



An Roinn Sláinte
Department of Health

Mr. Ted McEnery
Clerk to the Committee
Special Committee to COVID-19 Response

By email: ted.mcenery@oireachtas.ie

16th June, 2020

Dear Ted

I refer to your letter of 5 June 2020 Your Ref: SCC19R-I-0147 seeking a written submission from the Department on the topic of testing and tracing.

As requested the Department is providing relevant information.

I trust that this satisfies the Committee's requirements.

Yours sincerely

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Submission to Special Committee on COVID-19 Response (Oireachtas
Committee)

Topic: Testing and Tracing

16 June 2020

1. Context

1. This submission contains a summary overview of (1) the testing strategy (2) the types, objectives, limitations of testing and (3) contact tracing. The HSE will provide a detailed overview of operational matters covering the end-to-end COVID-19 testing infrastructure incorporating referral, community swabbing, laboratory testing, provision of results, effectiveness of testing, contact tracing and the new COVID Tracker App.

2. Testing Strategy

- 2.1 Ireland has adopted a robust process of testing, isolation and contact tracing as a key strategy for containing and slowing the spread of COVID-19, as advocated by World Health Organisation (WHO), the European Centre for Disease Prevention and Control (ECDC) to “break the chain of transmission”.
- 2.2 The capacity for testing has been expanded incrementally as capacity has developed. Over the course of the pandemic this has included the broadening of the case definition to include anyone exhibiting one symptom of cough, fever or shortness of breath, a comprehensive programme of testing in long term residential care facilities, a continued focus on healthcare workers and the automatic routine testing of all close contacts. The NPHET has most recently recommended that health care workers in nursing homes be tested weekly for an initial 4 weeks to inform an ongoing surveillance programme. This is in recognition of the vulnerability of nursing homes to this virus.
- 2.3 The HSE has planned for a full testing and contact tracing pathway to undertake up to 15,000 tests per day. In line with the current lower levels of prevalence of the virus, testing levels have reduced. Over the past four weeks the average weekly number of tests processed was 22,862. As of 15 June 2020, a total of 384,501 tests have been carried out to date, with a 7% positivity rate overall.
- 2.4 Countries that do very few tests per confirmed case are unlikely to be testing widely enough to find all cases. At the WHO media briefing on 30 March, 2020, Dr Michael Ryan expressed this in terms of the positivity rate “...In general where testing has been done fairly extensively we’ve seen somewhere between 3 and 12% of tests being positive... we would certainly like to see countries testing at the level of ten negative tests to one positive as a general benchmark of a system that’s doing enough testing to pick up all cases”.
- 2.5 The median number of close contacts per case was 3 over the past two weeks, slightly up from 2 during most of May 2020. Despite maintaining the key public health messages to limit interactions as much as possible, to continue to practice social distancing and to keep a record of all close contacts, increases in the number of close contacts per case are to be expected given the progressive relaxation of restrictions.
- 2.6 Turnaround times have improved significantly. Recent reports from the HSE indicate that the turnaround time from referral to completion of contact tracing is now 3 days or less in around 86% of cases. The median time across community and hospital settings is now 1.8 days and has been improving each week.
- 2.7 The cost identified by the HSE for the full testing and tracing process is now in the region of c.€400 million for 2020, based on 100k tests per week being undertaken each week for the remainder of 2020. This figure reduces commensurately for lower testing numbers.

3. Types, objectives and limitations of testing

- 3.1 Real-time reverse transcription polymerase chain reaction (RT-PCR) is the gold standard for diagnosing suspected cases of COVID-19.
- 3.2 Diagnostic testing is but one component of a comprehensive public health led, infection prevention and control response to SARS-CoV-2. Combined with tracking where infected people are to provide the most appropriate management of the case, their isolation to prevent further spreading of the virus and tracing all the people that were in close contact with the index case, testing, tracking and tracing has become the central tool for preventing transmission in controlling the spread of SARS-CoV-2 in Ireland.
- 3.3 A test for SARS-CoV-2 can only provide information at a single point in time and in the case of an 'RNA not detected' result for any person at one point in time does not reflect or indicate the level of ongoing risk. That person could have a repeat test the next day with a different result.
- 3.4 The focus of diagnostic testing should continue to be on those who meet the case definition in operation and the close contacts of confirmed cases. Any testing approach needs to be grounded and evolve based on emerging evidence and guidance.
- 3.5 Where outbreaks of SARS-CoV-2 occur in the community or in settings where vulnerable populations are cared for or reside, decisions regarding the most appropriate testing strategy in response to such an outbreak must be taken on a case by case basis, informed firstly by a public health risk assessment and guided by epidemiological data and scientific evidence that impact on risk of transmission at the time or relevant to the particular setting.
- 3.6 The role of serological [antibody] tests is limited at present. Once they have been assessed to be of sufficient sensitivity and specificity these tests can be used to estimate the prevalence of immunity in the general population. However, it must be noted that based on current evidence uncertainty remains as to (i) whether antibodies fully protect from subsequent infection (ii) whether the antibody response is durable and (iii) while the individual may have sufficient immunity to prevent development of disease, they may still spread infection until the virus is cleared. This limits the usefulness of antibody testing at an individual level.
- 3.7 The first use of antibody testing in Ireland, as has occurred in other countries, will be to estimate the prevalence of immunity in the general population by conducting a population based seroprevalence survey to measure the prevalence of antibodies to SARS-CoV-2 virus in a representative sample of the Irish population in two geographically defined areas, Dublin and Sligo. Ethics approval for the study, submitted by the Health Service Executive (HSE), Health Protection Surveillance Centre (HPSC) and the National Virus Reference Laboratory (NVRL), was granted by the National Research Ethics Committee for COVID-19 on 4 June 2020. Those randomly selected, aged 12-69 and who consent to participate, will complete a questionnaire and have a blood sample taken. Samples will be analysed at the NVRL for the detection of antibodies to the virus. The study commenced on 15 June 2020, and initial results will be available toward the end of August 2020.
- 3.8 The results from similar international seroprevalence studies conducted to date indicate a low level of exposure to the virus. Studies from Spain and France indicate that just 5.0% and 4.4% of their populations respectively have ever contracted covid-19. The results from these early studies indicate that fewer people have been infected than what many mathematical models initially

predicted. They also suggest that many people remain susceptible to infection, which is important in planning for any subsequent resurgence in the virus ¹.

3.9 There is particular interest internationally in the potential for rapid antibody tests to identify those who are already immune which may be useful in allowing more people to safely return to work. However significant questions remain, (see section 3.6), as to the accuracy of these tests. The Royal College of Pathologists of Australasia published a position statement on the use of rapid point of care [antibody] tests in which it states that (i) Australia's public health response will be compromised by the use of these tests in the early stages of COVID disease and (ii) Australia's excellent laboratory response to the COVID-19 pandemic would be jeopardised by inappropriate widespread use of rapid tests². The WHO to date has recommended that the use of point-of-care rapid antibody tests should only be used in research settings and not in any other setting, including clinical decision-making, until evidence supporting their use for specific indications is available³.

3.10 While oral fluid (saliva) is very useful for the diagnosis of a number of viruses, including measles, mumps, and rubella, saliva is not a recommended specimen type for respiratory viruses, primarily because saliva contains substances that interfere with the polymerase chain reaction (PCR) used in test assays to detect Covid-19, and so it lacks sensitivity compared with specimens obtained from the nasopharynx. In addition, the primary site of replication for respiratory viruses is the respiratory tract rather than the mouth. Consequently, nasopharyngeal swabs remain the preferred specimen choice for SARS CoV 2 testing.

¹ Wise J, Covid-19: Surveys indicate low infection level in community. BMJ 2020;369:m1992 doi: 10.1136/bmj.m1992 (Published 18 May 2020)

² Royal College of Pathologists of Australasia. Position Statement (March 2020). COVID19 IgG/IgM Rapid POCT Tests.

³ WHO. Advice on the use of point-of-care immunodiagnostic tests for COVID-19. Available at <https://www.who.int/news-room/commentaries/detail/advice-on-the-use-of-point-of-care-immunodiagnostic-tests-for-covid-19>

4. Contact Tracing

- 4.1 Contact tracing is a core public health intervention that plays an important role in the control of COVID-19. The aim of contact tracing is to rapidly identify potentially newly infected persons who may have come into contact with existing cases, in order to reduce further onward transmission. Contact tracing consists of three key steps consisting of (1) contact identification, to identify persons who may have been exposed to SARS-CoV-2 as a result of being in contact with an infected person; (2) contact listing, to trace and communicate with the identified contacts, and to provide information about suitable infection control measures, symptom monitoring and other precautionary measures such as the need for quarantine; and (3) contact follow-up, to monitor the contacts regularly for symptoms.
- 4.2 Contact tracing is an effective public health measure for the control of COVID-19. The prompt identification and management of the contacts of COVID-19 cases makes it possible to rapidly identify secondary cases that may arise after transmission from the primary cases. This enables the interruption of further onward transmission. Contact tracing, in conjunction with robust testing and surveillance systems, is central to control strategies during phases of de-escalation. Contact tracing has been a key part of the response in countries that have successfully reduced case numbers.
- 4.3 Traditional contact tracing by following up cases and contacts using public health staff is resource intensive. Moving some tasks away from public health professionals to trained non public-health staff (e.g. staff working in other areas of the public service, or volunteers such as students, retired healthcare professionals, etc.) can enable the overall contact tracing programme to be scaled up. The staff can be tasked with interviewing cases to obtain a list of contacts and following up these contacts to provide information on self-quarantine and physical distancing, the monitoring of developing symptoms and advice on what to do if symptoms develop. The use of non-public-health staff or volunteers for contact tracing can also free up speciality public health input in more complex settings such as healthcare facilities or outbreak situations.
- 4.4 To meet the scale of contact tracing capacity required, the HSE established 9 contact tracing centres (CTCs), and trained 1,700 public servants in contact tracing. The contact management programme operates a three-call process to contact trace a confirmed case. These centres generally deal with the high volume but generally low complexity cases. The 1,700 pool of trained people can be drawn on as needed. Of the 1,700 people trained approximately 300 were deployed to Departments of Public Health and approximately 700 were deployed in CTCs. The remaining trained staff were not required to date. Currently there are six CTCs in operation on rotation. Only one CTC is used per day given the current low numbers of confirmed cases.
- 4.5 In addition to the CTCs, contact tracing activity is also carried out in Departments of Public Health, who generally deal with more complex cases and facilities. Infection Prevention and Control Teams in hospitals conduct the contact tracing for in-patients within their facility and occupational health departments complete workplace contact tracing for healthcare employees.
- 4.6 The timeliness of contact tracing has improved over the course of the pandemic. Over the past 14 days, the HSE has reported that the median time to complete contact tracing (all three calls) is now one day.
- 4.7 Using new technologies such as mobile apps is another approach that can be used to complement the traditional public health approach summarised in 4.1-4.6 above. The contact tracing app that has been developed for Ireland is very much aligned with the advices and guidance issued by the EU Commission, the OECD and the WHO. The European Centre for Disease Control recently stated

that "the use of mobile contact tracing apps for contact tracing offers several benefits; they do not rely on the memory of the case (who may be very ill at the time of interview); they allow contacts unknown to the case to be traced (e.g. passengers who sat close on a train); they can potentially speed up the process; they may facilitate further follow-up of contacts by health authorities via a messaging system. A symptom-checker feature could facilitate this, although it is not essential".

- 4.8 The primary purpose of the contact tracing app is to complement the conventional public health approach to contact tracing. The app also permits citizens to anonymously report symptoms in real-time and this data can assist the health services in mapping, predicting and ultimately preventing the spread of Covid-19. Finally, the app provides direct access to an authoritative and trusted source of news, the purpose of which is to ensure that information and up-to-date guidance in relation to Covid-19 is readily available to anyone carrying the app.
- 4.9 Since adoption of contact tracing apps is voluntary, transparency and trust are fundamental to their success. The contact tracing app developed for Ireland uses a 'decentralised' architecture. The 'decentralised' approach is best placed to support contact tracing because it maximises the effectiveness of contact tracing across all mobile phone platforms and maximises the protection of privacy. It achieves this by minimising the amount of data required, ensuring most data is held on the users own phone rather than on a centralised (HSE or government controlled) server, and uses anonymised and encrypted data.
- 4.10 The provision of anonymised information through the symptom tracker - such as gender, age category, county of residence is all consent based. Users of the app can opt out at any time and have the right for their data to be forgotten. The app does not use location services. Furthermore, it is important to note that the identity of the index case is never disclosed via the app and that the privacy of all app users is protected at all times.
- 4.11 Privacy-by-design has underpinned all aspects of app development. The Irish app is being developed to comply with recent European Commission Data Protection recommendations and guidance documents on privacy. The project has developed Data Protection Impact Assessment (DPIA) which has been submitted to the Data Protection Commissioner. The HSE will publish the DPIA and the source code publicly to ensure that there is full transparency about the app and the data utilised within the app.
- 4.12 App development and technical tests are now complete. The app and all app features, data flows, and supporting software are functioning well. These tests have covered all relevant aspects of the functionality of the app, including download and registration; symptom check-in; daily information updates; security and vulnerability; and the close contact exposure notification service (ENS). A further large-scale field trial is underway with An Garda Síochána to gather a modelling dataset that can be used to further understand the operation of proximity detection and exposure notification in a near-to-real-life environment, to inform any further fine-tuning required.