NHS
Test and Trace

GREG CLARK MP
CHAIR
SCIENCE AND TECHNOLOGY SELECT COMMITTEE
HOUSE OF COMMONS
LONDON

SW1A 0AA

12 October 2020

Dear Mr Clark,

Thank you for your letter of 25 September following the Science and Technology committee session held on 17 September 2020. I have set out below responses to your questions.

1. **The advice or analysis from the Scientific Advisory Group for Emergencies (SAGE) and relevant advisory groups (e.g. SPI-M) on the likely demand for testing and/or the testing capacity required for September, including any advice or analysis given during the months of June, July and August on future demand or capacity for testing.**

As you will be aware, the Scientific Advisory Group on Emergencies (SAGE) has provided expert scientific advice to Government throughout the COVID-19 response. SAGE's remit does not include the provision of advice relating to operational matters and as such, SAGE has not been responsible for providing modelling analysis on operational testing capacity and related targets. That means that SAGE has not provided modelling of testing capacity requirements specifically, or a target number for tests per day. Outputs from SPI-M modelling of the epidemic have, however, been used as an input into NHS Test and Trace modelling of testing capacity. SAGE has also provided advice on the epidemiological considerations and other questions related to testing which are set out in detail at *Annex A*.

SAGE is also responsible for assuring the Reasonable Worst-Case Scenario (RWCS) used by government for planning purposes. The Cabinet Office own and agree the underlying policy assumptions within the RWCS. SPI-M then provides modelling of the RWCS to SAGE which SAGE assesses and assures. Once assured by SAGE, Cabinet Office owns the outputs, including determining how this is communicated to Departments and partners. Neither SAGE nor SPI-M are involved in any further modelling to translate the RWCS into outputs relevant to operational planning. It is also important to note that the RWCS is one possible scenario and not a prediction, and that the precise timings of peaks in infection and demand on healthcare are subject to significant uncertainty. The RWCS does not include any modelling of testing capacity. During the period from June to August, SAGE endorsed an updated RWCS for use by planners, covering deaths, infections, hospitalisations and ICU/non-ICU occupancy over the period July 2020 to March 2021.

In order to model and forecast potential demand for testing and therefore what testing capacity will be required, NHS Test and Trace and the Department of Health and Social Care (DHSC) analysts draw on a range of sources including outputs from SPI-M modelling of the epidemic and modelling of the RWCS. Other sources include inpatient testing, screening for screening for elective/non elective admissions to hospital and NHS staff using information and forecasts from NHS England.

All of this was aggregated into a demand model to inform theoretical demand for COVID-19 swab tests from all parts of the testing programme to estimate the total number of tests

required per day through to March 2021. In addition, demand from the general public was projected separately for both those with COVID and then those who were experiencing COVID-like symptoms and therefore would come forward for testing but did not actually have COVID. These projections were also based on various planning scenarios, including the SAGE Reasonable Worst Case Scenario and modelling, as well as making use of historic data on incidence of illnesses that may present with COVID-like symptoms, referencing in particular historic data on GP consultation rates for those with influenza-like illnesses.

Projections of both elements of demand were, and remain, subject to a high degree of uncertainty because of the data and assumptions on which they rely, for example estimates of care homes' testing of staff each week and residents monthly, population size assumptions for asymptomatic testing in other closed institutions/vulnerable populations, and the number of allocated tests for prevalence studies and vaccine trials. As you would expect they are being constantly reviewed and refined as we learn more about the spread of the disease and more data becomes available.

As I mentioned when I appeared before the Select Committee the extraordinary spike in demand that we saw in early September was over and above any of the modelling projections and available capacity. A survey which NHS Test and Trace conducted indicated that as many as a quarter of people who had come forward to get a test were not eligible in that they did not have COVID symptoms or had not been instructed to get a test[1]. I completely understand the very human concern and desire for testing to be the way to say 'I'm safe' but unfortunately the virus does not work like that. It's why self-isolation for contacts of positive cases is the action we need people to take; not getting a test unless they develop symptoms. In order to make it clear how testing is being deployed and who should be getting tested, the government has also now published how swab tests are allocated, as well as how and why these groups are tested, to ensure that our testing resources are appropriately deployed based on the clinical advice.

I want to reassure the Committee that we are continuing to work incredibly hard to scale our capacity – when I appeared before the Committee our daily PCR Swab testing was 242,817 and on Friday 9th October it was 313,844. It will continue to grow to reach 500,000 a day by the end of October and beyond. The UK has now conducted over 22 million tests and the latest NHS Test and Trace statistics show that one in eight people in England have been tested for coronavirus since the service launched. The UK is also testing more people per capita than countries of comparable size including Germany, France and Spain.

2. The advice on which the testing capacity target of 500,000 tests per day by the end of October was based, including:

a) specific advice from SAGE and relevant advisory groups (e.g. SPI-M);

b) advice on the chosen deadline; and

c) advice on the potential impact of the reopening of schools, and the easing of other measures, on demand

Advice on estimates for October were based on the information highlighted above along with additional information on the number of tests conducted to date. Our priority to have enough testing capacity available by winter and to be able to diagnose between Covid and flu (which obviously presents with COVID-like symptoms) informed the target for the end October.

The capacity targets are based primarily upon forecasts of demand from the general public, because of Covid or other symptoms, and forecasts of the demand we expect to see within

[1] https://www.gov.uk/government/publications/survey-reasons-for-getting-a-coronavirus-covid-19-test

the NHS and social care, as well as estimates of additional capacity which may be required to support outbreak management. SAGE also recommended that any assessment of numbers should consider the impact of other respiratory infections causing similar symptoms and increasing demand on testing, which the demand modelling does.

Forecasts will sometimes have to change due to the unpredictable path of the virus, and the longer lead times for building testing capacity. Therefore, we aim to build capacity which we can flex to adapt to changes in where we see demand, and we continue to expand testing beyond stated targets where possible. NHS Test and Trace is the largest diagnostic network in British history and currently includes five major Lighthouse Labs, 96 NHS laboratories, and further Public Health England labs. The government has also announced the addition of new Lighthouse Labs in Charnwood, Newcastle and Bracknell. The latest and fifth addition - the Newport lab - is already live and taking samples, operating alongside labs at Milton Keynes, Alderney Park, Glasgow and Cambridge. In addition to expanding the Lighthouse Lab network, we have increased the number of permanent staff across all existing Lighthouse Labs and further recruitment continues to increase capacity at existing labs. We are also working with a number of partner labs from the public, private and academic sectors, with Birmingham University as one of the first of those lab partnerships to come online.

3. The proportion of overall tests allocated now within pillars 1 & 2 across the following groups:

a) healthcare and social care workers;

b) patients and care home residents;

c) members of the public in 'hotspot' areas where additional restrictions have been applied (e.g. North West and North East England); and

d) all other members of the public.

The government published a policy paper on 21 September, 'Allocation of COVID-19 swab tests in England' (*see Annex B*), which sets out information on those who we intend to test, as well as how and why we will test them. Protecting the NHS has been at the heart of our COVID-19 response, and protecting NHS patients, NHS staff and care homes remain our top priorities. We are testing hospital patients, including all admissions, so that important clinical judgements can be made to ensure the best care for these individuals and to prevent spread within hospitals.

In addition, we know that elderly people living in care homes are particularly vulnerable to COVID-19. Based on SAGE's advice, we therefore test as our second priority in care homes for older adults and dementia, the following groups (with and without symptoms): staff (every week), residents (every 28 days), and all new admissions. We also test whole care homes in the event of an outbreak.

After that is testing of symptomatic NHS staff. A full list of key workers prioritised for testing is published on the gov.uk website. The list includes all NHS and social care staff, such as:

- doctors, nurses, midwives, paramedics, social workers, care workers, and other frontline health and social care staff, including community pharmacists and their staff, students on clinical placements, volunteers and unpaid carers
- the support and specialist staff required to maintain the UK's health and social care sector
- those working as part of the health and social care supply chain, including producers and distributors of medicines, and medical and personal protective equipment

- NHS Blood and Transplant frontline staff (blood donation staff, specialist nurses for organ donation, staff running therapeutic apheresis services in NHS hospitals)
- those providing ancillary support to NHS workers (such as hotel accommodation for NHS staff)
- personal care assistants
- GPs and pharmacists where possible.

We are also working to ensure targeted testing to support management of outbreaks and high-risk areas as well as testing teaching staff with symptoms where needed to keep schools and classes open.

The exact allocation of tests across these key areas is dynamic and may change, as it is based on the latest evidence on risk and demand as well as the clinical advice. All of Pillar 1 capacity is obviously focused on the NHS and additionally circa 100k a tests a day from pillar 2 are dedicated for social care.

4. **How testing capacity is allocated across regions with differing prevalence of COVID-19.**
5. **The extent to which the proportion of testing capacity in London—and other regions— has been reduced to tackle demand in higher prevalence regions.**

From the start of the pandemic, we have prioritised groups that are most vulnerable as well as those essential to keeping our society and economy running. As the pandemic has evolved, this has expanded to also curb transmission in outbreak or high-prevalence areas.

We are monitoring infection levels across the country so higher volumes of testing are targeted where they are needed most. In line with our published Contain Framework for how we manage local action – and the testing allocation framework set out above – the policy is to prioritise testing symptomatic members of the general public in areas of high prevalence, followed by the wider country. In line with the watchlist process testing can be used as an additional tool targeted at local areas in order to get a grip on emerging outbreaks. This is predominantly delivered by deploying mobile testing units to these areas and increasing the number of home test kits available. We are also working with Local Authorities to provide much more granular data about how individual sites are being used to help them with demand management locally, for example encouraging certain groups to come forward for testing. Since I appeared before the committee we have increased the number of slots available for tests substantially in London as well as opening a number of new walk-in sites to make testing more accessible for residents. We manage booking allocation on a dynamic and daily basis.

In addition to growing our existing PCR swab capacity, it is worth noting that we are rolling out new technology to further boost capacity. We have already invested £500 million in next generation tests, like saliva tests and rapid turnaround tests that can deliver results in just 20 minutes, which are being piloted in Hampshire, Southampton and Salford. 10,000 people took part in the first phase of the Southampton pilot, where GP staff, other essential key workers, university employees and members of their households had tests delivered to their home or place of work and completed tests by putting their saliva in a pot. The pilot showed the at-home saliva sampling kit to be a reliable means of testing for large-scale, regular testing.

In addition, 5,000 DNA ‘Nudgebox’ machines, supplied by DnaNudge, will be rolled out across NHS Hospitals in the UK to analyse DNA in nose swabs, providing a positive or negative result for COVID-19 in 90 minutes, at the point of care. New rapid LamPORE tests also process swab and saliva samples to detect the presence of COVID-19 in 60 to 90

minutes. We are continuing to trial new tests, and future plans will depend on the outcomes of those trials.

6. The structure of scientific advice within the National Institute for Health Protection (NIHP) and the Joint Biosecurity Centre (JBC), with a consideration of:

a) publication of the names of those scientific advisers within the NIHP and JBC;

NHS Test and Trace is informed by some of the best scientific and clinical expertise across various areas of the programme. The programme employs people with a broad range of skills and backgrounds including clinicians, scientists, epidemiologists and other health professionals, data scientists, data engineers, and professional analysts from across government and industry. This includes a large number of joint appointments with Public Health England (PHE). Most of these individuals are civil servants.

Dr Susan Hopkins is an epidemiologist and adviser on infectious diseases and microbiology at PHE, with a research interest in outbreak investigation and surveillance, and healthcare associated infections. Dr Hopkins is the Chief Medical Advisor for Test and Trace and in this capacity she manages clinical governance, provides medical and public health leadership, advises on the COVID-19 response and enables continued strategic partnerships for joint working across PHE, local Directors for Public Health, the Chief Medical Officer, and the medical and scientific community. In addition to Dr Hopkins' overall role as Chief Medical Advisor there are a large number of other clinical advisors embedded into the leadership organisation including in Testing, Tracing and Contain.

The JBC is the analytical arm of NHS Test and Trace, providing data analysis, health protection and epidemiological capability to support policy making. The JBC is led by Dr Clare Gardiner who has extensive experience in government as well as an academic and research background in medical statistics and epidemiology.

The JBC works closely with the four CMOs, who provide scientific and clinical oversight, and routinely collaborates with experts across government, including PHE, and with SAGE and SPI-M.

On 17 September the Committee heard from Dr Thomas Waite, who is Director of Health Protection in the Joint Biosecurity Centre, Dr Susan Hopkins, and others.

In addition, a team of clinical virology advisors provide expertise to NHS Test and Trace on Lighthouse Laboratories. We have engaged a team of scientists to form part of workstreams to support laboratory and technical validation. Each Lighthouse Lab is advised by a Professor of Virology and the senior leadership comprises biomedical scientists. There are also around 15-20 senior post-doctoral scientists from a university or research and development background at each Lighthouse Lab.

PHE and NHS Test and Trace will continue to deliver all their existing functions until Spring 2021, when the NIHP will be formally established and arrangements for the future of PHE's health improvement functions will have been agreed and begun to be implemented.

The NIHP will take on existing UK-wide responsibilities for health protection from PHE and NHS Test and Trace, including the Joint Biosecurity Centre. This will include supporting all four CMOs with scientific and analytical advice and insights. Current UK-wide arrangements delivered by PHE and Test and Trace, including for example high containment laboratories and provision of testing supplies, will continue. Further work will be done between now and Spring 2021 to ensure a smooth transition to the new organisation. The government has published a policy paper 'The future of public health: the National Institute for Health

Protection and other public health functions'[2] which sets out more detail about the remit of the new organisation and the process of consultation and transition.

b) **whether the advice and relevant meeting minutes from the JBC will be published in a timely manner, as with advice and minutes published by SAGE.**

Since July, NHS Test and Trace has published the Contain Framework Local Authority Watchlist and accompanying analysis on a weekly basis with PHE. The JBC is a part of DHSC, is the analytical arm of NHS Test and Trace, and is not dissimilar to the many analytical divisions and directorates across government that provide insight to support policy making within government departments. For example, as part of NHS Test and Trace, the JBC provides analysis that informs decisions made through the weekly Secretary of State chaired Local Action Committee. This is of course very different to SAGE, who are an advisory committee independent of government, that meets at specific times. The JBC therefore does not produce meeting minutes in the same way as SAGE.

Further details about the JBC can be located via the following GOV.UK link: https://www.gov.uk/government/groups/joint-biosecurity-centre

7. **Details and results of the government's "full and comprehensive review" of the performance of commercial providers of COVID-19 test processing and contact tracing services, with an emphasis on:**

   a) **the government's assessment of the delivery of Key Performance Indicators before the contracts were re-let**;

   b) **the performance of commercial providers of test processing, including the Lighthouse Lab network, as compared to NHS and Public Health England laboratories; and**

   c) **the reasoning behind the awarding of contracts to commercial providers, as well as their continuation outside of regular tendering processes.**

Key Performance Indicators (KPIs) are included in but redacted from published contracts as they are commercially confidential. They do reflect the ownership of risk placed on the third parties.

A proportionate delivery model assessment was undertaken in the decision to outsource the services to commercial providers. This assessment was influenced by the speed to recruit volume of staff required and timescales in moving back to deliver business as usual public services. The contracts to commercial providers were direct awards under Lot 2 of Crown Commercial Service's Contact Centre Services framework. All suppliers on Lot 2 were engaged with, in order to ascertain capabilities to meet the contract output specifications.

We have established several partnerships with industry, academia, local government and others to deliver our testing programme. Where contracts with commercial partners have been finalised, we are publishing contract award notices. Guidance on responding to coronavirus was published on March 18: https://www.gov.uk/government/publications/procurement-policy-note-0120-responding-to-covid-19 and showed that contracting authorities are allowed to procure goods, services and works with extreme urgency in exceptional circumstances using regulation 32(2)(c) under the Public Contract Regulations 2015. Suppliers are evaluated by officials on their financial

[2] https://www.gov.uk/government/publications/the-future-of-public-health-the-nihp-and-other-public-health-functions/the-future-of-public-health-the-national-institute-for-health-protection-and-other-public-health-functions

NHS
Test and Trace

standing, compliance with minimum product and service specifications and ability to perform the contract. Contracts are placed in line with Department of Health and Social Care terms and conditions which include clauses for contract management to ensure that supplier performance and the delivery of value for money can be properly assessed throughout the lifetime of the contract. As a result of our partnerships, we have been able to rapidly expand our testing capacity and expand coronavirus testing eligibility to people across the whole of the UK.

Thank you for your letter and your continued focus on and support for the Test and Trace Service. We continue to work hard to ensure that it provides effective support to the government's pandemic response.

Yours sincerely,

Baroness Harding

NHS Test and Trace

Annex A

SAGE advice to the NHS Test and Trace Service

SAGE has also provided advice on the epidemiological consideration and other questions related to testing, as set out in detail below:

On 16 March SAGE highlighted the critical importance of scaling up serology and diagnostic testing in order to manage the epidemic, and that a solution was required urgently. SAGE re-iterated the importance of scaling up testing in meetings held on 18 March, 23 March, 26 March and 31 March when it was also noted that 'SAGE will not consider operational questions' in relation to testing.

SAGE provided further advice on the key considerations in the development of a testing strategy, such as the need for target volumes amongst different cohorts, and the need for large volumes of testing, on the 2 April, 9 April, 16 April and 21 April. On 21 April, SAGE advised that testing volume requirements would be dependent on incidence levels and the extent of contact tracing linked to testing.

On 28 April, SAGE provided a framework to illustrate how estimates of testing volumes will depend on a range of factors and, in the context of contact tracing and case identification, how they scale with the number of people with new Covid-like symptoms per day and the number of contacts traced (available here). The advice highlighted that estimates drawn from the illustrative scenarios were not comprehensive and that there were other testing requirements that should be considered, or which should be operationally determined.

On 21 May SAGE was briefed on progress in the Joint Biosecurity Centre and TTI, including testing capacity. SAGE noted that for the current levels of prevalence and incidence, a test and trace capacity of 10,000 a day would likely not be sufficient, as it did not take into account cases of other illnesses that had similar symptoms to Covid-19.

Between June and August, SAGE highlighted the importance of other issues relating to the TTI system but did not provide any advice on potential scales of operational testing volumes required or operational testing demand. On 27 August SAGE endorsed a paper from the Mass Screening Task and Finish Group. This paper did not provide any advice on operational testing volumes but advised on the key scientific principles relating to regular and/or large-scale testing of a population.

NHS Test and Trace

Annex B

Policy paper: Allocation of COVID-19 swab tests in England

(https://www.gov.uk/government/publications/allocation-of-covid-19-swab-tests-in-england/allocation-of-covid-19-swab-tests-in-england#fnref:2)

Introduction

You should only get tested if you have COVID-19 symptoms or if you've been advised to get tested by a health professional. The symptoms are:

- a high temperature
- a new, continuous cough
- a loss or change to your sense of smell or taste

Unless a health professional has instructed you differently, you should not get tested if you do not have COVID-19 symptoms, even if a close contact or household member has tested positive.

The COVID-19 testing programme has been built at unprecedented pace and scale to support our management of the COVID-19 pandemic. We have processed on average 225,000 swab tests[1] a day across the UK over the past week, which are record levels.

We are further increasing our capacity as quickly as we can to 500,000 swab tests a day by the end of October. We currently test at higher levels per capita than countries of comparable size including Germany, France and Spain[2].

While capacity is at a record high, demand has rapidly increased and is currently above these levels.

As we look towards winter, we have set out below those who we intend to test, as well as how and why we will test them. The exact allocation of tests across these key areas is dynamic and may change, as it is based on the latest evidence on risk and demand.

Supporting NHS clinical care

We are testing hospital patients, including all admissions, so that important clinical judgements can be made to ensure the best care for these individuals and to prevent spread within hospitals.

Protecting those in care homes

We know that elderly people living in care homes are particularly vulnerable to COVID-19. Based on the advice of the Scientific Advisory Group for Emergencies (SAGE), we therefore test, in care homes for older adults and dementia, the following groups (with and without symptoms):

- staff every week
- residents every 28 days
- all new admissions

In addition, we test whole care homes in the event of an outbreak.

Testing NHS staff, including GPs and pharmacists, where possible

Protecting our NHS has been at the heart of our COVID-19 response.

We therefore test NHS staff with symptoms as a priority, and test asymptomatically in outbreaks and in areas of higher prevalence.[3]

Targeted testing to support management of outbreaks and surveillance studies

This can include targeted testing to manage outbreaks in high-risk settings such as closed residential settings or higher-risk workplaces, where the risks of the virus spreading and the chances of finding more positive cases are high.

Surveillance testing is a programme to understand more about the virus through the population-wide Office for National Statistics study, essential trials for new potential vaccines, and studies of particular at-risk populations.

Testing for teaching staff with symptoms where it is needed to keep schools and classes open

We are continuing to improve the testing system to ensure teaching staff can get priority access when they have symptoms.

Those who test negative can return to work, ensuring our schools can remain open.

Testing the general public where they have symptoms in high-positivity areas, where the chances of finding positive cases is higher

Testing of these people means positive cases can have their contacts traced, and negative tests mean people and their households without symptoms can resume normal life.

This is for those with the typical symptoms of fever, new continuous cough, or loss of sense of taste or smell.

Testing the general public where they have symptoms, regardless of where they live

If you have symptoms, you must self-isolate even if you cannot access a test. This is vital to reduce transmission.

Testing capacity through the National Testing Programme is allocated among the 4 nations of the UK in line with population share, with the ability to surge across the UK when needed.

This system relies on people coming forward for tests in the community only if they have symptoms. Currently demand for community testing outweighs supply and action may be needed to ensure that tests are directed to protect those most at risk.

As with other aspects of NHS care, having a test if you do not need it reduces the chances that those who do need it can access it in a timely way.

Therefore, you should only get tested if you have COVID-19 symptoms or if you've been advised to get tested by a health professional.

Unless these professionals have instructed you differently, you should not get tested if you do not have COVID-19 symptoms, even if one of your contacts or household members has tested positive.

Number of lab-confirmed test results

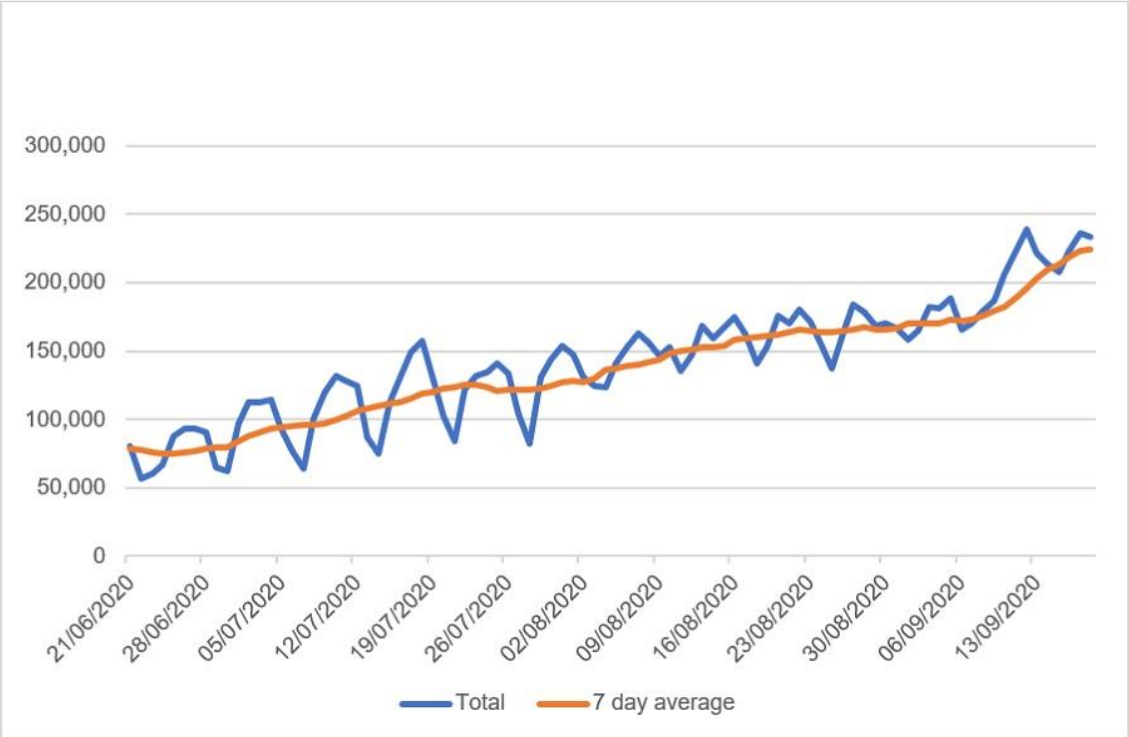

Chart showing the number of lab-confirmed test results for pillars 1 and 2 taken on 21 September 2020 (data from the GOV.UK Coronavirus (COVID-19) in the UK dashboard). It covers the whole of the UK.

1. Swab tests are a PCR test used to determine if you have the virus. They are not an antibody test, which is a different type of test that can be used to see if you have had the virus.
2. 'How many tests are performed each day?' (Our World in Data: Coronavirus (COVID-19) testing).
3. See the letter about healthcare-associated COVID-19 infections – further action, 24 June 2020.