Our National Effort for Diagnostics

Lord Bethell of Romford
Parliamentary Under Secretary of State, Department of Health and Social Care
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| 13:40-14:05  | Update on the Surveillance testing to learn more about COVID-19 | Overview and next steps – Tamsin Berry, Director DHSC  
ONS Surveys – Professor Sir Ian Diamond, National Statistician  
PHE Surveillance – Professor Yvonne Doyle, PHE Medical Director and Dr Mary Ramsay, PHE Surveillance Cell  
REACT Programme – Professor the Lord Darzi of Denham, Director of the Institute of Global Health Innovation, Imperial College London and Gianluca Fontana, Operations Director and Senior Policy Fellow, Imperial College London  
Q&A |
| 14:05-14:30  | Update on the 5 Pillar Testing Strategy         | Update on Pillar 1 – Dr. Aidan Fowler, National Director of Patient Safety NHSE  
Update on Pillar 2 – Gary Cook, Deputy Director COVID-19 Essential Workers Testing Programme  
Update on Pillar 3 – Tamsin Berry, Director DHSC  
Q&A |
| 14:30-14:35  | New Novel Solution Challenges                  | Doris-Ann Williams, Chief Executive of BIVDA |
| 14:35-14:40  | Close                                          | Doris-Ann Williams, Chief Executive of BIVDA |
Pillar 4: Overview of the Surveillance Testing work and next steps

Tamsin Berry

Covid-19 Director, Department of Health and Social Care
Our National Testing Strategy

The strategy was announced by the Secretary of State on 2nd April and has 5 key strands

- **'Pillar 1':** Scaling up NHS swab testing for those with a medical need and, where possible, the most critical key workers
- **'Pillar 2':** Mass-swab testing for critical key workers in the NHS, social care and other sectors
- **'Pillar 3':** Mass-antibody testing to help determine if people have immunity to coronavirus
- **'Pillar 4':** Surveillance testing to learn more about the disease and help develop new tests and treatments
- **'Pillar 5':** Spearheading a Diagnostics National Effort to build a mass-testing capacity at a completely new scale
Office for National Statistics Surveys

Professor Sir Ian Diamond
National Statistician
Update PHE COVID-19 Surveillance

Professor Yvonne Doyle - Medical Director, PHE

and

Dr Mary Ramsay - PHE Surveillance Cell
Public health surveillance is the process of data collection, analysis, interpretation and dissemination:

- undertaken on an **ongoing** basis
- measures of health status or determinants (hazards, exposures, behaviours)
- an agreed and explicit set of **actions** that will be initiated or informed by the outputs

So what does our surveillance tell us about the main actions we have taken to control COVID?

- Has there been an impact of sequential isolation (week 11) followed by full social distancing / lockdown?

*abridged from PHE 2012*
“Routine” COVID-19 surveillance

Largely based on systems already in place for influenza

- Slightly different case definitions (ARI/ILI)
- Additional COVID testing where possible
- Reflects the full disease pyramid

Supports surveillance of a range of respiratory viruses

- RSV, influenza and SARs-CoV2

Allows further characterisation of viruses, including NGS of SARs-CoV2
Community surveillance - FluSurvey

Social distancing
Primary care surveillance via RCGP sentinel network - positivity rate in cases of ARI
The graph shows the rates of ICU and hospital admission for COVID-19 in the UK. The rates are expressed per 100,000 population.

- **ICU/HDU admission rate per 100,000 population**
- **Hospital admission rate per 100,000 population**

A vertical arrow marks **Week 14**.

The graph indicates a significant increase in both ICU and hospital admission rates during the week of social distancing measures. The rates peak around this period and then gradually decrease over time.

**Public Health England**

**CHESS rate of ICU and hospital admission for COVID**
Comprehensive range of sustained surveillance systems required to monitor the epidemic

Have successfully shown the impact of recent control measures
  • successive impact on systems that monitor each stage of illness

Overall infection rates from seroprevalence highest in young adults
  • data from children still unclear

Same systems can also monitor the relaxation of any control measures
  • Primary care testing likely to be the first specific signal

PHE surveillance systems will be key to monitoring any future vaccine programme
Acknowledgements

Almost everyone in NIS and many in wider PHE who have contributed to this data
Community, general practice, laboratory and hospital staff who report to us
Patients and public participants in the surveillance scheme
Other agencies (ONS, GRO etc)
The REal-time Assessment of Community Transmission programme

Professor the Lord Darzi of Denham, OM, KBE, PC, FRS - Director of the Institute of Global Health Innovation

and

Gianluca Fontana - Operations Director and Senior Policy Fellow, Imperial College London
**REal-time Assessment of Community Transmission (REACT) programme**

**REACT-1**
Population survey of current infection in the community (using antigen test)

**REACT-2**
Accuracy, acceptability and ease of use of the antibody test to inform the design of a population survey of past infection in the community
REACT studies

REACT-2 sub-studies

**Study 1**
Usability, acceptability and performance of LFTs in health service workers

**Study 2**
Usability, acceptability and design of LFT self-testing in public volunteers

**Study 3**
Usability and feasibility of LFT self-testing in the community

**Study 4**
Usability and validity of LFT self-testing in key workers

**Study 5**
A nationally representative sero-prevalence study through self-administered lateral flow tests
REACT-2 sub studies

Study 1
- Lab Validation
- Health Workers N=200-300
- Public Volunteers N=200-300

Study 2

Study 3
- Community N= 10,000
- Key Workers N= 5,000

Study 4

Study 5
- Population
- N=100,000
Q&A
Update on the 5 Pillar National Testing Strategy
Update on Pillar 1

Dr. Aidan Fowler
NHS Director of Patient Safety
The strategy was announced by the Secretary of State on 2nd April and has 5 key strands:

- **Pillar 1**: Scaling up NHS swab testing for those with a medical need and, where possible, the most critical key workers.
- **Pillar 2**: Mass-swab testing for critical key workers in the NHS, social care and other sectors.
- **Pillar 3**: Mass-antibody testing to help determine if people have immunity to coronavirus.
- **Pillar 4**: Surveillance testing to learn more about the disease and help develop new tests and treatments.
- **Pillar 5**: Spearheading a Diagnostics National Effort to build a mass-testing capacity at a completely new scale.
PILLAR ONE: PROGRESS UPDATE

PILLAR 1 AMBITION: Scaling up NHS swab testing for patients with a medical need and, where possible, NHS and essential staff. We reached our ambition of **25,000 tests a day** by the end of April, set out in the Testing Strategy, and are now in excess of this.

KEY DEPENDENCIES: Reaching this ambition depends on getting the right **supplies** and **logistics** in place – we have a global shortage of swabs, equipment and reagents needed to run the tests. Current and potential future lab capacity is constrained by supply.

OVER THE COURSE OF APRIL WE:

- **Scaled our testing capacity** from 10,000 tests a day to over 25,000 tests per day.
- Had new NHS and PHE labs coming online every week and a partnership with Roche to secure high-throughput PCR capabilities. This includes 29 hub and spoke NHS networks across England, 6 PHE labs and 3 contracted PHE services at NHS Trusts, and labs across the DAs.
- Created a **network of regional leads** to help match lab capacity and demand across the country.
- With the huge **support from industry, the research community, universities** and others, we secured the testing supplies (e.g. swabs) to meet our current aims.
- As capacity increases, we are continuously considering **prioritisation** of groups.

April: The route to 25,000 tests a day
Update on Pillar 2

Gary Cook
Deputy Director COVID-19 Essential Workers Testing Programme
The strategy was announced by the Secretary of State on 2nd April and has 5 key strands:

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- **Pillar 2**: Mass-swab testing for critical key workers in the NHS, social care and other sectors.
- **Pillar 3**: Mass-antibody testing to help determine if people have immunity to coronavirus.
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- **Pillar 5**: Spearheading a Diagnostics National Effort to build a mass-testing capacity at a completely new scale.
How pillar 2 works

1. Booking
   - Employer portal
   - Self-referral portal

2. Testing
   - 148 testing sites
   - Home testing kits
   - 49 regional testing sites
   - 77 mobile testing units
   - 22 Satellite testing sites

3. Results
Pillar 2 eligibility timeline - simplified

1. NHS workers only
   26 Mar

2. NHS & social care workers
   08 Apr

3. Initial list of essential workers
   17 Apr

4. All essential workers
   23 Apr

5. People whose work cannot be done from home, over-65s & other groups*
   28 Apr

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*Social care workers & residents in care homes, and NHS staff (with or without symptoms)
Update on Pillar 3

Tamsin Berry
Covid-19 Director, Department of Health and Social Care
The strategy was announced by the Secretary of State on 2nd April and has 5 key strands:

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- **Pillar 2**: Mass-swab testing for critical key workers in the NHS, social care and other sectors
- **Pillar 3**: Mass-antibody testing to help determine if people have immunity to coronavirus
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New Novel Solution Challenges

Doris-Ann Williams
Chief Executive of BIVDA
We have launched two new challenges...
New challenge:
Increasing end-to-end efficiency and speed of testing

Following reaching the target of delivering 100,000 tests per day by the end of April we need to continue to increase our capacity for testing. We are looking for new methods for viral detection and identification that are high throughput and that will increase end to end efficiency and speed of testing. These need to be implemented and adopted quickly. They may include solutions to challenges you have faced in your own systems in recent weeks.

Please note we are NOT looking for examples of point of care testing in this challenge.

Add your examples here: testingmethods.crowdicity.com

#TestingMethods2020 #Covid-19
New challenge: Alternative to swabs for sampling

One of the significant constraints on current testing capacity is availability of swabs for sampling. We are looking for alternative non-swab based methods or techniques of sampling for the virus that have been used in other applications or contexts and that can be implemented rapidly.

Examples could be, but not limited to, use of saliva, faeces and potentially urine. We also welcome ideas related to non-blood based sample collection for antibody testing in this challenge.

Add your examples here: testingmethods.crowdicity.com

#TestingMethods2020 #Covid-19
How you can get involved in this work

- In partnership with Crowdicity, we have launched a testing methods sourcing platform to collect ideas on our specific challenges [https://testingmethods.crowdicity.com/](https://testingmethods.crowdicity.com/)

- If you have a solution that addresses this new challenge, please register and add it to the platform. We want to know:
  - What is your idea/offer?
  - Have you validated this method, if so, how and what were the results of the validation?
  - How quickly could this be deployed and what are the dependencies?
  - What is the likely production volume?
  - What are the risks and barriers to using this at scale?
  - Who are you already partnering with on this?

- Even if you don’t have a solution, you can comment to other people’s solutions; we hope you’ll be willing to share but you can also make a confidential submission

- Every solution and comment will be considered
Close

Doris-Ann Williams
Chief Executive of BIVDA
Additional Resources

• **Coronavirus (COVID-19) scaling up testing programmes**

• **Help the government increase coronavirus (COVID-19) testing capacity**, a link to the specific web form to collect information we need

• As highlighted in the webinar, in partnership with **Crowdicity**, we have launched a testing methods sourcing platform to collect ideas on our specific challenges [https://testingmethods.crowdicity.com/](https://testingmethods.crowdicity.com/)


• **Professor Sir John Bell’s** full paper outlined in the presentation last week has been published and can be found here: [https://www.medrxiv.org/content/10.1101/2020.04.15.20066407v1](https://www.medrxiv.org/content/10.1101/2020.04.15.20066407v1)