main areas of the response. HSE NCMT works with the National Health Protection Pandemic Incident Control Team (NHP PICT) to ensure a coordinated approach to outbreak preparedness and response measures.

National Health Protection Pandemic Incident Control Team

The National Health Protection PICT leads and coordinates the HSE health protection response to the COVID-19 pandemic. The HSE NHP PICT is accountable, through the National Clinical Director Health Protection, to the Chief Clinical Officer (CCO) HSE, for delivery of its responsibilities.

The CCO is a member of the HSE Crisis Management Team and is accountable to the HSE Chief Executive Officer (CEO) for the delivery of the public health response to the pandemic.

THE HSE CEO is accountable to the Department of Health for the HSE response to COVID-19 Pandemic. The National Public Health Emergency Team (NPHET), chaired by the Chief Medical Officer (CMO), may direct the NHP PICT, through the HSE CCO, to undertake public health actions and control activities.

Pandemic Expert Advisory Group (EAG)

The EAG provide expert advice and authoritative information on the clinical and public health management of the pandemic. It provides evidence-based recommendations to NPHET and health professionals involved in the response.

Regional Department of Public Health

As part of COVID-19 response, all the Specialists in Public Health Medicine (SPHMs) and Directors of Public Health (DPHs) were designated national MOH roles. This allows for work on a national basis and means that each SPHM has legislative responsibility for protecting the

health of the whole population of Ireland, not just the population in their region. This supports a national, cohesive response to COVID-19 control. The Public Health COVID Operational Group provides a forum for Departments of Public Health, Health Protection Surveillance Centre (HPSC), National Immunisation Office (NIO), contact tracing units and Social Inclusion to discuss and escalate operational issues. This group reports to the NHP PICT.

The management and control of infectious diseases, including COVID-19, is carried out by Health Protection multidisciplinary teams. These teams comprise the following disciplines: SPHMs, Specialist Registrars (SpRs) in Public Health Medicine, Senior Medical Officers (SMOs), Surveillance Scientists, EPIET fellows, Nursing, Occupational Health professionals, Allied Health professionals and administration support.

These teams perform several functions in response to COVID-19. The work of the Departments of Public Health is currently focused on the following key areas:

- Management of outbreaks of COVID-19 involving possible, probable and confirmed cases in Residential Care Facilities and other congregate settings. Often, an overarching Outbreak Control Team (OCT) for the management of all COVID-19 outbreaks in each region is established in the Departments of Public Health to ensure and enable appropriate public health action across the various settings and sectors. However, there may need to be flexibility in how coordination of the outbreak response is achieved, as there may be several outbreaks happening simultaneously and a separate OCT for each outbreak is not possible.
- Oversee acute sector outbreaks via membership of hospital outbreak teams. Instructions under the MOH function may be required if there are serious concerns regarding acute sector outbreaks. Principles of outbreak management in the acute setting follow those outlined in this document.
- Strong linkage with the Community Healthcare Organisations (CHOs) and Area Crisis Management Teams (ACMTs) with clear lines of communication should be established.
- Cases and contacts management:

    - liaison with Contact Management Programme (CMP) as per protocol;
    - management of complex contacts identified from outbreaks etc.
- Surveillance, as per established mechanisms.
- Public health advice to the general public, acute hospital settings, Long Term Care Facilities (LTCF), RCF, residential settings, other congregate settings (e.g. prisons), homeless hubs, direct provision – in partnership with social inclusion - and other health care professionals (GPs) or any other query generally in each of their CHOs.

HSE Area Crisis Management Teams

HSE Area Crisis Management Teams (ACMT) will also be established in each region and will be responsible for the co-ordination and management of the regional response. Their roles will include the strategic management of resources and provision of advice and support at operational level, regionally and locally.

Appendix D: Standards for managing outbreaks

Action	Performance Standard
Outbreak Recognition	Initial investigation to clarify the nature of the outbreak begun within 24 hours
	Immediate risk assessment undertaken following receipt of initial information
Outbreak Declaration	Decision made and recorded at the end of the initial investigation regarding outbreak declaration and convening of Outbreak Control Team
Outbreak Control Team	OCT convened and first meeting held within appropriate time period
	Appropriate representation/expertise at OCT meeting
	Roles and responsibilities of OCT members agreed and recorded
	Lead organisation with accountability for outbreak management agreed and recorded. Governance arrangements clarified and recorded.
	Control measures documented with clear timescales for implementation and responsible parties identified
Investigation of Outbreak	Case definition agreed and recorded
	Robust descriptive epidemiology undertaken
	Analytical study considered
	Investigation protocol prepared if an analytical study is undertaken
	Reasons for not conducting analytical study recorded
Communications[16]	Communications strategy agreed at first OCT meeting
	Absolute clarity regarding Lead Agency at all times with appropriate handover in place
End of Outbreak	Final outbreak report completed within 12 weeks of the formal closure of the outbreak
	Report recommendations and lessons learned reviewed 12 months after formal closure of the outbreak

[16] Effective communication is essential in the management of outbreaks, the larger and more serious the outbreak, the greater the need for effective communications. In planning outbreaks, it is crucial that the importance of effective communication is recognised and has buy in at the highest level in the HSE and that the Communications department recognise that they have a key role in the effective management of outbreaks

Appendix E: Checklist for outbreak management

	Discussion point	Decision/action to be taken (date completed)	Person responsible
1	Declare an outbreak and convene an OCT following Public Health risk assessment		
2	Agree the chair		
3	Formulate an outbreak code and working case definition		
4	Define the population at risk		
5	Active case finding, request line listing of cases and staff from the RCF		
6	Discuss whether it is a facility-wide outbreak or unit-specific		
7	Confirm how and when communications will take place between the RCF, CIPCN, CHO NH lead, Public Health and the laboratory		
8	Review the control measures (infection control necessary to prevent the outbreak from spreading). Confirm that the management of the facility is responsible for ensuring that agreed control measures are in place and enforced		
9	Discuss which specimens have been collected. Notify the laboratory of the investigation.		
10	Confirm the type and number of further laboratory specimens to be taken. Clarify which cases and staff should be tested.		
11	Confirm that the laboratory will phone or fax results (both positive and negative) directly to the requesting doctor and that this person will notify Public Health. Review the process for discussing laboratory results with the RCF's designated officer.		
12	Liaise with the RCF and laboratory regarding specimen collection and transport		
13	Identify persons/institutions requiring notification of the outbreak e.g. families of ill or all cases of the facility; health care providers e.g. GPs, physiotherapists etc.; infectious disease consultants, consultant microbiologists, infection prevention &		

	control specialists, Emergency Departments; local hospitals, other RCF, HPSC		
14	Discuss whether a media release is required		
15	Ensure that the incident is promptly reported to HPSC and surveillance details entered onto CIDR		
16	Provide updates on the investigation to the Assistant National Director, ISD-Health Protection when/if required		
17	Discuss communication arrangements with HSE management ± HSE crisis management team		
18	Discuss communication arrangements with local GPs and Emergency Departments		
19	Decide how frequently the OCT should meet and agree criteria to declare outbreak over		
20	Prepare/circulate an incident report/set date for review meeting		

Appendix F: Decision making log

Time:	**Date:**
Name:	
Recorded by:	
Problem:	
Options: **A:** **B:** **C:** **D:**	
Outcome / actions:	
Rationale:	
Signature:	

Appendix G: Recommended actions log

Recommended Actions Arising from the Incident

Recommended Actions should be set out as objectives using the `SMART` approach i.e. Specific, measurable, achievable, realistic, timed:

- **Specific** – Be precise about the objective to be achieved.
- **Measurable** – Quantify the extent of the action.
- **Achievable** – Actions should not be an excessive burden on owners.
- **Realistic** – Sufficient resources should be available to complete actions.
- **Timed** – State the expected completion date.

Action No.	Description of action	Action owner	Complete by date

Appendix H: Generic example of outbreak report structure

1. Introduction
    - Brief summary of the incident and setting the scene.
2. Background
    - Information on features of cases, incubation period, dose, source and modes of exposure, diagnosis and treatment, and if relevant, prevalence of the relevant disease locally, nationally and globally.
3. Investigation
4. Epidemiological investigation and results
    - Descriptive: description of initial cases, case definition and hypothesis generation, enhanced surveillance
    - Analytical: description of any case control and/or cohort studies
5. Environmental investigation and results
    - Details of investigation/detection of main routes of exposure, sources of these, if possible levels of exposure and circumstances leading to exposure
6. Microbiological/Toxicological investigations and results
    - Clinical, food/water and environmental sampling undertaken
7. Risk Management
8. Prevention of further exposure to hazardous agent including details of relevant enforcement/regulatory action
9. Care of cases
10. Risk Communication
11. Discussion and conclusions
12. Lessons identified and recommendations

Appendices (if necessary)

Appendix I: Prevention and control of outbreaks of COVID-19

	Domain	Action	Comment
Pre-Outbreak Measures	Planning and Administration	Written Policies	Immunisation policies Standard transmission-based precautions including droplet and contact Written outbreak management plan
		RCF Lead (Named person)	To oversee development, implementation and review of policies and procedures
		Training and Education	For all staff Ongoing training Measures to improve compliance
		Provision of supplies	Hand hygiene supplies, PPE, disinfection materials, arrangements for prioritised testing of samples
	Standard Precautions	Standard infection control procedures	SP should be practiced by all staff at all times
	Surveillance	Awareness of signs and symptoms of COVID-19	
Early recognition	Case Definition	As per HPSC guidance	Case definition may change as pandemic progresses
	Outbreak Definition	Action threshold for outbreak control measures	One suspected or confirmed case for public health action
	Communication of suspected outbreak	Notification of senior management, medical and public health staff, CHO and NH lead	Follow RCF algorithm
	Formation of outbreak control team (OCT)	OCT may be convened following risk assessment	
	Testing	Viral swab	As per current guidance
	Initial Actions	Daily Case list	
		Activate Daily surveillance	
		Appropriate IPC precautions in place	Droplet and contact precautions in the cohorted area/zone
		Resident placement	Single rooms Cohorting or Zone allocation
		Respiratory etiquette	

During an Outbreak			
	Infection Control Measures	Hand Hygiene	5 Critical points: • Before patient contact • Before septic task • After body fluid exposure • After patient contact • After contact with patient surroundings Hand hygiene after PPE removal
		PPE	Gloves Aprons Gowns Face protection
		Aerosolised generating Procedure	See HPSC guidance document. Highest level of PPE (FFP2/3) available if performing a high risk AGP
	Environmental control measures		Resident environmental cleaning and disinfection Residential Care Equipment Laundry Eating utensils and crockery
	Containment Measures		New admissions restricted Transfers restricted Restricted communal activities Staffing precautions Visitor restrictions
Post Outbreak	Declaration of end of outbreak		As advised by Public Health
	Final evaluation	Review of management of outbreaks and lesson learned	Coordination with Public Health and OCT if this was convened

Appendix J: Proposal for occupational health supports

Staff Screening and Prioritisation for COVID-19 Testing

1. Fitness for work
    a. Guidance on Pregnant Healthcare Workers (HCWs), Vulnerable HCWs and HCW with Other Pre-Existing Disease available at https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/occupationalhealthguidance/
2. Testing and Return to work
    b. Priority Testing available to all HCW through GP Health-link
    c. Guidance on Testing and Return to Work available at https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/occupationalhealthguidance/
        - Telephone Assessment, Testing Pathway and Return to Work of Symptomatic Healthcare Workers Algorithm
        - Guidance on Derogation for the return to work of Healthcare Workers
        - Leaflets for 'Essential' HCWs returning to work on active or passive monitoring.
        - Active twice daily temperature monitoring chart

3. Contact Tracing
    a. Access to CRM via either Public Health Outbreak Control Team or Occupational Health
    b. Deployment of contact tracing teams for complex cases as above
    c. Guidance on Contact Tracing available at https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/occupationalhealthguidance/
        - Interim Guidance for Coronavirus - Healthcare Worker Management by Occupational Health
        - Leaflets for casual/close contacts and HCWs returning from travel
        - Risk Assessment of Healthcare Workers with Potential Workplace Exposure to COVID-19 case

4. Personal Protection Equipment
    a. HSE single point of contact for the supply and replenishment of critical PPE stocks https://www.hse.ie/eng/about/who/healthbusinessservices/procurement/hbs%20procurement%20covid-19%20.html
    b. Advice and Support for appropriate PPE for specific procedures on HPSC website with wide distribution of information through both HIQA and Nursing Home Ireland https://www.hpsc.ie/az/respiratory/coronavirus/novelcoronavirus/guidance/infectionpreventionandcontrolguidance/*ppe* /
    c. Training videos online
        i. Education modules for putting on and taking off PPE safely on HSELand (One for staff working in acute hospital settings and one for staff working in the community settings).
        ii. Log in to HSELand using private email address and search for 'putting on and taking off PPE")

5. EAP supports
    a. EAP/ WHWU published staff mental health guidance for HSE healthcare workers: *"Minding Your Mental Health during COVID-19"*: https://healthservice.hse.ie/staff/news/coronavirus/staff-minding-your-mental-health-during-the-coronavirus-outbreak.html
    b. Health Sector Psycho-Social supports available to HCWs, delivered through CHO-based COVID-19 psychosocial support teams.
    c. WHWU Guidance on Death in Service of a Colleague due to COVID-19 (available on request)

Strengthened HSE National and Regional Governance Structures

HSE RCF OH services can be found at this link: http://workwell.ie/contact-list/contact-your-local-occupational-health-service/

For RCF with no existing OH services see this table:

Proposed Referral AND Escalation Pathway for OH supports

Local LTRC	Community Health Organisation	Designated OH Nursing Supports	Designated OH Medical Supports
Donegal Sligo, Leitrim Cavan, Monaghan Mayo, Roscommon Galway Limerick	**CHO 1** Donegal/Sligo/Leitrim/Cavan/Monaghan **Frank Morrison** Frank.Morrison@hse.ie **CHO 2** Galway/ Roscommon Mayo **Martin Greaney** Martin.Greaney@hse.ie **CHO 3** Clare/ Limerick/ North Tipp/East Limerick **Paschal Moynihan** Paschal.Moynihan@hse.ie	Supportregion1@centrichealth.ie	**Dr Muiris Houston**
Kerry, Cork, Waterford, Wexford, Tipperary, Kilkenny, Carlow	**CHO 4** North Cork North Lee South Lee West Cork Kerry **Gabrielle O'Keeffe** Gabrielle.Okeeffe@hse.ie **CHO 5** Waterford Wexford Carlow/Kilkenny Tipperary South **Kate Killeen White** Kate.Killeen@hse.ie	Supportregion2@centrichealth.ie	**Dr Peter O'Callaghan**

Wicklow, Kildare, South Dublin	**CHO 6** Dublin South East Dun Laoghaire Wicklow **John O'Donovan** John.Odonovan1@hse.ie **CHO 7** Dublin South City Dublin West Dublin South West Kildare/West Wicklow **Carol Cuffe** Carol.Cuffe@hse.ie	Supportregion3@centrichealth.ie	**Dr Lena Murphy**
Offaly, Longford, West Meath Laois, Cavan, Monaghan, Louth, North Dublin	**CHO 8** Laois/Offaly Longford/Westmeath Louth Meath **Jude O'Neill** CHO8.socialcare@hse.ie **CHO 9** Dublin North Central Dublin North West Dublin North **Olive Hanley** hosc.dncc@hse.ie	Supportregion4@centrichealth.ie	**Dr Fiona Kevitt**

Helpline 1850 420 420 9am-6pm Monday to Friday, 10am- 6pm Weekends

(Fully staffed helpline for all HCW with medical and nursing OH advice)

Appendix K: Details for line listing

1. Outbreak code (on top of line list as title)
2. Name of case
3. Case ID
4. Location (unit/section)
5. Date of birth/age
6. Gender
7. Status i.e. resident, staff member, volunteer, visitor
8. Date of onset of symptoms
9. Date of notification of symptoms
10. Clinical symptoms (outline dependent on case definition) e.g. fever, cough, myalgia, headache, other
11. Samples taken and dates
12. Laboratory results including test type e.g. RT-PCR,
13. Date when isolation of resident was started
14. Date of recovery
15. Duration of illness
16. Outcomes: recovery, pneumonia, other, hospitalisation, death
17. Also include work assignments of staff and last day of work of ill staff member
18. State if staff worked in other facilities

Have separate sheets for both staff and cases

Appendix K: Part 1 – Respiratory outbreak line listing Form – Patients/Cases ONLY*

Name of Facility: …… Name of Outbreak: …… Outbreak Code:……

ID	Surname Firstname	Location (unit/section)	Sex	DOB (dd/mm/yyyy)	Age	Onset (date)	Fever ≥38°c (Y/N)	Cough (Y/N)	Shortness of Breath (Y/N)	Other symptoms (state)

Key: (Y =Yes, N=No, U=Unknown)

***Please complete for all current and recovered cases**

Appendix K: Part 2 – Patients/Cases ONLY

Name of Facility: …… Name of Outbreak: …… Outbreak Code……..

	Test Results		**Outcome**			
ID	Pathology Test Done Yes/No, If yes, date:	Type of Test and Result	Pneumonia	Hospitalisation (Date)	Death (Date)	Recovered to pre-outbreak health status. Yes/No. If Yes, date:

Key: (Y =Yes, N=No, U=Unknown)

Appendix K: Part 3 – Respiratory outbreak line listing form – Staff ONLY*

Name of Facility: …….. Name of Outbreak: …….. Outbreak Code……..

ID	First name Surname	Position	Location	Sex	DOB (dd/mm/yyyy)	Age	Onset (date)	Fever ≥38°c (Y/N)	Cough (Y/N)	Shortness of Breath (Y/N)	Other symptoms (state)	Work at any other facility? (Y/N) If YES, state location

Key: (Y =Yes, N=No, U=Unknown)

***Please complete for all current and recovered cases**

Appendix K: Part 4 –Staff ONLY*

Name of Facility: ……. Name of Outbreak: …… Outbreak Code:……

	Test Results		**Outcome**				**Work exclusion**
ID	Pathology Test Done Yes/No, If yes, date:	Type of Test and Result	Pneumonia	Hospitalisation (Date)	Death (Date)	Recovered to pre-outbreak health status. Yes/No. If Yes, date:	Excluded from work until (Date)

Key: (Y=Yes, N=No, U=Unknown