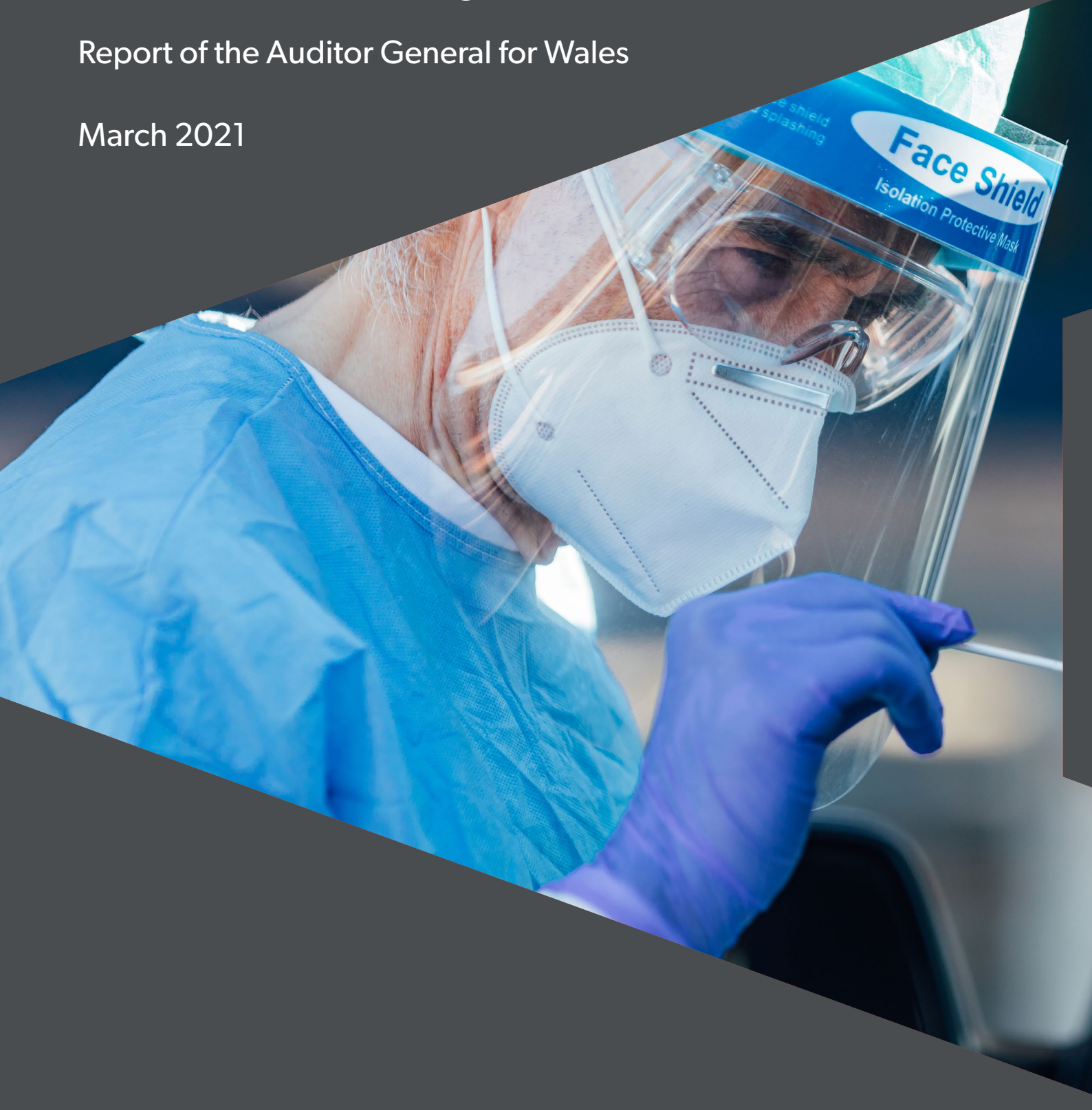# Archwilio Cymru
Audit Wales

Test, Trace, Protect in Wales:
An Overview of Progress to Date

Report of the Auditor General for Wales

March 2021

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Introduction

1   Test, Trace, Protect (TTP) is a crucial part of the Welsh Government's approach to limiting the spread of COVID-19 and reducing the need for restrictions on people's lives. The TTP programme was developed rapidly from scratch through the partnership arrangements put in place when the pandemic first hit in March 2020 and forms part of the wider response to the virus, set out in the Welsh Government's **Coronavirus Control Plan for Wales**.

2   The Welsh Government's **Test, Trace, Protect** strategy sets out the key elements of the programme which comprise:

- identifying and testing people who may have COVID-19;

- tracing people who have been in close contact with someone who has tested positive for COVID-19; and

- providing advice and guidance to protect the public and supporting people to self-isolate where necessary.

3   **Exhibit 1** provides further information on how TTP works in Wales.

Exhibit 1 – how TTP works in Wales

The Welsh Government sets the priorities and provides funding and oversight of TTP with advice from Public Health Wales NHS Trust (PHW)

Test

- Health boards and local authorities work with partners to provide testing facilities where swabs are taken and then sent for analysis.

- Welsh NHS (PHW) labs analyse some of the tests. Some are analysed by private labs known collectively as the UK Lighthouse Labs. The Lighthouse Labs are managed by a partnership led by the UK Government[1].

Trace
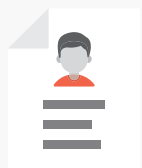
- Where relevant[2], the details of people who tested positive for COVID-19 are sent to local contact tracing teams in the area where they live. Teams are coordinated regionally by health boards and local authorities.

- Contact tracing teams speak to people who tested positive to identify anyone they may have infected.

- Contact tracing teams try to reach anyone who came into contact with the person who tested positive. They advise people who have symptoms to get tested and self-isolate. They send regular text messages to contacts without symptoms to see if they have developed symptoms.

Protect

- Contact tracing teams ask people whether they need help to self-isolate and pass their details onto local authority teams.

- Local authority teams and the third sector support people who need help to self-isolate.

Source: Audit Wales

1   The partnership includes Medicines Discovery Catapult (a UK Government funded organisation), the UK Biocentre, the University of Glasgow, the University of Cambridge, and private companies: AstraZeneca, GSK, and PerkinElmer.

2   There are people whose details do not go to contact tracing teams, for instance people in care homes, prisons, or hospitals.

About this report

4   This report sets out the main findings from the Auditor General's review of how public services are responding to the challenges of delivering TTP services in Wales. It is a high-level overview of what has been, and continues to be, a rapidly evolving programme. The evidence base for our commentary comes from document reviews, interviews with staff in health boards, local authorities, NHS Wales Informatics Service (NWIS), Public Health Wales (PHW) and the Welsh Government between September and December 2020, and analysis of key metrics that show how well the TTP programme has been performing. As well as commenting on the delivery of TTP up to and including December 2020, the report sets out some key challenges and opportunities that will present themselves as part of the ongoing battle to control COVID-19.

Key messages

5   The TTP programme has seen different parts of the Welsh public and third sector work together well, in strong and effective partnerships, to rapidly build a programme of activities that is making an important contribution to the management of COVID-19 in Wales.

6   The configuration of the TTP system in Wales has a number of strengths, blending national oversight and technical expertise with local and regional ownership of the programme, and the ability to use local intelligence and knowledge to shape responses.

7   Arrangements for testing and contact tracing have evolved as the pandemic has progressed. But maintaining the required performance in these areas has proved challenging in the face of increasing demand.

8   TTP is a crucial part of the Welsh Government's approach but has not been the only way it is trying to prevent the virus spreading. Despite increased testing and tracing activity, the virus has continued to spread. In Wales, as in other parts of the UK and internationally, testing and tracing has needed to be supplemented with increasingly stringent local and national lockdown restrictions in an attempt to reduce transmission rates.

9   Lockdowns have only provided temporary solutions to controlling transmission and regardless of progress with vaccines, the TTP programme will remain a key tool in Wales's battle with the virus for some time to come.

10   Testing volumes increased significantly in response to increasing incidence of COVID-19, and results have generally been turned around quickly. The tracing workforce has expanded rapidly. But when demand has risen across regions at the same time, there has been insufficient contact tracing capacity to meet the increased demand.

11   Most importantly of all, the public has a huge role to stop the virus spreading by following guidance and self-isolating when necessary. There is now good information to show the breadth and range of services and support adopted across Wales during the pandemic. But it remains difficult to know how well the 'protect' element of TTP has been working in supporting people to self-isolate. This will become increasingly important as 'lockdown fatigue' sets in with its associated challenges for emotional, physical and economic well-being.

12   These key messages are explored further in the following sections.

"

Wales has developed a Test, Trace, Protect service largely from scratch and at unprecedented scale and pace.

It has been particularly encouraging to see how well public sector partners have worked together at a national, regional, and local level to combine specialist expertise with local knowledge, and an ability to rapidly learn and adjust the programme as we've gone through the pandemic. It's important that the positive learning is captured and applied more widely.

There have been times when the Test, Trace, Protect service has been stretched to the limit, but it has responded well to these challenges. The programme needs to continue to evolve, alongside the rollout of vaccines, to ensure it remains focused on reaching positive cases and their contacts, and supporting people to self-isolate to keep the virus in check. "

Adrian Crompton
Auditor General for Wales

Main findings

01

How well are various agencies working together to deliver TTP in Wales?

1.1   The various organisations involved in delivering TTP in Wales have worked incredibly hard, in strong and effective partnerships, at a rapid pace and together have established a range of activities that have been making important contributions to the management of COVID-19 in Wales.

1.2   The scale of the challenge has been significant. With the exception of localised arrangements that have been previously enacted to respond to public health outbreaks, TTP arrangements were non-existent prior to the pandemic. The following exhibit provides an indication of the scale of the TTP programme during the second peak in COVID-19 cases.

Exhibit 2 – comparison of TTP activity at the week ending 2 January

40 testing sites in place, carrying out **96,000** tests per week

Equivalent to the average number of outpatients seen by Cardiff & Vale University Health Board every two months

2,400 staff appointed, trained, and onboarded to provide contact tracing

Equivalent to just under half of the total workforce employed by the Welsh Government

8 regional teams in place, tracing, providing advice to, and following up on **14,000** positive (index) cases and **31,200** close contacts per week

Equivalent to the average number of 999 calls made to the Welsh Ambulance service each month
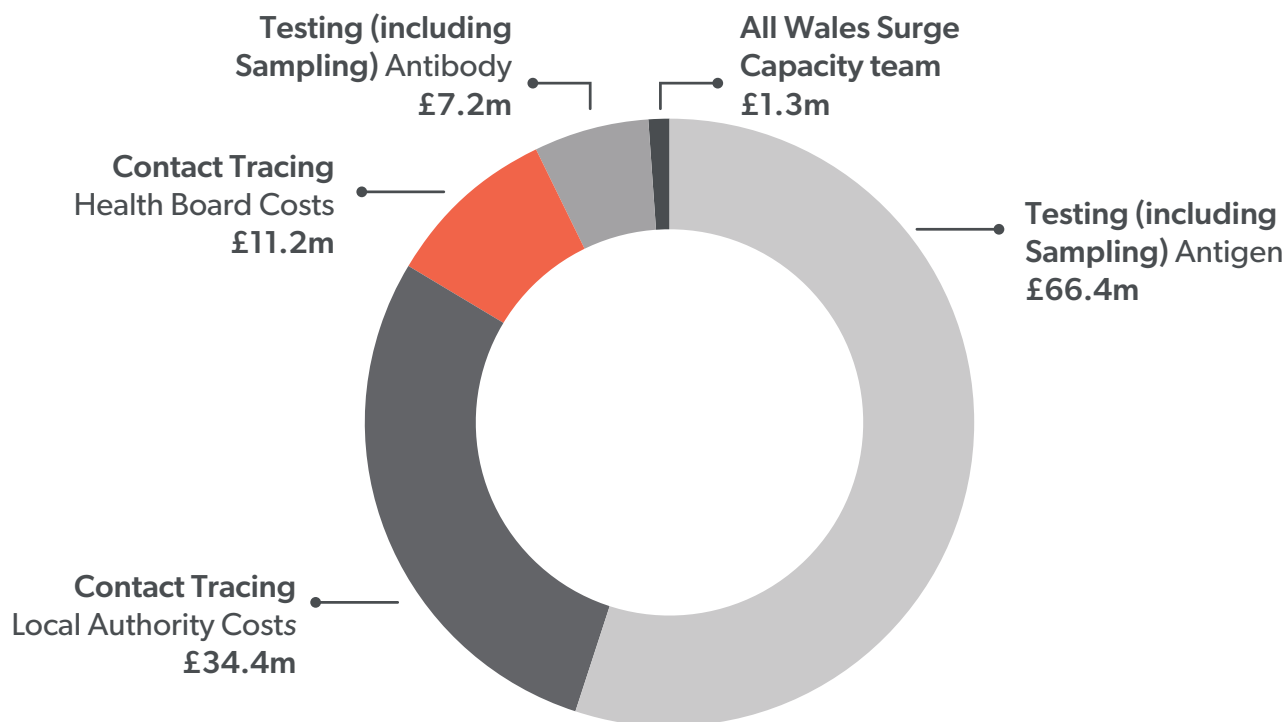
Source: Welsh Government and Public Health Wales

1.3   Whilst roles and responsibilities within the system were not fully understood by all in the early stages of the pandemic, they became clearer as the programme evolved and responded to the challenges of incidents, outbreaks, and rising transmission rates.

1.4   The configuration of the TTP system in Wales has a number of strengths, blending national oversight from Welsh Government, with the technical expertise and experience that sits within PHW, health boards, local authorities, third sector and NWIS. Crucially, the TTP model in Wales has given PHW, health boards and local authorities' ownership of the process, and the ability to use local intelligence and knowledge to shape responses to the pandemic.

1.5   The programme has demonstrated that it can adapt and evolve quickly, learning lessons from the management of early outbreaks and trying to effectively marry Wales specific and UK-wide arrangements. However, this has, and continues to be, a challenge and officials we spoke to described it as trying to 'design, build and fly an aircraft all at the same time'. The new variants of the virus also present a significant challenge and are increasing the pressure on the TTP programme to remain agile.

1.6   The fact that Wales has not had sole control over all the elements of the TTP programme has caused some operational challenges in respect of access to tests. Wales relies heavily on the UK Lighthouse Laboratories (Lighthouse Labs) and in September, the UK Government unilaterally announced that it was capping daily testing capacity in Lighthouse Labs in response to high demand for tests. Whilst the UK Government quickly released more tests for Wales, the episode highlighted some of the challenges associated with the hybrid testing system. This issue is explored further in **paragraph 1.21**.

How much is TTP costing?

1.7   The Welsh Government element of the TTP programme is expected to cost over £120 million during 2020-21, of which almost three-quarters is on testing (**Exhibit 3**). The actual costs to the taxpayer are considerably higher because Wales does not pay directly for its share of testing sites or laboratory facilities which are commissioned by the UK government (**see section on testing**). Health boards, local authorities, PHW and the Welsh Government have also redeployed staff to deliver TTP which is not included in the all-Wales spending figures. The exact expenditure relating to the 'protect' element of the programme is also not included as associated costs are part of wider service provision costs for local authority and third sector organisations.

Exhibit 3 – all-Wales TTP expenditure for 2020-21 (£ million) based on actual expenditure to month 10 and forecast to year end. This chart does not include all TTP expenditure

Testing (including Sampling) Antibody **£7.2m**

All Wales Surge Capacity team £1.3m

Contact Tracing Health Board Costs **£11.2m**

Testing (including Sampling) Antigen **£66.4m**

Contact Tracing Local Authority Costs **£34.4m**

Source: TTP Monthly monitoring returns[1] – based on 'Month 10' submission

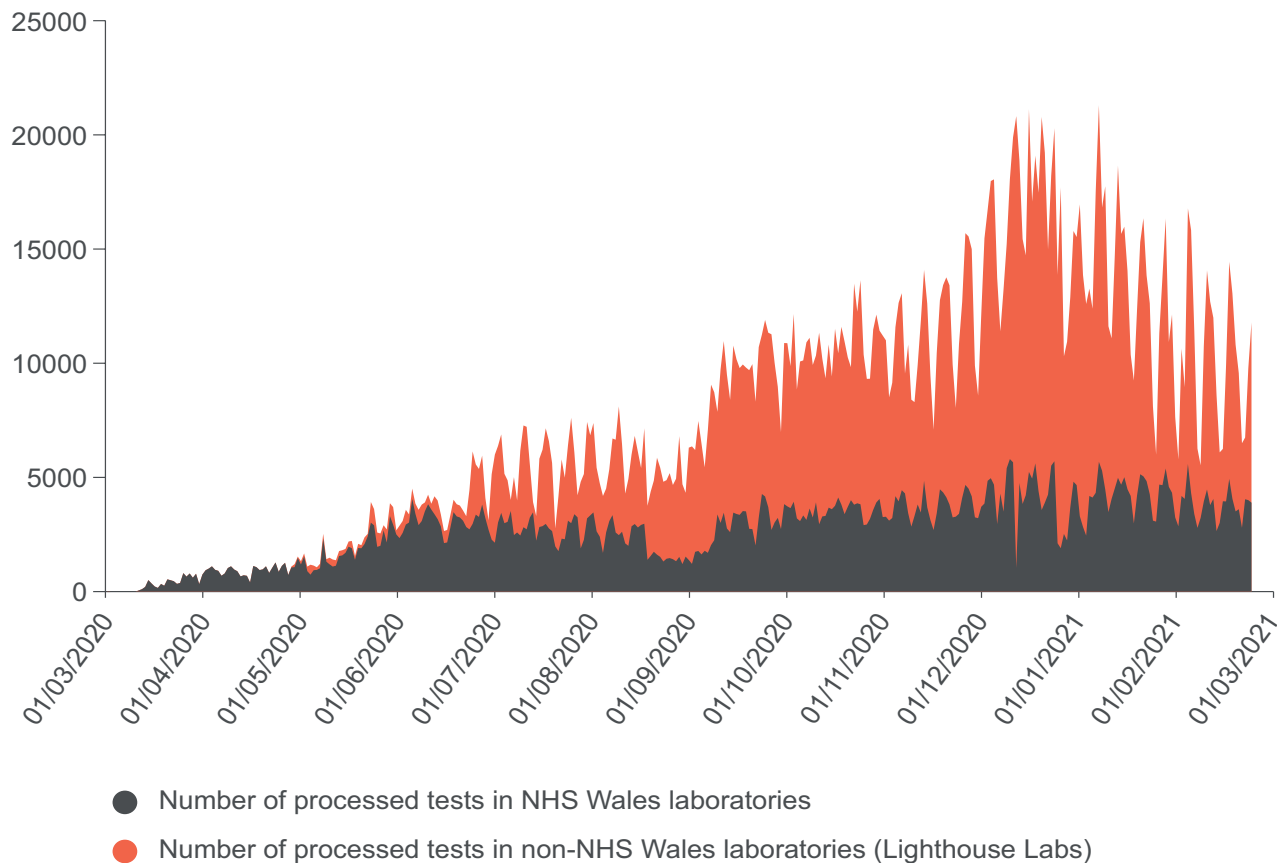1   Health boards and trusts submit the monitoring returns to Welsh Government for review.

How well is testing for COVID-19 working in Wales?

1.8   At the start of the pandemic, the level of available lab capacity across Wales was below that required to meet expected demand from its TTP programme. The UK-wide network of Lighthouse Labs has provided significant additional capacity since May which the Welsh public sector would not have been able to secure on its own. Plans to further increase Welsh public sector provided lab capacity were announced in August supported by additional Welsh Government funding of £32 million.

1.9   When compared to other countries, the UK and Wales has had some of the highest population testing rates in the world[2]. The extra investment helped to support an additional 6 'hot labs' to enable rapid test analysis, and to support 24-hour provision of Welsh NHS laboratories. This required the recruitment of additional laboratory staff.

1.10   Significant sampling capacity has also been put in place since May. This continues to expand, including local testing sites and mobile testing units which can be moved to areas of need. A number of sampling facilities are run by private contractors as part of the UK testing programme. But health boards, and the Welsh Ambulance Services NHS Trust have increasingly been providing additional sampling capacity.

1.11   The pathway for sampling and analysis of tests has varied depending on who is having the test and includes a level of complexity (**Appendix 1**). The Lighthouse Labs provide basic positive or negative results but have been able to respond to high demand and analyse large volumes. Welsh NHS laboratories provide tests which provide greater detailed analysis, but they have been unable to respond to high demand. These arrangements have and will continue to change when new swabbing and lab services are introduced, and new tests are developed and introduced.

1.12   **Exhibit 4** shows a significant growth in the level of testing done between mid-March and February 2021. It also shows that a significant proportion of the demand for tests across Wales has been met by the Lighthouse Labs.

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2   At the time of our fieldwork we looked at the top 30 countries with the most cases. Since the start of the pandemic, the UK had the second highest rate and Wales had the sixth highest rate of testing (antigen and antibody).

Exhibit 4 – total processed tests for Welsh residents split by NHS Wales and Lighthouse Labs provision up to 25 February 2021

Number of processed tests in NHS Wales laboratories

Number of processed tests in non-NHS Wales laboratories (Lighthouse Labs)
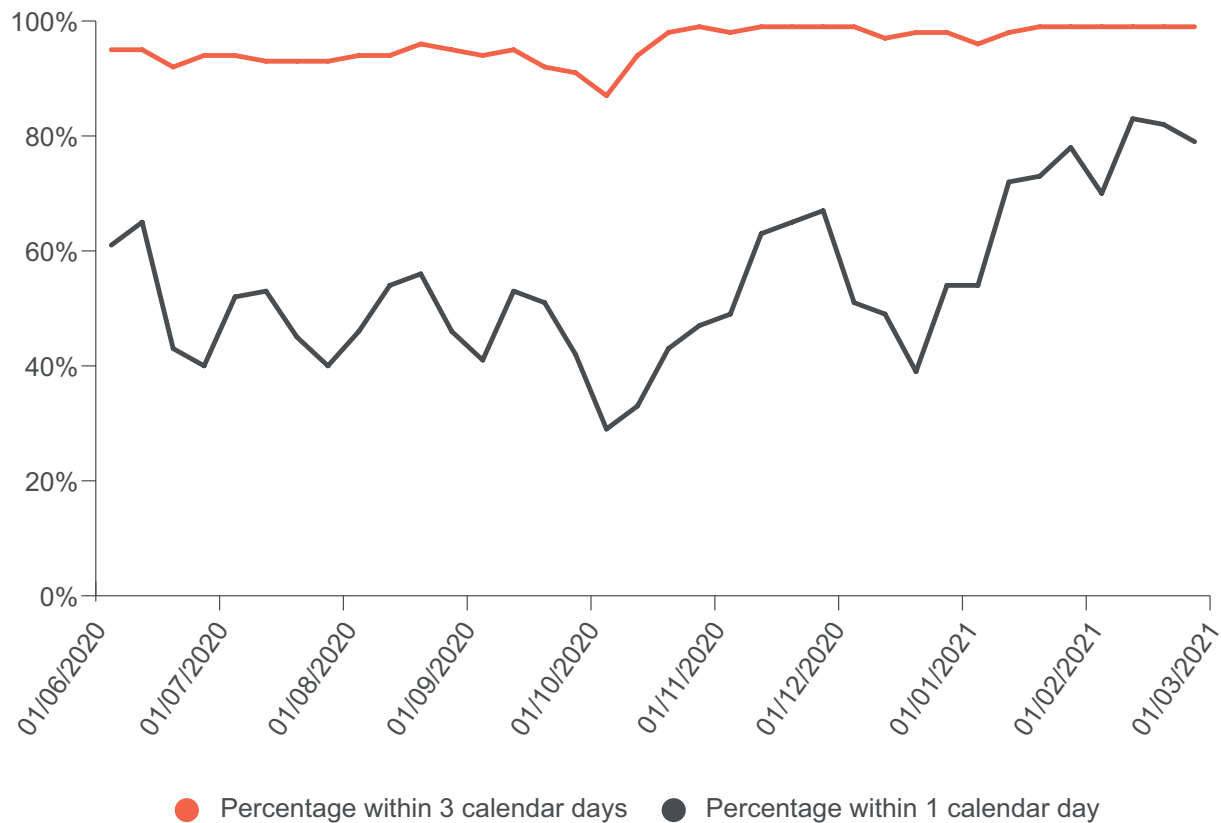
Source: Public Health Wales

1.13 Timeliness is crucial to containing the spread of the virus. A quick turnaround for a positive test result allows contact tracing teams to reach that person's contacts sooner and tell them to self-isolate to prevent further spread. A quick turn-around on a negative result also reduces the impact on individuals and on the wider economy, for example, by allowing them to return to work.

1.14 **Exhibit 4** indicates that by late September, laboratories were processing over 10,000 tests a day for Welsh residents. At that time, there were increasing rates of COVID-19 across a number of county areas, significant increases in demand for tests as a result of schools reopening, and the onset of seasonal illnesses with similar symptoms. The effect of the above factors contributed to a reduction in the proportion of tests that were turned around within the 'gold' standard of one calendar day, although turnaround within three calendar days has largely been maintained. The additional testing capacity across Wales has helped improve the performance over recent months (**Exhibit 5**).

Exhibit 5 – percentage of tests reported within one calendar day and within three calendar days (both Welsh and Lighthouse Labs) up to 1 March 2021

● Percentage within 3 calendar days   ● Percentage within 1 calendar day

Source: Public Health Wales

1.15 The time between people giving a sample and the results being reported by the lab (turnaround times), however, has varied quite significantly depending on the location of the test and where it has been analysed. We found that:

- Welsh NHS lab turnaround times for hospital tests, and more latterly community and mass tests[3], have generally performed well with over 80% of hospital tests, and over 70% of community tests turned around within one calendar day.

- Welsh NHS lab turnaround times for asymptomatic key workers (including care home staff) and care home residents within one calendar day has been as low as 25%. But more recently increased to around 50%, although it is important to note that the expected turnaround times for this cohort is three calendar days. Although performance dipped during the September period, almost all results have been turned around with three calendar days.

3   This includes regional drive-through, mobile, and local walk-in test centres supported by Welsh NHS labs, as well as community testing sites for outpatients and symptomatic key workers.

- Lighthouse Lab turnaround times for community testing[4] performed well until September. But then timeliness sharply declined when demand increased (as set out in **paragraph 1.14**), with an average of just 30% of tests turned around within one calendar day at the end of October. Performance has since improved and was running at 98%.

- Lighthouse Lab turnaround times for tests kits, either via the organisation portal for care homes, or for home-testing, within one calendar day has been low at around 30% and has been consistently since August albeit a slight improvement for portal tests during November. Note that the expected turnaround time for this cohort is also three calendar days. Although performance was around 50% during the summer period, almost all results are now being turned around within three calendar days.

1.16 When considering the points above, it is worth recognising the logistical challenges associated with transporting swabs from some geographically isolated sampling locations to labs in Wales and in England can contribute to longer turnaround times. The timeliness of home test kits is also reliant on swabs being posted back to the labs in a timely manner. The volume of testing in the UK and in Wales is also high in comparison with other countries with similar case numbers. However, these challenges need to be overcome as success of the TTP programme is critically dependent on timeliness of test results. As a result, a Lighthouse Lab was opened in Newport in October, and a consolidation centre opened in Cardiff in January to enable faster transportation.

1.17 The frequency of in-hospital testing has improved since the start of the pandemic but needs to be strengthened further. Hospital outbreaks of COVID-19 have clearly been a risk which could have been reduced through effective testing regimes, both before and on admission, as well as more frequent testing during a patient's hospital stay.

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4   This includes regional drive-through, mobile, and local walk-in test centres supported by Lighthouse Labs.

1.18   PHW figures show that compared to the first wave of the pandemic, hospitals have been testing proportionately more patients on admission[5], increasing from 24% in the first wave to 54% in October, but there remains considerable room for improvement. Data on the **PHW website** provides further detail and indicates that levels of testing has varied significantly across Wales, with Hywel Dda University Health Board testing approximately 24% of patients in October compared to 64% in Betsi Cadwaladr University Health Board. Variation between health boards narrowed during November, with all health boards more recently testing between 50-60% of all admissions, with the exception of Cardiff and Vale which has been at a lower rate of around 40%. Once tested on admission however there has been no regular testing during a patient's hospital stay unless patients have developed symptoms. This has been with the exception of patients discharged to care homes, which has required patients to have had two negative test results before being discharged.

1.19   The levels of risk have varied in different areas of Wales because of different prevalence of disease in the communities, However, it has been clear that once an in-hospital outbreak occurs, spread of COVID-19 as a result of hospital transmission has placed a significant burden on hospital capacity and resulted in very poor outcomes for patients.

1.20   The number of people who have got COVID-19 in hospital has been relatively low across Wales (approximately 8% of all cases during the week commencing 8 February) but there had been an increasing number of outbreaks over recent months. It is important that testing regimes within hospital settings are designed to meet this challenge and reduce the risk of hospital acquired coronavirus infections.

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5   PHW figures exclude confirmed positive cases and elective patients who are tested prior to admission.

What factors are affecting testing?

1.21 The Lighthouse Lab arrangements have created some challenges for Wales given that the UK Government make the decisions about the use of lab capacity. Up until October, regions in Wales were not sighted on the Lighthouse Lab capacity available to them in their retrospective areas. During that time, increased demand in other parts of the UK as well as decisions made by the UK Government impacted on the availability of testing across Wales. This included:

- the decision to cap the number of tests available during September to manage demand through the Lighthouse Labs, resulted in reduced slots available and underuse of test centres which meant not everyone who needed a test could get one.

- the decision by the Lighthouse Labs to hold back on analysing swabs from the regular programme of asymptomatic care home testing which resulted in those swabs no longer being valid for analysis.

- the setting up of the UK Government's portal for booking tests which directed residents to the geographically nearest testing site with available capacity. This resulted in English residents travelling into Wales for tests, sometimes into areas that were in local lockdown, reducing the number of tests available for Welsh residents. It also resulted in Welsh residents being offered tests in other parts of the UK.

1.22 All regions now have access to the Lighthouse Lab capacity available to them on a daily basis, and for the week ahead to enable capacity to be deployed to the right areas. Mileage restrictions have also now been placed on tests booked through the UK Government portal to minimise the flow across countries, as well as the flagging-up of local restrictions to stop travel into lockdown areas. Where there have been community outbreaks, regions have also been able to take some control of the booking arrangements to ring-fence privately run sampling capacity to local communities where appropriate, although this has been reliant on health board's having alternative booking systems in place.

1.23 Current service performance management data focuses on the time from which a sample is taken to the time when the result is reported. Information on the testing capacity is also available, as is the extent that the capacity has been utilised. This operational information is useful to manage what are a complex set of services that are provided by distributed test site and lab units. However, there has been no information on the number of people that try to get a test but are unable to get one. This, if available, would give a picture on unmet demand.

1.24 Similarly, no information is reported on the time taken from when people identify the symptoms to the time when they have a test. This would be important to establish delays in accessing tests, particularly at times of high demand, as well as understanding population behaviours and potentially 'soft' barriers that are delaying people going for tests. This could include for example a person showing a symptom of the disease but not going for a test until their symptoms exacerbate. This information is captured as part of the contact tracing process but has not been reported.

1.25 Since the early part of December the Welsh Government, with the regional partners, have been utilising rapid testing. This includes the Lateral Flow Device, which gives results within 30-40 minutes. This was used in the recent pilot in Merthyr Tydfil and Lower Cynon, to understand the rate of infection. Rapid testing is now providing some significant benefits, for example, testing care home visitors, emergency department patients and key workers to enable rapid decisions and action to be taken. It is also providing benefits by reducing the elapsed time for contacts to be traced and told to isolate, as the rapid results enable the positive cases to inform their contacts immediately.

1.26 However, the rapid tests have come with some challenges, as they are not as accurate as the swab tests analysed through the labs. Until recently, people who returned a positive lateral flow test were advised to have an additional swab test to confirm the positive result and for their details to then be added to the contact tracing system. This had the potential to create additional demand on the testing system when applied to asymptomatic populations. The level of 'false positives' to date, however, has been very low and the decision has since been taken to directly record the rapid test result on the contact tracing system to enable tracing. There remains a risk, however, that some people who have the virus get a 'false negative' result and inadvertently infect more people. It should be noted that the risk of 'false negative' results also applies to lab-based tests as well as rapid lateral flow tests.

How good is contact tracing?

1.27 It is internationally recognised that contact tracing is a well-established mechanism to control the spread of infectious disease. It involves contacting and providing advice to people who have tested positive, finding out who their close contacts have been, and reaching those close contacts to advise them on what they need to do. Contact tracers try to build trust to find out who people have been in contact with, especially where they may be reluctant to admit they have broken the rules. Tracers also play a key role in advising people of the importance of self-isolating, and to flag up with wider public and third sector services where additional support may be needed.

1.28 While some small-scale public health control and outbreak tracing arrangements were in place prior to the pandemic, the pace at which new tracing services have been introduced, as well as the scale of them, has been significant. This has included:

- development of all-Wales processes, guidance and scripts;

- the procurement, development and rollout of an IT system within a six-week period; and

- the local recruitment and training of a workforce which, by December 2020, was 2,400 strong.

1.29 The scale of these contact tracing arrangements has never been seen in Wales before. This was enabled by strong and effective partnership working within and across local authorities and health board regions.

1.30 Irrespective of the scale of the tracing service introduced, the challenge presented by the pandemic has been immense. Contact tracing services in Wales have generally performed well but the timeliness of tracing activity has seen some deterioration at periods of high demand, when services have needed to respond to increasing infection rates during the autumn and winter. **Exhibit 6** shows the significant weekly growth in the numbers of eligible[6] cases and their contacts that need to be traced by the service.

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6   An eligible index (positive) case is one that requires contact. There may be instances where the case is not eligible, for example they are an inpatient in a hospital (and therefore all contacts are known and informed through internal processes), or it may be a repeat or duplicated test.

Exhibit 6 – all-Wales number of eligible cases needing to be contacted up to 21 February 2021

● Number of eligible contacts identified   ● Number of index cases eligible for follow up
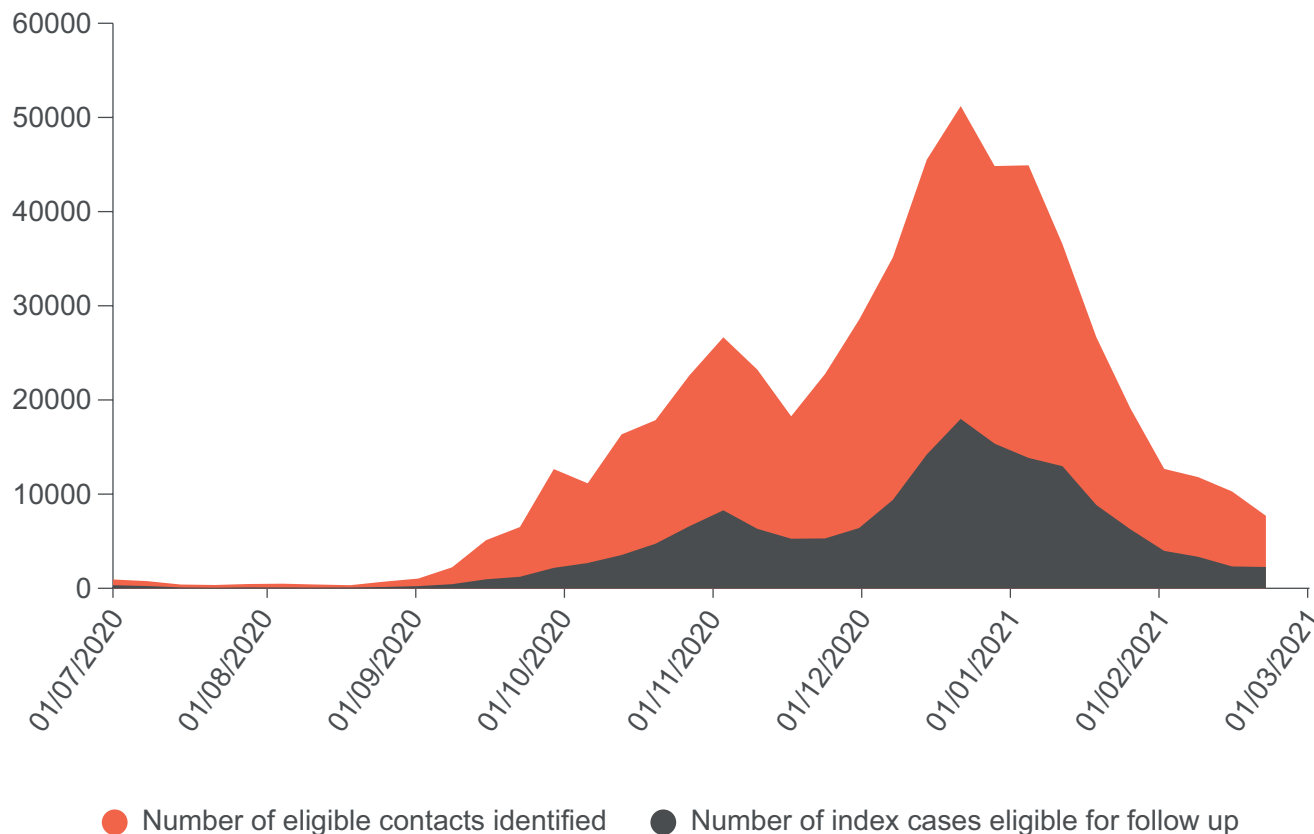
Source: Welsh Government

1.31   At the beginning of September tracing teams were reaching most positive 'index' cases in 24 hours. The time taken to reach index cases is measured from when their details are uploaded into the digital tracing system to the time tracers successfully make contact. For close contacts, the clock starts both when a close contact is identified by a positive case, and also from the point when the related index case was referred onto the contact tracing system. The clock stops when successful contact has been made. Whilst index cases know they have tested positive and should self-isolate, their close contacts may have the virus and be unaware of it. Therefore, the longer it takes to reach contacts, the more likely they are to unwittingly spread the virus. **Exhibit 7** shows how the timeliness of tracing activity can deteriorate when demand on contact tracing teams increases. At 19 December, 24% of all eligible index cases were reached within 24 hours, compared with 93% at 20 February. Also, at 19 December, only 23% of all eligible contact cases were reached within 48 hours of the index case being reported to the tracing teams, compared with 75% at 20 February.

Exhibit 7 – all-Wales timeliness of contact tracing (within 24 and 48 hours) up to 21 February 2021

● Percentage of all eligible index cases reached within 24 hours

● Percentage of all eligible contacts reached within 48 hours of parent index case being referred to contact tracing teams
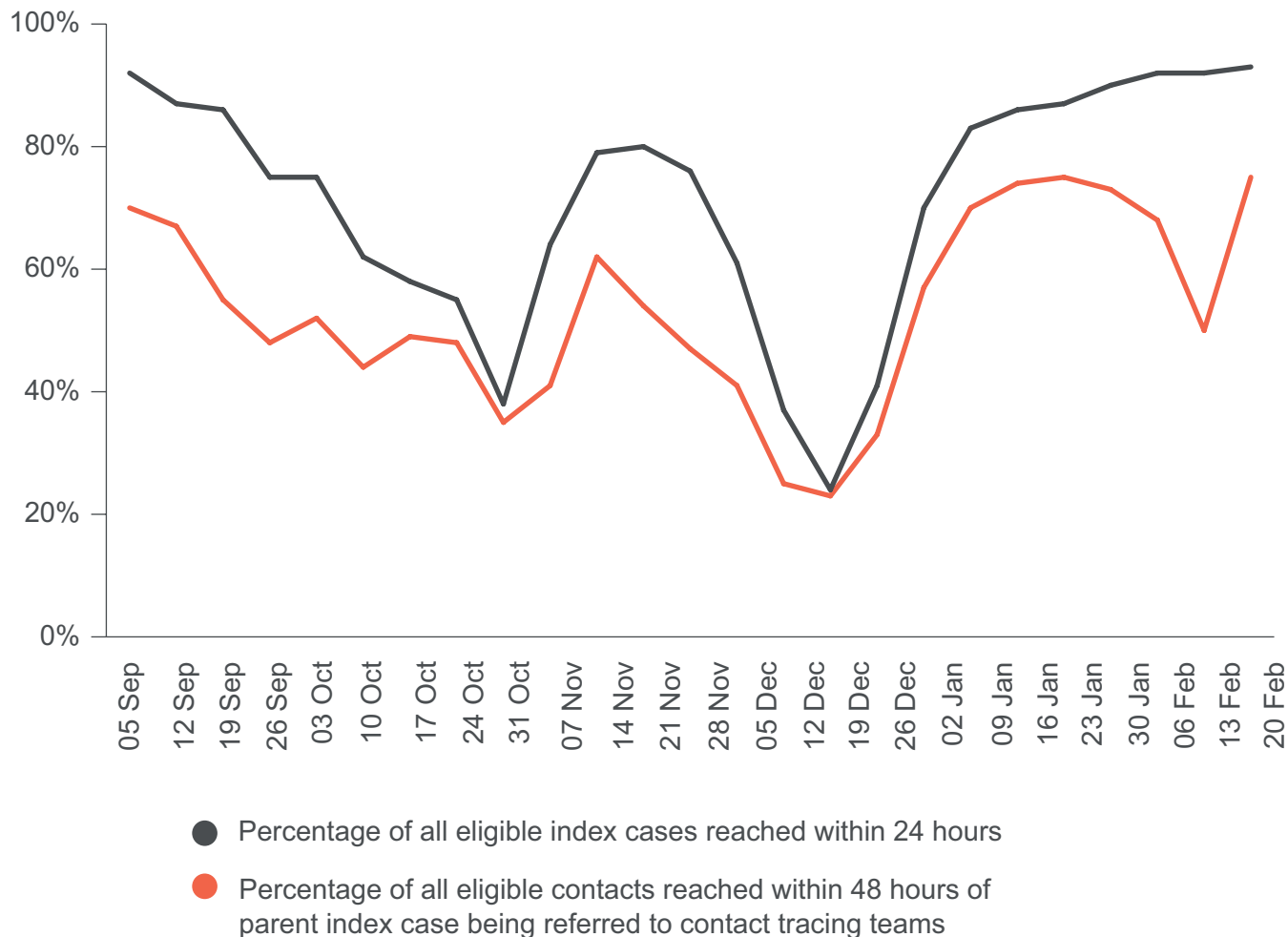
Source: Welsh Government

1.32 Even though the TTP system has been contacting a high proportion of both positive index cases and their close contacts, a small proportion of people have not been reached at all. This has been for a number of reasons which includes incorrect contact details or a reluctance of contacts to respond to the call. At 20 February, 625 index cases (0.4%) and 21,482 close contacts (5%) had not been reached at all. It is important to note that only people going through the TTP system will have been traced, Members of the public who have reported symptoms through other means, such as the **ZOE symptom app** or tested positive by undertaking a private test will not have been traced.

What factors are affecting contact tracing?

1.33   The capacity within tracing teams has been a key determinant of their ability to reach positive cases and their close contacts. At the start of the TTP programme in June, the Welsh Government made £45 million available for health boards and local authorities to set up contact tracing teams across Wales. Plans were developed to manage peaks and troughs in demand for contact tracing with a flexible workforce that included staff redeployed from other services which had closed down because of the pandemic.

1.34   Over the summer, some staff returned to their main job when services started operating again, and health boards and local authorities started recruiting new staff to boost their tracing capacity. In November, the Welsh Government provided an additional £15.7 million to nearly double the tracing workforce in Wales from 1,800 to 3,100. By December 2020, there were 2,400 people[7] working in tracing teams.

1.35   Recruiting new staff, including bilingual staff, into local tracing teams at the same time as redeployed staff were returning to their normal job resulted in a greater degree of churn than expected for some teams and created some gaps in tracing skills and experience. New staff can take longer to process tracing cases. We are also aware that introducing new staff in some regions created problems such as data entry errors by inexperienced staff. There was also a heavy reliance on the existing expertise of public health protection and environmental health specialists who needed to deal with the more complex outbreaks, alongside their wider work supporting the application of social distancing measures in various settings.

1.36   Effective training has therefore been an important part of the work to build the capacity of contact tracing teams. In the Cardiff and Vale region there has been a dedicated tracing trainer whilst in other regions training has been provided by an existing member of the contact tracing team alongside their existing tracing duties.

1.37   It is important to note that whilst training of new contact tracing staff is clearly important, each local and regional team will have been working within an operating framework that was developed by PHW, who also wrote the 'scripts' for contact tracing teams.

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7   Full time equivalents.

1.38   A positive feature of the way contact tracing has operated in Wales is the concept of 'mutual aid' where caseload work has been shared between regions if one region has been experiencing particular pressures due to rapid rises in positive cases. This mutual aid played a part in the management of the early outbreak in Anglesey and more latterly when case numbers rose sharply in the Cwm Taf Morgannwg area. The Welsh Government has also set up a new all-Wales 'surge' team which, along with mutual aid arrangements, has been used to manage peaks and troughs in demand for tracing activity. It is also been conducting an efficiency review of tracing across Wales to ensure best performance.

1.39   Within each region there has also been a central contact tracing team which includes specialist staff drawn from NHS and local authority partners to help deal with the more complex issues such as contact tracing within care homes and hospital settings. More detailed contact tracing to understand the exact source of the transmission has also taken place as capacity has allowed. This has required the reshaping of the work of public protection, the wider cohort of environmental health officers and local authority health and safety teams to work with businesses and communities found to be at the source of the outbreak, and apply enforcement notices where relevant.

1.40   The tracing workforce in Wales has increased rapidly, but during December, tracing teams struggled to meet demand from the surge in infection rates. To meet the demand, some teams temporarily prioritised cases to be traced and asked people who had tested positive to speak to close contacts themselves.

1.41   Since 9 June, all tracing teams have used the same digital Customer Relationship Management (CRM) information system. NWIS procured the CRM system and negotiated a software licensing contract where the number of users could be scaled up or down, which helped to control costs. The CRM system links to the Welsh laboratory information system and updates every 30 minutes with new positive cases. The system allocates positive cases to the tracing team where they live. Tracing teams then record information about positive cases and their contacts in the CRM system. Information can be extracted from the CRM system to gauge how well contact tracing is performing and to understand the spread of the virus.

1.42 Contact tracing teams have encountered some practical challenges since the launch of the CRM system. For example, one region reported that system functionality resulted in 'shadow lists' on the system where some positive cases were recorded but were not visible in the tracing queue. These types of issues are, however, quickly resolved. Concerns, however, have remained with the unreliability of the telephony system, which supports calls from the CRM system. This is resulting in contact tracers, for example, not being able to make calls when they need to because of connectivity issues.

1.43 Some tracing teams have also reported that the batch processing of lab results and the subsequent upload of positive cases onto the CRM created a peak of cases to follow up. Whilst this was to be expected, the uploads particularly at the end of the day made it difficult for tracing teams to meet timeliness targets, as many cases would not have been followed up until the next working day.

1.44 The quality of the information coming from the system has depended on the accuracy of information entered by contact tracing teams. It has also relied on having skilled data analysts to extract the information and use it in meaningful ways, but at the time of our review some regions lacked data analyst capacity.

1.45 There have been other practical challenges that contact tracing teams have encountered as the pandemic has progressed. There have been outbreaks in commercial work settings where many employees did not speak English. There have also been incidences of contact details being incorrectly recorded either deliberately or because the systems for recording information were rudimentary (ie handwritten details with associated problems with legibility).

1.46 All of these challenges have been worked through with lessons learnt and shared as part of the ongoing evolution of the TTP programme. These challenges have also been worked through quickly, reflecting the ability of the service to respond to issues and where relevant make changes to working processes or policies, at pace.

What is being done to support people who need to self-isolate?

1.47   Despite the positive recent news about vaccine development and roll out, Wales still finds itself in a position where cases of COVID-19 are circulating widely. It is therefore absolutely vital for people to self-isolate if they have tested positive for the virus, or if they are a contact of somebody who has tested positive.

1.48   However, for many people self-isolation has brought numerous practical, financial and well-being challenges. The 'protect' element of TTP has been about providing the necessary support and information to those who need to self-isolate.

1.49   Whilst the initial Prevention and Response Plans[8] at a regional level lacked detail on what would be done to support people to self-isolate, our work has found that numerous initiatives have been in place to provide such support. Typically, these have been collaborative initiatives at a regional and local level involving public sector bodies and various agencies from the voluntary sector, often supported by community volunteers. These services have looked to provide practical help such as food shopping, medicines collection and wider support for those at risk of loneliness and social isolation. Work has also been undertaken to provide support to specific population groups such as university students and tourists travelling into Wales during periods when lockdown restrictions are lifted so they are aware of local measures that are in place and where to go to for support.

1.50   In response to the financial challenge associated with self-isolation, from 1 November, people on low incomes in Wales have been able to apply for a £500 payment if they have tested positive for COVID-19 or told to self-isolate. A similar scheme has been available to social care workers as a top-up payment to their statutory sick pay. Self-isolation payments have recently been extended to some parents and carers on low incomes who have had to look after children who are self-isolating. Local authorities received just under 20,000 applications between November and January 2021 with around 50% of those eligible for payment. The scheme was being reviewed at the end of January, but there was clear recognition that there remained a need to financially support those in most financial need to allow them to comply with self-isolation requirements.

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8   The Welsh Government required health boards, local authorities, and their partners to submit the plans setting out how they would limit the spread of the virus in their region.

1.51   The peaks in community virus transmission which have followed periods of lockdown raise questions about the extent to which the public have been willing to observe the necessary social distancing. PHW's weekly '**How are we doing in Wales**' provides a good summary of how people in the community are feeling, their opinion on policy, and the extent they understand and follow COVID-19 guidance and legislation. This survey showed compliance with the Welsh Government's restrictions was falling amongst respondents. It is not clear to what extent a failure to comply with self-isolation requirements associated with contact tracing has contributed to rises in community transmission. So far, limited information exists to understand the scale of any non-compliance with self-isolation requirements or indeed the reasons for it. PHW has been conducting two pieces of research to understand whether people are self-isolating after being contacted by tracers.

1.52   Clearer information on the level of need for 'protect' services and how well existing services have been meeting that need, would help with the identification and targeting of resources at both a regional and national level. Nevertheless, there is now good information on the range of support services that have been introduced across Wales, often through partnership working. On 16 December, Welsh Government published a review of the **support arrangements for non-shielding vulnerable groups**. As well as identifying support activity, the report also identified lessons learnt, including early engagement with local authorities on shielding guidance, mental health support, more support for digital inclusion, and the long-term benefits of maintaining the momentum that has built up around volunteering. Welsh Government is undertaking an additional survey of local authority protect teams and has established a 'Protect Leads' group. These are focused on understanding the nature of protect requests arising, improving the range of support provided and sharing practice and learning.

1.53   As the TTP programme developed in response to the pandemic, national oversight arrangements have tended to focus much more strongly on the testing and tracing components of the programme. There has been less national oversight of what is needed by way of support for people to self-isolate and an absence of information to know whether those services are effectively influencing public behaviour.

1.54 Self-isolation for people who test positive, and their close contacts, will continue to be a key part of the approach to keeping the spread of the virus in check whilst vaccination programmes are rolled out during 2021. Ensuring that the 'protect' element of TTP gets the focus it needs will therefore be crucial if the programme is going to eventually help us get on top of the virus.

1.55 There is good practice to build upon and adopt more widely, such as the self-isolation helpline that was launched in the Cwm Taf Morgannwg region in November 2020. The helpline is a partnership venture between the Health Board, local authorities in the area, PHW, the Regional Partnership Board and the voluntary sector. It provides help and advice for people who are asked to self-isolate and was set up following analysis of intelligence from the regional TTP programme that showed there was considerable confusion about self-isolation and what support was available, leading to non-compliance with measures to control the spread of COVID-19.

1.56 Mae gweithgareddau pwysig eraill ar y gweill megis y gwaith y mae Llywodraeth Cymru yn ei wneud gyda Chymdeithas Llywodraeth Leol Cymru (CLILC) i ddatblygu fframwaith monitro sy'n cynnal trosolwg fwy eglur ar anghenion cymorth pobl y mae gofyn iddynt hunanynysu. Mae swyddogion Llywodraeth Cymru hefyd wedi bod yn gweithio gyda Gwasanaeth Gwybodeg GIG Cymru i wella'r wybodaeth a gofnodir yn y system Rheoli Cysylltiadau Cwsmeriaid am bobl y mae angen cymorth arnynt i hunanynysu.

Looking ahead: key challenges and opportunities

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Having better information to improve efficiency and evaluate the impact of TTP

2.1   The performance in one part of the TTP system will determine how effective other parts of the system are. For instance, quick turnaround times for testing are necessary for contact tracing to be effective. Similarly, the ability of contact tracing teams to reach the right people quickly will help identify those who need to self-isolate before they spread the virus further. While there is information about how well different parts of the TTP programme have been working, there has been no performance information that looks at the whole programme, from the moment someone requests a test to the point their contacts are traced, to demonstrate how quickly it is identifying and isolating infected people. Such information could be a powerful tool to help know what is needed to enhance the efficiency and effectiveness of the overall programme.

Ensuring testing activities are fit for purpose and meet increasing demand

2.2   Notwithstanding some of the challenges set out earlier in the report, testing and tracing arrangements have responded reasonably well to the challenges posed by the virus. However, testing and tracing capacity will need to continue to respond to demand in 2021. Tests need to be easy to access and results must be returned quickly to help control the spread of the virus. There is also a considerable risk that if people think it is hard to get a test, or fast results, they may not bother to get tested.

2.3   As highlighted in **paragraph 1.25**, at the time of our review, the Welsh Government had started using new testing technologies such as lateral flow devices and the Lumira DX test. The tests provide quick results and can support large scale testing of asymptomatic populations or screening for health and social care staff. As the demand for these rapid tests increase across both the public and private sectors, the Welsh Government will need to think clearly about which sectors have priority as part of the roll-out, taking into account the known limitations with the accuracy of these tests,

2.4   Testing arrangements within hospital settings is also an area that needs some consideration. Although testing in hospitals has improved since the first peak, hospital patients typically only get tested at the point of admission unless they develop symptoms. To minimise the spread of the virus from patients who may have tested negative at the point of admission but then go on to develop symptoms, there are opportunities to expand the frequency of testing within hospitals as well as ensuring that infection control regimes are as effective as they can be.

Creating a skilled, resilient workforce to deliver TTP

2.5   As with other parts of the public sector, many staff involved in overseeing and delivering TTP have been under considerable pressure for several months. We heard that many staff have been working long hours with limited opportunities to take leave. Organisations have put some measures in place to ensure resilience including recruiting or redeploying additional staff, reallocating work, and putting weekend rotas in place. But there is still considerable pressure on many staff, including those in leadership and specialist roles. Public bodies are also managing competing demands on their workforce associated with the wider impact of the pandemic, the COVID-19 vaccination programme, and the ongoing consequences of Brexit[9]. Irrespective of how quickly the general public can be vaccinated against COVID-19 it is a reasonable assumption that TTP services will be needed at least until the middle of this year and most probably longer. Many new staff have only been recruited until 31 March to align with the current funding availability. It is important that a commitment to fund services into 2021-22 is made as soon as possible to enable staff to be retained and the workforce to remain stable.

2.6   Some staff, including officials leading TTP, have been redeployed and adapted quickly and successfully to new roles outside their previous area of expertise. There may be opportunities to move more staff from other areas to support TTP. There are a number of difficult to recruit to roles and specialists in PHW and some regional teams are looking at how they can increase colleagues' skills to deliver non-specialist work. There are opportunities to look more broadly at which tasks can only be done by public health protection and environmental health specialists, and which can be done by other officials. There could also be opportunities to reduce specialist attendance at meetings by providing guidance outside meetings or identifying areas where non-specialist support is 'good enough'.

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9 **Our letter on preparations for the end of Brexit** describes some of the workforce pressures associated with Brexit.

Influencing the public to follow public health protection guidance and requirements

2.7   It is crucial that people who test positive or are told to self-isolate by TTP services follow the rules to avoid infecting anyone else. We found local, regional, and national examples of approaches to influence public behaviour. But without information on whether people are self-isolating it has been difficult to judge the success of this aspect of TTP. Even if effective, TTP is only part of the response to limiting the spread of COVID-19. Since April, the Office for National Statistics has worked with partners to test and survey a sample[10] of people living in the UK to understand more about COVID-19. In October, **the survey** showed that only 34% of people who tested positive for COVID-19 reported any symptoms. These results would suggest that a significant number of people with the virus would not go through TTP at all. It is therefore essential that the population understand and comply with wider measures to prevent infection.

2.8   Many of the professionals we spoke to told us influencing public behaviour has been a huge challenge, particularly as the public grow weary of the pandemic and restrictions on their everyday lives. We also heard that the public have been confused by changing rules, especially when the rules differ across the UK nations. Local intelligence shows that people who do not follow the rules fall into various age groups and are from various backgrounds, in different parts of Wales. Health boards, local authorities, PHW and the Welsh Government have been trying to influence public behaviour in various ways, but getting people to do the right thing remains a considerable challenge. There is a further risk that once people receive their vaccination against COVID-19, they will think there is less need to comply with social distancing and other measures to control the spread of the virus.

10 From October the sample was 150,000 people.

Applying the learning from the TTP programme to other programmes and future ways of working

2.9   Although COVID-19 has presented unprecedented challenges, the pandemic has also provoked significant positivity in the way in which public and third sector organisations have responded. These are evident throughout the TTP programme.

2.10   The scale and challenge of the pandemic has brought organisations together with a common goal of limiting the spread of the virus and protecting the population of Wales. True partnership has been displayed with organisations sharing skills and resources to put teams in place to deliver the TTP agenda, and staff redeployed across a whole spectrum of activities regardless of the organisation in which they may normally work. The concept of mutual aid between different organisations and across different parts of Wales has provided much needed support to parts of the system that may be under increased pressure and sharing the load across Wales as a whole, regardless of organisational and geographical boundaries.

2.11   Processes have been put in place in a matter of days, which in normal times, would have taken months or years. New roles have also been created, with new staff recruited, onboarded, and trained within weeks. A single once-for-Wales IT solution was procured, developed, and implemented within six weeks, enabling organisations to connect to each other and provide a single source of information. It is worth contrasting this with what has typically happened in the past with IT solutions taking years to develop and then implement, with public sector bodies frequently using different versions of the system which struggle to connect to each other.

2.12   The TTP programme has clearly demonstrated that the public service has the ability to work well across organisational and professional boundaries, and to work at pace to get things done. As the attention moves on to different responses to the pandemic, such as the current vaccination rollout programme, and then ultimately, the recovery and resetting of services once the significant peaks in the pandemic start to reside, it is important that the positive learning from the TTP programme is captured and used to shape the way that public sector organisations work together and tackle challenges in the future.

Appendices

1   Sampling and testing analysis pathway for Wales (as at December 2020)

1 Sampling and testing analysis pathway for Wales (as at December 2020)

Who can have the test?	Where are the samples taken?	Where are the samples analysed?	
		Lighthouse Labs	Welsh NHS labs
Symptomatic residents in the community	Regional drive-through testing unit	Most samples	Some samples
Symptomatic residents in hotspot or outbreak areas (including care homes)	Mobile testing unit	Most samples	Some samples
Symptomatic residents in the community	Local walk-in unit	Most samples	Some samples
Symptomatic residents in the community	Home testing kits	All samples	
Symptomatic care home residents and staff	Care home test from the UK government portal	All samples	
Asymptomatic care home staff tested on a weekly basis	Satellite units	Most samples	Some samples
Hospital inpatients	Hospitals		All samples
Hospital outpatients	Community testing unit		All samples
Key workers[11]	Community testing unit		All samples

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11 A list of key workers are set out at **gov.wales/coronavirus-critical-key-workers-test-eligibility**. Some key workers may access the testing pathway by presenting as a symptomatic resident in the community.

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