



DRAFT 1

COVID-19 RNA/PCR Testing of Health Care Workers in Ireland – Public Health Recommendations on Strategic Approach 3rd June 2020

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This Paper has been prepared by Dr Heather Burns & Dr Lorraine Doherty and a specific purpose working group (Appendix 1) for the National Public Health Emergency Team (NPHE).

1. This paper has been produced after a series of meetings with the Testing Strategy Group (appendix 1). It should be noted that there is no consensus among the group as to the optimum PCR/RNA COVID-19 testing strategy in healthcare workers (HCWs), outside of testing symptomatic healthcare workers and testing in the context of outbreak investigation and management. However, there was strong consensus that testing should be evidence-based. Addressing key knowledge gaps regarding the epidemiology of COVID-19 in HCWs in Ireland should be prioritised, and will provide the evidence base for future testing strategies.

2. Background information

2.1 Definition of health care worker: The term “Health Care Workers” refers to all staff working in frontline healthcare provision including HSE staff, community healthcare staff, staff working in Section 38 and 39 organisations including voluntary hospital staff, National Ambulance Service (NAS) staff, staff in private nursing homes and long-term residential facilities (RCFs) in disability and mental health, home support and personal assistant staff both directly employed or through voluntary / private providers across Older Persons Services, Disability Service and Mental Health Services for the period of COVID-19.¹ See Appendix 2 for a comprehensive list of other allied HCWs.

2.2 **COVID-19 in HCWs** is a highly complex issue that requires careful consideration. Multiple factors may influence the relatively high incidence of COVID-19 among HCWs, including, but not limited to: prevalence of COVID-19 in the community;

¹ <https://healthservice.hse.ie/filelibrary/staff/national-guidance-document-for-staff-accommodation-during-covid19-v02.pdf>

exposure to COVID in the workplace; IPC practices and access to appropriate IPC training and education; access to PPE; regulation within the workplace (e.g. is the setting subject to review by HIQA or another regulatory body); working arrangements (e.g. staff may work across multiple healthcare settings); and living arrangements (e.g. accommodation may be shared with other HCWs, or with other high prevalence communities such as meat plant workers, and overcrowding may be an issue in some instances). The role of ascertainment bias in the relatively high incidence rates of SARS-CoV-2 infection in HCWs must also be considered. To date, HCWs have been more likely to undergo testing compared to the general population, for reasons including testing of HCWs as a component of outbreak investigation and the mass testing exercise that was undertaken in RCFs in April 2020.

2.3 Testing should be considered as one possible element of a multi-faceted approach to managing risk of COVID-19 among HCWs. Principal control measures, for which there is an evidence base, include promoting effective infection prevention and control (IPC) practices, and facilitating timely identification and exclusion of symptomatic HCWs from the workplace. The key role of IPC is supported by the scientific evidence, including a recent rapid review of the epidemiology of and risk factors for SARS-CoV-2 Infection in HCWs, which confirmed that use of PPE and infection control training are associated with decreased infection risk. ²

2.4 It is important to understand the **role and limitations of testing in the response to COVID-19**.

Role:

²Chou R, Dana T, Buckley DI, Selph S, Fu R, Totten AM. Epidemiology of and Risk Factors for Coronavirus Infection in Health Care Workers [published online ahead of print, 2020 May 5]. *Ann Intern Med*. 2020;M20-1632. doi:10.7326/M20-1632. Available at: <https://pubmed.ncbi.nlm.nih.gov/32369541/>

- It can be difficult to diagnose COVID based on symptoms alone, and some people with SARS-CoV-2 infection will have subclinical, including asymptomatic, infection. Testing can confirm the diagnosis of COVID by detecting the SARS-CoV-2 virus in the patient's swab.
- Testing can inform control measures. For example, if the SARS-CoV-2 virus is detected in a patient's swab their doctor can give them appropriate advice, e.g. self-isolate for 14 days, to help prevent secondary transmission. If there is an outbreak of COVID in a hospital or nursing home, testing can identify patients/residents who have the SARS-CoV-2 virus and appropriate infection prevention and control measures can be put in place to help prevent secondary transmission.
- Testing can yield important information about chains of transmission.
- Testing yields important surveillance data regarding trends in infection rates. This can help to identify high risk regions/ population groups and can facilitate assessment of the impact of control measures, e.g. social distancing.

Limitations:

- No laboratory test is 100% accurate. International evidence suggests that the sensitivity of PCR based testing for SARS-CoV-2 is between 80-90%^{3,4}. It is important to note that the positive predictive value (PPV) and negative predictive value (NPV) of the test depend on the prevalence of infection in the population – hence, the PPV and NPV of PCR based testing will vary in high and low prevalence regions and populations.
- A test that is reported as “not detected” may be a false negative and does not confirm absence of SARS-CoV-2 infection. A person with a “not detected result” could be incubating (a stage within the natural history of the disease where the patient has

³ T. Ai *et al.*, Correlation of chest CT and RT-PCR testing in coronavirus disease 2019 (COVID-19) in China: a report of 1014 cases. *Radiology*, 200642 (2020).

⁴ <https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/2020-04-23-COVID19-Report-16.pdf>

been infected and the virus is replicating, but hasn't reached levels where it can be detected by swabbing the nasopharynx, therefore 'not-detectable' yet). A close contact of someone who is in the incubation phase of COVID whose test result is "not detected" is therefore still at risk of developing infection for 14 days following their last contact and should not be falsely reassured by their test result. Therefore, it is important to continue to abide by Public Health advice until the 14-day period is complete – this advice includes restricting movements if asymptomatic and self-isolation if the individual develops symptoms. Throughout this period, it is also important to continue social distancing, hand hygiene and respiratory etiquette.

- Testing yields information at a single point in time – the point when the swab was taken. A test that is reported as "not detected" is not an indicator of risk on an ongoing basis. Someone whose test result was "not detected" is still at risk of infection and should not be falsely reassured by their test result. They may still become infected and they must continue to abide by Public Health advice, including social distancing, hand hygiene and cough etiquette.
- PCR testing may detect viral RNA that persists after the period of infectiousness – the public health significance of a PCR test reported as SARS-CoV-2 virus "detected" when the patient has clinically recovered is unknown. The PCR test may be detecting remnants of non-viable virus, with no associated risk of transmission.
- PCR testing may be an uncomfortable process – it requires passing a swab into the nasopharynx of the individual who is undergoing testing.
- The limitations of testing support an ethical approach of evidence-based testing with informed consent.

2.5 Epidemiology of COVID-19 infections in HCWs: The level of infections among HCWs is a concern and raises reasonable questions about testing strategies for this group. While there has been a recent decline in absolute numbers of cases of COVID-19 in Ireland, including among HCWs, the proportion of overall confirmed cases attributable to HCWs remains stable at approximately 25-30%, with the source of transmission unknown in over 40%. There is considerable

variation in the proportion of overall cases by category of HCW (Tables 1 &2), with the highest proportion attributable to nurses (32%), followed by HCAs (26%) and other allied HCWs (23%). Just 6% of overall cases are attributable to doctors.

Table 1. Number and proportion of HCW COVID-19 cases by role – includes data as of 25th May 2020

HCW Role	Number of HCWs cases	Proportion of all HCW cases	Number of new cases since last week
Nurse	2538	32.1%	41
Healthcare assistant	2021	25.7%	33
Other allied HCW*	1840	23.3%	22
Doctor	479	6.0%	5
Porter	83	1.0%	1
Unknown	927	11.8%	31
Total	7888	100.0%	133

Note: Data prepared by the HPSC. Data are provisional. This table includes data as of 25th May 2020 at 9:15 am for events created on CIDR up to midnight Saturday 23th May 2020.

Table 2. Number and proportion of HCW COVID-19 cases by role – includes data from week of 25/05/2020-01/06/2020

- 482 COVID-19 events were notified to CIDR in the period 25/05/2020 – 01/06/2020.
- HCW status was recorded in 57% (n=277) of cases and HCW=Yes in 109 cases (39% of cases where these data were known and 23% of all cases)
- HCW role as follows were HCW=yes

HCW Role	Number of Events	Proportion of all HCW cases
Doctor	1	0.9%
Healthcare Assistant	24	22.0%
Nurse	35	32.1%
Other allied HCW	32	29.4%
Porter	2	1.8%
Unknown	15	13.8%
Total	109	100%

Important knowledge gaps include the following:

- Completeness of the data – In HCW data notified up to 25/05/2020, HCW role is recorded as “unknown” in 12% of cases. During the week of 25/05/20-01/06/20, HCW status was only recorded in 57% (n=277) of all notified cases of COVID.
- Information regarding the setting in which the HCWs work (e.g. nurses work in myriad departments across the acute and community setting and the department in which they work impacts their risk. Nurses in the acute setting could work in ED, ICU, acute medical wards etc., nurses in the community setting could work in GP practices, RCFs, people’s homes etc.)

- Information regarding the scope of practice of the HCWs and what level of PPE is required and provided in the workplace (e.g. provision of direct care to patients with COVID-19, involvement in aerosol-based procedures etc.) – this is impacted by the setting in which HCWs work.
- Information regarding whether the HCWs with COVID-19 were working in a setting with an ongoing outbreak of COVID when they tested positive?
- Self-identification as a health-care worker is an important consideration. Many individuals who work in health-care settings may not readily identify themselves as allied HCWs when asked e.g. caterers, cleaners, activities co-ordinators, and administrative staff, however all may have similar clinical exposure to many who would identify themselves as HCWs. This affects the denominator and therefore the reported positivity amongst HCWs.
- Denominator data – what proportion of all individuals in each HCW category has been tested.
- Information regarding whether HCWs work across settings (e.g. acute/community, public/private)
- Information re other factors that may influence risk, e.g. living arrangements – overcrowding may be a concern in some instances.

2.6 Results of mass testing exercise - HCWs

- Additional data to inform future testing strategies for HCWs in Ireland include the results of the mass testing exercise undertaken in residential care facilities (RCF) in Ireland in April 2020 with the aim of gathering data to inform control measures and future testing strategies. Approximately 15,000 HCWs were tested over the course of the mass testing exercise, predominantly within institutions with ongoing outbreaks of Covid-19, with overall positivity rates in this cohort of approximately 3%. This indicates that the point-prevalence of COVID-19 amongst HCWs in RCFs is generally low and

comparable to the positivity rate in the general population which is currently approximately 2%. It also indicates that future testing among HCWs in RCF should be targeted, risk-based and guided by public health risk assessment.

3 Summary of Scientific and Grey Literature Considered by the Working Group, Including International Practice in COVID-19 Testing in Healthcare Workers

3.1 Details of testing strategies, including for HCWs, in other countries are included in Appendix 3. This brief review of international practice did not identify any jurisdiction that currently implements routine mass or targeted testing of asymptomatic HCWs. Recent testing guidance for Public Health England (31st May 2020) states that for asymptomatic healthcare workers, 'Staff without symptoms may also be tested where there is a clinical need to do so, in line with NHS England, Public Health England (PHE), Department of Health and Social Care or Devolved Administration guidance'.
<https://www.gov.uk/government/collections/wuhan-novel-coronavirus>

3.2 ECDC Guidance on Testing for HCWs

3.2.1 **ECDC technical document entitled [Surveillance of COVID-19 at long-term care facilities in the EU/EEA \(19th May 2020\)](#)**

This document outlines testing recommendations for LTCF based on different scenarios. This document recommends that one or more confirmed cases of COVID-19 in a LTCF should prompt comprehensive testing of all residents and staff, with ongoing weekly/biweekly testing of staff if possible (Table 3). However, ECDC recommendations must be interpreted in light of national epidemiological data.

Table 3. ECDC Testing recommendations for LTCFs, based on different scenarios

Measure/scenario	Laboratory testing of residents	Laboratory testing of staff	Reporting to local authorities
No cases	Affected area: random samples, dependent on testing capacities* Unaffected area: dependent on national testing policy for LTCFs.	Affected area: consider comprehensive testing for all staff weekly/biweekly* Unaffected area: dependent on national testing policy for LTCFs or random samples.	Affected area: weekly or monthly. Unaffected area: monthly
≥1 possible case	As soon as possible, test at least all possible case(s)*.	As soon as possible, test all possible case(s)*, optimal: comprehensive for all staff.	Affected area: daily Unaffected area: weekly. Sudden increase in possible cases: daily.
≥1 confirmed case	Comprehensive testing of all residents including those who have died, dependent on testing capacity*.	Comprehensive testing for all staff, test regularly (weekly-bi-weekly) if possible.	Daily

Affected area: ongoing or presumed ongoing community transmission; according to definition in The European Surveillance System (TESSy). Reporting protocol: see ECDC webpage: <https://www.ecdc.europa.eu/en/covid-19/surveillance>. Testing and reporting schemes should be in line with national recommendations for LTCFs and dependent on the epidemiological situation in the

country and region and should include testing of asymptomatic residents and staff.

* if testing capacity is limited, consider random testing or a pooling of samples <https://jamanetwork.com/journals/jama/fullarticle/2764364>

3.2.2 ECDC Infection prevention and control and preparedness for COVID-19 in healthcare settings - third update

published 13th May 2020 – this third update emphasises the importance of excellent infection prevention and control practice by HCWs in all healthcare settings. Hospital management should define a strategy for testing, management and follow-up of healthcare workers with respiratory symptoms and ensure that testing for COVID-19 is available for healthcare workers and patients. All staff with symptoms compatible with COVID-19 should stop working and self-isolate while symptomatic, and they should be prioritised in the national testing policy in order to be able to return to work as soon as possible once they are SARS-CoV-2 free. **Health monitoring and management of exposed staff** - Staff providing care to COVID-19 patients need to be actively followed-up for development of symptoms and provided with occupational health support. Hospitals should maintain a record of all staff providing care for confirmed COVID-19 cases. These staff should remain vigilant, and if developing a fever or any respiratory symptoms within 14 days of their last exposure to a confirmed case, they should seek testing and self-isolate if they become unwell. Healthcare workers exposed to COVID-19 cases without the recommended PPE should, if possible, stop work, self-monitor for symptoms and self-quarantine for 14 days. Testing of exposed healthcare workers for COVID-19 is an alternative strategy that may be applied in the event of a critical shortage of staff. An optimal testing strategy has not yet been defined for this scenario.

3.3. Imperial College COVID-19 response team, Report 16: Role of testing in COVID-19 control:

In formulating the recommendations included in this report, the working group considered the findings of the Imperial College COVID-19 response team regarding the role of testing in COVID-19 control.⁵ This modelling study concluded that “weekly

⁵ <https://www.imperial.ac.uk/media/imperial-college/medicine/mrc-gida/2020-04-23-COVID19-Report-16.pdf>

screening of healthcare workers (HCWs) and other at-risk groups using PCR or point-of-care tests for infection irrespective of symptoms is estimated to reduce their contribution to transmission by 25-33%, on top of reductions achieved by self-isolation following symptoms.”

A number of important factors must be considered in interpreting the findings of this study, including:

- The 25-33% potential reduction in HCW contribution to transmission is based on weekly testing and a time delay of zero between testing and isolation, by having test results returned overnight/between shifts. Logistically, this would be very challenging and costly to deliver in any jurisdiction, including Ireland. Additionally, the acceptability of weekly swabbing to HCWs is not guaranteed.
- Screening of HCWs every three weeks was discussed as a possible option in the Irish context at the meeting of the Testing Strategies Working Group. The findings of the modelling study suggest that even with 24-hour turnaround time for tests, it would be ambitious to expect a 5% reduction in transmission from asymptomatic HCWs from such a strategy. In the absence of clear data regarding the potential benefit of screening of asymptomatic HCWs every three weeks (i.e. absolute number of secondary infections prevented), this would appear to be a low return for such a strategy.
- The modelling study suggests that any feasible, acceptable screening programme in HCWs in Ireland (e.g. screening every 3 weeks with 24-hour turnaround) would yield little benefit.

3.4: HIQA Evidence Summary for Asymptomatic Transmission of COVID-19, 21 April 2020 ⁶

Based on the totality of the evidence presented in this report, it seems likely that pre-symptomatic transmission is occurring. Evidence of asymptomatic transmission from asymptomatic carriers, is more limited (perhaps due to difficulties in identifying

⁶ <https://www.hiqa.ie/sites/default/files/2020-04/Evidence-summary-for-asymptomatic-transmission-of-COVID-19.pdf>

truly asymptomatic carriers); it appears plausible, but it may not be a driver of transmission.

Overall, based on data from the included case reports and modelling studies, the setting with the highest risk of transmission was the household and or family setting.

3.5: Recommendations of the Chief Clinical Officer Clinical Advisory Group (CCO CAG)

The CCO CAG considered the issue of mass testing for HCWs at its meeting on Thursday 28th May 2020 and concluded the following:

- Testing strategies among health care workers should focus on facilitating immediate exclusion from work and early testing for those with symptoms, supported by a consistent approach nationally to contact tracing with a clear Occupational Health pathway for those who have symptoms/test positive.
- Screening of asymptomatic healthcare workers is not considered feasible or informative and could distract from important control measures.
- If testing of asymptomatic healthcare workers is proposed in any setting/subgroup, for the purpose of point prevalence estimation, then the following should be carefully considered:
 - Testing should involve informed consent: this includes understanding the test that is “not detected” does not necessarily mean that an individual does not have COVID and, correspondingly, it should be noted that a person may be positive (due to viral remnants) and not infectious-consideration needs to be given to developing a consent form that lays out these and other issues and the actual meaning of the test.
 - Consideration needs to be given to the fact that individuals may refuse testing and how this will be dealt with- this gives rise to ethical considerations and would require consultation with the Medical Council, an Bord Altranais, as well as CORU, the PSI and EMT.

- Likely need for union engagement if there are to be repeated mass testing strategies.

3.6: World Health Organization protocol for case-control study to assess risk factors for COVID-19 in HCWs. On 26th May 2020, WHO published a protocol for a nested case-control study of health workers exposed to confirmed COVID-19 patients.⁷ Undertaking a case-control study may be feasible in the Irish context and could contribute to our understanding of risk factors for COVID-19 among HCWs.

4 Key considerations re role of testing in COVID-19 control in HCWs

- As with testing strategies in the general population, testing strategies for HCWs should be evidence-based and based on public health risk assessment and advice.
- In the high pressure, rapidly evolving context of the COVID-19 pandemic, optimising surveillance and data collection is an iterative process. While much progress has been made in this regard, challenges persist in relation to data completeness and knowledge gaps regarding important variables for infections in HCWs, e.g. the setting in which HCWs who test positive for SARS-CoV-2 work. Addressing key knowledge gaps regarding the epidemiology of COVID-19 in HCWs in Ireland will provide the evidence base for future testing strategies.

⁷ [https://www.who.int/publications-detail/assessment-of-risk-factors-for-coronavirus-disease-2019-\(covid-19\)-in-health-workers-protocol-for-a-case-control-study](https://www.who.int/publications-detail/assessment-of-risk-factors-for-coronavirus-disease-2019-(covid-19)-in-health-workers-protocol-for-a-case-control-study)

- ✓ Information re other factors that may influence risk, e.g. living arrangements – overcrowding may be a concern in some instances.
- HCWs account for 25-30% of COVID-19 cases in Ireland; this trend has continued even as overall numbers of cases have fallen. This is a concern for members of the testing strategy group and for those determining policy on testing of HCWs.
- Risks of targeted routine testing/screening of HCWs, as identified by the working group, include:
 - Over reliance on only one component of preventing onward disease transmission.
 - Over-interpretation of a “not detected” result, when we know that this is only a ‘point in time’ and has an associated false negative rate.
 - Potential lapse in self-monitoring of symptoms, reporting of symptoms and timely exclusion from the workplace, due to over reliance on test results.
 - Potential lapse in critical IPC measures because of potential HCW belief that they are not a risk to anyone due to recent “not detected” from swab results.
 - Potential lack of willingness to present for further swabs when required (e.g. if HCW develops symptoms of COVID-19 or is a close contact of confirmed case), due to past experience of repeated uncomfortable swabbing when asymptomatic.

5 Draft Recommendations

It should be noted that there is not consensus among the Testing Strategy working group on the recommendations presented here, and NPHE’s advice and direction is required.

Recommendation 1

Epidemiological knowledge gaps regarding COVID-19 in HCWs in Ireland must be addressed. The HSE must facilitate an integrated governance and surveillance approach to COVID-19 infections in HCWs. This should cover those elements of HCW infection surveillance which involve HPSC, HSE Public Health, HSE Occupational Health and the HSE CRM system.

Action: The HSE must define and put in place a unified governance system for surveillance of COVID-19 infections in HCWS by 13 July 2020.

Recommendation 2

The HSE (CMP or Occupational Health Services) should undertake an enhanced investigation of the most recent HCWs COVID-19 infections (last 100 cases) to gather data regarding the setting in which affected HCWs work, their scope of practice, PPE use, whether they were working in a setting with an ongoing COVID-19 outbreak, whether they work across healthcare settings, their accommodation arrangements (if possible to collect this information – e.g. is overcrowding an issue, do they live with other HCWs working in the acute/community sector) etc.

Action: HSE CMP and Occupational Health, should lead this enhanced investigation with advice on methodology from HPSC. This should be complete by end June 2020.

Recommendation 3

HSE should undertake enhanced epidemiological studies of 6 current hospital outbreaks of COVID-19, 5 of which are occurring in larger Dublin hospitals where community prevalence is currently higher than the rest of the country, to better understand sources of infection, chains of transmission and risk factors for infection. This should include additional targeted testing of all HCWs who have

any link with the outbreak affected areas in the hospital and also further testing of other HCWs in those hospitals based on Public Health risk assessment.

Action: **HPSC** to lead, working with the local public health departments and the lead for the outbreak investigation at each hospital. HPSC to provide a progress update on 18th June 2020 on the planning for this.

Recommendation 4

HCWs will be tested for SARs-CoV-2 if they fit the case definition for COVID-19; if they are identified as a close contact of a confirmed case; if testing is requested based on public health risk assessment in the context of an outbreak in a healthcare setting. Of note, broadening of the case definition which was implemented on Wed 3rd June 2020 will further increase the sensitivity of symptom monitoring as a means of detecting cases of COVID-19.

Action: **HPSC** will ensure this is incorporated in the testing algorithms and testing guidance by 11th June 2020.

Recommendation 5

Where cases of COVID-19 occur in a setting where vulnerable populations are cared for/reside, testing of residents and staff will be based on a Public Health risk assessment. This includes both acute and community-based settings, e.g. hospital, nursing home, residential care facility, home care setting, direct provision centre, facility for the homeless or a traveller community setting. Public Health will maintain a high index of suspicion and a low threshold for testing.

Action: HPSC will ensure the above principle is included in all guidance for public health departments on case and outbreak investigation and management.

Recommendation 6

An alert should be sent to all HCWs nationwide with information regarding IPC and self-monitoring for symptoms of COVID-19 and action to take if the HCW becomes symptomatic. The alert should include the following information, which can be tailored to HCW category:

- Information on the importance of IPC as a COVID control measure – this should emphasise the potential for asymptomatic transmission for up to 48 hours before symptom onset and the need for rigorous IPC to prevent such transmission (include links to IPC training resources).
- Information regarding the current case definition of COVID-19, including symptoms.
- Information regarding the need to self-monitor for symptoms of COVID-19 on a daily basis and instructions on the process for so doing, e.g. use of a self-assessment checklist (Appendix 4 - Draft COVID-19 HCW Self-Assessment Tool) to monitor for symptoms on a daily basis, maintain a record of self-assessment.
- Information regarding action to take if the HCW becomes symptomatic in the workplace or at home. This should include instructions on how to access testing (e.g. via occupational health).
- There should be a clear pathway to timely testing for symptomatic HCWs in all healthcare settings, with a short turnaround time, prompt communication of results and links to the contact tracing processes in place. Additionally, all HCWs in all settings should have access to occupational health services.

Action: HSE to ensure this alert is developed and issued to staff by 19th June 2020.

Recommendation 7

All healthcare organisations and settings should have clear governance arrangements for symptom monitoring among HCWs and should have a mechanism in place to ensure that symptomatic HCWs do not attend work – the responsibility for this should lie with the managers of each facility. In addition, HCWs must have access to appropriate IPC training resources for all categories of HCWs, e.g. via HSELand. Enhanced training can be targeted to groups of HCWs in higher risk settings identified on a prospective basis, e.g. HCWs in healthcare facilities in which outbreaks of COVID-19 occur.

Action: In addition to implementing recommendation 6, the HSE must ensure that all staff have access to IPC training and training in use of PPE. By end June 2020.

Recommendation 8

All acute hospitals should undertake an urgent risk assessment to determine which areas/services in their hospital are 'high risk' for COVID-19 transmission to HCWs and ensure all necessary measures are put in place to mitigate those risks. In the context of these areas, the hospital should plan to commence regular PCR/RNA testing of a representative sample of HCWs from such areas and this should be planned in conjunction with advice and guidance from their local public health department.

Action: HSE Health Protection to lead development of separate recommendations on testing in the acute hospital setting; by 11th June 2020.

Recommendation 9

The HSE should develop a plan for serial PCR/RNA testing for CoVID-19 of HCWs working in areas of highest risk in the RCF sector, e.g. nursing homes and those providing home care to elderly people, as an approach to surveillance of COVID-19 in these workers. This plan should be informed by best available evidence on approach to serial testing in this target group.

Actions: HSE lead for testing and contact tracing should develop a plan for this and submit to DOH by 11 June 2020.

Recommendation 10

In the overall national approach to SARS-CoV-2 seroprevalence studies in Ireland, consideration should be given to measuring seroprevalence in HCWs; e.g., groups of HCWs in different geographical locations with differing prevalence rates of COVID-19 in the community. This recommendation should be read along with recommendation 9 in the testing strategy report for the general population.

Action: HSE Health Protection will work with Department of Health in agreeing the overall national approach to seroprevalence studies, in the context of national approach managing COVID-19 pandemic response. By end July 2020.

Recommendation 11

The HSE Contact tracing programme (CMP) should seek to identify all those who work in a Health-care setting, and clarify their role, rather than just ask whether they are a HCW, to provide optimal data for interrogation.

Action: HSE CMP urgently implement the changes to the data collection processes in the programme, which have already been defined by and requested by Public Health since April 2020. By 11th of June 2020.

6 Conclusion

Testing should be recognised as one component of a multi-faceted response to COVID in HCWs. Primary components of an effective response, for which there is an evidence base, include appropriate IPC and prompt identification and exclusion of symptomatic HCWs from the workplace.

The working group have met on several occasions to discuss future testing strategies, including for HCWs. Strong consensus arising from these meetings is that testing should be evidence-based. Addressing key knowledge gaps regarding the epidemiology of COVID-19 in HCWs in Ireland should be prioritised, and will provide the evidence base for future testing strategies.

Appendix 1 Membership of Working Group

1. Dr Lorraine Doherty, National Clinical Director Health Protection (Chair)
2. Dr Alan Smith, DCMO, Department of Health
3. Dr Breda Smyth, DPH, Department of Health
4. Caroline Mason Mohan, SPHM, Testing Programme
5. Prof Colm Bergin, Infectious Diseases Consultant
6. Prof Cillian F De Gascun, National Virus Reference Laboratory
7. Dr Vida Hamilton, National Clinical Advisor and Group Lead Acute Operations, HSE
8. Dr Margaret Fitzgerald, Public Health Lead for Social Inclusion
9. Dr Derval Igoe, SPHM, HPSC
10. Dr Heather Burns SpR PHM HPSC
11. Dr John O' Brien, GP Lead for COVID, Office of the CCO
12. Dr John Cuddihy, Director, HPSC
13. Dr Kevin Kelleher, Public Health
14. Dr Lynda Sisson, Occupational Health and Wellbeing, HSE
15. Prof Martin Cormican, National Clinical Lead for AMR IC.
16. Dr Mary Favier, President ICGP
17. Dr Nuala OConnor, GP Lead AMRIC Programme
18. Dr Philip Crowley, National Director QI
19. Dr Triona McCarthy, NCCP (18.05.2020)

Appendix 2: Allied HCW roles

Catering/Kitchen staff	GP personnel
Admin\Clerical	Speech and Language Therapist
Social Care Worker	Medical Secretary
Cleaning staff	Ambulance services
Physiotherapist	Receptionist
Pharmacist\Pharmacy worker	Security staff
Home help	Laboratory worker
Care worker	Psychologists/Psychiatrist
Housekeeping	Medical Student
Occupational Therapist	Dietician
Misc. roles in nursing home	Laundry worker
Radiographer	Dental services
Misc. roles in hospital	Fire services
Paramedic	Phlebotomist
Activity Coordinator	Disability services
Nursing home director\manager	Technician
Support Worker	Intern
MTA	Medical Scientist
Maintenance	Engineer
Management	Midwife
Physiotherapist	GP personnel

Appendix 3: Testing approach in other countries

Country	Testing Policy	Summary
England	<p>In England, you can get tested if you're a social care worker or resident in a care home whether you have symptoms or not. See the guidance below on testing for care home residents and workers.</p> <p>Essential workers, including NHS staff, priority testing is symptomatic.</p> <p>https://www.gov.uk/guidance/coronavirus-covid-19-getting-tested</p>	<ul style="list-style-type: none"> • Symptomatic HCWs • All HCWs in RCFs
Wales	<p>Symptomatic health and social care workers</p> <p>https://gov.wales/coronavirus-covid-19-testing-your-questions</p>	Symptomatic NHS staff
Scotland	<p>Symptomatic HCWs</p> <p>https://www.gov.scot/publications/coronavirus-covid-19-getting-tested/pages/who-can-be-tested/</p>	Symptomatic HCWs
Northern Ireland	<p>Symptomatic key workers including HCWs</p> <p>https://www.publichealth.hscni.net/covid-19-coronavirus/testing-covid-19</p>	Symptomatic HCWs
Italy	<p>Should somebody develop symptoms during the period of fiduciary isolation, the Department of Public Health, which is responsible for the national health surveillance, will carry out a test with the SARS-CoV-2 swab.</p>	<ul style="list-style-type: none"> • Symptomatic people, including HCWs, who fit the case definition

	http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioFaqNuovoCoronavirus.jsp?lingua=english&id=230	
Germany	<p>The clinics and the general practitioners decide who will be tested. They are based on the recommendations of the Robert Koch Institute (RKI). A test is currently being performed on people who have acute respiratory symptoms, particularly, but not limited to, contact with a confirmed COVID-19 case or work in care, doctor's office, hospital, or belonging to a risk group. A test can also be carried out if there is evidence of viral pneumonia.</p> <p>https://www.zusammengegencorona.de/informieren/informationen-zum-test/</p>	<ul style="list-style-type: none"> • people who have acute respiratory symptoms, particularly, but not limited to, contact with a confirmed C-19 case or work in care, doctor's office, hospital, or belonging to a risk group. • A test can also be carried out if there is evidence of viral pneumonia.
New Zealand	<p>Who should be tested?</p> <p>Testing should be done for any person meeting the clinical criteria especially those who are among the priority groups for investigation and testing listed here: (https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-novel-coronavirus-information-specific-audiences/covid-19-novel-coronavirus-resources-health-professionals/case-definition-covid-19-infection) or if clinical judgement indicates that testing is warranted.</p> <p>Clinicians should be aware that immunocompromised patients may not present with typical symptoms so should be considered as a suspected case if they meet the epidemiological criteria.</p> <p>Clinicians should also maintain a high level of suspicion and consider testing in case of doubt.</p> <p>Testing in hospitals should always be done in consultation with the infectious disease physician or clinical microbiologist.</p>	<ul style="list-style-type: none"> • any person meeting the clinical criteria especially those who are among the priority groups for investigation <p>In addition, more extensive testing, including testing of people who are asymptomatic, may be required on advice from the local Medical Officer of Health:</p>

	<p>https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-resources-health-professionals/covid-19-advice-all-health-professionals</p> <p>A suspect case satisfies the following clinical criteria: Any acute respiratory infection with at least one of the following symptoms: cough, sore throat, shortness of breath, coryza, anosmia with or without fever.</p> <p>All people meeting the suspect case definition for COVID-19, or where the clinician has a high degree of suspicion, should be tested to confirm or exclude a diagnosis.</p> <p>In addition, more extensive testing, including testing of people who are asymptomatic, may be required on advice from the local Medical Officer of Health:</p> <ul style="list-style-type: none"> • when an outbreak or cluster is suspected, or being investigated • when a case is identified in a vulnerable residential institution such as an aged residential care facility. <p>Testing of individuals who are asymptomatic is NOT recommended unless requested by the local Medical Officer of Health.</p> <p>https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-resources-health-professionals/case-definition-covid-19-infection</p>	<ul style="list-style-type: none"> • when an outbreak or cluster is suspected, or being investigated • when a case is identified in a vulnerable residential institution such as an aged residential care facility. <p>Testing of individuals who are asymptomatic is NOT recommended unless requested by the local Medical Officer of Health.</p>
<p>Australia</p>	<p>Your doctor will tell you if you should be tested. They will arrange for the test.</p> <p>The testing criteria provided below are nationally agreed criteria. As the situation changes, states and territories may include additional criteria based on local needs.</p> <p>Generally, you will be tested if you develop fever or respiratory symptoms and meet at least one the following criteria:</p> <ul style="list-style-type: none"> • you have returned from overseas in the past 14 days • you have been in close contact with someone diagnosed with COVID-19 in the past 14 days 	<p>you will be tested if you develop fever or respiratory symptoms and meet at least one the following criteria:</p> <ul style="list-style-type: none"> • you have returned from overseas in the past 14 days

- you travelled on a cruise ship (either passenger or crew) in the 14 days before developing symptoms
- you are a health care, aged care or residential care worker
- you have lived in an area where there is a higher risk of community transmission, as defined by the local public health unit

You should also be tested if you meet all of the following criteria:

- you are in hospital
- you have fever and serious respiratory symptoms
- there is no other clear cause of the symptoms

People in high-risk settings will be tested if there are 2 or more people with fever and respiratory symptoms in the setting.

High-risk settings include:

- aged and residential care facilities
- detention centres or correctional facilities
- boarding schools
- military bases (including navy ships) that have live-in accommodation
- rural and remote Aboriginal and Torres Strait Islander communities

People with mild symptoms may be tested in certain geographical areas. You should check with your health care provider about testing information for your state and territory.

The Department of Health regularly reviews these criteria.

<https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/what-you-need-to-know-about-coronavirus-covid-19#testing>

- you have been in close contact with someone diagnosed with COVID-19 in the past 14 days
- you travelled on a cruise ship (either passenger or crew) in the 14 days before developing symptoms
- you are a health care, aged care or residential care worker
- you have lived in an area where there is a higher risk of community transmission, as defined by the local public health unit

You should also be tested if you meet all of the following criteria:

- you are in hospital
- you have fever and serious respiratory symptoms
- there is no other clear cause of the symptoms

People in high-risk settings will be tested if there are 2

		or more people with fever and respiratory symptoms in the setting.
China	<p>China will focus testing for COVID-19 on high-risk groups such as people from infected areas or with symptoms, suggesting that authorities are not about to rush into large-scale testing.</p> <p>https://www.channelnewsasia.com/news/asia/covid19-china-tests-focused-stops-short-wider-testing-12680650</p>	<ul style="list-style-type: none"> • Symptomatic people • High risk groups, e.g. people from infected areas
South Korea	<p>In accordance with the case definitions provided for in these guidelines, patients classified as suspected cases and Patients Under Investigation (PUI) may get tested.</p> <p>Suspected cases: A person who develops a fever or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days of coming into contact with a confirmed patient.</p> <p>PUI:</p> <ul style="list-style-type: none"> • A person who is suspected of having the COVID-19 virus as per doctor’s diagnosis of pneumonia of unknown causes. • A person who develops a fever (37.5°C and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days of <u>travelling overseas</u> • A person with an epidemiologic link to a collective outbreak of COVID-19 in Korea and develops a fever (37.5°C and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days. <p>< Source: Response Guidelines for Coronavirus-19 (edition 7-4), Central Disease Control Headquarters, as of April 3, 2020 ></p>	<ol style="list-style-type: none"> 1. Suspected cases: a person who develops a fever or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days of coming into contact with a confirmed patient. 2. PUI <ul style="list-style-type: none"> • A person who is suspected of having the COVID-19 virus as per doctor’s diagnosis of pneumonia of unknown causes • A person who develops a fever (37.5°C and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within

http://ncov.mohw.go.kr/en/faqBoardList.do?brdId=13&brdGubun=131&dataGubun=&ncvContSeq=&contSeq=&board_id=&gubun=

Extensive diagnostic testing is performed rapidly for the early detection of confirmed cases. - Korea is capable of conducting over 23,000 diagnostic tests per day, and the cumulative total of diagnostic tests conducted so far is 630,000. Healthcare professionals are allowed to perform diagnostic testing on any individual suspected of having COVID-19 free of charge. - This extensive diagnostic testing capacity was the key to minimizing damage and containing the spread of the virus through the early detection of confirmed cases. The high number of confirmed cases in Korea testifies to the excellence in the nation's infection prevention/control competence through large-scale diagnostic testing and thorough epidemiological investigation

Early Detection of Confirmed Cases through Screening Stations and Diagnostic Testing

o We perform extensive diagnostic testing within the shortest period of time to ensure the early detection of patients and thereby minimize the spread of the virus (cumulative total of tests standing at 633,921 as of May 4). - We set up screening stations* at public health centers and healthcare institutions to ensure easier access to diagnostic testing and effectively control infection and have diversified their operating models to better respond to increasing testing demands. One of the leading examples is the drive-thru screening station capable of safe and efficient specimen collection. * Screening stations are set up to test those suspected of infection due to the onset of symptoms such as coughing and a fever before entering any healthcare institutions. A total of 638 screening stations are in operation (605 capable of specimen collection).

o As a result of our efforts to increase testing institutions and diagnostic reagent manufacturers, the nation's daily testing capacity rose from 3,000 per day as of February 7 to the current 23,000 per day. This drastic increase in testing capacity enabled us to rapidly test suspected cases and block the community spread of the virus.

http://ncov.mohw.go.kr/en/infoBoardView.do?brdId=15&brdGubun=151&dataGubun=&ncvContSeq=2187&contSeq=2187&board_id=&gubun=

14 days of travelling overseas

- A person with an epidemiologic link to a collective outbreak of COVID-19 in Korea and develops a fever (37.5°C and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days.

Appendix 4: Draft COVID-19 Healthcare Worker Self-Assessment Tool



COVID-19 Healthcare Worker Self-Assessment Tool
XX May 2020

	Please Tick	
	Yes	No
1. Symptoms (within past 14 days)		
• Fever/Chills/Sweating		
• Shortness of breath		
• New/Worsening cough		
• Sore throat		
• Malaise/Aches		
• Loss of taste or smell		
• Vomiting/Diarrhoea?		
2. Recent exposure (within 14 days) -workplace or other		
• Protected contact with a confirmed or probable case		
• Unprotected contact with a confirmed or probable case		
3. Travel/Relocation		
• Travel within 14 days from outside the island of Ireland		
4. Previous Test		

- No positive COVID-19 test within the past 3 months.
(if previous test within 3 months detected COVID-19 please tick no)

If you answered YES, any question please contact the Occupational Health Service in your current location to request a test 1 week prior to transfer. You may not commence duty until test results are available.

1. If you have any of the symptoms listed in Section 1, please self-isolate and contact your existing Occupational Health Service or your GP for assessment and possible testing.
2. If you had unprotected contact with a confirmed or probable case within 14 days before your start date, have been identified as a 'close contact' and are restricting movement as a result, please advise your new Occupational Health service.
3. If you have travelled from outside the island of Ireland within 14 days you must self-isolate for 14 days from the date of return. Testing is not required unless you develop symptoms. Please advise HR of your travel and the requirement to self-isolate.
4. If you have tested positive within 3 months and are asymptomatic, you can be considered immune for 3 months from onset of symptoms (in original infection).