Sars-CoV-2: A Testing Strategy Approach

Mapping Ireland’s National Approach against ECDC’s Proposed Scheme

Version 2.1

Paper for NPHET, 5th November 2020
Officer of the Clinical Director for Health Protection
Overview

1. COVID-19 testing in Ireland centres on laboratory PCR testing of naso-pharyngeal swabs for one or more of the objectives listed in the European Centre for Disease Prevention and Control’s (ECDC) paper, “COVID-19 testing strategies and objectives”. These ECDC testing objectives are to:

   - Control transmission.
   - Monitor incidence and trends and assess severity over time.
   - Mitigate the impact of COVID-19 in healthcare and social-care settings.
   - Rapidly identify all clusters or outbreaks in specific settings.
   - Prevent (re-)introduction into regions/countries with sustained control of the virus.

2. The Health Service Executive (HSE) was asked to put in place capacity of 15,000 PCR tests per day by NPHET. The current (end October) daily (PCR) testing capacity is 21,000 tests. 2,000 of this is overseas with a European partner and can only be accessed with seven days’ notice and based on capacity being available at that time.

3. Until recently, given the increase in community referrals, the testing capacity was approaching, or even exceeding the capacity available in Ireland on a daily basis. The HSE has been asked to provide significant increased capacity for the winter period in light of increased COVID-19 case numbers. COVID-19 PCR testing performed by an appropriate method is expected to detect a high proportion of infectious symptomatic cases and can detect many pre-symptomatic or truly asymptomatic cases. Testing in the context of an efficient surveillance and contact tracing system allows for the rapid isolation of infectious cases. Broader investigation and control of COVID-19 cases enabled a lowering of the risk to more vulnerable members of the population, ultimately reducing morbidity, mortality and health service utilisation.

4. Certain sub-groups of the population are identified as being at increased risk of either contracting COVID-19 themselves and/or passing it on to vulnerable individuals. The testing strategy, therefore, needs to include defined testing processes for these groups, in order to minimise the impact to themselves and their close contacts. The population subgroups identified as requiring a more systematic testing approach are:

   (i) Healthcare workers (HCWs) providing direct clinical care in the nursing and residential sector
   (ii) Vulnerable populations (especially those in congregated settings, e.g. Direct Provision and international protection applicants, Travellers, Roma, migrants, homeless people in hostels, hubs, short-term or private emergency accommodation, victims of domestic abuse, and other vulnerable groups, such as those with addiction)
   (iii) Workers in meat and fish processing plants
(iv) HCWs in acute (hospital) settings

5. In addition to PCR testing, there is possibly potential to utilise more rapid antigen diagnostic testing exists, pending review and approval. The HSE has convened a working group, co-chaired by Dr Lorraine Doherty and Prof Mary Keogan, tasked with reviewing the antigen tests currently available and how they might be usefully deployed within clinical and non-clinical settings by the HSE, in the context of a testing strategy during the COVID-19 pandemic.

This document presents the current approach to PCR testing, the proposed future approach to testing, and the rationale behind the proposal.

Healthcare workers (HCWs) in nursing homes and residential care facilities

6. Current approach

Testing of all staff (including Healthcare assistants, cleaners, catering staff, etc) is being undertaken fortnightly in all HIQA-registered nursing homes and residential care facilities (RCFs) for Older Persons. This amounts to approximately 43,000 HCWs. Most facilities have staff that are trained and able to undertake this swabbing themselves.

All symptomatic individuals (staff/residents) can access testing free of charge through any GP or, where applicable, HSE Occupational Health services. Currently, if a confirmed case occurs in a RCF, a Public Health risk assessment (PHRA) is undertaken. Close contacts are tested on Day 0 and Day 7 and wider testing is decided based on the PHRA. This most often includes mass testing of all residents and HCWs.

7. Proposed approach

- All new staff should be tested prior to commencing work in a Nursing Home or RCF for Older Persons.
- Staff in Nursing Homes and RCF for Older Persons should remain a priority sub-group for serial testing and the current programme of serial testing for staff in Nursing Homes and RCFs for Older Persons will continue. This will continue on a fortnightly basis for all facilities.
- A Public Health approach will continue to be taken for other types of RCFs caring for different vulnerable groups, such as those with Intellectual Disabilities, where the risks of severe morbidity and mortality are lower than in the elderly RCF setting. In these facilities, testing will be organised for symptomatic individuals and, in the event of a positive test result, case and investigation management will be guided by a PHRA.
8. **Rationale**

Residential care facilities for Older Persons are among the most vulnerable of the congregated settings. The incidence of COVID-19 has been disproportionately-high and residents are particularly susceptible to both morbidity and mortality associated with COVID-19. For this reason, the timely detection, investigation and control of all symptomatic and pre-symptomatic cases, through a serial testing process, is important.

ECDC currently recommends either weekly or fortnightly testing of all healthcare workers. Weekly testing of all healthcare workers would impose logistical challenges and would require an increase in current resources or a diversion of capacity from other key areas. For this reason, the current fortnightly testing will be continued.

**Vulnerable populations**

9. Vulnerable populations are communities such as Homeless, Roma, Travellers, Refugees/International Protection Applicants (asylum), Migrants, People with Addiction, victims of domestic violence and others. Their vulnerability comes not just from exclusion and lower incomes but also because of their living conditions, especially those in congregated settings. Many depend heavily on the “gig” or informal economy; have inadequate access to social services or political influence; have limited capacities and opportunities to cope and adapt and poor access to web-based media. Most congregated settings are without clinic or in-house nursing, medical or healthcare support. There are vulnerabilities also in those such as the Roma and Traveller communities and undocumented migrants, who live in the community but who are disadvantaged because of ethnicity, language, poverty and addiction. Cultural differences also mean they cannot easily adapt to the way services are configured for mainstream society. Many of these groups lack GPs and regular health engagement; improved communication and awareness of risk is important in order to protect themselves.

10. **Current approach**

HSE Social Inclusion, together with regional Departments of Public Health, has adopted an approach based on prevention, awareness and communication for all suspected and confirmed cases. A single case of COVID-19 in either staff or residents/patients in a congregated or vulnerable setting prompts a full investigation of the setting. Social Inclusion and Public Health teams work with NGO partners to conduct testing and outbreak investigation, as required.

- **Traveller community (30,000+ nationally)**
Upon notification of a single case of COVID-19, contact tracing is undertaken and completed. Management of close contacts involves restricting movement for 14 days, actively monitoring for symptoms, and testing in line with HPSC guidance for contacts.

Contact tracing, cluster and outbreak investigation can be supported through existing supports (Traveller Health Units, GP NGOs such as Pavee Point, HSE Public Health (eight Departments and the NSIO), the NSIO Public Health Team and HSE CHO supports).

On sites where a risk assessment suggests a higher risk of viral transmission (for example, Halting sites or settled housing), additional testing may be performed and prioritised for symptomatic individuals and those at greatest medical risk of complications from COVID-19 infection. Close contacts are followed up using local networks, NGOs and Traveller primary care workers. A Halting site is a congregated setting and it may be determined that all residents on site should be considered as close contacts and a full or partial testing sweep arranged. Operationally, individual testing can be organised for all on site through:

- The person’s GP at a local testing station
- Safetynet – either through onsite testing or through the Safetynet Community Assessment Hub for vulnerable groups, attached to the Mater Hospital, Dublin
- A request from Public Health to the National Ambulance service to test at site

- **International Protection Accommodation Services (Direct Provision)(approx. 8000 nationally)**

All new entrants to Direct Provision Centres are offered quarantine and testing at day 0 and day 7. IPAS/DP residents are only subsequently tested if symptomatic or a close contact of a confirmed case. If there are known or suspicious cases of COVID-19 identified, as IPAS accommodation is a congregated setting, a PHRA by regional Departments of Public Health, or NSIO may consider that all residents and staff should be offered testing for COVID-19. Collaboration between the relevant Department of Public Health, Department of Justice and Social Inclusion personnel provides a rapid response to testing and outbreak management. Safetynet also provide a rapid cluster outbreak response service in DPC and to date has been involved in over 15 DPC investigations with HSE Public Health.

- **Roma (approx. 5000 nationally)**

If a member of the Roma community develops symptoms, they are advised to call a GP or the ROMA helpline (which is dedicated to support Roma COVID) to seek medical advice. As they are in a priority group, testing will be arranged for them. Roma may also be triaged for testing through the Safetynet mobile health screening unit or Public Health as part of a case or outbreak investigation. The ongoing management of suspected or confirmed cases, and their contacts, is managed per the regular protocol by the regional Department of Public Health, in tandem with NGO partners, HSE Social Inclusion and Primary care.
• **Homeless community (approx. 10,000 nationally, mainly in Dublin, Galway, Cork and Limerick)**

HSE National and local Social Inclusion, and Departments of Public Health work alongside GPs and NGOs to provide COVID-19 prevention and clinical Public Health response services to the homeless community. There are over 200 homeless settings in the Dublin region alone and include both single and family accommodation.

The Homeless COVID-19 Team (based in CHO 9 with Clinical Homeless Lead, Anna Liffey (Drug project) and Public Health in Social Inclusion) have a fast track and wrap around service they provide in the Dublin region allied to Public Health at local and national level and in line with current guidance.

Testing may be arranged for any suspected cases in homeless accommodation by contacting any GP. Safetynet Primary Care and GPs providing services to homeless individuals are also able to arrange testing and have a rapid cluster response team, providing rapid testing and contact tracing services. The Covid Assessment Hub at the Mater Hospital also provides special assessments for all vulnerable groups. The ongoing management of suspected or confirmed cases, and their contacts, is managed by regional Departments of Public Health, in tandem with NGO partners, National and local HSE Social Inclusion and Primary care.

11. **Proposed approach**

Vulnerable communities require a robust and rapid response to concerns regarding outbreaks or clusters. Bespoke solutions, supported within these communities, are needed. It is proposed to strengthen the flexible adapted approaches adopted since onset of the pandemic for vulnerable groups. The strategy adopted from the outset by HSE National Social Inclusion and Public Health, underpinning the testing approach, is Preparedness, Planning, Awareness Raising, Communication and Rapid Response - all based on working closely with government, NGO and HSE partners.

Serial testing will not be performed, unless there is a strong Public Health imperative. Instead, it is proposed to strengthen existing strategies and enhance Rapid Response Teams. Suspected cases of COVID-19 will be referred for testing through one of the pathways described above and using Fast Track approach. In the event of a positive test result, the ongoing management of confirmed cases, and their contacts, will be managed by regional Departments of Public Health, in tandem with relevant NGO partners, HSE Social Inclusion and Primary care.

CHO Social Inclusion teams in collaboration with PH to scale up especially in relation to case detection, testing and bespoke contact tracing for vulnerable groups. The highest level response for Homeless in Dublin region will expand out to Travellers. Scale up is underway in Dublin Region. In addition, a mobile response model is proposed to provide a prompt, bespoke, wrap-around service, which would include an operational Rapid Cluster Outbreak Response team, working under the guidance of local Public Health Physicians and National Social Inclusion PH Lead. The team will support rapid risk analysis, contact tracing and
testing, inform the local Department of Public Health and cases of testing results, and refer
individuals to isolation facilities, where required, within 36 - 48 hours of the cluster being
identified. Subsequent testing will follow, as clinically necessary from initial investigations,
to allow for the detection and isolation of further cases.

It is proposed that each CHO will have access to Rapid Cluster Outbreak Response team as
required There will be alignment with existing HSE PH response. Up to 4 teams will
eventually be stationed around the country, ready to respond rapidly as soon as a cluster is
identified in one of the defined settings which needs the Mobile Team response. The
objective is to arrive at the scene promptly and, under the guidance of local Public Health,
support rapid testing, tracing and control measures, backed up by education and awareness.
The Dublin Homeless Team will rapidly respond with a similar approach in the Dublin region,
especially in Homeless settings.

It is envisaged that the staged roll out of 2-4 mobile teams be completed over the coming
months.

12. Rationale
In the first phase of the pandemic response, full testing sweeps of congregated settings
were done, based on local risk assessments, for example in Direct Provision Centres,
Traveller sites and homeless hostels in Dublin, Limerick and Cork. Sweeps carried out in the
context of known cases or outbreaks had high yields (5-25%). Sweeps conducted in settings
where many residents worked in other congregated settings (such as nursing homes, meat
and fish processing plants etc) also tended to have higher yields. Sweeps conducted in
settings without cases tended to have very low yields. One cycle of testing of all residents in
Direct Provision Centres was completed on September 28th and this process identified key
learnings for the HSE. Firstly, there was a low uptake rate of 46% across all facilities,
suggesting that acceptability for testing was not high in this setting. Secondly, due to poor
uptake and selection bias, it could not give a reliable picture of COVID-19 infection
prevalence in centres. Thirdly, with testing fatigue and the resources required to undertake
mass testing, the opportunity costs to the health service and future testing capacity must be
considered. After mass testing evaluation and consideration by the national group, it was
determined that responsive testing, investigation and control in these setting will have
better acceptability and therefore will better identify concerns associated with COVID-19
when required.

Workers in meat/fish processing plants

13. Current approach
As well as the prompt testing of all symptomatic workers, as they present to their GP, serial
testing has been undertaken monthly in all meat and fish production facilities with more
than 50 staff. All identified cases are notified to the regional Departments of Public Health,
whereby the contact tracing process is commenced. Outbreak investigation and control is then undertaken, as appropriate, by the regional Departments of Public Health, and an outbreak control team convened as necessary to provide maximal support.

14. Proposed approach

A randomly generated sample of workers (25% of all staff) from each facility will be tested every 2 weeks. PCR tests will be performed on nasopharyngeal swabs taken from each individual in the sample of facilities. In the event of a positive test result, the local Public Health Department will be notified and a PHRA will be carried out, to determine the additional workers and contacts to be tested.

Facilities will be supported to develop their own swabbing capabilities.

Evaluation of the potential value of Rapid Antigen Detection in this setting will be undertaken in collaboration with the DAFM.

The fundamental importance of non-pharmacological measures to prevent the spread of infection needs to be continually promoted in food processing industry settings, particularly the message re not working while experiencing any symptoms which could be consistent with COVID-19 infection, and the use of appropriate PPE and physical distancing at all times.

15. Rationale

Testing has been completed in 80 facilities to date. The detected rate for all testing in this setting is 0.41%. This rate of positivity is reassuring, and much proactive and prevention has, and continues, to be undertaken within this sector. Continuation of the current serial testing of all workers in food processing plants will therefore incur significant opportunity costs to the national testing strategy. Undertaking testing of a sample of facilities will enable greater flexibility for the testing system but will still allow for the escalation of rapid and widespread targeted testing, in the event of a positive result and outbreak investigation and control following PHRA.

Healthcare workers in acute (hospital) settings

16. Current approach – Healthcare workers (HCWs)

There are approximately 75,000 HCWs in the acute sector. There is currently no serial testing performed on HCWs in acute settings. If a staff member is symptomatic or is identified as a close contact of a confirmed case, they will be referred for testing and given appropriate Public Health/Occupational Health advice. Testing may either be organised by the staff member’s GP in the community, or by the hospital’s Occupational Health Department. Positive test results are notified to the regional Departments of Public Health.
and to Occupational Health Departments for follow-up. If there is an outbreak in a particular ward or area of a hospital, all HCWs in the affected ward/unit/setting are tested.

As per recommendation 8 in the report on testing of healthcare workers and Non-Consultant Hospital Doctors presented to NPHET on 30th July 2020, all acute hospitals were recommended to 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, it was recommended that hospitals 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.

17. Update from Meeting of Testing Strategy Group, 2 November 2020: The Testing strategy Working Group had initially made a recommendation, that all HCWs who work in settings that place them at high risk of being infected, or who work with, or near, patients deemed especially vulnerable to severe illness in the event of infection, should be tested serially on a fortnightly basis; subject to a testing capacity assessment. At the meeting of the strategy group on 2nd Nov, HSE colleagues from the Testing programme advised that attendees at a meeting on 30th October 2020 had determined that while there is currently sufficient available testing capacity to undertake serial testing of HCWs in acute settings it is likely that this will have to be prioritised for symptomatic testing early in January 2021, based on the work of the national modelling team. In the short term there may be some available capacity for one off testing approaches; however, predictions from modellers indicate there may be pressure on testing capacity later this winter and in early 2021. In addition, clinical colleagues raised concerns about serial testing in acute settings, including - the lack of evidence of true areas of risk in hospital settings; the logistical challenges in implementing a serial testing approach; the potential negative impact on the delivery of clinical care and the absence of evidence of benefit from the international literature.

Proposed approach (2nd November 2020)

• All new HCWs starting work in a hospital, or returning to work from abroad, will be tested before commencing work. The definition of a healthcare worker includes auxiliary staff working in a healthcare setting, e.g. catering, cleaning, maintenance, porters, students on clinical placements etc.
• In all other acute hospital settings, only symptomatic staff and their contacts will be tested and, in the event of a positive result, a PHRA will determine the extent of subsequent testing required.
• There is an urgent need to determine the hospital settings and the HCWs with highest risk for COVID 19 infection transmission and acquisition. The following actions are proposed to increase evidence and understanding of this issue:
(i) The HSE will invite expressions of interest from acute hospitals to participate in a one-off mass PCR testing exercise for HCWs. Ideally a Model 2, Model 3 and Model 4 hospital will be included. This exercise should provide additional information on infections in HCWs at the time of testing and, additionally, on the logistical and organisational considerations for implementing testing programmes on acute sites.

(ii) The results from the sero-epidemiology (PRECISE) study undertaken in 2 large acute hospital sites should be available by the end of November 2020 and will provide further information on COVID-19 in HCWs in acute settings.

(iii) There is an urgent need to identify where SARS-CoV-2 positive HCWs are most likely to have acquired their infection – whether in the healthcare setting or in the community. Current data does not provide this data in full. It is recommended that Whole Genome Sequencing (WGS) is undertaken for all positive tests in healthcare workers working in acute settings. If resources allow, consideration should also be given to WGS of positive cases occurring in patients in the same facility. There will be a lead time to procure equipment, installation, staffing and a logistics process in place for NVRL to undertake whole genome sequencing. A project will be commenced to put this into place in order to support this requirement.

(iv) The data collected by Occupational Health Departments on infections occurring in HCWs in acute settings will be analysed to determine if there are particular HCWs at risk or occupational areas with higher risk. This should be supported by enhanced surveillance of COVID-19 disease in HCWs to provide prospective data on the crude incident rates within each hospital/department and across professional groups.

- The Rapid Antigen Testing group will look to undertake an evaluation of commercially available tests in clinical settings, including in HCW testing. It should be noted that early results from some validation work already undertaken indicate that the sensitivity rate of these RADTs in clinical settings is considerably lower than that claimed by the manufacturers, and a careful risk-benefit analysis will be required.

- The fundamental importance of non-pharmacological measures to prevent the spread of infection needs to be continually promoted in acute healthcare settings, particularly the message not working while experiencing any symptoms which could be consistent with COVID-19 infection, and the use of appropriate PPE and physical distancing at all times, including during break times and social situations.

18. Rationale
- Implementing a serial testing programme for all HCWs in acute settings would require a significant increase in current resources, or a diversion of capacity away from other key areas. There are practical issues with how serial testing could be done sufficiently frequently and in a sufficiently-timely manner to be effective with
the current technology and there is no current evidence as to the effectiveness of such a strategy.

• Indications are that when patients are recognised as having COVID-19 the implementation of Contact and Droplet Transmission Based Precautions as currently applied in HSE hospitals has a high degree of effectiveness in protection for both patients and healthcare workers.

• Ensuring the availability of testing for symptomatic healthcare workers and for those new entrants/workers returning from abroad is a way of prioritising PCR testing for known areas of risk.

• A defined approach for improving the evidence base on risk to HCWs in acute settings in Ireland will be in place.

• There will be an ongoing work programme to advise on the use of alternative testing modalities to PCR in the Sars-CoV-2 testing programme.
Appendix 1

Membership of the Testing Strategy Group reconvened

Dr Lorraine Doherty
Prof Marie Keogan
Dr Matt Robinson
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Dr Philip Crowley
Mr Damien McCallion
Dr Kevin Kelleher
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Dr Paul McKeown
Dr Cillian de Gascun
Dr Abigail Collins
Dr Margaret Fitzgerald
Dr John Cuddihy
Dr Lynda Sisson
Prof Martin Cormican
Dr Mary Favier
Dr Andrea Bowe
Ms Niamh O’Beirne
Ms Elaine Browne
Mr Ciaran Browne