COVID-19 RNA/PCR Testing in Ireland – Public Health Recommendations on Strategic Approach (excluding testing in healthcare workers) post 8th 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 (NPHET).

NB: <u>This document contains recommendations for future RNA/PCR testing strategies for the general population, congregate settings such as Residential Care Facilities (RCF) and the acute care setting. A separate document has been prepared to address future testing strategies for healthcare workers (HCWs) specifically.</u>

1. Context

NPHET (5th May 2020) requested the following action to be undertaken by the HPSC:

'The HPSC is to prepare a paper regarding RNA/PCR testing for COVID-19 to form part of a strategic approach to testing and how testing capacity should be best utilised and targeted. This will be informed by the experience from the enhanced testing in long term residential healthcare settings'.

2. Summary of Process and Outcome

A meeting of public health and clinical leads was held on 11th May 2020 (Appendix 1). The group reviewed the key considerations and made some draft recommendations (below, section 6). Further meetings were held on the 18th, 25th and 27th of May and 2nd June 2020. Consensus was achieved on the recommended future population testing strategy (excluding testing in healthcare workers (HCWs)), as outlined in this document.

3. Public Health Principles of Testing

- Real-time reverse transcription polymerase chain reaction (**RT-PCR**) is the gold standard for diagnosing suspected cases of COVID-19. These methods, targeting viral ribonucleic acid (RNA), are currently used as the preferred approach to identify the SARS-CoV-2 virus directly.

- 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 and 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 (TTT) has become the central tool for preventing transmission in controlling the spread of SARS-CoV-2.

- A test for SARS-CoV-2 provides information at a single point in time and 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.

- A diagnostic test is not a screening test. A 'not detected' result should not be used to facilitate a 'return to work', a 'clearance for travel', 'provide assurance of risk', or be interpreted as an indication of 'protection' either for the person themselves or their family and/or work colleagues.

- The focus of diagnostic testing should 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.
- 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.
- The role of serological tests in acute diagnosis is very 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 spread infection until the virus is cleared.

- The ethical principles of autonomy and informed consent, confidentiality, beneficence, non-maleficence and justice should govern all testing strategies adopted.

- There needs to be clear clinical governance arrangements in place for all aspects of the testing programme. This must include clarity in relation to:

    - Informed consent - the person being offered testing must be clearly informed of the purpose and value of the test and must consent to testing
    - who will perform testing in different settings/scenarios
    - how will results be communicated to responsible clinicians and to the patient

- who has clinical responsibility for the management of the patient, whatever form this may take (advice re self-isolation, active surveillance etc.)

4. Additional Key Considerations for Testing Approach Decisions

4.1 The public messaging and understanding around COVID-19 and the role of testing has become increasingly confused. In particular there is a growing perception that a test is a control strategy and a negative test result is in some way 'protective'. There is a need to develop clear communications on what a test is for, what it is not for and what results mean.

4.2 Targeted, risk-based testing can yield important data to inform control measures, but does not constitute a control measure in and of itself. A comprehensive response to the COVID-19 pandemic must include a strong focus on infection prevention and control and additional measures such as prompt identification and exclusion from work of symptomatic HCWs and addressing broader determinants of health (including standards of accommodation, work practices etc.)

4.3 SARS-CoV-2 testing strategies should be based on scientific evidence and epidemiological data. For example, important information to inform potential testing strategies for healthcare workers (HCWs) in the Irish context would include incidence and prevalence data stratified by geographical region and by type/category of HCWs, and epidemiological data from outbreaks of COVID-19 in healthcare settings. This information could inform a proportionate, flexible approach to testing of different categories of HCWs in different settings and geographical locations. (The role of testing in COVID control in HCWs is addressed in detail in a separate document.)

4.4 Defining the role of testing for SARS-CoV-2 in asymptomatic individuals, including those who have been identified as contacts of confirmed cases, is more challenging. NPHET has now recommended testing of close contacts identified through the contact management programme (CMP). This has recently (18th May) been included in the testing approach.

4.5 ECDC guidance has been considered in the drafting of this testing strategy. The ninth ECDC RRA on Coronavirus Disease (23rd April 2020) recommended, in the context of The Joint European Roadmap towards lifting COVID-19 containment measures, that each country have 'an expanded testing capacity and harmonised testing methodologies for the purpose of epidemiological surveillance, early detection and isolation of cases, clinical management, contact tracing, protecting risk groups, assessing population immunity, return to work strategies.' This expanded capacity for community testing would enable more effective contact tracing around cases and identify asymptomatic infection as a potential source of transmission in high risk settings such as long-term care facilities for the elderly and other closed institutions.

4.6 There is a particular need to prevent infection transmission to vulnerable people and sections of the community. This will require a defined testing approach in respect of settings with vulnerable communities, e.g. nursing homes and other residential care facilities (RCF), Direct Provision Services, Homeless shelters, Traveller communities.

4.7 The ECDC technical document entitled Surveillance of COVID-19 at long-term care facilities in the EU/EEA (19th May 2020) outlines testing recommendations for long term care facilities (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. However, ECDC recommendations must be interpreted in light of national epidemiological data. A mass testing exercise in residential care facilities (RCF) was undertaken in Ireland from April 17th 2020 and the nursing home element has now concluded. The results for this were to inform future testing approaches in this sector. The overall positivity rate for testing in this exercise was low and it would seem that repeat mass testing in this sector should be based on public health risk assessment. However, a focused/targeted approach in respect of new cases, outbreaks and healthcare workers (HCWs) is required.

4.8 The level of infections among HCWs is a concern and raises reasonable questions about testing strategies for this group. The role of testing in COVID control in HCWs is addressed in detail in a separate document.

4.9 Other countries have offered testing to a range of essential workers in public service. As the lock down restrictions ease, the potential exposure of some essential workers to COVID-19 could increase. Currently, there is no strong scientific evidence to support serial testing of asymptomatic essential workers. Additionally, there has been no cost-benefit analysis of such a strategy to date, and the costs involved would be considerable.

4.10 HSE has procured significant additional testing capacity in anticipation of future demand for testing; thus, there is available testing capacity to meet increased requirements for testing. In addition to ensuring capacity for testing, there must be capacity across the system to interpret and act on the results of testing in a timely manner, i.e. to enter test results into CIDR, communicate test results to individuals who have undergone testing, and to offer clinical advice as appropriate etc. It is important to note that testing strategies should be evidence-based with a clear rationale, and not dictated by the availability of additional capacity.

4.11 Testing will only be effective in containment if the time from symptom onset to testing is as short as possible. Key performance indicators (KPIs) for testing include time from symptom onset to swabbing, time from swabbing to testing and time from testing to isolation.

4.12 The most appropriate mechanism for obtaining informed consent for testing must be considered.

4 Current Testing Policy

The testing policy is based on the existing case definition and also the assessed need for any targeted testing in priority groups. The latest version of the case definition came in to operation on 3rd June 2020 and is based on the current ECDC case definition. The testing pathways in line with this case definition are published on the HPSC website. https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/algorithms/

5 Testing approach in other countries

Details of testing approaches in other countries are included in Appendix 2. Most countries test according to symptoms consistent with CoVid-19 infection and an agreed case definition, along with targeted testing for particular risk groups and in settings with a higher risk.

6. Recommendations on Testing Approach in the general population (based on outcome of meetings of 11th, 18th, 25th and 27th May 2020)

Recommendation 1: The COVID-19 testing strategy should be supported by a multifaceted communications strategy that includes:

- Population-based messaging to communicate clear information about the role of testing in the management of the pandemic, including the rationale for testing, when testing is to be carried out and what a test result means and what it does not mean.
- Awareness raising among health professionals about the role of COVID-19 testing.
- Targeted messaging to communicate and reinforce the core control measures of social distancing, hand hygiene and respiratory etiquette
- A clear message to employers that a negative test for COVID-19 is not a pre-requisite for an employee to return to work.

Action: HSE Communications - This communication strategy should be developed by the HSE and in place by July 1st 2020.

Recommendation 2: The overall testing approach should focus first on testing those who meet the case definition and close contacts of confirmed cases. This assumes the case definition is regularly reviewed and updated as appropriate in line with emerging evidence of new symptoms associated with COVID-19. A sensitive case definition is key to detecting as many cases of COVID-19 as possible. Ireland will be guided by ECDC in broadening the case definition. The case definition for EU surveillance is available on the ECDC webpage. The ECDC technical document entitled Surveillance of COVID-19 at long-term care facilities in the EU/EEA (19th May 2020) includes a modified case definition for testing and reporting COVID-19 in LTCFs. This case definition includes additional clinical symptoms compatible with COVID-19 that should be considered for the identification of a possible case in LTCF residents.

Action: HPSC - The HPSC algorithms for testing to be kept up to date in line with ECDC case definitions - ongoing.

Recommendation 3: All close contacts of confirmed cases of COVID-19 will be offered and recommended to have testing. IT solutions must be in place to support testing strategies, e.g. automatic scheduling of follow-up tests for close contacts whose initial test is reported as "SARS-CoV-2 not detected." There must be a robust process in place for data linkage - linking close contacts to index cases. Data should also be available regarding the clinical presentation of close contacts who test positive for SARS-CoV-2 (symptomatic vs asymptomatic).
Action: The HSE are currently leading on this process. **The HSE Director for Testing and Contact Tracing** should provide regular reports to the Department of Health on this testing process.

Recommendation 4: Where outbreaks of COVID-19 occur in the community, a targeted testing approach will be required by Public Health as part of the investigation and control of the outbreak and will be defined by Public health.
Action: HSE Public Health Departments; ongoing.

Recommendation 5: Where cases of COVID-19 occur in a setting where vulnerable populations are cared for/reside or where vulnerable workers are employees, testing will be based on a robust Public Health risk assessment. This includes both acute and community-based settings, and workplaces, e.g. hospital, nursing home, residential care facility, home care setting, direct provision centre, facility for the homeless or a traveller community setting. Targeted testing strategies in these settings may include testing of suspect cases only, or testing of all residents/workers and all staff. Decisions regarding the most appropriate testing strategy will be taken on a case-by-case basis, informed by a comprehensive Public Health risk assessment and guided by epidemiological data and scientific evidence regarding factors, including the role of asymptomatic transmission. Public Health will maintain a high index of suspicion and a low threshold for testing. The specific recommendations on testing of HCWs some of these scenarios will also be relevant.
Action: HSE Public Health Departments, ongoing.

Recommendation 6: A public health led approach to testing of HCWs in acute hospital settings should be developed, and aligned with the testing strategy for hospital patients which, have already been defined by a separate working group (Appendix 3). **Action:** HSE National Clinical Director of Health Protection

Recommendation 7: There should be clear public health messaging that COVID-19 testing has no role in the decisions to re-open services for vulnerable groups, including addiction and detoxification services and Tusla (Child and family Agency). Similarly, there is no role for testing in the decisions taken to reopen businesses in the public or private sector as lockdown restrictions ease. **Action:** HSE Communications should work with Department of Health Communications on messaging for the health and across government Departments, by 22nd June 2020.

Recommendation 8: HPSC should explore adding in COVID-19 testing of patients covered by the ILI sentinel scheme in primary care and exploring other options for sentinel surveillance schemes for COVID-19 testing.

Action: HPSC, by end July 2020.

Recommendation 9: The group recommends the rapid establishment of a National Sero-epidemiology unit, a defined action in the government plan, as a key part of infrastructure to support more frequent and targeted population based seroprevalence studies. Testing strategies in various settings and groups will also be informed by surveillance reports on incidence and prevalence of COVID-19 cases in those settings and groups over time. National guidance for the use of serology testing is required.
Action: Department of Health with HSE, by August 2020.

Recommendation 10: HSE should continue to improve performance on rapid access to testing for those who meet the criteria, with a short turnaround time and prompt communication of results and links to the contact tracing processes in place. This includes the requirement to have capacity to swab, test samples and communicate results to people who test positive seven days a week. Specific key performance indicators should be developed for the testing programme with regular performance reporting.
Action: HSE, by end June 2020.

Recommendation 11: The HSE must clearly define and put in place strong governance arrangements for COVID-19 testing. There must be a clinician (hospital clinician, general practitioner, occupational health, public health) responsible for every test that is processed. Governance also includes who is in the definition of the population to be tested, how to reach

the relevant population, information flows for public health metrics across the pathway, information flows to support the operational delivery of testing (e.g. schedules for NAS), standards for the testing including consent, method of returning of results, information governance, clinical questions related to the testing and unintended consequences of mass testing, e.g. the impact on symptomatic testing and the risks.

Action: HSE, by 15th June 2020.

Recommendation 12: Consent arrangements for the testing process need to be in place. At the time of taking the test, those being tested must be informed what they are being tested for, how the test will be performed and how they will receive the results. Verbal consent will be obtained at the time of testing by the clinician/person who is undertaking the test.

Action: HSE, for immediate action.

Recommendation 13: Any further developments in the testing programme should be Public Health directed, with guidance in place for population to be tested, governance and data requirements for monitoring the programme clearly defined and in place.

Action: HSE to clarify above in guidance to the HSE Directors and Public Health Departments – by end June 2020.

Recommendation 14: Recent evidence from outbreak investigations, and from mass testing exercises, has highlighted the impact of the social determinants of health on the risk of acquiring COVID-19. Migrant and homeless workers and other low paid workers have been identified as particularly vulnerable to COVID-19, a risk compounded by their accommodation arrangements and socioeconomic status. It is recommended that HSE Public Health develop and publish guidance in this

area, including that (i) that GPs and A&E departments should have a high index of suspicion for COVID-19 in patients presenting from these populations and a low threshold for testing; (ii) that workers in RCFs and other industries from these communities are kept fully informed about symptoms of COVID-19, not working when symptomatic, how to access testing and the need for isolation after a positive test; (iii) Employers in RCFs and other industries must ensure good prevention and control measures in the workplace, along with regular checks for symptoms and (iv) exclusion of symptomatic workers from the workplace, along with support for accessing testing.

Action: HSE Public Health with HPSC, by end June 2020.

Next Steps

It is important that the testing strategy for COVID19 is regularly reviewed and, if necessary updated, to reflect emerging evidence and new priorities. The group will convene again when necessary to in response to requests for further review, requests for updating from NPHET, and in light of any new or emerging evidence.

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. 19 Dr Triona McCarthy, NCCP (18.05.2020)

Appendix 2: Testing approach in other countries

Country	Testing Policy	Summary
England	As part of the government's 5-pillar strategy for coronavirus testing, we are testing people who have coronavirus-like symptoms to see if they currently have the virus. **Who can be tested** Our priority is testing patients to inform their clinical diagnosis. Patients being tested are those who fit the 'inpatient definition': • requiring admission to hospital (a hospital practitioner has decided that admission to hospital is required with an expectation that the patient will need to stay at least one night) **and** • have either clinical or radiological evidence of pneumonia **or** • acute respiratory distress syndrome **or** • influenza like illness (fever ≥37.8°C and at least one of the following respiratory symptoms, which must be of acute onset: persistent cough (with or without sputum), hoarseness, nasal discharge or congestion, shortness of breath, sore throat, wheezing, sneezing **Note:** Clinicians should consider testing inpatients with new respiratory symptoms or fever without another cause or worsening of a pre-existing respiratory condition. We are also testing:	Three groups 1. Symptomatic people who fit 'inpatient definition' 2. • Symptomatic essential workers • Symptomatic >65s • Symptomatic people who cannot work from home • anyone who has symptoms of coronavirus and lives with any of those identified above 3. • Social care workers

	• all essential workers including NHS and social care workers with symptoms (see the full list of essential workers) • anyone over 65 with symptoms • anyone with symptoms whose work cannot be done from home (for example, construction workers, shop workers, emergency plumbers and delivery drivers) • anyone who has symptoms of coronavirus and lives with any of those identified above Additionally, we are testing: • social care workers and residents in care homes (with or without symptoms) both to investigate outbreaks and, following successful pilots, as part of a rolling programme to test all care homes • NHS workers and patients without symptoms, in line with NHS England guidance This means anyone in one of these groups can find out whether they have the virus. Testing is most effective within 3 days of symptoms developing. https://www.gov.uk/guidance/coronavirus-covid-19-getting-tested	and residents in care homes (with or without symptoms) both to investigate outbreaks and as part of a rolling programme to test all care homes • NHS workers and patients without symptoms in line with NHS England guidance
Wales	The Chief Medical Officer for Wales introduced guidance for testing in Wales on March 18, which set out who should be tested. People admitted to hospital with certain symptoms – evidence of pneumonia or acute respiratory distress syndrome or flu-like illness and one of the following symptoms: a persistent cough	• Symptomatic people admitted to hospital who fit the case definition • Symptomatic NHS

	hoarseness, nasal discharge or congestion, shortness of breath, sore throat, wheezing, sneezing – should be tested. It also stated that NHS staff with symptoms should be tested, to enable them to return to work if they test negative. An updated policy, which extends testing to all critical workers was published on 18 April. Critical workers fall into the following categories: health and social care workers public safety (emergency workers) and national security workers local and national government workers education and childcare workers food and other necessary goods transport utilities, communication and financial services workers key public service workers For the wider categories of critical workers, beyond frontline NHS and care staff, testing is being made available if the public and critical services we all rely on come under pressure from high levels of staff sickness or absence. Critical workers will be offered a test if they, or a member of their immediate family, have	staff • Symptomatic critical workers • For wider categories of critical workers, beyond frontline NHS and care staff, testing is being made available if public and critical services come under pressure from high levels of staff sickness or absence. • Symptomatic care home residents

	symptoms of coronavirus – a high temperature (38C or above), a persistent cough or shortness of breath. From 22 April, we have been testing everyone in care homes with symptoms of coronavirus. A new testing and discharge pathway have been developed for people leaving hospital to go into a care home during the coronavirus pandemic – all those with a positive coronavirus test result or those who have symptoms will be discharged to appropriate step-down care. They will have a further test before they are discharged from step-down care to confirm they do not have coronavirus before returning to their care homes. https://gov.wales/coronavirus-covid-19-testing-your-questions	
Scotland	**Who can be tested** The following who are self-isolating because they are symptomatic or have household members who are symptomatic: • all symptomatic key workers and symptomatic members of their household over 5 years of age • all symptomatic other workers who cannot work from home and symptomatic members of their household over 5 years of age • all symptomatic over 65s and symptomatic members of their household over 5 years of age More detail about who is a key worker is set out in the prioritisation matrix for key workers. **Please**	The following who are self-isolating because they are symptomatic or have household members who are symptomatic: • all symptomatic key workers and symptomatic

	note the list is not exhaustive but intended to provide an indication of the type of worker within each group. Key workers include: • **Priority Group 1A: Staff delivering NHS services, providing social care to protect and care for the most vulnerable**, all NHS staff and independent contractors working for the NHS, including community pharmacy and emergency dental care, and all social care and social work staff who work with vulnerable people and the social care system, including care homes, care at home and children's services (including residential and secure care for children) and social care personal assistants • **Priority Group 1B: Staff with face-to-face roles in residential institutions with people in the care of the state and those who are working essential services with niche roles, where service resilience is at risk**, including operational staff in prisons, all other carers working with looked after children (not included in 1A), those working on critical national infrastructure (e.g. energy supply) with niche skills essential to maintain services safely and defence staff living in Scotland who fall within the MOD's very highest priority category for testing • **Priority Group 2: Essential workers in critical national infrastructure fundamental for safety and security, and life-line services.** This includes police, fire and rescue, local authority staff, defence personnel, environmental protection, animal health and welfare, funeral industry and staff working for third sector organisations supporting people and children who are vulnerable, including grant aided schools, food supply chain and food	members of their household over 5 years of age • all symptomatic other workers who cannot work from home and symptomatic members of their household over 5 years of age • all symptomatic over 65s and symptomatic members of their household over 5 years of age

	processing workers, and workers in medicines and pharmaceutical supply, chemicals supply, energy and water supply and telecoms • **Priority Group 3: Staff directly involved in delivering other essential services.** This includes staff providing child care or education for key workers, public transport workers, postal services, financial services, food retailers, construction and maintenance of essential public services, court and Crown Office staff, civil servants, politicians, consular corps, journalists and broadcasters • **Priority Group 4: Staff and volunteers in third or public sector organisations, and staff in nationally or locally significant industry important to economic sustainability and growth** **People who do not have symptoms** The test is only reliable for those who have symptoms. Read more: guidance for households with possible coronavirus infection. https://www.gov.scot/publications/coronavirus-covid-19-getting-tested/pages/who-can-be-tested/	
Northern Ireland	The HSC is currently providing COVID-19 testing to people who are being admitted to hospital, live in care homes or are essential or key workers. Coronavirus testing is now available for essential or key workers who are self-isolating due to having coronavirus-like symptoms or because a member of their household has symptoms.	• Symptomatic people who are being admitted to hospital • people who live in care homes

	Testing is also available to symptomatic people who live with key or essential workers. **Essential or key workers - who is eligible for testing?** Testing is targeted at those essential or key workers who are self-isolating because they are symptomatic, or have household members who are symptomatic, to help enable essential or key workers to return to work as soon as safely possible. Essential or key workers who work in essential areas can access testing. This includes workers in: • Roles necessary for critical national infrastructure to continue to operate (for example postal services, utility, transport sectors, voluntary support staff, financial services, staff providing child care for essential or key workers); • Roles necessary to support the health and wellbeing of the community directly (for example funeral directors, refuse collectors, medical, energy, utility, transport and food supplies (including retail and supermarkets), food production, agriculture and food sectors, supply pinch points or volunteers delivering food and essential items to vulnerable people). • Any government department; • The Health and Safety Executive. This list is not exhaustive but intended to provide an indication of the type of worker within each group. Please click here for further guidance. https://www.publichealth.hscni.net/covid-19-coronavirus/testing-covid-19	• essential or key workers who are self-isolating due to having coronavirus-like symptoms or because a member of their household has symptoms. • symptomatic people who live with key or essential workers

Italy	**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. http://www.salute.gov.it/portale/nuovocoronavirus/dettaglioFaqNuovoCoronavirus.jsp?lingua=english&id=230	• Symptomatic people who fit the case definition
Germany	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. https://www.zusammengegencorona.de/informieren/informationen-zum-test/	• 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	**Who should be tested?** 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. 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. Clinicians should also maintain a high level of suspicion and consider testing in case of doubt. Testing in hospitals should always be done in consultation with the infectious disease physician or clinical microbiologist. 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 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. 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.	• any person meeting the clinical criteria especially those who are among the priority groups for investigation In addition, more extensive testing, including testing of people who are asymptomatic, may be required on advice from the local Medical Officer of Health: • when an outbreak or cluster is suspected, or being investigated • when a case is

	Should there be local capacity issues, the following should be prioritised: • close contacts of probable or confirmed cases • people meeting the clinical criteria who have travelled overseas in the last 14 days, or have had contact, in the last 14 days, with someone else who has recently travelled overseas • hospital in patients who meet the clinical criteria • health care workers meeting the clinical criteria • other essential workers meeting the clinical criteria • people meeting the clinical criteria who reside in (or are being admitted into) a vulnerable communal environment including aged residential care • people meeting the clinical criteria who reside in large extended families in confined household/ living conditions such as Māori and Pacific communities/families • people meeting the clinical criteria who may expose a large number of contacts to infection (including barracks, hostels, halls of residence, shelters etc) In addition, more extensive testing, including testing of people who are asymptomatic, may be required on advice from the local Medical Officer of Health: • 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. Testing of individuals who are asymptomatic is NOT recommended unless requested by the local Medical Officer of Health.	identified in a vulnerable residential institution such as an aged residential care facility. Testing of individuals who are asymptomatic is NOT recommended unless requested by the local Medical Officer of Health.

	https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-resources-health-professionals/case-definition-covid-19-infection	
Australia	Your doctor will tell you if you should be tested. They will arrange for the test. The testing criteria provided below are nationally agreed criteria. As the situation changes, states and territories may include additional criteria based on local needs. Generally, you will be tested if you develop fever or respiratory symptoms and meet at least one the following criteria: • 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 • 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	you will be tested if you develop fever or respiratory symptoms and meet at least one the following criteria: • 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 • you travelled on a cruise ship (either passenger or crew) in the 14 days before

	• 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	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	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. https://www.channelnewsasia.com/news/asia/covid19-china-tests-focused-stops-short-wider-testing-12680650	• Symptomatic people • High risk groups, e.g. people from infected areas
South Korea	In accordance with the case definitions provided for in these guidelines, patients classified as suspected cases and Patients Under Investigation (PUI) may get tested. **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.	1. Suspected cases: a person who develops a fever or respiratory

	PUI: • 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℃ and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 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℃ and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days. **< Source: *Response Guidelines for Coronavirus-19* (edition 7-4), Central Disease Control Headquarters, as of April 3, 2020>** 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	symptoms (coughing, difficulty breathing, etc.) within 14 days of coming into contact with a confirmed patient. 2. PUI • 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℃ and above) or respiratory

	through large-scale diagnostic testing and thorough epidemiological investigation **Early Detection of Confirmed Cases through Screening Stations and Diagnostic Testing** ○ 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). ○ 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=	symptoms (coughing, difficulty breathing, etc.) within 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℃ and above) or respiratory symptoms (coughing, difficulty breathing, etc.) within 14 days.

Appendix 3 COVID testing strategies in the acute (hospital) setting

Interim Guidance on the Management of planned Hospital Admission for non-COVID care.

This document does not supersede clinical judgment and describes methods to mitigate risks associated with delivering non-COVID care in an environment where SARS-CoV-2 is prevalent. It provides a framework for services that will need to be tailored to local conditions and specialty needs.

It applies to planning for a hospital stay or planned interventions that will impact the patient's immune system. Surgery and immunosuppressant treatments such as chemotherapy or radiotherapy co-inciding with acute COVID-19 may be associated with increased mortality. [1,2]

1. Modelling by Williams et al suggests that mortality from chemotherapy is doubled in presence of COVID 19 infection, in the > 50 age group (https://www.medrxiv.org/content/10.1101/2020.03.18.20038067v1.full.pdf).
2. S. Lei et al., Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection, EClinicalMedicine (2020), https://doi.org/10.1016/j.eclinm.2020.100331

14 days prior to admission:

In order to mitigate the risk of having surgery or in-patient medical therapy whilst incubating COVID-19, it is recommended that each individual, in so far as possible, minimizes their risk of exposure to others who maybe asymptomatic or presymptomatic or indeed be symptomatic with COVID-19.

The most effective strategy is to cocoon for 2 weeks in advance of admission. Where this is not possible, it is recommended that contact is minimized with people outside of your immediate social group to the greatest possible extent and that social distancing, mask wearing and hand washing/ sanitizing is used to minimize infection risk.

If an individual is in a residential care setting, establish if there is COVID-19 transmission in the RCF and if so defer surgery or remove to another setting two weeks prior to admission.

7- days prior to admission:

Call or text patient to confirm they are cocooning/ physical distancing

Check that they and their social circle have no clinical features suggestive of COVID-19

Anaesthesiology pre-assessment clinic:

As much as is possible should be assessed virtually and efforts made to bundle tests and investigations, including COVID-19 test, that require hospital attendance into as few episodes as possible.

48 hours pre-admission:

All patients should have a pre-procedural engagement that is virtual, by telephone or other suitable means, to ascertain that they are not

1. Suffering from any symptoms or signs of COVID-19
2. Restricting their movements due to being a close contact
3. Suffering from acute illness of any nature other than that related to the procedure
4. In contact with any member of their social group who is suffering from the symptoms or signs of COVID-19.

The patient should attend for a COVID-19 test within 48 hours of scheduled admission. Patients (and individuals accompanying them) should wear facemasks to and from testing, if tolerated.

At this time the patient's medical file can be made up and sent to their admission ward which should only care for patients with planned admission who have spent 2 weeks preparing and have had pre-screening and test results with 'VIRUS NOT DETECTED'. This gives clinicians the opportunity to review the chart on the day before, if required.

In addition, the patient needs means to get to the hospital. It is preferable if the accompanying adult remains in the car but recognised that this may not always be possible. No children are to accompany individuals for admission.

Prior to admission, patients should be sent an appointment time and asked to wait in their car, where possible, until shortly before their appointment time. Included in this communication should be a patient information leaflet indicating the requirements pertaining to the procedure. Face masks may be used during hospital visits, if tolerated and hands sanitized. Individuals are asked not to touch their face whilst wearing masks. If masks are inadvertently touched, hands should be sanitized immediately after.

Day of admission:

Patients should not attend unless they have been informed that their COVID-19 test indicates "VIRUS NOT DETECTED" and given an attendance time.

On admission the patient should be screened for the symptoms and signs of COVID-19. If any are present the procedure will be cancelled. Patients should be admitted on the day of surgery/ intervention whenever possible to minimize the length of hospitalization and directly to the specialist planned care ward occupied only by patients who have similar pre-procedural planning, screening and testing.

Post procedurally, the patient should be admitted to an area dedicated to planned care and including only patients who have had similar pre-procedural planning, screening and testing.

On discharge

The patient should be given an information leaflet including the means to contact the hospital or attend for unplanned care due to an unforeseen complication of the procedure whether it be the GP, a virtual clinic or the ASAU/ AMAU rather than attending an undifferentiated care pathway.

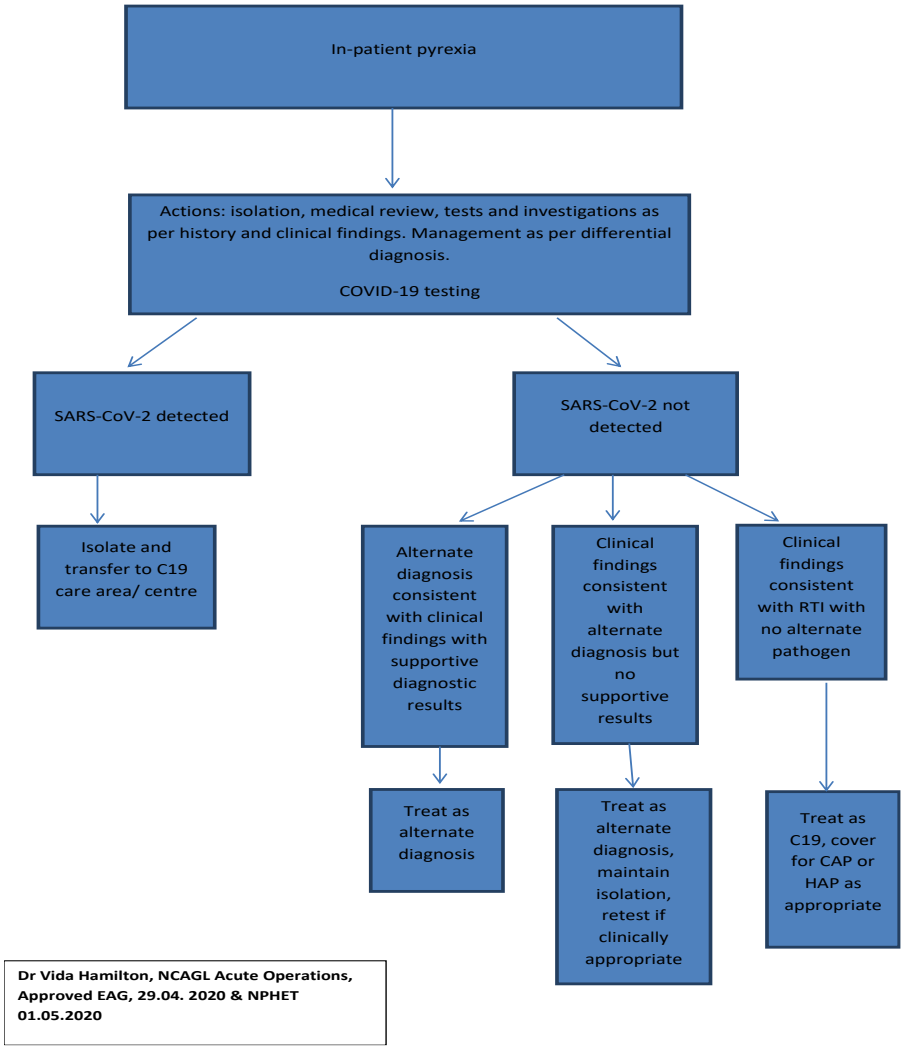
If being discharged to another healthcare or long stay residential centre (LSRC) after a stay case the patient should be tested for COVID-19 within 24 hours of discharge and consideration given to 'cocooning' on return to the LSRC for 14 days.

Surveillance:

It is recommended that patients are reviewed for infection, including COVID-19 and surgical site infection occurs between 2 to3 weeks post discharge. In so far as possible this should be done virtually.

Dr Vida Hamilton, NCAGL Acute Operations, Approved EAG, 29th April 2020 & NPHET 1st May 2020

Draft In-patient pyrexia algorithm



Interim Guidance on the Management of Day Case Procedures – non-aerosol generating procedures (AGPs) e.g. non-invasive radiology, colonoscopy, minor procedures

This document does not supersede clinical judgment and describes methods to mitigate risks associated with delivering non-COVID care in an environment where SARS-CoV-2 is prevalent. It provides a framework for services that will need to be tailored to local conditions and specialty needs.

Pre-admission: All patients should have a pre-procedural engagement that is virtual, by telephone or other suitable means, to ascertain that they are not

1. Suffering from any symptoms or signs of COVID-19
2. Restricting their movements due to being a close contact
3. Suffering from acute illness of any nature other than that related to the procedure
4. In contact with any member of their social group who is suffering from the symptoms or signs of COVID-19.

In addition, they need means to get to the hospital and a designated individual to stay with them for 12/24 hours after any procedure involving sedation. It is preferable if the accompanying adult remains in the car but recognised that this may not always be possible. No children are to accompany individuals for procedures.

Pre-sedation assessment:

As much as can be should be assessed virtually and additional investigations and/or in person history and examination should be scheduled to occur on the same day to minimize the number of hospital visits.

Prior to admission, patients should be sent an appointment time and asked to wait in their car, where possible, until shortly before their appointment time. Included in this communication should be a patient information leaflet indicating the requirements pertaining to the procedure. Facemasks, one for the patient and one for the individual, accompanying them can be included in this communication.

These masks are to be put on prior to entering the facility, if tolerated, and hands sanitized. Individuals are asked not to touch their face whilst wearing their masks. If masks are inadvertently touched, sanitize hands immediately after. Once delivered, the accompanying adult will be asked, where possible, to return to their vehicle and to leave contact details for patient collection.

Patients will be asked to keep their facemask in place for the entire hospital/ clinic visit, if tolerated. Should it become wet or soiled a replacement will be offered.

On admission the patient will be screened for the symptoms and signs of COVID-19. If any are present the procedure will be cancelled. If the patients has signs of COVID-19 within 14 days of the procedure they are asked to phone and will be offered an alternate appointment. This applies up to the day of the procedure.

Dr Vida Hamilton, NCAGL Acute Operations, Approved EAG, 29th April 2020 & NPHET 1st May 2020

Interim Guidance on the Management of Procedures that are Day Case – Involving anaesthesia or aerosol generating procedures (AGPs).

This document does not supersede clinical judgment and describes methods to mitigate risks associated with delivering non-COVID care in an environment where SARS-CoV-2 is prevalent. It provides a framework for services that will need to be tailored to local conditions and specialty needs.

Pre-admission: All patients should have a pre-procedural engagement that is virtual, by telephone or other suitable means, to ascertain that they are not

1. Suffering from any symptoms or signs of COVID-19
2. Restricting their movements due to being a close contact
3. Suffering from acute illness of any nature other than that related to the procedure
4. In contact with any member of their social group who is suffering from the symptoms or signs of COVID-19.

In addition, they need means to get to the hospital and a designated individual to stay with them for 12/24 hours after any procedure involving sedation or anaesthesia. It is preferable if the accompanying adult remains in the car but recognised that this may not always be possible. No children are to accompany individuals for procedures.

Pre-sedation, anaesthesia assessment:

As much as can be should be assessed virtually and additional investigations and/or in person history and examination should be scheduled to occur on the same day as pre-procedural COVID-19 testing to minimize the number of hospital visits.

Pre-procedural testing: Within 48 hours of the procedure, the patient should attend for a COVID-19 test. They should not proceed to the hospital/ clinic until it has been confirmed that their test is negative.

Prior to admission, patients should be sent an appointment time and asked to wait in their car, where possible, until shortly before their appointment time. Included in this communication should be a patient information leaflet indicating the requirements pertaining to the procedure. Facemasks, one for the patient and one for the individual, accompanying them can be included in this communication.

These masks are to be put on prior to entering the facility, if tolerated, and hands sanitized. Individuals are asked not to touch their face whilst wearing their masks. If masks are inadvertently touched, sanitize hands immediately after. Once delivered, the accompanying adult will be asked, where possible, to return to their vehicle and to leave contact details for patient collection.

Patients will be asked to keep their facemask in place for the entire hospital/ clinic visit, if tolerated. Should it become wet or soiled a replacement will be offered.

On admission the patient will be screened for the symptoms and signs of COVID-19. If any are present the procedure will be cancelled. If the patients has signs of COVID-19 within 14 days of the procedure they are asked to phone and will be offered an alternate appointment. This applies up to the day of the procedure.

The patient will be admitted to a dedicated elective pre-operative area.

Post procedurally, the patient will be admitted to an area dedicated to planned care and including only patients who have had similar pre-procedural screening and testing.

On discharge the patient will be given an information leaflet including the means to contact the hospital or attend for unplanned care due to an unforeseen complication of the procedure e.g. G.P., a virtual clinic, the ASAU or AMAU for clinical examination rather than attending an undifferentiated care pathway (ED).

Dr Vida Hamilton, NCAGL Acute Operations, Approved EAG, 29th April 2020 & NPHET 1st May 2020

Interim Guidance on the Peri-Procedural Period

Patient having a planned procedure should have had 2 weeks 'cocooning' or social distancing, pre-screening for symptoms and signs and a COVID test with 'virus not detected' within 48 hours of the procedure as outlined in '**Guidance on the Management of planned Hospital Admission for non-COVID care'**.

These patients should not be situated near undifferentiated patients. For theatres that are delivering on scheduled and unscheduled care, procedures should be put in place to avoid the mixing of these patient cohorts.

The patient should wear a facemask going to theatre, if tolerated and the staff attending should wear mask, apron and gloves (MAG).

Induction: may occur in the anaesthetic room, suggest minimum staff present.

Face shield gloves, gown and respirator mask (FGGRM) suggested for

Bag, mask ventilation

Intubation/ extubation

LMA insertion/ removal

Flexible optical intubation

Bronchoscopy

Nasal and guedal airway insertion and removal

Naso-gastric tube insertion

Transfer to theatre may occur as soon as the patient is ready due to the pre-admission risk mitigation actions.

For regional techniques a surgical mask is suitable, with sterile gown and gloves for sterile procedures.

In the theatre, depending on the procedure, goggles/ face shield, surgical mask and gown is suitable, with respirator mask used when aerosol generation is possible.

Theatre staff should have facemasks in place prior to the patient being brought into theatre and until the patient has left.

Extubation should occur in the theatre and the patient transferred to a non-COVID recovery area

LMA removal may occur in recovery with a barrier or FGGRM.

Post-operatively patients should be transferred to a dedicated non-COVID post-op ward.

Dr Vida Hamilton, NCAGL Acute Operations, Approved EAG, 29th April 2020 & NPHET 1st May 2020

Interim pre-assessment, triage and review of patients in outpatient care settings (new and return patients)

Clinician & Clinic actions:

There is a requirement for service re-design (systems engineering) to ensure lean principles/ flow processes are applied. Need for a risk management and quality assurance/improvement process to underpin service re-configuration.

1. Review all planned attendances to OPD in context of option for care provision in primary care settings or integrated care.
2. Review all planned OPD attendees for option to triage to virtual clinic review.
3. Consider mechanisms to support single patient visits where patient is attending multiple providers of having laboratory and radiology tests undertaken ("one stop shop").
4. Deliver OPD services by appointment only, patient to remain in their car until just before appointment, there will be minimal seating area.
5. Pre-review and cohort all required OPD attendees (per specialty criteria) to a designated provider (consultant, SpR, SHO, intern, student, ANP, CNS, SN, HSCP). Clearly record in the OPD appointments system designated clinician per patient and other staff per clinic. Update if changes occur on the day of clinic.
6. Pre-assess all OPD *attendees (with appropriate supports for vulnerable groups) for symptoms: fever, cough, shortness of breath OR lethargy, confusion, loss of appetite,* unexplained change in baseline condition (also enquire symptomatic members or close contact with confirmed cases amongst social circle)
7. Consider split clinics, extended days, extended working hours with workforce planning.

Patient actions:

1. Commence social distancing 2 weeks in advance of OPD visit with attention to hand hygiene.
2. Comply with requirements for assessment for signs and symptoms of COVID-19 to minimise spread
3. Hand sanitize and wear a face mask during visit, if tolerated.

Summary:

1. Pre-screen all OPD attendees as above
2. Check all staff when coming on duty with temperature and symptoms
3. All staff to wear surgical masks
4. Review HCW COVID19 testing policy

5. Please refer to HPSC HCW PPE guidance
6. All patients to wear surgical masks, if tolerated.

Dr Vida Hamilton, NCAGL Acute Operations, Approved EAG, 29th April 2020 & NPHET 1st May 2020