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An Roinn Sláinte
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COVID-19 Testing Strategy

6th April 2020

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Ministerial Foreword

Covid-19 represents the biggest public health challenge of all our lifetimes. Since the very outset, I have been open and direct with the public about the scale of what we are facing. The crisis requires decisive action and a united front across our society.

We have already seen radical changes being rapidly introduced in our Health Service. We have come a very long way in a very short time and we still have much to do. Publication of the Testing Strategy today is a further important step in providing clarity and assurance for our staff and public on our plans for the way ahead.

I have publicly acknowledged the frustration felt by many that we have not been able to scale up testing numbers more quickly. This is not down to a lack of will or insufficient effort. There remain significant challenges including laboratory capacity and the unprecedented levels of global demand for testing reagents and swabs. Significant efforts have been made to expand testing over recent weeks in order to protect our sickest and most vulnerable, and to increase testing for our HSC staff. We will continue to make every effort to increase testing further as rapidly as possible. This issue is an absolute priority both for me and my Executive colleagues.

We continue to aggressively pursue all options for expanding testing capacity and for supply of test kits and supporting materials. This includes working closely with a range of key partners across government and industry, both locally and nationally, to maximise our capacity on a number of fronts.

I want to record my thanks to all those involved in developing this work. It will continue at pace. One example is the rollout of new testing centres which provide additional capacity for testing of our frontline staff. This is part of a UK-wide initiative and highlights once again the benefits of being part of the NHS family.

Staff testing is vital to demonstrate to frontline workers how much they are valued and to allow many of them to return to work in the event of a negative test.

This new Testing Strategy will be reviewed on an ongoing basis and will be adjusted over time as further capacity becomes available, including through new and emerging tests that are currently in development, and as our priorities for testing evolve. At the appropriate stage there will be an increased emphasis on testing of those who have already had the virus, to identify the antibodies that give immunity against catching it again. We are already linked with early work in this area at UK level with the eventual aim to develop a successful test that can be used at scale, enabling critical workers and in time the wider Northern Ireland population to return to normal living.

The reasonable worst case scenario figures we published last week were a stark reminder to us all of the severity of this situation. But these numbers can be changed and we can all play a part in that, through our actions and our behaviours, by staying at home.

I am confident that if we continue to pull together as a united community we will come through this and we will come through it together.

Personal Data

ROBIN SWANN, MLA
Minister of Health, Northern Ireland

Executive Summary

The Northern Ireland SARS-CoV-2 testing strategy aims to reduce harm to individuals from COVID-19 and to support measures needed to protect the general population.

The strategy will advise on short term (1-4 weeks), medium term (4-8 weeks) and long term (8-16 weeks) testing approaches. This strategy has drawn on local expertise from Health and Social Care Trusts, the Pathology Network and our Universities as well as a desktop review of the testing strategies developed elsewhere in the UK, and consideration of the testing plan in the Republic of Ireland.

An academic consortium involving Queens University Belfast (QUB), University of Ulster (UU), Western Health & Social Care Trust/ Clinical Translational Research and Innovation Centre (WHSCT/C-TRIC) and the Agri-Food and Biosciences Institute (AFBI) has been established, to scale up diagnostic testing. This consortium will also examine the feasibility of making reagents locally, it will work on validation of antibody testing kits and on driving scientific innovation in COVID-19 testing.

The key actions in the Testing Strategy include:

- Increasing the laboratory capacity for testing patients, vulnerable groups and front line staff (short term). This is dependent on "supply chains" working, scalable and resilient laboratory services and the use of multiple platforms for testing to lessen our reliance on single testing kits and reagents.
- Surveillance of COVID-19 in the population to inform planning of services including surge capacity, and to estimate population immunity and infection attack rates (medium term).
- Point of care testing to control future outbreaks e.g. prisons, care homes (medium term),
- Participation in research programmes to identify robust and rapid diagnostics including the use of LAMP (loop mediated isothermal amplification) technologies.
- Genomics - we are integrating viral and human genome data from NI with UK/Ireland and European programmes (medium-long term).

- Linking data - we are linking health datasets to understand immunity, co morbidities and outbreaks e.g. Honest Broker Service, Biobank etc. (early-medium term)
- Digital communication - we will work to ensure digital transfer of results in a timely way to support individual patient care and the wider population surveillance function, taking account of the multiple types of new testing that will emerge in the next few weeks.
- Testing of Health and Care Workers (HCWs) is expected to move to community settings e. g. drive through centres. as part of a national testing partnership.
- Supporting the testing of "key workers", when sufficient laboratory testing capacity is in place as part of the national testing partnership.
- Developing guidance on priority testing across pathology services in Northern Ireland, to ensure uniform practice in all laboratories during the pandemic.

Communication

The outputs of this group will be communicated to frontline staff, to health and care managers and to the general public.

1. Strategic Context

1.1 SARS-CoV-2 is the name of the virus and COVID-19 is the name of the disease that is caused by the virus. The first case of COVID-19 in Northern Ireland was notified on the 27 February 2020. Since then there have been 998 laboratory confirmed cases and 8034 individuals tested for COVID-19 in Northern Ireland (as of 5 April 2020).

1.2 Testing for COVID-19 is a critical part of our pandemic response. In the previous phase of our response, described as the 'containment phase', our priorities for testing were cases (people who became unwell) and contacts of cases to establish if the virus had been transmitted between cases and their contacts. In the present phase of our response, described as the 'delay phase', our priorities for testing are i) people who become unwell and require hospital admission (including patients who require critical care), ii) health and care workers who treat and care for those who become unwell, and iii) circumstances were testing is used to inform the risk assessment and management of outbreaks or clusters in residential or care settings (e.g. care homes or prisons). Plans are being actively developed to support testing of Key Workers in other agencies.

1.3 Northern Ireland along with the other UK nations moved from the containment phase to the delay phase of pandemic response on 12 March 2020, recognising the fact that community transmission of SARS-CoV-2 was occurring across the UK. Moving into the delay phase involved a change to our overall approach to management of COVID-19 – each person developing symptoms (new persistent cough and/or fever) was advised to self-isolate for 7 days, members of their immediate household (close contacts) were advised to self-isolate for 14 days. In this context the use of laboratory testing to guide management of this phase of our pandemic response changed. We moved from testing a potentially small number of individual cases with a history of travel (exposure outside the UK) to acknowledging that SARS-CoV-2 was transmitting in the UK

and individuals could therefore acquire infection without travelling (exposure within the UK).

1.4 The rationale underpinning the change in approach from the containment to the delay phase is based on sound public health principles. There is now widespread community transmission of the SARS-CoV-2 virus, therefore anyone could theoretically be a contact of a person with COVID-19 infection. All members of the pubic have been informed that the virus is circulating, there are extensive communication campaigns to advise the public about symptoms to watch out for and actions required if symptoms develop. The application of rigorous social distancing measures have effectively superseded contact tracing during this phase of our pandemic response. All of the advice and guidance on preventing onward spread, on self-isolation and on social distancing, which previously formed the basis for the rationale underpinning contact tracing, now applies to the general population.

1.5 In this delay phase symptomatic individuals are assumed to potentially have COVID-19 infection, immediate action is required (self-isolation, hand and respiratory hygiene etc) to ensure the safety and wellbeing of the symptomatic person and their household contacts. On a population basis there is a good probability that symptomatic individuals may have COVID-19 infection (as SARS-CoV-2 is transmitting), appropriate and necessary action is taken whether or not the symptomatic person is tested.

1.6 In this delay phase it is also assumed that members of the household of a symptomatic person (a case) may well acquire the infection through their close contact with the case and therefore they (household contacts) are advised to take immediate action and to self-isolate. Action is advised and taken on the basis that the SARS-CoV-2 virus transmits through close contact, appropriate and necessary action is taken whether or not the household contacts are tested.

1.7 As above, the use of laboratory testing to guide management of our pandemic response changed when we moved from the containment to the delay phase.

As the SARS-CoV-2 virus is transmitting more cases are identified in this delay phase than were identified during the containment phase. Although considerable scale-up in testing capacity has already been achieved and further scale-up is planned (within and out-with HSC laboratories), our current testing capacity is constrained. In this context it is not possible to test all symptomatic individuals and all of their household contacts. A prioritisation schedule has been agreed (See Section 1.2), implementation of this approach ensures that we can test those people who are unwell (those requiring admission to hospital) and those who provide care and treatment for the unwell (key health and care workers). We can also use testing to support the risk assessment and management of clusters and outbreaks occurring in residential and care settings, where there may be particularly vulnerable people in settings which may post a particular challenge when managing outbreaks and/or clusters.

1.8 Our laboratories are facing significant challenges with the supply of reagents and testing kits, as every country in the world is seeking access to these products. As we seek to increase laboratory capacity in the next few days and weeks, we are working with laboratories outside of the traditional Health and Care sector to increase testing capacity, to validate new tests locally in association with the national centre in Oxford and to investigate the scope for manufacturing reagents and other chemical products in Northern Ireland.

1.9 The testing strategy identifies short (1-4 weeks), medium (4 to 8 week) and long term (8-16 weeks) priorities for testing. As new validated tests become available this testing strategy will change to reflect these.

2. Background

2.1 The Northern Ireland SARS-CoV-2 testing strategy aims to reduce harm to individuals from COVID 19 and to support measures needed to protect the general population

2.2 To oversee the coordination and implementation of the testing strategy in Northern Ireland, the Minister for Health has established an Expert Advisory Group. Details of membership of this group are set out at **Annex 1.** Delivering the plan at pace will require cooperative working and engagement with a range of trusted partners and external stakeholders. This plan has drawn on local expertise from Health and Social Care Trusts, Pathology Network and Universities as well as a desktop review of the testing strategies developed in the UK, and consideration of the testing plan in ROI. Key stakeholders are listed in **Annex 2.**

2.3 Currently capacity for testing for COVID 19 is limited and the following key groups are prioritised for testing:

1) People admitted with respiratory conditions admitted to hospital and requiring critical care;
2) People with respiratory conditions admitted to hospital and not requiring critical care;
3) Key health and care workers;
4) In circumstances to support the risk assessment and management of outbreaks/clusters in residential and other care settings (e.g. care homes and/or prisons); and
5) Sentinel surveillance in primary care/the community.

2.4 Testing is dependent on "supply chains" working, scalable and resilient laboratory services and the use of multiple platforms for testing, to lessen our reliance on single types of testing kits and reagents used as part of the testing process.

2.5 An academic consortium involving Queens University, Belfast (QUB), University of Ulster (UU), WHSCT/C-TRIC Agri-Food and Biosciences Institute (AFBI) has been established to support DoH and HSC to rapidly scale up diagnostic testing. The consortium will also include a workstream to examine the feasibility of local production of reagents required within the testing process, it will also commence a programme of work to undertake validation of antibody

tests when they become available. The consortium will also drive scientific innovation in testing.

2.6 The Procurement and Logistics Service in our Business Services Organisation (BSO PaLS) will lead on the regional procurement of test kits and other consumables required for the testing process.

2.7 The Testing Strategy for Northern Ireland will align with the UK's strategic approach to scale-up of testing and with work being progressed by work-streams on testing in the other Devolved Administrations where possible, to ensure that resources, new knowledge and procurement exercises are shared. The strategy will also take account of testing plans in the Republic of Ireland.

2.8 As we respond to the surge expected in the coming weeks as part of the first wave of this pandemic we expect that testing of people in community settings will increase. This aspect of testing will increase for a number of reasons -

1) Increased testing of health and care workers – require testing if they are symptomatic and self-isolating or they are self-isolating because or a member of their household is symptomatic;
2) Increased testing of residents and/or staff in residential and care settings such care homes and prisons – require testing to support risk assessment and management of outbreaks and clusters in such settings;
3) Introduction of population based sentinel surveillance in primary care settings – required to inform our understanding of SARS-CoV-2 virus activity;
4) Commencement of population surveillance which will include sequential laboratory blood tests – required to inform our understanding and monitor acquired immunity to COVID-19 infection among the population.

2.9 This is a live document and will be subject to further iteration.

3. Key actions of the strategy

3.1 The strategy will advise on short term (1-4 weeks), medium term (4-8 weeks) and long term (8-16 weeks) testing approaches. A summary of actions under this three phased approach is included at **Annex 3**. Detailed actions are as follows:

Scaling of Nucleic Acid Testing

3.2 We will scale up testing across our health and social care system for COVID-19 infection through these tests which detect the presence of viral nucleic acid. The samples required for these tests are nose or throat swabs or aspirates. The testing of sputum and tracheal secretions is also undertaken and is important as the disease progresses. Most of these tests are currently carried out within HSC laboratories. (short term).

3.3 Testing has been scaled up from 40 tests per day in January 2020 and the current testing capacity is up to 736 tests per day. The factors influencing the number of tests carried out each day depends on the number of swabs received, availability of testing reagents and testing kits.

3.4 Testing of Health and Care Workers (those who are systematic or those who are isolating as a household contact of somebody who is symptomatic) will move to community settings, for example drive through testing centres, as part of a national partnership testing initiative. A successful logistics test day (100 HCWs) was completed on the 4th April in Belfast, with gradual scaling up of this testing for the region planned over the coming weeks. These tests will be processed in laboratories outside the HSC system, thereby freeing up testing capacity in laboratories within existing HSC hospital services.

3.5 Work is underway to identify and prioritise key workers, particularly those who provide vulnerable services out with Health and Social Care. It is expected that testing of such key workers will be undertaken through the national partnership

initiative when capacity is in place. This testing will need to operate in partnership with occupational health services for the agencies employing these key workers.

Population Surveillance

3.6 Establishment of primary care sentinel surveillance is a priority in the coming weeks (short term).

3.7 Population surveillance will also include laboratory blood tests to monitor acquired COVID 19 immunity, support COVID-19 diagnostics and down-stream therapies (e.g. convalescent serum). (Medium term).

3.8 We are linking with UK wide workstreams, where appropriate, to take this surveillance programme forward. Work in this regard is already established in partnership with Northern Ireland Blood Transfusion Service (NIBTS), Immunology Services and QUB (medium term).

Point of Care Testing

3.9 Point of Care testing (nucleic acid and antibody) will be important to inform the triage and management of patients attending emergency departments, and to help manage future outbreaks (e.g. prisons, care homes). Use of such tests is currently being explored in partnership with the national centre in Oxford University (medium term).

Genomics

3.10 We are integrating viral and human genome data from Northern Ireland with UK/Ireland and European programmes (long term).

Linked Data

3.11 Linking health data sets (e.g. genomics) will improve understanding of immunity, co-morbidities, outbreaks and potential control strategies involving organisations like the Honest Broker Service, Biobank etc. (long term).

Digital communication systems

3.12 We will work to ensure that the digital transfer of test results happens in a timely way to support individual patient care and population surveillance functions. Digital transfer/sharing of results will need to take account of the multiple types of new tests that will emerge in the coming weeks.

Research programmes

3.13 NI will particulate in research programmes to identify robust and rapid diagnostics for SARS-CoV-2 and COVID-19, including the use of LAMP (loop mediated isothermal amplification) technologies.

4. Guidance for Pathology Testing Prioritisation

4.1 In light of unprecedented stress on laboratory systems arising from the COVID-19 (SARS-CoV-2) epidemic testing, recommendations have been made by UK professional bodies and published by NHS England and NHS Improvement to guide the need to prioritise laboratory resources during the current pandemic wave.

4.2 A uniform approach to the prioritisation and delivery of laboratory workload will help the HSC maintain high standards of pathology testing in response to COVID-19. The Pathology Network is taking this work forward.

5. Communication

5.1 We will communicate the outputs of the DoH Advisory Group on Testing to a wide range of stakeholders. These include but are not limited to:

- Those eligible for testing including frontline staff, health and care workers and in the general public;
- HSC organisations and other service delivery partners (for example in primary care, pharmacy and dental services, Trust and non-Trust based care settings);

- Media; and
- Other government agencies and Departments, including the Executive.

5.2 We will use a range of communication channels to ensure that information is shared widely, appropriately and on a timely basis. A full Communications Strategy will be developed in due course linked to support roll-out of the Testing Strategy. This strategy will be ready by Thursday 9 April 2020.

5.3 We will also continue ongoing communication and collaboration at a national level to ensure that we are sighted on new test developments across the UK and in ROI.

5.4 We are continuing to develop our strategic communications approach on testing, to find the right balance between reassuring the public (and particularly key workers) regarding our scale-up of testing, without overpromising, given early challenges experienced in scale-up and the critical dependency of all testing capacity on the availability and supply of reagents used in the testing process.

Annex 1

Expert Advisory Group – Membership

Brid Farrell (Chair, Public Health Agency)

Lourda Geoghegan (Department of Health)

Gillian Armstrong (Department of Health)

Dan West (Department of Health)

Name Redacted (Department of Health)

Ian Young (Department of Health)

Name Redacted (Public Health Agency)

Name Redacted (Public Health Agency)

NR (Public Health Agency)

NR (Retired Public Health doctor)

NR (Pathology Network Manager)

NR (Belfast Health & Social Care Trust)

NR (Southern Health & Social Care Trust)

NR (Retired Public Health Doctor)

Stuart Elborn (Queens University, Belfast)

Myles O'Hagan (Business Services Organization)

Eddie Ritson (Health & Social Care Board)

Annex 2

Key Stakeholders

- Department of Health
- Public Health Agency
- Northern Ireland Pathology Network
- Northern Ireland Blood Transfusion Service
- Health and Social Care Board
- Health and Social Care Trusts
- Queens University Belfast
- University of Ulster
- Agri-Food and Biosciences Institute
- Business Services Organisation Procurement and Logistics Service
- Department of Health and Social Care, London
- Public Health England
- Department of Health and Social Services, Wales
- Department of Health, Republic of Ireland
- Industry and Commercial Partners
- Western Health & Social Care/ Clinical Translational Research and Innovation Centre United Kingdom Chief Medical Officers
- Oxford University

Annex 3

Testing Approach

1. **Short term (1-4 weeks)**
    - Scaling up of Nucleic Acid Testing (HSC laboratories and National Partnership)
    - Establishment of primary care sentinel surveillance

2. **Medium term (4-8 weeks)**
    - Point of Care Testing
    - Population surveillance

3. **Long term (8-16 weeks)**
    - Genomics
    - Linked Data

Annex 4

List of Abbreviations

SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus-2
COVID 19	Coronavirus
QUB	Queen's University Belfast
UU	University of Ulster
WHSCT/C-TRIC	Western Health & Social Care Trust/ Clinical Translational Research and Innovation Centre
AFBI	Agri-Food and Biosciences Institute
HCW	Health and Care Worker
DOH	Department of Health
HSC	Health and Social Care
BSO PaLS	Business Services Organisations Procurement and Logistics Service
NIBTS	Northern Ireland Blood Transfusion Service
NHS	National Health Service
UK	United Kingdom
ROI	Republic of Ireland