
PUBLIC HEALTH WALES' WRITTEN EVIDENCE ON COVID-19

Submitted to Health, Social
Care and Sport Committee

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1. Introduction

This written submission is made to the Health, Social Care and Sport Committee prior to Public Health Wales' evidence session on Wednesday 27 January 2021. This will be the fourth time that Public Health Wales has presented evidence to the committee on the COVID-19 pandemic.

Previous submissions have set out how, as the National Public Health Institute for Wales, Public Health Wales has played a key role in supporting the public, the Welsh Government and the wider system during our response to the coronavirus pandemic. We have provided system leadership through the provision of specialist and expert public health advice, information, intelligence and support.

As requested by the Committee this submission focuses on:

- the current position since the Christmas and New Year break
- COVID-19 and flu vaccinations
- mass testing.

We have also taken the opportunity to update the Committee in more general terms on the pandemic and our role. It should be noted that the content of this document will be correct at the time of submission (21 January 2021). However, given the rapidly changing context of the pandemic it is highly likely that further updated information will need to be provided verbally during the evidence session.

We would once again like to take the opportunity to formally thank our staff for their continued commitment and professionalism over the course of the pandemic; they have been truly extraordinary.

2. Current Epidemiology (since Christmas/ New Year Break)

2.1 Global position

The pandemic continues to affect countries across the world. As of 09.49hrs CET 19 January 2021, there have been 93,956,883 confirmed cases and 2,029,084 deaths worldwide^[1].

2.2 UK position

All four UK countries saw the peak of the first wave at the beginning of April 2020. Following the introduction of the lockdown measures, case numbers and fatalities dropped from mid-April onwards. From mid-July onwards, cases in the UK overall began rising at an increasing rate. A fall in UK daily

^[1] https://covid19.who.int/?gclid=EAIaIQobChMIvbTOyqyX7glVwZ7tCh2S_gOBEAAYASAAEglv8_D_BwE

cases was seen during November 2020, before rapidly increasing again from the end of November 2020. There was a total of 3,433,494 people reported as having tested positive across the UK up to 16.43 hrs on 18 January 2021 (Source: UK Government COVID dashboard). The number of people who have sadly died in the UK within 28 days of a positive test for COVID-19 is 89,860 (also reported 18 January 2021)^[2].

2.3 Wales' numbers

As of 09.00 hrs on 18 January 2021, there were 182,599 total confirmed cases and 4,302 people who have died from COVID-19 in Wales^[3].

2.4 Epidemiology in Wales

Overall, the national incidence of confirmed cases in Wales decreased in the most recent week following an increase in week 53 (week commencing 28 December 2020). Decreases in the incidence of confirmed cases were noted in most health board regions of Wales, with the exception of Betsi Cadwaladr University Health Board. During week 01 (week commencing 4 January 2021), incidence decreased in most age groups with the exception of those aged 85 years of age and older, the highest incidence was seen in this age group. COVID-19 confirmed hospital admissions and confirmed case numbers in inpatients were stable during week 01 (week commencing 4 January 2021) compared to the previous week. However, critical care admissions decreased compared to the previous week.

As at 09.00 hrs on the 18 January 2021, there had been a cumulative total of 182,599 confirmed episodes of COVID-19 in Welsh residents, this includes testing from non-NHS Wales laboratories. Due to ongoing data cleansing following the merging of these datasets, there may be a small number of duplicate episodes included in this cumulative figure.

Of all the cases confirmed in Wales, 27.6% were tested and confirmed in NHS Wales laboratories: 7.2% of cases were in-patients who provided samples while attending a hospital and 20.4% were from individuals tested in the community (including key workers tested through occupational health departments and community testing units, care home staff and residents, other closed settings and hospital outpatient departments). An additional 72.4% were for individuals where tests were carried out by non-NHS laboratories.

A proportion of individuals testing positive may be identified through screening following outbreaks and incidents in a variety of settings, or through enhanced testing in the community by mobile testing units. Individuals tested as part of the mass screening sessions in Merthyr Tydfil are not included unless they received a second test in an NHS laboratory.

^[2] https://coronavirus.data.gov.uk/?_ga=2.195989608.51722093.1600253429-1160851531.1600253429

^[3] <https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/RapidCOVID-19virology-Public/Headlinesummary>

In addition to the actual symptomatic cases of COVID-19, some of the positive tests may be low-level positive test results where the individual subsequently tested negative within a short time frame of approximately 2 to 3 days after the original sample; these may be interpreted as 'false positive' test results if the individual remained asymptomatic. These are currently not removed from surveillance datasets, although the likelihood of 'false-positives' may decrease with increasing COVID-19 activity.

Between the 1 March 2020 and 10 January 2021, there have been a total of 11,714 people admitted to hospital with confirmed COVID-19 (i.e. positive test taken within 28 days prior to admission, or less than 2 days after admission). There have been a total of 1,114 people admitted to critical care. As at 18 January 2021, there were 1,789 people with confirmed COVID-19 in hospital wards (stable compared to the previous week), 95 of whom were in a critical care ward.

The mean age of patients confirmed with SARS-CoV2 in hospitals is 70 years and the mean age of individuals with SARS-CoV2 in other locations is 40 years, this may include screening tests for non-symptomatic individuals.

A Wales-wide 'fire-break' restriction on non-essential travel outside the home was in place between Friday 23 October 2020 and Monday 9 November 2020. Overall, incidence fell following this intervention, but was not sustained with the continuation of an increasing trend through November 2020. Additional restrictions were introduced from the 4 December requiring all cafes, pubs, bars and restaurants to close at 6pm. In addition to this requirement, alcohol sales were prohibited at any time of the day. Cinemas, bowling alleys and other indoor entertainment venues were also closed.

These measures were reviewed again and Wales moved to Alert Level 4 from the 19 December 2020. Restrictions in Alert Level 4 are outlined on the Welsh Government [webpages](#) and these incorporate the restrictions that were in place previously until the point of moving to Level 4. Additionally, the law was amended in Wales around the Christmas mixing which required people to limit themselves to Christmas bubbles of two households, plus one additional single person household just for Christmas day.

2.5 Variants

Several new variants of SARS-CoV2 have been identified in the UK, the most prominent being Variant of Concern (VOC) 202012/1, which originated in the southeast of England. There is now good evidence that this variant is more transmissible than previous viruses, with a higher secondary attack rate (30-50% higher) and growth rate (0.4 to 0.7 increase in reproduction number) but no evidence to date that it affects immunity from vaccine or past infection, or age-related risk. There is emerging

evidence that it may be associated with a higher case-fatality ratio, but this is still under investigation.

As knowledge of this variant emerged, extensive engagement by public Health Wales was undertaken and has continued with NHS Chairs and Chief Executives, local authority Chief Executives and senior policing colleagues (Strategic Co-ordinating Group chairs). This engagement took place alongside significant external communications, all aimed at sharing the emerging knowledge around the new variant.

As at 18 January 2021, 838 confirmed cases of this variant have been identified by whole genome sequencing in all areas of Wales, and monitoring of a proxy indicator for the variant has shown a rapid rise in the percentage of cases that are VOC202012/1. This is in line with findings in England and Scotland. As of 15 January 2021, this variant accounts for nearly 80% of cases in Betsi Cadwaladr University Health Board, around 50% in Cardiff and Vale, Aneurin Bevan and Cwm Taf Morgannwg University Health Boards, and around 30% in Swansea Bay and Hywel Dda University Health Boards.

Public Health Wales is actively looking for the new variant as part of its analysis. The team in the Public Health Wales Pathogen Genomics Unit (PenGU) is supporting the management of the virus in real time and the team has contributed significantly to the understanding of the genomic sequencing of COVID-19 at a Global level. Of note, in relation to genomic sequencing, 26,041 Welsh samples have been sequenced and submitted to the COVID-19 Genomics UK Consortium (COG-UK) to date. Approximately 23,500 of those are from Public Health Wales and approximately 2,500 are from COG-UK/Lighthouse Labs sequencing. This represents approximately 14.2% of all Welsh cases to date. England have sequenced approximately 5.3% of all cases and Scotland have sequenced approximately 8.9%. In addition, to date 19,676 Welsh SARS-Cov-2 genome sequences have been shared publicly, representing 10.7% of all Welsh cases. Only Australia and Denmark have sequenced and shared a larger proportion of cases than Wales worldwide.

Further variants have been identified in Wales including VOC202012/2, first found in South Africa, which contains changes to the virus that may affect immunity from past infection or vaccination. Recent control measures have been implemented in the UK to detect and contain this variant – returnees from countries with variants are required to self-isolate along with their households, and are tested following their return to identify imported cases. Investigations into the effects on immunity are ongoing.

We are providing extensive ongoing Health Protection advice to the Welsh Government and partners, in relation to the potential implications of the new variants.

2.6 Incidents and outbreaks

There were 168 new respiratory incidents recorded in the Tarian National Case and Incident Management System in week 01 2021 (week commencing 4 January 2021). This is an increase compared to the previous week. However, it is lower than the peak in week 51 of 2020. Of the 168 respiratory incidents, 109 were in residential homes, 8 were in school or nursery settings, 12 in hospital settings and 39 in other settings.

As at 09.00 hrs on 11 January 2021, provisional data indicates that there had been 1,735 respiratory/COVID-19 incidents in residential/care homes reported to Public Health Wales since the 1 March 2020 with 60% having one or more confirmed cases of SARS-COV2 linked to the incident in Tarian. There continue to be large numbers of incidents reported from residential homes.

Welsh Government policy and local implementation of testing strategies has changed over time, to reflect the course of the pandemic, and this could affect the number and trends in confirmed cases and incidents. Local incidents not recorded on Tarian are not included in these figures. The increased case incidence and resulting workload has meant that there is likely to be under-reporting of incidents and outbreaks to this system.

2.7 Mortality

As at 18 January 2021, there were sadly 4,302 deaths in confirmed cases reported to Public Health Wales through rapid mortality surveillance in hospitals and care homes.

The mean age of fatal cases reported through rapid mortality surveillance up to 13 January 2021 was 79.2 years (95% CI 78.9 – 79.6). The weekly number of deaths reported through rapid mortality surveillance has decreased in the most recent week, but remains higher than the peak seen during week ending 12 April 2020.

According to provisional death certificate data provided by the Office of National Statistics, there were 309 COVID-19 deaths in Welsh residents registered with COVID-19 mentioned on the death certificate during the week ending 01 January 2021. This is an increase compared to the previous week, however it is below the peak of 412 during the week ending 24 April 2020. Of the deaths registered during the week ending the 1 January 2021, 248 are reported as having occurred in hospital, 42 in care homes, 16 at home and 3 at another location. The number of all-cause deaths have increased above the 5-year average compared to the same week for previous years.

Further information including the latest available data can be found using the following [Public Health Wales Rapid COVID-19 surveillance link](#) (*publically available*).

**Please note that this information that is updated daily. As a result, the figures may differ to those included within this paper.*

The Public Health Wales Rapid COVID-19 surveillance dashboard continues to be developed. The dashboard provides details of new cases, tests, rapid deaths reporting, local authority reports, cases by Middle layer Super Output Areas (MSOA), indicators of symptom reports from primary care, and information on hospital-onset cases of COVID-19. The uptake of COVID-19 vaccinations and school surveillance have more recently been added.

3. Update since Christmas/ New Year Break

3.1 Current Situation in Wales

On the 14 December 2020, the Welsh Government published its *Coronavirus Control Plan: Alert Levels in Wales* which recognised Public Health Wales' role in helping to assess the risk level for different parts of Wales in relation to the pandemic. The Welsh Government announced further restrictions on the 4 and 11 December 2020 and a further national lockdown (level 4 restrictions) was introduced from the 20 December 2020.

On the 4 January 2021, the Welsh Government announced that schools, colleges and independent schools should move to online learning, and this was subsequently incorporated on the 8 January 2021 into the 21 day review process for restrictions (next review date being the 29 January 2021).

The COVID-19 vaccination programme started on Tuesday 8 December 2020 in Wales and across the UK using the Pfizer BioNTech COVID-19 vaccine. The Oxford AstraZeneca vaccine was first used in the programme in Wales from Monday 4 January 2021.

Public Health Wales provided specialist advice to the Welsh Government during this period and continues to do so.

In the immediate initial couple of weeks following the move to introduce Level 4 restrictions in Wales, there was a noticeable reduction in the numbers of individuals that were tested in Wales. This made the interpretation of the key indicators such as the 7-day rolling incidence and percentage test positivity more challenging. However, there was a clear upward trend in the rates in local authorities in eastern part of North Wales. The emerging data in the current week is suggestive of a declining incidence but the rates are still very high compared to the early October 2020 (pre-firebreak) period.

The issue of emerging variant of concerns (VOC) both within UK and those introduced from abroad is a key new development that needs very close surveillance and monitoring. Impacts of these VOCs are still emerging with

early indications of increasing proportions of VOC1 and that becoming the dominant circulating strain in Wales. The prevalence of these is higher in North Wales compared to South Wales. So far, there is no evidence of increasing re-infections with VOCs.

The roll-out of COVID vaccination is another major development in the last month. The rapid vaccination of large proportions of our population within the eligible priority groups is anticipated to reduce mortality from COVID. However, with emerging variants the effectiveness of vaccines on those variants will need to be kept under surveillance. It is not yet known if the vaccine prevents viral transmission between vaccinated and susceptible individuals. Therefore, current control measures including the Non-Pharmaceutical Interventions (NPIs) will need to be maintained for many months.

3.2 Organisational Response: Background

Public Health Wales has been supporting Welsh Government's *Test Trace Protect (TTP) Strategy* since it was published in May 2020. The role and responsibility of Public Health Wales are described within the Strategy as:

'Providing leadership and specialist advice on public health approaches. Responsible for coordinating contact tracing, advising on sampling and testing, laboratory analysis of tests, health surveillance and providing expert health protection advice and analysis of the spread of the virus in our communities through a range of health surveillance indicators'.

Previous evidence submissions to the Health Social Care and Sports Committee have described how we have delivered a range of services, products and advice in response to the pandemic. These have included:

- Repurposing and refocusing our organisation to become a focused COVID-19 response workforce. Seven consultants have stepped out of their usual roles to become health protection COVID-19 response single disease specialists, working alongside the usual staff establishment. In addition we have mobilised and trained over 600 staff during the past 12 months to support our response. We currently have 100 mobilised staff working as part of the National Contact Centre and National Health Protection Response Cell. We have restructured the health protection response team work patterns, to ensure a more robust and sustainable response. This included adjustments to the National Contact Centre model.
- Establishing functional cells to manage specific and immediate response requirements.

We issued a revised TTP Operating Framework to partners on the 9 December 2020. This provided added clarity on the respective roles and responsibilities of Public Health Wales and of partner bodies at regional

and local levels. This has provided clarity to the system and the implementation will ease pressure on Public Health Wales' staff, all of whom continue to provide expert support to the system in the face of daily increases in demand across the whole of the country.

3.3 Organisational Response: Update

In early November 2020, we published our Stage 3 Operational Plan for the organisation. The exceptional nature of our response to COVID-19 has required us to fundamentally assess the delivery of our previously agreed plans. It has challenged us to consider not only the immediate action we need to undertake to respond to the current pandemic, but also the longer-term direct and indirect public health implications on the people of Wales. We have had to consider other key strategic drivers that will impact on the public's health in Wales, such as the United Kingdom's exit from the European Union at the end of 2020. In doing so, we have been guided by our long-term strategy: *Working to Achieve a Healthier Future for Wales*, and the work we commenced pre-pandemic to agree a small number of key public health outcomes to drive the future work of Public Health Wales.

Our Operational Plan is focused on maintaining the primacy of our ongoing health protection response, while undertaking clearly defined key public health activity within a small number of areas. An ability to meet any potential surge, is also embedded within this plan. The delivery of our other priority areas is therefore subject to change, as we continue to dynamically meet the needs of our ongoing response through the various phases of the pandemic. The Operational Plan covers a period of 18 months.

As at 13 January 2021, Public Health Wales continues to operate at a sustained 'enhanced' response level as set out within our Emergency Response Plan. Regular progress reports on the implementation of the Plan are reviewed by the Public Health Wales Gold Group, the Executive Team and the Board. As previously reported to the Committee, the Public Health Wales' Board and Committees continue to operate within Welsh Government guidelines and in line with the All-Wales Governance Principles, with some approved variations to Standing Orders. From March 2020, the Board has operated remotely and has met virtually with increased frequency. The Board recommenced live streaming its meetings in July 2020.

The protracted nature of the pandemic with the continued disease progression across Wales, and the level of reliance by the wider system on our health protection resource, have required us to progressively mobilise substantial numbers of our staff from across all directorates, functions and activities which has had a significant impact on the well-being of our staff. This is impacting on our ability to deliver (reactivate) non-COVID-19 related activities and certain statutory duties in whole or in part. We have undertaken a detailed analysis of non-COVID-19 related activities and services in order to identify which of those we are able to maintain after

having fulfilled our primary priority in securing sufficient resource to sustain our health protection (including population surveillance) response for Wales.

Given the continuing need to prioritise the health protection response, the organisation has committed to reactivating a limited number of our non-COVID-19 public health-related services and functions.

Five screening services were suspended in March 2020, as previously reported to the Committee. We were able to maintain three national screening programmes and want to pay tribute to all the staff associated with doing so. We have worked closely with the Welsh Government and key stakeholders in relation to the reactivation of these programmes, and they remain the only protected service that we have been able to continue to reactivate in full. Considering the current transmission of COVID-19, and the understandable pressures on NHS services, we are undertaking weekly business continuity reviews in relation to the ongoing delivery of all of these programmes. Our commitment is to continue to deliver all programmes. However, we have business continuity plan arrangements in place to address the risk that one or more may need to be suspended again as a result of wider NHS pressures. We will continue to monitor this with the Welsh Government, and the wider NHS.

Public Health Wales continues to maintain significant engagement with Ministers and officials in relation to all aspects of COVID-19.

Some examples of support to the Welsh Government include:

- Specialist advice on specific phases of the pandemic, immunisations, infection prevention control and personal protective equipment, including supplementary guidance for health care and social care professionals, sampling and testing, surveillance and national and local public health interventions
- Advice to inform and consider international learning from COVID-19 and the broader indirect harm that is impacting on population health and well-being and the socio-economic impacts across Wales.

Throughout the pandemic, as part of our statutory health protection role, Public Health Wales has provided specialist advice and support to a wide variety of other partners and response structures, including NHS Wales, local authorities, emergency services, the Criminal Justice system, education, social care and voluntary services.

3.4 European Union (EU) Transition

During December 2020, in line with the UK Common Frameworks process, Public Health Wales worked with Welsh Government officials on the final phases of developing a four Nation Non-Legislative Framework (NLF) for Health Protection/Health Security (following a Cabinet Office Review and Assessment panel). The final draft of the NLF received Ministerial

agreement to proceed to Joint Ministerial Committee scrutiny and approval. An accompanying Concordat has also been drafted. Full scrutiny of the Concordat will be conducted in early 2021. Public Health Wales will continue to chair the four Nation Health Protection Group (involving senior officials from all four devolved governments and public health agencies), undertaking this work.

Public Health Wales has provided system leadership for the 'health security' aspects of the EU Transition in Wales.

The agreed UK-EU Trade and Co-operation Agreement of the 24 December 2020, came into force on the 1 January 2021.

In relation to Health Security, the agreement:

- Supports effective arrangements and information sharing between the UK and the EU in the event of a serious cross border threat to health, which is particularly important in the context of COVID-19. The agreement enables the UK to request access to the EU's Early Warning and Response System in respect of a serious cross-border health threat so that the UK, the EU institutions and EU Member States can exchange information and coordinate measures to protect public health
- Provides that the EU may invite the UK to participate in the EU Health Security Committee to support the exchange of information and facilitate coordination in relation to specific serious cross-border threats to health. It also makes provision for cooperation on scientific and technical matters between the UK and the European Centre for Disease Prevention and Control (ECDC), including by concluding an MoU similar to those that the ECDC has with other third countries such as Canada

An immediate request for continued access to Early Warning and Response System of the European Union (EWRS) for COVID-19 from 1 January 2021 was made and granted.

There will be further scrutiny of the detail of the Agreement in relation to health and social care (including health security) during January 2021.

3.5 Communications

Public Health Wales has undertaken extensive communications and engagement activity from the outset of the pandemic and continues to do so. We have advised on behavioural insights and evaluation and have proactively disseminated key information to support the Welsh Government's strategy through stakeholder networks, social media and traditional media.

At the same time, the Public Health Wales Communications Team have played a critical role in leading and coordinating communications in support of the outbreaks and clusters which emerged following the easing of

restrictions in the summer of 2020. We have executed this work in line with the *All Wales Communicable Disease Control Plan* and have undertaken workshops across the four Local Resilience Forum Media Cells to ensure each of the *Test Trace Protect* areas has a clear understanding of roles and responsibilities in the context of outbreak control. As part of this we have facilitated increased capability at regional levels enabling local teams to take up communications leadership on local outbreaks.

Since September 2020, we have worked in close collaboration with colleagues in the Welsh Government and UK Government on the planning and delivery of communications in support of the COVID-19 Vaccination rollout. The Public Health Wales communications objectives for this are to:

- encourage uptake of the COVID-19 vaccine amongst eligible groups at the right time
- increase public confidence in the safety of COVID-19 vaccines by helping stakeholders and the public understand the science
- provide health and social care staff with timely, relevant and accurate messages, information and tools that can be used in local channels to support vaccine roll-out
- communicate the role that Public Health Wales plays in supporting the vaccine rollout.

In December 2020, in preparation for the COVID-19 vaccination rollout we launched a dedicated microsite for the public and for health care professionals to provide up to date information about the vaccine.

During 2021, the risk communications work will focus on supporting the health protection response to coronavirus through:

- applying behavioural science and evaluation to help shape the messaging for all aspects of risk communication
- working in collaboration with others to develop and deliver timely and effective communications to support uptake of the vaccine
- continuing to deliver communications that encourage adherence to public health interventions, helping the public understand their role in protecting themselves and others from the virus
- continuing to provide communications leadership to the national Incident Management Team
- maximising reach and engagement through the use of a range of channels, including digital channels and through our stakeholder engagement network to reach a wide range of groups and communities.

We established a dedicated COVID-19 website, which is designed to carry up-to-date public messages, as well as guidance for health and social care workers.

In April 2020, Public Health Wales launched a wellbeing campaign to help mitigate the negative impacts of COVID-19 on people in Wales. Our '*How Are You Doing?*' campaign was developed with expertise from our behavioural science unit and was designed to provide evidence-based support and advice to address mental, physical and social wellbeing. This campaign was run again for a six-week period from the onset of the 'fire-break' in Wales (October 2020) with a particular emphasis on mental health.

4 COVID 19 and Flu Vaccination

4.1 COVID-19 vaccination programme

The long term response to the COVID-19 pandemic requires a safe and effective vaccine to be available for all who need it. Rapid progress has been made in research of a large number of candidate COVID-19 vaccines and preparations for manufacture, with over 200 COVID-19 vaccine candidates against the SARS-CoV-2 virus to date, of which around 60 have entered clinical trials. Wales has participated in this research, providing leadership for the part of the Oxford AstraZeneca COVID-19 vaccine phase III trial based in Wales.

The UK Government have announced the advanced purchase of seven different vaccines, utilising four different COVID-19 vaccine technologies, totalling over 350 million doses. The early vaccines now in use are the Pfizer BioNTech and Oxford AstraZeneca vaccines. The UK has ordered 40 million doses of the Pfizer vaccine, and 100 million doses from AstraZeneca, with Wales receiving a 5% share.

The Pfizer and AstraZeneca vaccines in trials showed around 90% and 70% vaccine efficacy (VE) respectively after one dose short term and 95% and 70% longer term protection after two doses in preventing symptomatic COVID-19 disease, including in older individuals, although these figures are not directly comparable due to differences between the trials. Data suggest both vaccines prevent almost all cases of severe disease in those not fully protected against infection. We do not know if any vaccine prevents asymptomatic infection or transmission, so we cannot currently relax existing control measures for individuals or localities.

The Medicines and Healthcare products Regulatory Agency (MHRA) granted the Pfizer BioNTech COVID-19 vaccine authorisation based on evidence of safety and effectiveness on 2 December for two doses at least 3 weeks apart and to the COVID-19 Vaccine AstraZeneca for two doses 4-12 weeks apart on 30 December 2020.

Public Health Wales has been involved in leading the national planning for COVID-19 vaccine programme delivery in Wales since May 2020. Planning has been exceptionally challenging for the NHS in Wales due to the emerging nature of data on vaccine characteristics and of developing

understanding of which individuals are most at risk of severe COVID-19 infection.

The COVID-19 vaccination programme launched on Tuesday 8 December 2020 in Wales and across the UK using the Pfizer BioNTech COVID-19 vaccine, the first COVID-19 vaccine to be authorised by a regulator based on full phase III trial efficacy and safety data anywhere in the world. The Oxford AstraZeneca vaccine is now also authorised for use and has been in use in the programme from Monday 4 January 2021. Over 175,816 individuals had received one dose of vaccine by 19 January 2021.

The programme is large scale and ambitious, aiming eventually to offer COVID-19 vaccine to every person aged 16 and over in Wales. The Welsh Government has announced its intention to vaccinate all priority groups by the Spring, and priority groups 1 to 4 down to 70 years of age by mid-February.

One dose of both vaccine gives very high levels of short-term protection, the Pfizer vaccine VE 89% and AstraZeneca VE 73% from 2-3 weeks after the first dose. Therefore, the second dose of both vaccines is recommended by UK Chief Medical Officers to be scheduled up to a 12 week period after the first, based on the Joint Committee on Vaccination and Immunisation (JCVI) advice. This will allow many more people to be protected by the first dose, and will prevent thousands more deaths. Deployment prioritisation follows advice from the JCVI set out in the 'Green Book' (table below).

Table: JCVI priority groups

Priority group	Risk group
1	Residents in a care home for older adults Staff working in care homes for older adults
2	All those 80 years of age and over Frontline Health and social care workers
3	All those 75 years of age and over
4	All those 70 years of age and over Clinically extremely vulnerable individuals (not including pregnant women and those under 16 years of age)
5	All those 65 years of age and over
6	Adults aged 16 to 65 years in an at-risk group (Table 3)
7	All those 60 years of age and over
8	All those 55 years of age and over
9	All those 50 years of age and over

Source: Green Book Chapter 14a, 31/12/2020

Because of the handling characteristics of the Pfizer vaccine, which needs to be stored at -75C and transported on dry ice, use in community settings outside mass vaccination centres is challenging. With the availability of the AstraZeneca vaccine which is more suitable for use in of primary care, the programme will now be able to quickly reach those older individuals age 70 and over and those in clinically extremely vulnerable groups under 70 years

of age in community primary care settings, and care homes. These are the individuals in JCVI priority groups 1 to 4.

The programme will then deploy step wise down the age range, and include those under 70 years and under 65 in at risk groups, then down to those age 50 and over to complete the first priority phase of the roll out with one dose of vaccine as quickly as possible. Second doses will be routinely scheduled at 11 weeks.

Public Health Wales has supported the programme by providing leadership, expertise and advice to the Welsh Government's programme board and work streams, information resources for health and social care workforce, surveillance, training and a Patient Group Direction (PGD) through the Vaccine Preventable Disease Programme (VPDP) and the Communications Team providing communication, marketing and publications elements. The Observatory Evidence Service also produced rapid reviews of evidence on mass vaccination programmes. Finance colleagues have supported with budget and financial planning. The NHS Wales Informatics Service has developed the Welsh Immunisation System (WIS) for invitation and data management with our input.

Surveillance reporting of vaccine uptake, programme outputs and dashboards have been developed and delivered by Public Health Wales' Vaccine Preventable Disease Programme (VPDP) and the Communicable Disease Surveillance Centre. Daily sit reps are provided to programme leads, which include vaccination safety outcomes. Surveillance information is now published weekly (each Thursday) as a tab on the PHW COVID-19 dashboard

<https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/RapidCOVID-19virology-Public/Headlinesummary>

A microsite has also been developed to share key messages with the public and includes an area for professionals involved in vaccination who are not employed by the NHS and cannot access the VPDP intranet page for resources <https://phw.nhs.wales/topics/immunisation-and-vaccines/covid-19-vaccination-information/>

The team in VPDP have produced public and professional information, surveillance reports and dashboards, training materials and guidance, and regulatory template documents including Patient Group Directions (PGDs) for health boards and trusts to use in time for vaccine launch.

The responsibility for the administration and logistics for the vaccination of the population sits with health boards. With a programme of such scale, there are significant operational challenges in expanding recruitment and venues and the involvement of primary care will now rapidly increase the capacity to deliver the vaccine across Wales.

Within Public Health Wales, frontline staff in microbiology, screening, and health protection will be vaccinated in priority group 2 by the local health board where they work. In addition, from the week commencing 18 January 2021, our own vaccinators have begun to vaccinate our front line staff. Our office based staff do not fall into the JCVI priority group 2 as frontline healthcare staff, and will be vaccinated according to their age or risk group, or if under 50 years with no risk condition with other essential service staff after the roll out to priority at risk groups is complete.

4.1.1 Surveillance of COVID-19 vaccination in Wales

Public Health Wales is responsible for the surveillance of COVID-19 vaccination uptake which is carried out by a specialist team working in the Vaccine Preventable Disease Programme and Communicable Disease Surveillance Centre. Routine surveillance focuses on the uptake of COVID-19 vaccination in the Welsh population and includes figures specific to the recommended priority groups. Routine surveillance will also encompass the surveillance of equity of uptake by age, sex, geography and level of socio-economic deprivation.

National figures are published on a daily basis through the Public Health Wales COVID-19 rapid surveillance dashboard, in line with Welsh Government requirements, with data for priority groups included as they become prioritised for vaccination, which from Thursday 21 January will include care home residents, care home staff, those age 80 and over and health care workers. More detailed breakdowns at health board level are made publicly available on a weekly basis on the dashboard. Routine surveillance also provides rapid information for action for vaccination managers and vaccinators in the NHS through a series of interactive reports on the NHS Wales intranet.

Public Health Wales is developing a number of enhanced surveillance activities within Wales to estimate and monitor vaccine effectiveness and vaccination uptake equity, working closely with colleagues in the Secure Anonymised Information Linkage (SAIL) system in Swansea University and the NHS Wales Informatics Service. Specialists in respiratory infection and vaccine surveillance, epidemiology and virology are also contributing to UK and European level studies in these areas.

4.2 Flu vaccination

Wales has achieved the highest flu vaccine uptake ever in 2020-21, with over 1 million adults and children having now received a flu vaccine this winter.

The flu vaccination programme this year is the largest ever. The Welsh Government procured over 400,000 additional flu vaccines, and extended eligibility to everyone aged 50-64 years from the 1 December 2020.

In those aged 65 and over, flu vaccine uptake is 75.8%, compared to 68.3% at the end of season last year, and 49% in those under 65 at clinical risk - also higher than at the end of the 2019-20 season. The uptake of influenza immunisation in children aged 2 and 3 years old has also increased from 42.6% to 54.9%, and in primary school aged children from 68.3% to 71% (this is compared to the same time period last year).

At the end of November 2020, flu vaccine in NHS Wales staff with direct contact was 60.8%, compared to 50.5% at the same period in the previous season.

5 Testing

5.1 Background

Since the outset of the pandemic, Public Health Wales has been building capacity for COVID-19 testing in Wales and supporting the capacity building for sampling centres (where the swab is taken). The scope of Public Health Wales' sampling and testing work to date has included:

- supporting health boards to increase sampling capacity for antigen and antibody testing across NHS Wales to meet the requirements of the Welsh Government's testing plan
- increasing the testing capacity in Public Health Wales laboratories and accessing additional capacity from across the UK
- working with the Welsh Government and health boards (managing sampling centres) to create a simple end-to-end referral and results process for Wales
- working with the Welsh Government, health boards and Local Resilience Forum (LRF) partners to help them to maximise the sampling capacity in Coronavirus Testing Units, Population Sampling Centres and Mobile Testing Units and any additional capacity that may be required.

There is now a mixed-model for sampling that includes health board-run Coronavirus Testing Units (CTUs), Population Sampling Centres (PSCs), commonly referred to as 'drive-throughs' and mobile testing units (MTUs). Mobile Testing Units transferred from the military at the end of August 2020 to commercial providers. All of these units are supported by Department of Health and Social Care (DHSC) in England defined commercial providers. A further three units are stationed with the Welsh Ambulance Service NHS Trust (WAST), responding to outbreaks. Further additional capacity for sampling is being planned by the Welsh Government and DHSC.

5.2 Mass Testing

The initial priority for testing was to test symptomatic individuals to identify and isolate infected individuals and trace and isolate their contacts. With the current understanding of the role of asymptomatic infection, and the needs to balance COVID-19 controls against the potential for non-COVID

harms, a number of potential uses for Mass Testing of asymptomatic individuals have emerged:

- Case Ascertainment
- Safeguarding vulnerable populations and/or settings
- Maintenance of activity for contacts.

5.2.1 Case Ascertainment

Case ascertainment by the screening of asymptomatic individuals is a classic strategy in the management and control of outbreaks. For example, it is commonly employed in care home or hospital settings. Public Health Wales provides advice both locally for the management of COVID-19 incidents, but also nationally around the most effective deployment of testing strategies in the context of public health.

In the context of COVID-19, mass testing/screening of asymptomatic individuals has been used at various levels including:

- Whole Town/Area Testing: In November/December 2020, nearly 50,000 tests were performed in Merthyr Tydfil and Lower Cynon, with approximately 50% of the eligible population tested. This yielded an additional 1,135 cases who could be isolated and their contacts traced.
- Hospital Wide or Ward Based Testing: This is used to investigate episodes of high incidence.
- Whole Care Home Testing: This is currently deployed if a new case is identified in a care home.
- Prison or Prison-wing Testing: This has been deployed to support investigation and management of episodes of high incidence.
- Work Place Testing: This has been deployed where episodes of high incidence have been identified that may have been associated with work places.

The public health yield from screening asymptomatic individuals for case ascertainment, and thereby incident control, will depend on the prevalence of infection in the selected population, and the level of transmission in the population. Strategies that target populations with high prevalence and transmission are likely to be most successful.

5.2.2 Safeguarding vulnerable populations and/or setting

Closed settings such as care homes, hospitals, and prisons are vulnerable to the spread of COVID-19. Additionally, settings such as care homes and Hospitals have individuals who are particularly vulnerable to the effects of COVID-19.

Regular mass testing of staff working in vulnerable settings aims to reduce the chance of an asymptomatic infected/infectious staff member might introduce infection into the setting. Modelling suggests that weekly testing with PCR or twice weekly testing with Lateral Flow Devices can reduced the risk of transmission by 50%. Currently, this approach is being used in hospitals, care homes, and prisons in Wales.

5.2.3 Maintenance of activity for contacts

On average, 10% of contacts develop COVID-19. Currently, contacts of infected individuals are required to self-isolate for 10 days. While this strategy should effectively remove potentially infected/infectious contacts from mixing and potentially transmitting infection, it has a number of potentially negative impacts, causing workforce pressures, economic pressures, and concern that large numbers of children miss out on face-to-face teaching.

Daily testing for the 5-7 days from identification as a contact can potentially allow contacts to safely continue at work or education. This approach is being trialed in workplaces in Wales (e.g. TATA Steel, South West Police), and is being evaluated for use in education.

5.3 Testing Capacity

Since the start of the pandemic, Public Health Wales' microbiology service has built on its system leadership responsibilities and, together with the Welsh Government, has sought to procure both platforms and reagents on behalf of all medical microbiology services in Wales. This was undertaken to ensure that we have sufficient provision across Wales in order to meet the testing capacity needs throughout the pandemic. The intention has been to have centralised platforms that can do large volumes of tests, at a given time, and then provide local capacity to support quicker turnaround times for results through medium-sized platforms and rapid antigen testing machines across Wales.

In May 2020, Public Health Wales submitted a business case to the Welsh Government to create additional laboratory space to undertake Antigen and Antibody testing. This was approved at the beginning of June 2020 and work progressed with Shared Services with a view to having the site at Imperial Park 5 (IP5) operational from the beginning of August 2020. Subsequently, in late June 2020, the Department for Health and Social Care (DHSC) approached the Welsh Government to house a UK Lighthouse Laboratory in South Wales. IP5 was identified as a possible site and, following visits from the DHSC and the Welsh Government, it was agreed that the Lighthouse Laboratory would go into the planned Public Health Wales (Lab1) site.

The Welsh Government confirmed that funding for Lab 1 would still be available for Public Health Wales to create its own laboratory for Wales (Lab 2). A second laboratory was identified within IP5 as a laboratory for Public

Health Wales. This laboratory became operational at the beginning of December 2020.

In August 2020, in response to a request from the Minister for Health and Social Services, a business case to increase laboratory capacity and turnaround times across Wales was submitted and approved. The proposal identified the requirement for:

- additional staff and equipment for Public Health Wales' regional laboratories based at University Hospital Wales (Cardiff), Morriston Hospital (Swansea) and Ysbyty Glan Clwyd (Rhyl) testing laboratories, so that they could operate 24 hours a day, seven days a week.
- the creation of six additional Hot Laboratories at hospitals across Wales, where rapid, under four hour, testing could take place to free up staff to work on COVID-19 testing. These laboratories would operate from 08.00 – 22.00 hours, seven days a week. These became operational on 30 November 2020.

To enable this to be staffed, up to 170 Whole Time Equivalent (WTE) new jobs have been created. Recruitment has been undertaken on a regional basis to enable maximum flexibility of appointments and enabling cross cover between the hot labs and the regional labs and providing additional resilience for testing within Wales. Additional benefits also include testing for a range of respiratory pathogens (including influenza).

At the present time, samples from Population Sampling Centres, Mobile Testing Units and the majority of care homes are being processed through Lighthouse Laboratories. To date, this has enabled the Public Health Wales capacity to be focussed on supporting in-hospital testing, Coronavirus Testing Units (to test key workers), along with supporting the testing for outbreaks in care homes and within communities.

There is also the need to embed resilience within the system to ensure that Wales continues to have access to sampling capacity if there are any unforeseen challenges with processing within the Lighthouse Laboratories. Public Health Wales continues to support the Welsh Government in further developing that sustainable solution for Wales which will optimally combine Welsh and UK Lighthouse Laboratory testing capacity.

The current daily available capacity the laboratories are capable of delivering is over 15,000. This has increased as a result of implementation of 24 hour working across the laboratories in Rhyl, Singleton and Cardiff, the opening of hot labs, and the operationalisation of IP-5 in Newport. Antibody testing was also originally planned from IP-5. The additional investment has resulted in the capacity outlined below:

Site	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21
Wrexham Maelor Hospital Lab	327	327	306	318	326
Glan Clwyd Regional Lab	1009	1655	1634	1646	1654
Ysbyty Bangor lab	327	327	306	318	326
Bronglias Hospital lab	12	292	306	318	96
Withybush General Hospital lab	152	152	236	248	186
Glan Gwili Hospital Lab	327	327	306	318	326
PPH	0	0	26	38	46
Morriston	0	0	26	38	46
Singleton Hospital Regional Lab	564	887	866	878	886
PoWH	0	0	26	38	46
PCH	0	0	26	38	46
Royal Glamorgan Hospital	292	292	306	318	414
Magden Park National Lab	2170	2170	1430	1430	1900
UHW Regional Lab	119	1619	1598	110	1618
IP5	0	0	0	7000	7000
UHL	12	12	26	38	59
Royal Gwent Hospital Lab	47	47	49	61	59
Neville Hall	0	0	0	0	0
Llanfrechfa Grange	0	768	794	806	319
Total	5,358	8,875	8,267	13,959	15,353

5.4 PCR Activity

Figure 1 (below) shows the weekly number of PCR tests that were analysed in NHS Wales laboratories and non-NHS Wales laboratories respectively. The weekly total is shown by the date of (first) authorisation for the test.

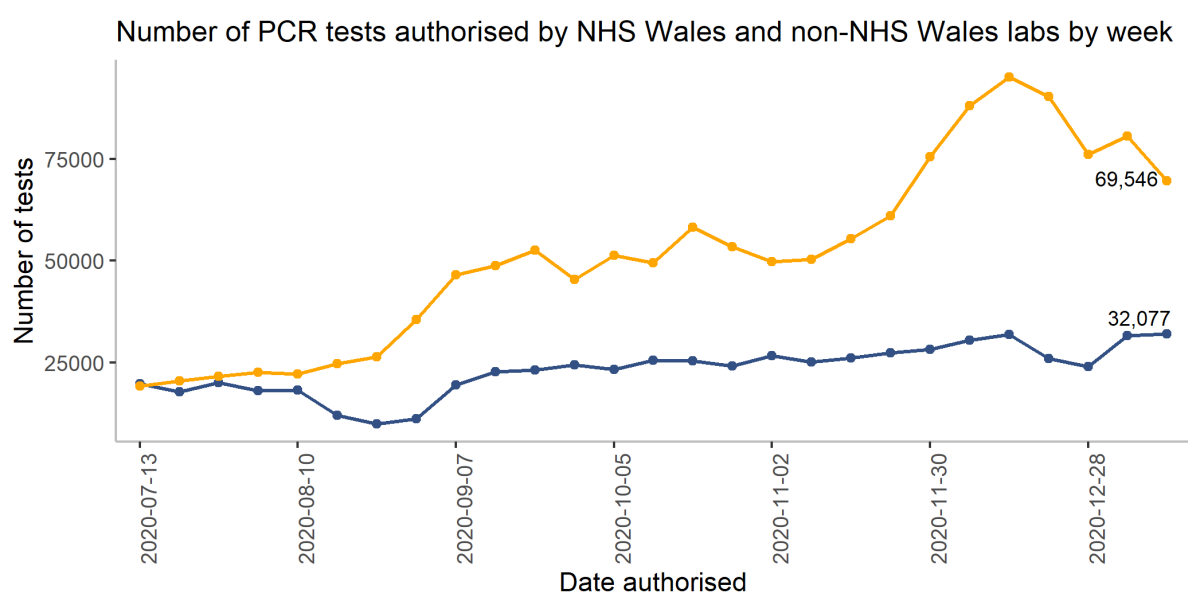


Figure 1

5.4.1 NHS Wales Laboratories

The table below shows the number of tests authorised in NHS Wales laboratories from 11 January to 17 January 2021.

Sampling site	Weekly total
NHS Wales lab - Community - Other testing	5547
NHS Wales lab - Community; Asymptomatic keyworker and resident screening	15111
NHS Wales lab – Hospital	10561
NHS Wales lab – Other	858
Total	32,077

Overall activity is broadly stable. However, there are more samples that are associated with asymptomatic keyworker and resident screening than recently. This increase is largely associated with an increase of sampling in the Betsi Cadwaladr region.

5.4.2 NHS Wales Laboratories: In-Laboratory Turnaround Times

There is an on-going programme of improvement to support the improvement in laboratory turnaround times. This is an extensive programme of improvement requiring improvement in logistics and flow of samples into the laboratories as well as improving processes within laboratories. The aim is for more than 95% of samples to have a turnaround time of 12 hours or less.

'In lab' turnaround time is calculated from when the specimen is received at a NHS Wales Laboratory and booked onto the Welsh Laboratory Information Management System (WLIMS), to when the result is first authorised.

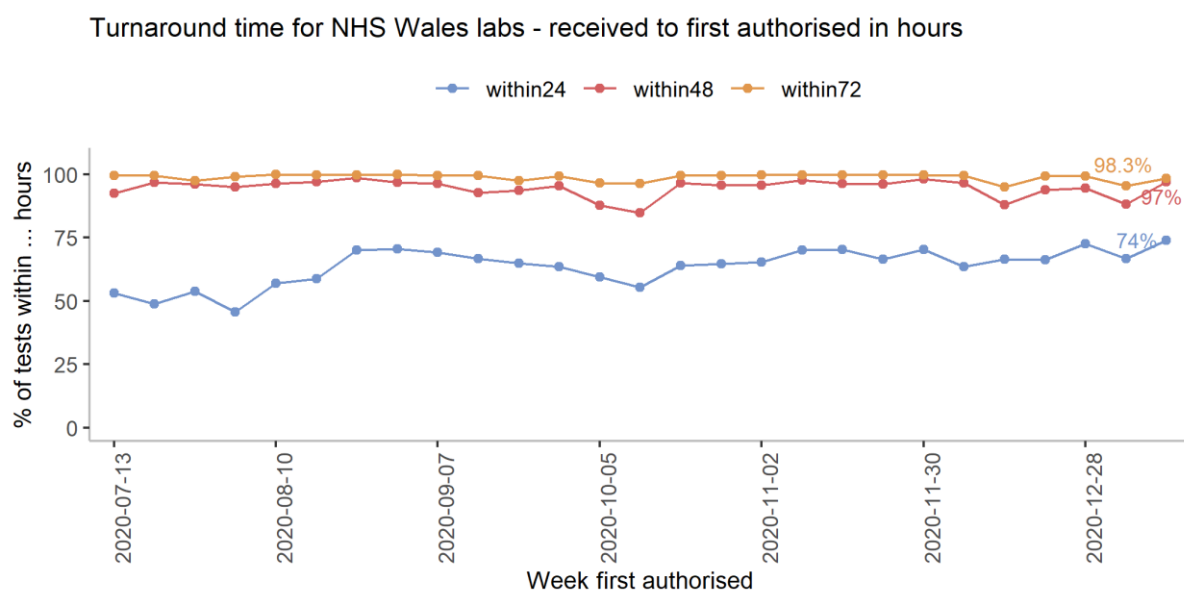


Figure 2

Looking at this by sampling pathway from 11 January to 17 January 2021:

Location	Number of tests	24 hours	48 hours	72 hours
NHS Wales lab - Community - Other testing	5,547	81%	98%	99%
NHS Wales lab - Community; Asymptomatic keyworker and resident screening	15,111	60%	95%	97%
NHS Wales lab - Hospital	10,561	91%	100%	100%
NHS Wales lab - Other	858	74%	91%	94%
Total	32,077	74%	97%	98%

5.4.3 NHS Wales Laboratories: Turnaround Times: Collection to First Authorised

'Collection to First Authorised' turnaround time is calculated from when the sample is collected from an individual to when the result is first authorised in the laboratory. It is representative of the end to end process.

Figure 3 shows the percentage of tests authorised within 24, 48 and 72 hours of specimen collection by week for NHS Wales laboratories across all sampling locations.

Turnaround time for NHS Wales labs - collection to first authorisation in hours

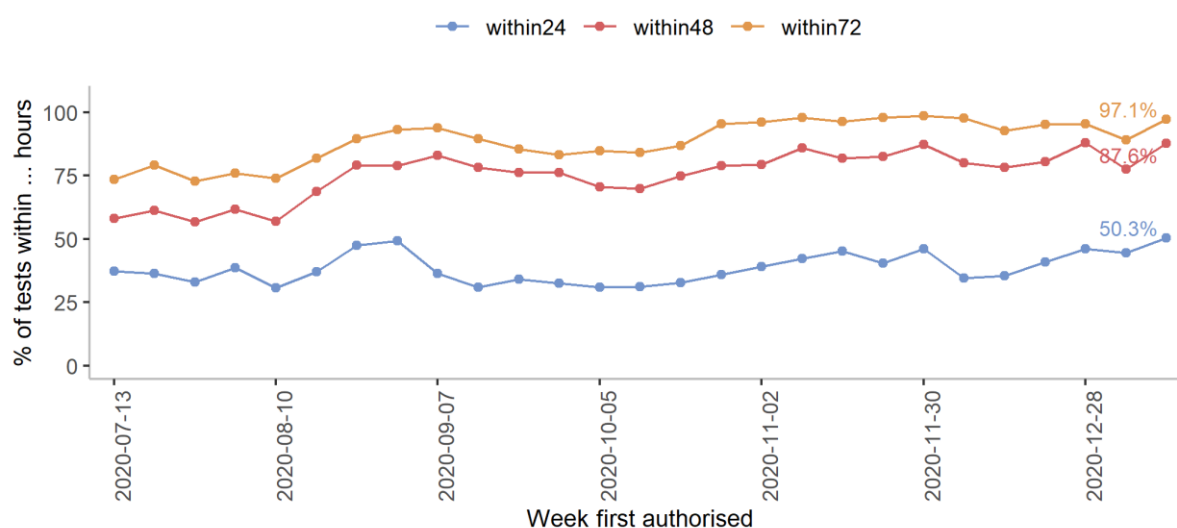


Figure 3

Looking at this by sampling pathway from 11 January to 17 January 2021:

Location	Number of tests	24 hours	48 hours	72 hours
NHS Wales lab - Community - Other testing	5,547	57%	96%	99%
NHS Wales lab - Community; Asymptomatic keyworker and resident screening	15,111	11%	66%	92%
NHS Wales lab - Hospital	10,561	70%	97%	100%
NHS Wales lab - Other	858	35%	77%	93%
Total	32,077	50%	88%	97%

5.5 Non-NHS Wales Labs

5.5.1 PCR Activity

The table below shows the number of tests authorised in Non-NHS Wales laboratories from 11 January to 17 January 2021.

Sampling site	Weekly total
Non-NHS Wales lab - Community	36359
Non-NHS Wales lab - Home delivery	8621
Non-NHS Wales lab - Organisation Portal	24566
Total	69546

There is a reduction in community testing that are authorised at non-NHS Wales laboratories from around 45,000 (week commencing 4 January 2021) to 36,000 (week commencing 11 January 2021)

The number of tests related to the Organisational Portal is broadly stable.

5.5.2 Turnaround Times: Collection to First Authorised

Collection to authorisation turnaround times (end-to-end) can only be calculated where the date time stamps for both specimen collection and

first authorisation are present within the data, as such this data is based on 98% of tests.

Figure 4 shows the median time from when the specimen is collected (i.e. the individual is swabbed) to when the result is authorised at a non-NHS Wales laboratory.

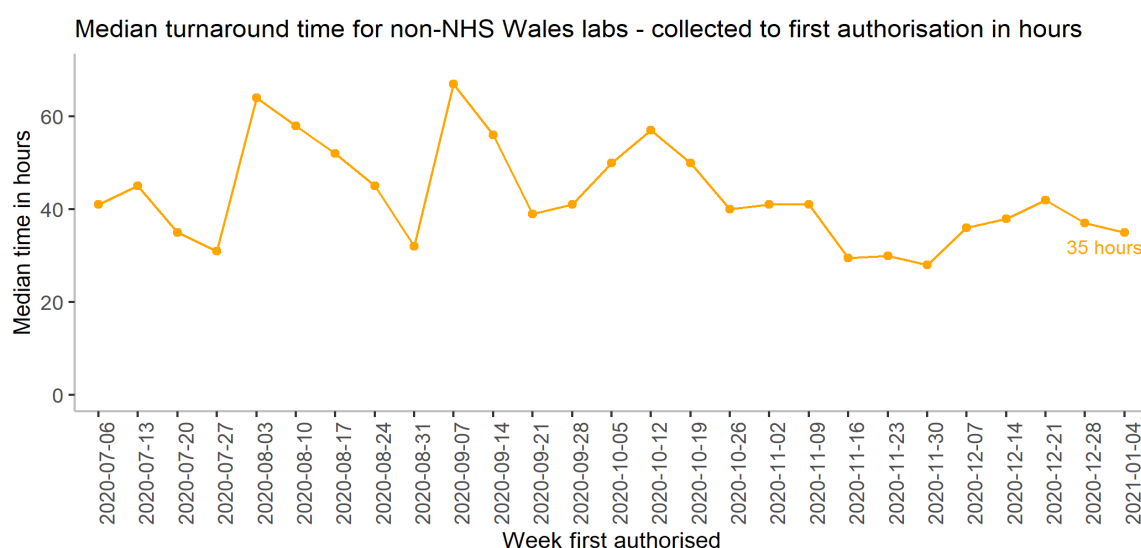


Figure 4

The overall turnaround time to date for non-NHS Wales (generally referred to as Lighthouse Laboratories) test results based on all tests (since testing commenced) is shown over time in Figure 5 and by referral mechanism in the table below.

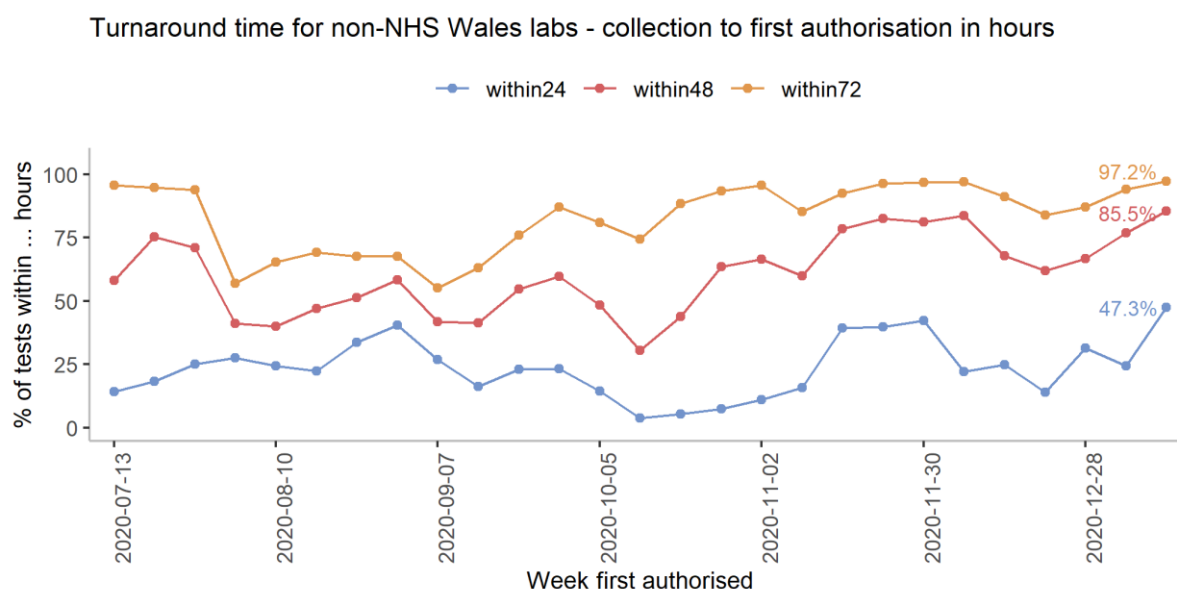


Figure 5

Looking at this by sampling pathway from 11 January to 17 January:

Location	Number of tests	24 hours	48 hours	72 hours
Non-NHS Wales lab - Community	36,359	87%	98%	100%
Non-NHS Wales lab - Home delivery	8,621	6%	58%	93%
Non-NHS Wales lab - Organisation Portal	24,566	2%	75%	95%
Total	69,546	47%	85%	97%

The proportion of community tests authorised within 24 hours has more than doubled since last week to 87%, which is primarily the reason for the improvement in the overall proportion of tests authorised in 24 hours of collection (47% from 24% for week commencing 4 January 2021)

5.6 Antibody testing

Due to the numbers of antibody test results being processed within NHS Wales decreasing significantly at the end 2020 Public Health Wales ceased provision of the antibody results communication service on the 23 December 2020.

5.7 Lateral Flow Devices

Lateral Flow Devices (LFDs) are commonly used to confirm the presence or absence of a target analyte, such as pathogens or biomarkers in humans or animals, or contaminants in water supplies, foodstuffs, or animal feeds. The most commonly known type of lateral flow rapid test strip is the pregnancy test.

The technology allows testing outside the laboratory, and can give a result in less than 30 minutes.

More than 100 LFDs have been developed for the detection of COVID-19 antigens or COVID-19 antibodies.

5.7.1 COVID-19 detection tests

The RT-PCR test that is used for laboratory testing for COVID-19 tests for the presence of viral RNA. The dynamics of viral RNA is now well understood, including the fact that residual RNA may be detected for weeks following initial infection.

The LFDs test for the presence of SARS-CoV-2 antigen. This is protein material from the virus. The dynamics of viral antigen is less well established, although it is likely that antigen will be cleared from the body more rapidly.

5.7.2 LFD Performance

Of 130 COVID-19 LFDs that were initially screened, 40 have undergone evaluation by the Department of Health and Social Care (DHSC) Technical Validation Group.

LFDs have lower sensitivity than the RT-PCR, which is dependent on the reason for testing and the circumstances for the test:

- Overall sensitivity for the Innova LFD is 66.5%. However if the test is being used to detect individuals with high viral load (i.e. a test for individuals likely to be more infectious) the sensitivity is more than 90%.
- When the Innova LFD test was delivered by trained laboratory professionals, the sensitivity was 79.2%, while it was only 57.5% when testing was performed by self-trained individuals.

Summary LFD performance from all of the available information suggests the specificity is very high (greater than 99.6%), and the sensitivity is in the range 40-70% overall, and over 90% for the detection of individuals with high viral load.

5.7.3 Current Uses of LFDs

Lateral flow devices have been used for mass population testing in Merthyr Tydfil and Lower Cynon. They are currently being used for three main purposes (as part of DHSC pilots/pathfinders):

- Regular staff testing (twice weekly) in healthcare and social care. There is potential for this to be extended to teachers +/- all school staff
- 'Serial Testing' – this is the testing of contacts daily for 7 days, and allowing them to continue at work/school as long as they have a negative daily test (instead of having to isolate for 10 days). This is being piloted/rolled-out to
 - TATA steel
 - South Wales Police
 - Schools
- Testing to support safe visits to care homes

5.7.4 Approval by Medicines and Healthcare Products Regulation Agency (MHRA)

There are several lateral flow device products which have undergone, or are in the process of undergoing, independent validation under the UK Testing Programme. These lateral flow devices are CE certified, however some of the uses envisaged by community testing may be outside the manufacturer's instruction for use (IFU), for example self-swabbing and asymptomatic use. There is ongoing dialogue between DHSC and MHRA about these uses to seek guidance and endorsement.

6 Population Health

While our focus will continue to be on ensuring the delivery of an effective response to COVID-19, we also recognise the need to consider the wider population health implications for the people of Wales. It is critical that we are able to understand fully the broader impacts (both positive and negative) of COVID-19, including on vulnerable groups in relation to health

inequalities and the specific consequences of actions to control transmission.

We have made additional money available through refocused internal budgetary decisions to support this work. A commissioning model has primarily been deployed to identify additional resources, so that our staff are not removed from the health protection response.

Our population health focused work includes a COVID-19 recovery dashboard, a range of health impact assessments with a specific emphasis on the impact of COVID-19 on employment, mental health and well-being and vulnerable groups. The immediate priority areas include: the consequences of unemployment on health; vulnerabilities in the population related to pre-existing inequalities and those exposed by COVID-19 and mental health consequences with a particular initial focus on younger people. This knowledge needs to underpin joint multi-disciplinary cross-sector efforts to prevent future harms to health, aid recovery and contribute to a continued improvement in health and reduction in inequalities. We would be very happy to discuss the significant impact of COVID-19 on the broader population harms in more detail with the Committee at a future evidence session if deemed helpful.

Our fortnightly public engagement surveys continue, as do our international comparisons of approaches to COVID-19 restrictions. This work feeds into the Welsh Government technical advisory cells to form part of the wider evidence and knowledge base.

In October 2020, a Memorandum of Understanding (MOU) between the Welsh Government and the World Health Organization (WHO) was signed which was supported by the Public Health Wales WHO Collaborating Centre team. The MOU sets out a common agreement of the need for investment in health and well-being, the essential conditions for achieving the highest possible level of health, sustainable development and prosperity for all people in Wales. This also includes identifying and overcoming the common challenges facing society prior to and after the effects of COVID-19. The development of this MOU is a world first. Our strong relationships with WHO mean we are already working jointly with them, and through them with other countries, to understand the most effective and equitable ways forward for health and well-being following the pandemic.