Director of Public Health Annual Report
The COVID-19 pandemic response

Richmond 2021-22

LONDON BOROUGH OF
RICHMOND UPON THAMES

Contents

Acronyms & Abbreviations

CAG	Community Action Group
CAM	Community Action Model
CCG	Clinical Commissioning Group
CTP	Community Testing Programme
DHSC	Department for Health and Social Care
DPH	Director of Public Health
IMD	Indices of Multiple Deprivation / Index of Multiple Deprivation
IPC	Infection Prevention and Control
JCVI	Joint Committee on Vaccination and Immunisation
LCRC	London Coronavirus Response Cell
LEB	Local Engagement Board
LFD / LFT	Lateral Flow Device / Lateral Flow Test
LOMP	Local Outbreak Management Plan
LOMPWG	Local Outbreak Management Plan Working Group
LPC	Local Pharmacy Committee
MECC	Make Every Contact Count
MERS	Middle East respiratory syndrome
NPIs	Non-Pharmaceutical Interventions
ONS	Office for national Statistics
PCR Test	Polymerase Chain Reaction Test
PHE	Public Health England
Q & A session	Question and answer session
SARS	Severe Acute Respiratory Syndrome
SARS-COV 2	Severe Acute Respiratory Syndrome Coronavirus 2
SCHOG	Strategic Care Home Oversight Group
UKHSA	UK Health Security Agency
VCS	Voluntary and Community Services
VOC / VOCs	Variant of Concern / Variants of Concern
WHO	World Health Organisation

1 Foreword

For most people, it is hard to believe that we have lived with the COVID-19 pandemic for over two years now with an apparent end only partially in sight.

The pandemic has fundamentally changed many aspects of our lives and continues to do so. No day has been the same as the one before and all of us have continued to adapt rapidly to preserve, persevere and progress with our lives.

This couldn't be truer for local authority Public Health teams which have been at the centre of an organisational effort in the Local Authority to protect the health of residents. From the first reported case and now into the tens of thousands in the borough, Public Health have continued to lead, collaborate, innovate, adapt, and deliver a response to the pandemic. Through that time, we have got to know other Council colleagues, stakeholders, and some of our communities better than we might have done before and learned to appreciate their concerns and priorities in more depth. We have assumed additional countless responsibilities and we have tried and tested different approaches in how we assess need, communicate, engage, and deliver services. Sometimes things have worked well and at other times we have learnt how we might approach things differently in the future.

The purpose of the report this year is to take a step back and look at the pandemic story of the last year through the lens of a local authority Public Health team and our response. We look at the population impact and outcomes from COVID-19 and how we worked together with different parts of the Council, NHS and other partners, and finally we reflect on the learning that will help us deliver even better in the future!

This is our story.

Shannon Katiyo
Director of Public Health,
London Borough of Richmond upon Thames

This is a story I strongly hope Council officers in other departments outside of Public Health, health partners and those in voluntary and community organisations will both relate to and join up to their own personal and professional experiences of dealing with the COVID-19 pandemic.

Even as one of the Councillors in Richmond upon Thames most directly involved with the Public Health team over this period, I can't fail to be impressed by the professionalism, dedication and care for the wellbeing of residents detailed in this report.

Residents can also be reassured by the Public Health teams' willingness to learn from their experience, and to apply this learning not only to managing the later stages of the pandemic, but also to inform how they might better respond to future public health emergencies.

I would like to pay tribute to the entire Public Health team and the many other team members in other departments of the Council who worked with them: you all deserve huge gratitude from residents and I am very grateful for the opportunity to add my voice to the chorale for these too often unsung heroes and heroines.

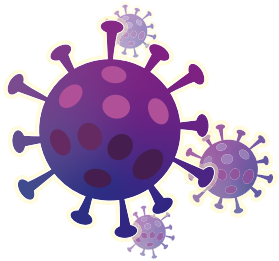
Councillor Piers Allen
Chair of Richmond Upon Thames Health
and Wellbeing Board

2 Summary

The Coronavirus pandemic has led to a significant change in the roles, responsibilities and operations of the public health team in Richmond.

This report is designed to take readers on Richmond's journey through the world-changing pandemic, reflecting on the local authority public health response, examining the present-day situation, and learning lessons to build on in the future whilst advocating for the essential role that local authority public health will continue to have in responding to future outbreaks.

- The background to the pandemic – Health intelligence is essential to Public Health practice because it helps us to assess and understand the health and wellbeing needs of the population. The story starts with the background to the pandemic and its arrival in Richmond, and from there the risk posed to Richmond residents is understood through demographic data. Chapter three concludes with a view of what the data told us, and how that informed a response and local decision making.
- The emergency response to the pandemic discusses how we established systems and structures that would enable effective delivery. Public Health had a central role within a very complex network of governance structures, working laterally with borough partners and residents, then vertically into sub-regional, regional and national structures. Public Health working with the corporate Communications team ensured that elected members were well equipped to understand the issues and response which in turn supported them to engage and assist local residents.
- The Local Outbreak Management Plan Working Group was initially established as a strategic oversight group before the Local Authority Gold Strategic Command took over. Subsequent to the publishing of Local Outbreak Management Plans, the working group became the main mechanism for the planning and coordination of delivery of all aspects of outbreak management. This included for example, mobilisation of test sites, and delivery of test kits, support for schools and care homes, support to businesses and local services, supporting the NHS to deliver the vaccination effort, and the development and delivery of the communications and engagement effort.
- We've learnt a lot from the pandemic and in this report we highlight some of the reflections around how we adapted and innovated to bring services closer to residents, how we increased responsiveness by being creative and reducing bureaucracy and how we collaborated more closely with our partners than ever before to deliver a truly joined up response. We hope to build on this to improve future preparedness and resilience so we can continue to protect residents from future threats to public health.



3 Background to the pandemic

3.1 Emergence of Cases

On the 6th of March 2020 Richmond upon Thames saw the first recorded case of SARS-COV-2. Two months earlier, 5,500 miles away, the World Health Organisation's (WHO) China Country Office was informed of cases of pneumonia of unknown cause. The WHO first published their concerns regarding this mystery disease on 5th January 2020 (World Health Organisation, 2020) and just 3 weeks later, the first documented cases of the then named 'novel coronavirus' appeared on UK shores on 26th January (Lillie, 2020).

Shortly after, the WHO declared a global health emergency as cases started to spiral upwards in China. After some initial success quarantining travellers and isolating cases from abroad, the first case of documented domestic transmission occurred in the UK on 28th February 2020. The 'first wave' began, causing the Prime Minister to announce the first lockdown on 23rd March (Aspinall, 2021).

This announcement marked the beginning of the response to "the biggest threat this country has faced for decades", which would see significant change to both our personal lives, and the Public Health landscape (The UK Government, 2020).

3.2 About the Virus

Coronaviruses have been with humans for millennia, normally associated with common colds and much milder illnesses. However, those familiar with previous Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) pandemics will know that this family of viruses can be highly dangerous to health, as is the case in this 7th type of coronavirus to infect humans; SARS-Cov-2. Although the origins are not clear, it is most likely that the virus jumped from animals to humans, at some point mutating to become easily transmissible (Andersen, 2020).

The most commonly reported symptoms were cough, headache, fatigue and fever, but a myriad of other viral symptoms were frequently seen, including some more idiosyncratic features such as the loss of smell and taste (NHS, 2022). The virus also caused no symptoms (in approximately 40% of cases according to data from June 2021), meaning untested individuals could unwittingly spread the infection (Office for National Statistics, 2021).

Although a relatively minor condition for the majority, in the elderly, obese, deprived or those with other significant medical conditions, the risk of severe and potentially fatal disease was much higher. COVID-19 also disproportionately impacted Black, Asian and minority ethnic communities, who were both more likely to contract the virus and suffer worse outcomes (Williamson, 2020).

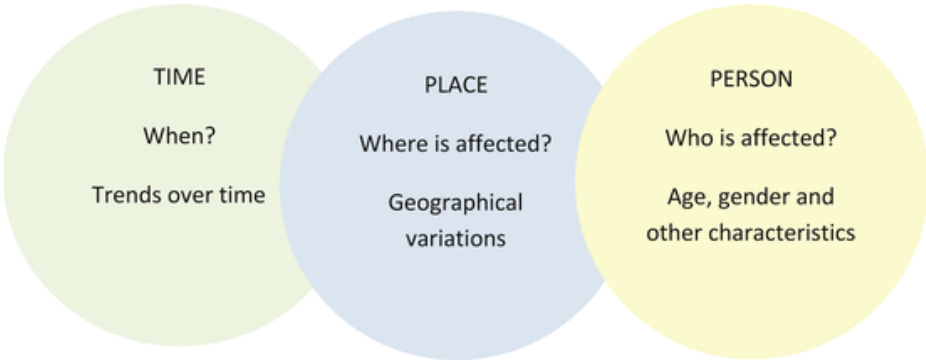
3.3 Health Protection Team

Queries from residents started coming into the Public Health team from February 2020. The spread of Coronavirus in March 2020 had created a sense of urgency and heightened levels of uncertainty. Prior to the onset of the pandemic there were only a handful of staff who worked on health protection in Public Health. This was a part time role alongside other aspects of Public Health. Health protection staff were supported by the Director of Public Health in the absence of a Health Protection Consultant in Public Health. As the pandemic established across London, the remainder of the Public Health team was rapidly mobilised and adapted their roles to support delivery of the pandemic response.

Whilst Public Health England's (PHE) South London Health Protection team were primarily responsible for the investigation and management of outbreaks of infectious disease at a sub-regional level, eventually a huge burden of these responsibilities would shift further into the local authority remit. Strong collaborative arrangements continued throughout as the Public Health England Health Protection Teams transitioned from the former organisation to the recently established UK Health Security Agency (UKSHA).

3.4 The borough

The understanding of COVID-19 has continued to develop. We now understand three things well: the disease-causing agent which was a respiratory virus, how it was transmitted, and an early understanding of who was and continues to be at risk of getting COVID-19 and becoming seriously unwell. Critical to our Public Health response was establishing how known risk factors applied to our resident population. As soon as the data came in we were able to establish three critical things with respect to infection i.e. Person (who is getting COVID-19), Time (when are they getting it), and Place (where are they getting it). Understanding person, time and place is at the cornerstone of epidemiology and disease surveillance.



Richmond upon Thames

Around 200,000 people live in the borough of Richmond. Most are well-educated individuals employed as managers, executives and professionals earning an average of £50,000 a year, against the London average of £38,000. Sixty five percent of residents are included in the top 2 deciles out of 10 of the Index of Multiple Deprivation (IMD), meaning they are some of the least deprived citizens in the country, and only 11% of residents fall into the bottom 5 levels of the IMD. However, although generally a wealthy population, there are some pockets of deprivation, and some homelessness is present with 2.4 per 1,000 of the population having no fixed abode (London Borough of Richmond Upon Thames, 2021).

Socio-economic factors are relevant to the pandemic because those living in deprived circumstances had a 1.8 times greater risk of dying from COVID-19 than those living in less deprived circumstances (Williamson, 2020). Although no local areas (Local Super Output Areas) in Richmond fall within the bottom IMD decile, it is a well-known phenomenon in healthcare that where large wealth gaps exist between the poorest and richest in a community, this can further exacerbate health inequalities (Bor et al., 2017). During the pandemic people who were sleeping rough were accommodated within self-contained accommodation recognising the challenges of supporting homeless populations, for example accessibility of testing and vaccination.

Another important consideration is the prevalence of Black, Asian and minority ethnic individuals within the community as they were between 1.37-1.88 times more likely to die from COVID-19. Richmond as a borough is less diverse than the rest of London with only 16% of the population being of Black, Asian and minority ethnic heritage compared to 44% within London as a whole (London Borough of Richmond Upon Thames, 2021). Although a smaller part of the local population, clearly these groups must remain a high priority in ensuring we protect their health and well-being.

A further demographic of high relevance is age, which is the single biggest risk factor for mortality due to COVID-19 infection. A larger proportion of Richmond's residents are retired from full-time employment with 35% of the population being in the over-50s category, and 16% aged over 65. These are proportionally higher than London's 29% and 12% respectively, highlighting a higher representation of older age groups relative to regional averages (London Borough of Richmond Upon Thames, 2021). A 2020 study looking at the risk of COVID-19 mortality by age group at a population level concluded a striking difference in mortality rate based on age. Amongst COVID-19 patients aged 55-65 the mortality rate was 8.1 times higher than those aged 54 and below, this increased further to 62 times higher amongst those aged 65 or older (Yanez, et.al, 2020). Therefore, due to a skew towards older age groups residing within the borough, COVID-19 generally presents a greater risk to vulnerable older Richmond residents.

Other characteristics also contribute to the risk of death due to COVID-19 including but not limited to; obesity, the presence of long-term conditions and gender.

3.5 What the data told us

Having reminded ourselves of the local area and population, we can examine some of the key statistics that represent the broad impact of the pandemic. These statistics have been taken from the COVID-19 dashboard on the DataRich website (London Borough of Richmond Upon Thames, 2021). We have chosen to represent the pandemic data from July 1st 2020 until December 31st 2021. Whilst cases of coronavirus were detected in the borough as early as March 2020, the Government's plan to scale up testing was not launched until April 2020 (The UK Government, 2020). July 2020 onwards has been chosen because testing infrastructure was more established and case data more representative of the levels of infection in the community.

Since July 2021 there has been increased emphasis on the vaccination programme as the main method for containing the pandemic. Following the rise in cases in July 2021, August through to early November saw a stable level of cases at around 100 new cases per day. During this period deaths and hospitalisations remained relatively low and stable, largely attributable to vaccine effectiveness and coverage in the population (UK Health Security Agency, 2021; The UK Government, 2021). The end of 2021 saw new records for recorded cases, with over 700 daily cases reported on the 21st of December 2021. Due to the emergence of the Omicron variant, it should be noted that in January 2022 the case definition was revised to include multiple infection episodes, the data included in this report reflects this updated methodology (UKHSA, 2022).

In total there were 40,149 cases of coronavirus in Richmond from 1st July 2020 – 31st December 2021. The peak saw 701 new daily cases in December 2021 **(figure 1)**. The case rate in this period (the number of cases over the year per 100,000 population) shows that Richmond had a lower rate with 20,262 per 100,000 compared to London's 21,345 per 100,000.

The peak PCR testing number was 21,170 with a test positivity of 20.1% **(figure 2)** at the end of December 2021 during the Omicron wave, close to when cases were at its highest peak recorded in Richmond. Following their introduction in December 2020, 820,968 Lateral Flow devices (LFD) were used prior to the 31st of December 2021.

December 2021 saw a surge in cases due to the spread of the Omicron variant. With local access to timely diagnosis being essential to prevent the spread in local communities, Public Health, Emergency Planning and DHSC worked to rapidly deploy additional symptomatic testing. Efforts in December 2021 meant an additional 1,700 testing appointments were available locally per week.

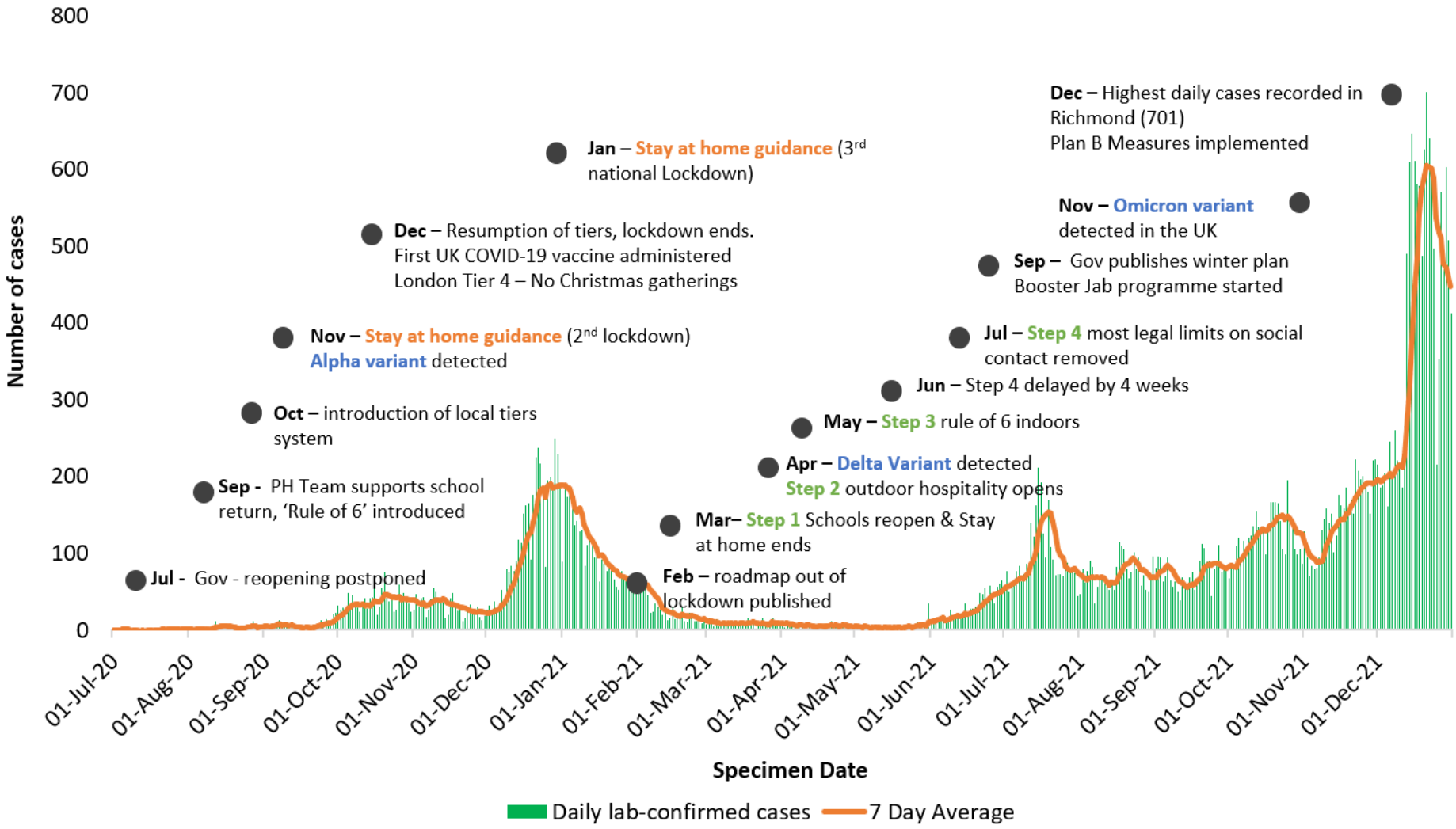


Figure 1 Case Rate in Richmond 1st July 2020 - 31st December 2021

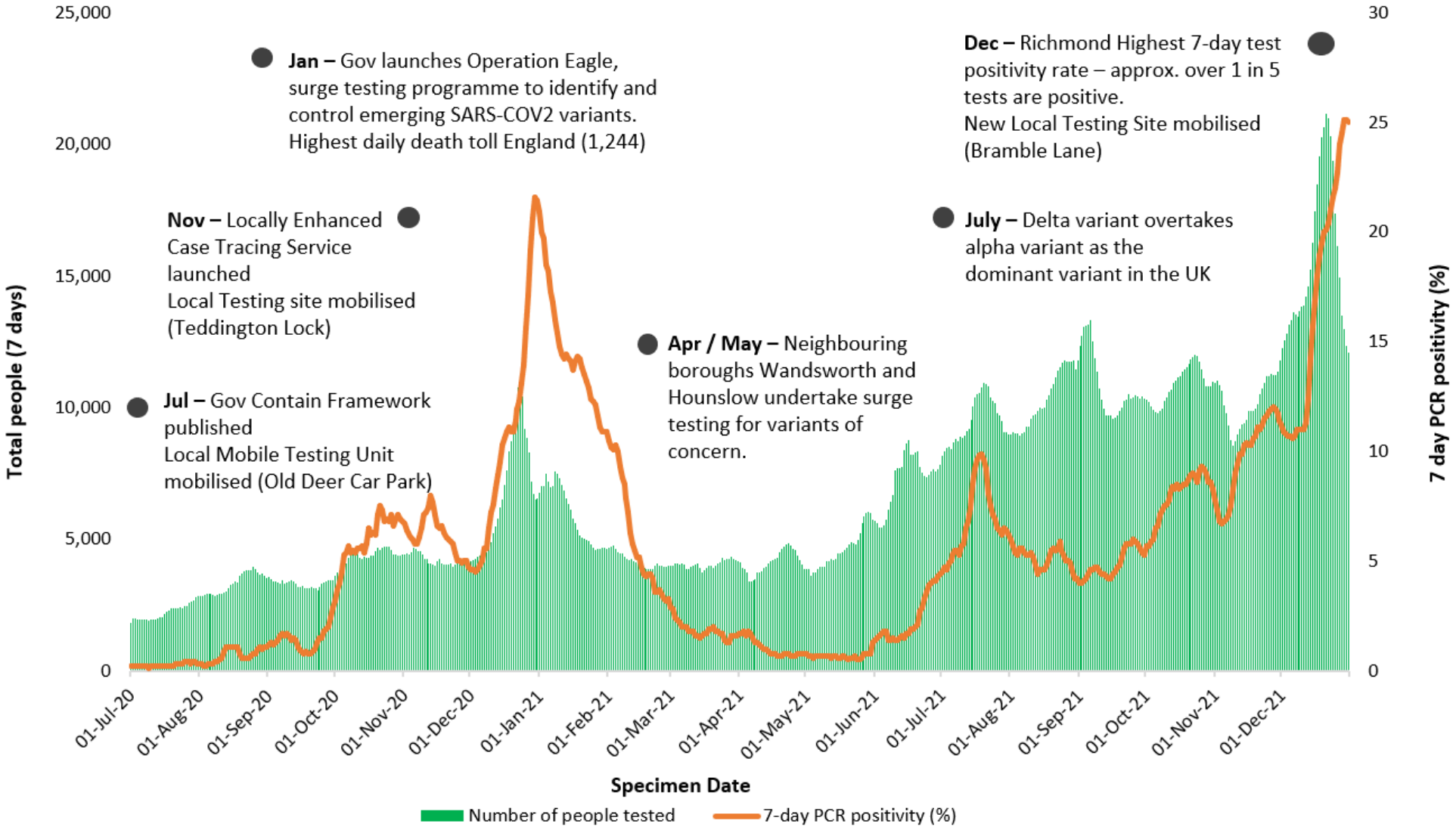


Figure 2 Testing rate and test positivity (%) in Richmond 1st July 2020 - 31st December 2021

In terms of hospital admissions amongst Richmond residents[1] peak levels of admission can be seen at the start of 2021, with a number of fluctuations until the end of 2021, in accordance with changes in levels of cases (NHS, 2022). Lower levels of hospital admission from spring 2021 onwards are a likely result of the coverage and effectiveness of the vaccination programme to prevent serious morbidity and requirement for hospital care.

A resurgence in hospital admissions at the end of 2021 is likely to be associated with the Omicron wave, despite this variant showing lower virulence (Nature reviews immunology, 2022). Note that this data covers a different period to highlight admissions recorded in the first wave.

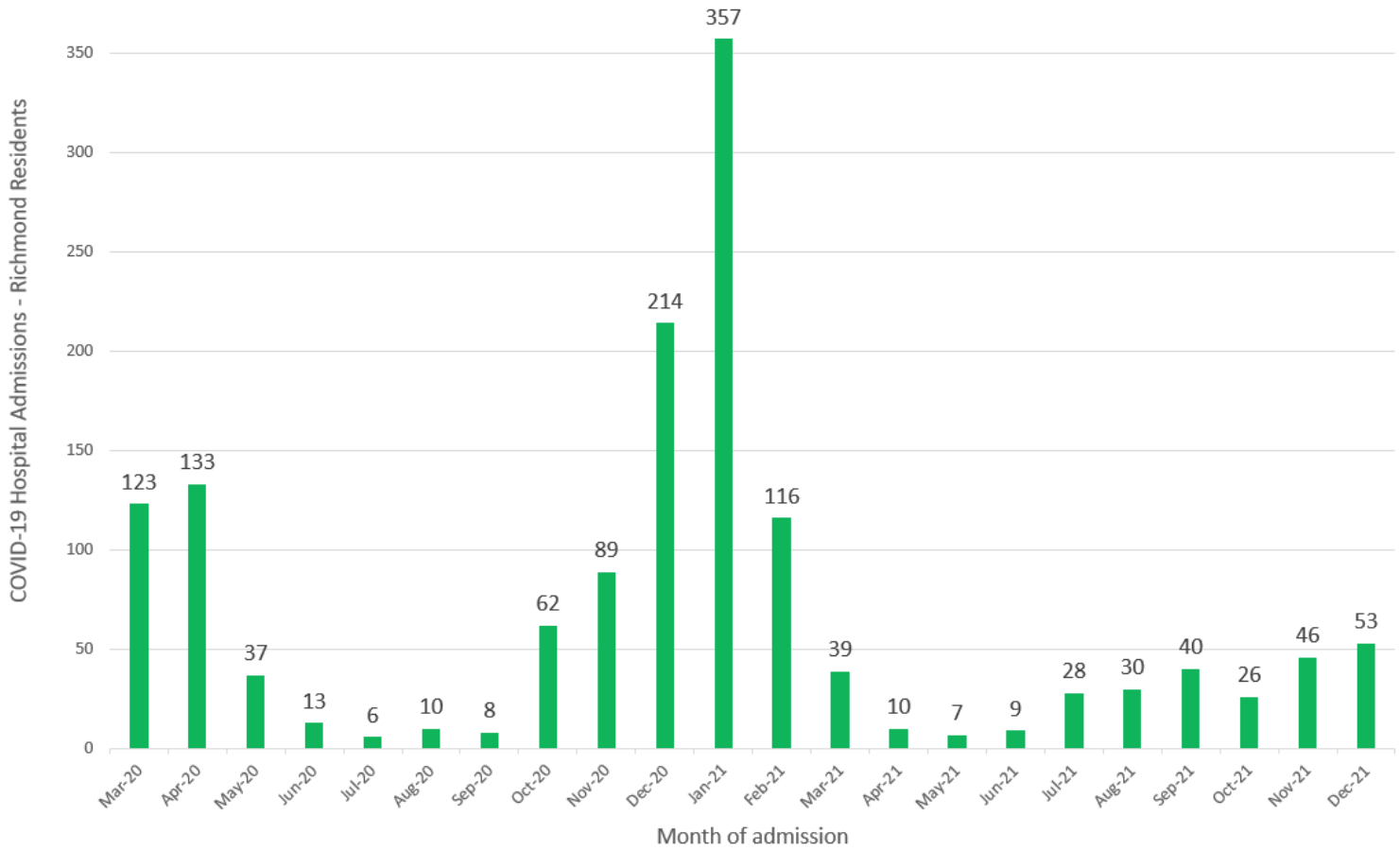


Figure 3 Hospital Admissions for COVID-19 Richmond Residents March 2020-December 2021

[1]Data was extracted from hospital episode statistics (HES) through NHS digital. Figures are based on number of hospital admissions with a primary diagnosis of confirmed or suspected COVID-19 (U071 or U072 ICD 10 code)

COVID-19 was recorded on the death certificates of 232 Richmond residents across this period (ONS 2022). Despite there being more cases in the second and third waves of the pandemic, the daily death toll was highest in the first wave with a peak of up to 34 deaths per week in April 2020. In contrast the second and third wave saw a peak of 8 deaths in a day in January 2021 and 2 deaths in a day in December 2021 **(figure 4).**

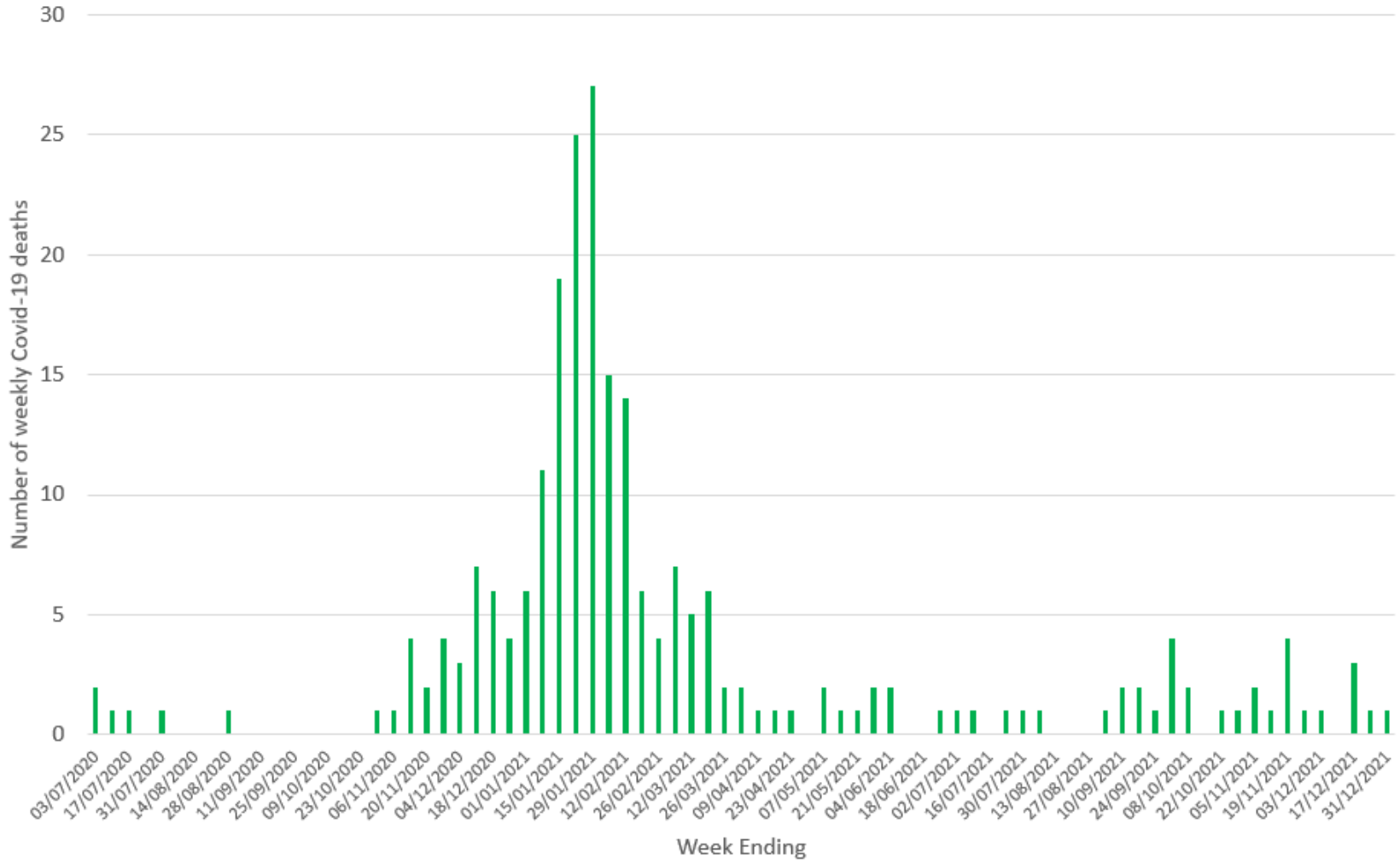


Figure 4 Number of weekly COVID-19 death registrations in Richmond 1st July 2020 - 31st December 2021

Vaccination data (from 31st December 2020 - 31st December 2021) was taken from the GOV.UK website (The UK Government, 2021). Seventy eight percent of over 12s had their first vaccine, and 72% their second in this period **(figure 5).** Booster vaccination rollout began in September 2021; 56% of Richmond residents had received their booster dose (vaccine coverage is up to 31st December 2021). Overall, the uptake in this period in Richmond was significantly better than for London which had uptake of 69% and 62% respectively for the first and second doses. A similar trend was seen for the booster dose, with Greater London having an uptake of 39%.

Based on the period covered, uptake amongst those 70 and above was generally above 90%. A similar trend was also seen for dose 2 and booster uptake amongst residents aged 70 and above. Vaccine uptake below this age gradually tapered off as the age groups got younger. In those younger than 18, uptake was generally less with the first doses only being offered to these age groups towards the end of the period covered. Seventy percent of 16–17-year-olds had received their initial dose, with 59% of 12-15-year-olds having received the initial dose in this period.

The vaccination programme is an ongoing effort with nationally set ambitions; local work continues to engage residents in the vaccination programme and improve uptake in areas showing lower levels of coverage.

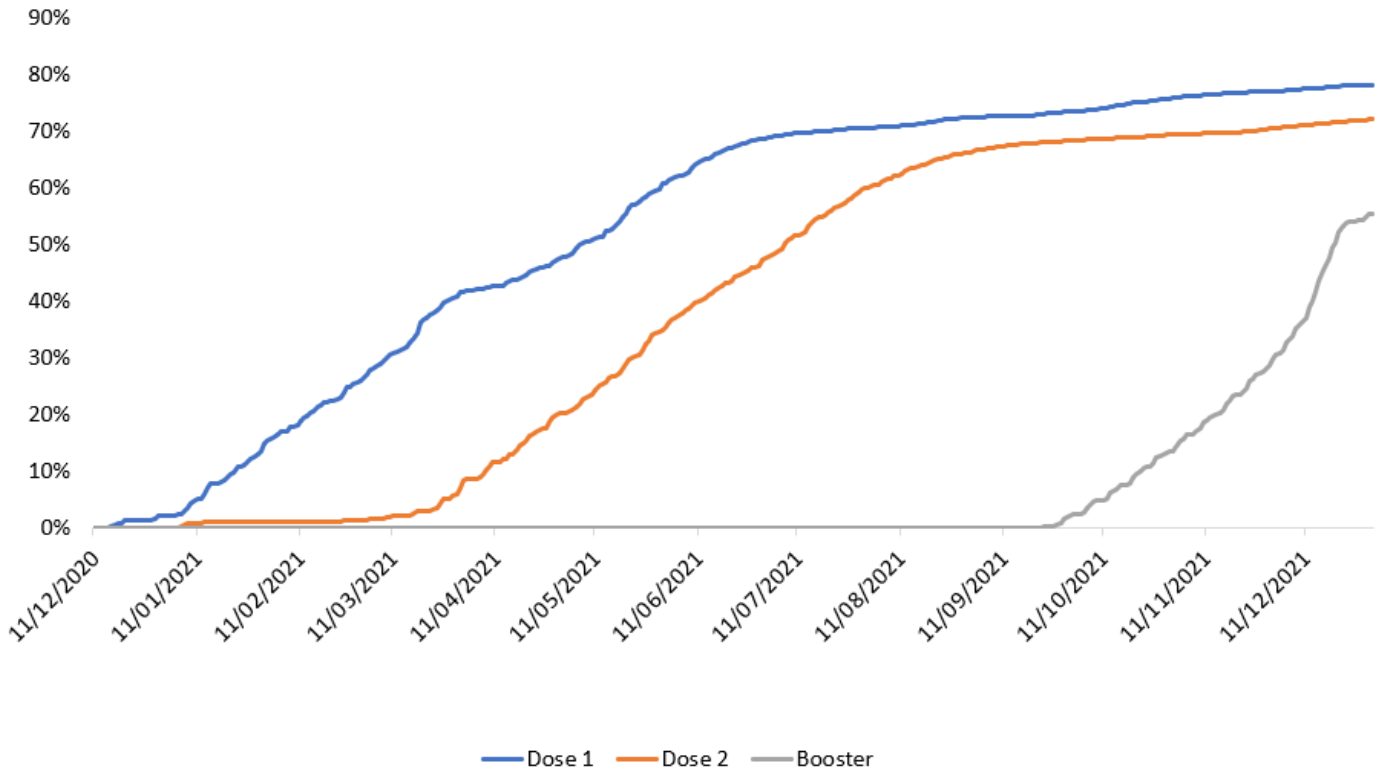


Figure 5 Vaccination coverage in Richmond by dose 31st of December 2020 - 31st of December 2021

4 The emergency response

The importance of effective governance and coordinated emergency response is discussed in this section, followed by highlights of the Public Health Division's COVID-19 Response working in close partnerships with the Communications, and Community and Partnerships Teams around engagement with communities.

4.1 Initial response and establishing governance

As soon as the first case was announced, a strategic coordination was quickly established to provide a foundation for the emergency response, chaired by the Director of Public Health (DPH). Strong governance in an emergency situation is vital to ensuring an effective response, from strategic response, to tactical coordination, and operational delivery. The DPH established a COVID-19 response team to support him in his role as principal advisor to elected members and officers. The DPH has a key role working laterally across the local health and care system, and vertically into regional and national governance structures highlighted in figure 6 below. Their role includes keeping an eye on the surveillance, health protection arrangements, and strategic approach, and then briefing and advising the Council's the Directors to inform the pandemic response across council directorates and local partner agencies.

Borough Resilience Forum (BRF) - The Borough Resilience Forum is a multi-agency partnership between category one and two organisations responding to emergencies as listed under the Civil Contingencies Act 2004. The forums are a mechanism set out in the Act for coordinating local emergency preparedness, response, and recovery activity, enabling a key interface between pan-London level and local areas, and strategic multi-agency coordination amongst responders. During key points of the pandemic response additional meetings were scheduled to address the risk posed, which the DPH co-chaired.

Council Gold Command - On the 13th of March 2020 it was clear that the coronavirus outbreak was going to impact the borough, and the Local Authority Gold Command group was stood-up with meetings scheduled at regular intervals as the situation developed. At an organisational level Council Gold Command provided the strategic response, that underpinned actions for the tactical and operational response groups (Silver and Bronze). The Gold meetings typically started with an up-to-the-minute situational briefing provided by the DPH followed by other briefings and a discussion. Any actions agreed were promptly recorded and circulated for action.

Local Engagement Board - In late spring of 2020, Local Authority Directors of Public Health were tasked with developing, publishing and implementing Local Outbreak Management Plans which determined the local response and how the Council works alongside the regional and national structures.

An element of the Outbreak Management Plan was the development of the Local Engagement Board (LEB). The LEB provided political ownership and public-facing engagement and communication for outbreak response led by elected members from the Health and Wellbeing Board on behalf of their councillor colleagues within their ward areas facilitating co-operation and information sharing between stakeholders and to residents.

Local Outbreak Management Plan Working Group – In addition to the LEB, the Local Outbreak Management Plan Working Group was established as a tactical group to provide further coordination for the ongoing local response across stakeholders, delivering against all the key areas of the Local Outbreak Management Plans. Further information on the workings of this group is covered in chapter 5.

Public Health Board – The Public Health Board is a multi-agency officer-led board that exists to progress Richmond Council's vision for public health 'to tackle health problems, improve the quality of people's lives, and make resources go further'. At the start of December 2020, following a request from Government to all Local Authorities, the Public Health Board formally agreed to adopt an additional function to serve as a COVID-19 Health Protection Board that provides system-wide assurance on the delivery of the Public Health response to the pandemic.

South-West London Incident Management Team (SWL IMT) – A South West London Incident Management Team was also established, led by Directors of Public Health across the sub-region to facilitate coordination of the response at that level and consider overlapping boundary issues, share good practice and develop collaborative responses when required.

Figure 6 provides a simplified overview of the complex system of COVID-19 governance.

Figure 6 Hub-and-spoke diagram summarising governance arrangements

4.2 The COVID-19 Response Team

As the extent of the rapidly evolving global health pandemic became clear, part of the council's emergency response was the swift mobilisation of the Public Health team, to create the COVID-19 Response Team. The team comprised staff working at the forefront of providing timely, evidence based public health information, advice and guidance to protect staff and residents. Led initially by the DPH and later, by the Consultant in Public Health the team supported and empowered other council directorates and local stakeholders to take the necessary steps to protect and prevent the spread of COVID-19 within local communities and amongst staff, and this enabled continuation of vital Council services. Protecting the population from COVID-19 was multi-faceted, including:

- **Surveillance**
- **Testing**
- **Advice and guidance**
- **Large events planning and risk assessment**
- **Vaccination**
- **Communication and engagement**
- **LOMP development and updating**
- **Monitoring and evaluation∑**
- **Environmental Health**
- **COVID-19 Marshal**

In the early stages of the pandemic, where gaps in national guidance existed, the team developed and used consensus guidelines for areas such as emergency property maintenance and frontline worker safety. Later in the pandemic, the challenge shifted towards rapid changes in policy and guidance and the need to ensure stakeholders were updated as quickly as possible and supported in interpreting and implementing the guidance.

4.3 COVID-19 Response Webpages

New webpages were rapidly published providing important, clear, and accurate information accessible to the public on the Council website.
richmond.gov.uk/coronavirus_information

These pages have been regularly updated with the most up-to-date and relevant information, now covering a vast range of areas including official health guidance, testing, vaccination, local outbreak plans, and guidance for businesses. The site also uses links to signpost to essential services allowing access to testing and **support** for residents, businesses and voluntary and community sector organisations. There are also links to our COVID-19 situational awareness dashboard on **DataRich**. These dashboards allowed all stakeholders access to the most pertinent and up-to date statistics for their locality (London Borough of Richmond Upon Thames, 2021). Whilst our webpages have proved valuable and informative tools, updating them to reflect changes in national guidance remained a continual challenge.

4.4 Public Health COVID-19 Response Mailbox

In February 2020 a COVID-19 Mailbox function was established to provide a single coordinated local authority point of contact for public health information, advice and guidance. This was a key part of the emergency response to the pandemic, and a cornerstone for collaborative working and communications across council departments and the public. A system was developed by the Response Team to receive and log mailbox queries. Twenty staff were trained to operate the mailbox ensuring timely, accurate and expert advice was promptly delivered to both colleagues and the public on 1,525 occasions (figure 7). Working collaboratively with PHE London Coronavirus Response Cell (LCRC), the team provided Infection Prevention and Control (IPC) advice and supported settings with outbreak management. Key council departments (Occupational Health, Health and Safety, Facilities Management) and local settings such as schools, care homes and voluntary and community sector organisations were supported by the team, accessible via the mailbox. Several Public Health staff undertook training modules in health protection with Exeter University, to maintain their continuous professional development requirements and demonstrate their competency in providing a high quality of public health protection advice.

Below is a selection of queries received.

Can residents aged 70 plus, who have no underlying health conditions that make them more vulnerable to Covid-19, participate in small group (no more than 5) socially distanced exercise sessions in protected outdoor space?

How do the tiers work? How can people check which tier they should be in if they're for example shielding, clinically vulnerable, carers?

How long do I have to wait after I have had covid or if I have long covid before I can take the vaccine?

We are aware of the urgent need to provide some day respite care to ease the additional stress, pressure and extreme isolation our carers have been facing during lockdown. Many of our clients have asked when their loved ones will be able to return to the Centre for day care. We are therefore investigating how we can proceed in a Safety First, hygienic environment.

Do you know when the possible Public Health England Guidance on re-opening Day Centres might be published?

What do I do if a student becomes sick at school?

How can I help the vaccination effort?

I just wanted to clarify whether the students have to have had both tests 3-5 days apart before coming back into school or can they come back after one test and then have the second test 3-5 days later?

I am emailing because the University of the Arts has academic buildings and/or student accommodation in your borough and I am therefore providing you with a copy of the university's coronavirus outbreak plan.

I have had both vaccinations, why do I need to continue wearing a face covering?

What arrangements have been made to target the more vulnerable groups?

What if I am identified as a close contact but not tested positive for COVID-19 at work?

The volume and nature of the enquiries shifted throughout the pandemic, starting with a general ask for any form of guidance and eventually developing into more complex and sophisticated queries. Questions about the virus, accessing Personal Protective Equipment (PPE) and ventilation were amongst the initial areas of enquiry. As the first lockdown eased the focus shifted to whether services and settings could reopen or if events should go ahead and what COVID-19 secure measures were required. The reopening of schools in autumn 2020 saw a spike in requests for support with testing and outbreak management. As the vaccination became available in December 2020 queries shifted to eligibility, access and concerns about the vaccine, providing opportunities for engagement and signposting. As guidance rapidly changed with the roadmap out of the third lockdown, queries focused on the changing regulations, questions about variants of concern and communications. The year 2021 ended with a surge in requests in support for dealing with outbreaks, the Omicron variant and accessing the Booster vaccination.

Volume of Queries Received to the Mailbox 2020-2021 - **Figure 7**

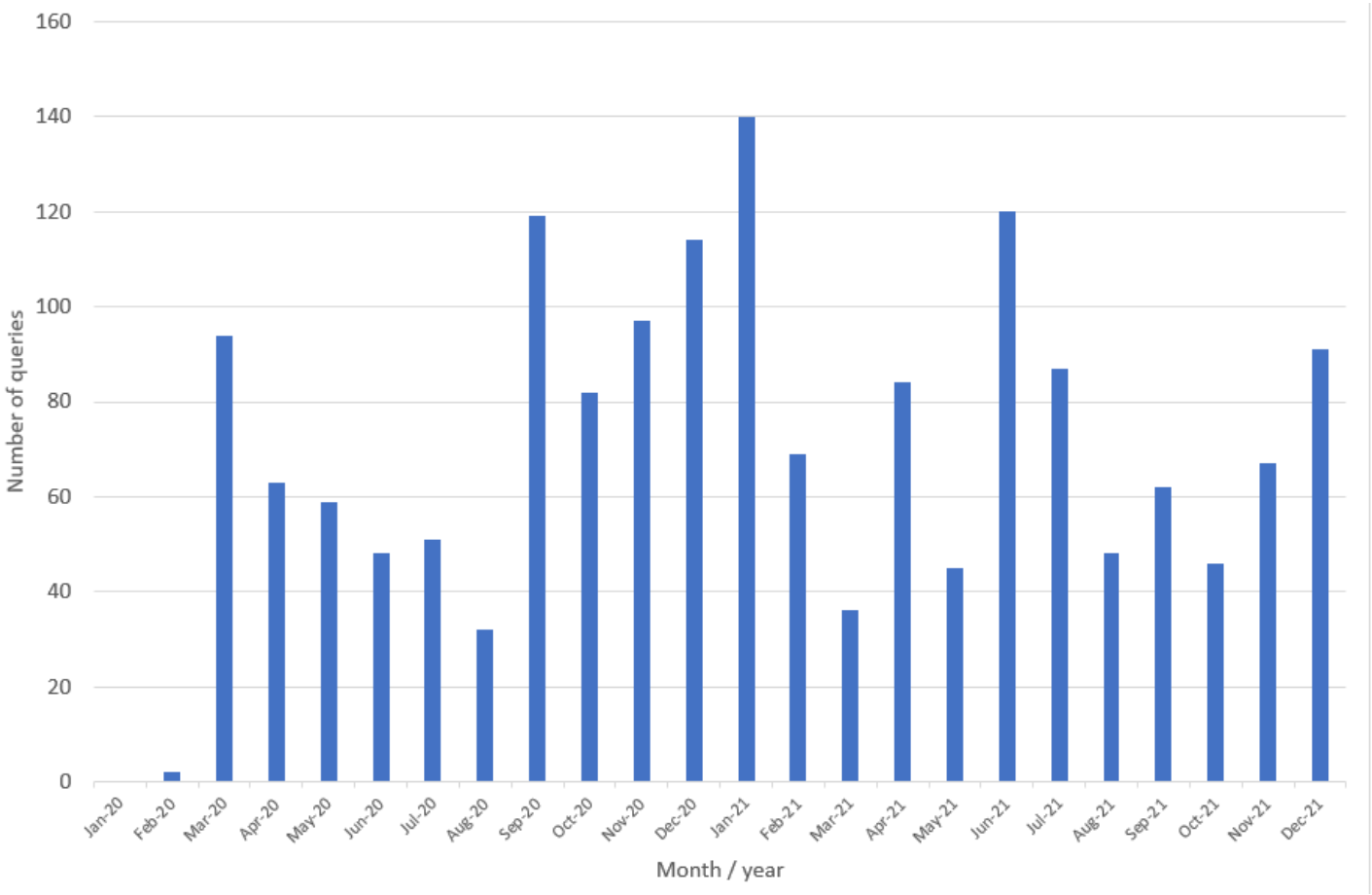


Figure 7 Number of queries received by the Public Health Enquiries Mailbox January 2020 - December 2021

Some highlights of work undertaken by the COVID-19 response team are included in . Staff deployment to COVID-19 response was adapted depending on levels of demand during the pandemic. This adaptive model has been vital in allowing for surges in demand to be met, whilst balancing delivery of other essential public health and COVID-19 recovery programmes that fall outside of emergency response. Working on the COVID-19 response team was persistently intense and throughout the pandemic we explored various ways of alleviating the impact on staff wellbeing, for example setting up a rota to take time off the response desk and spend time on non-COVID-19 related work. When the response was scaled down and many staff returned to their substantive work a reflection session facilitated staff learning and recognition of achievement, with many staff sharing a sense of pride and fulfillment around having supported the response effort.

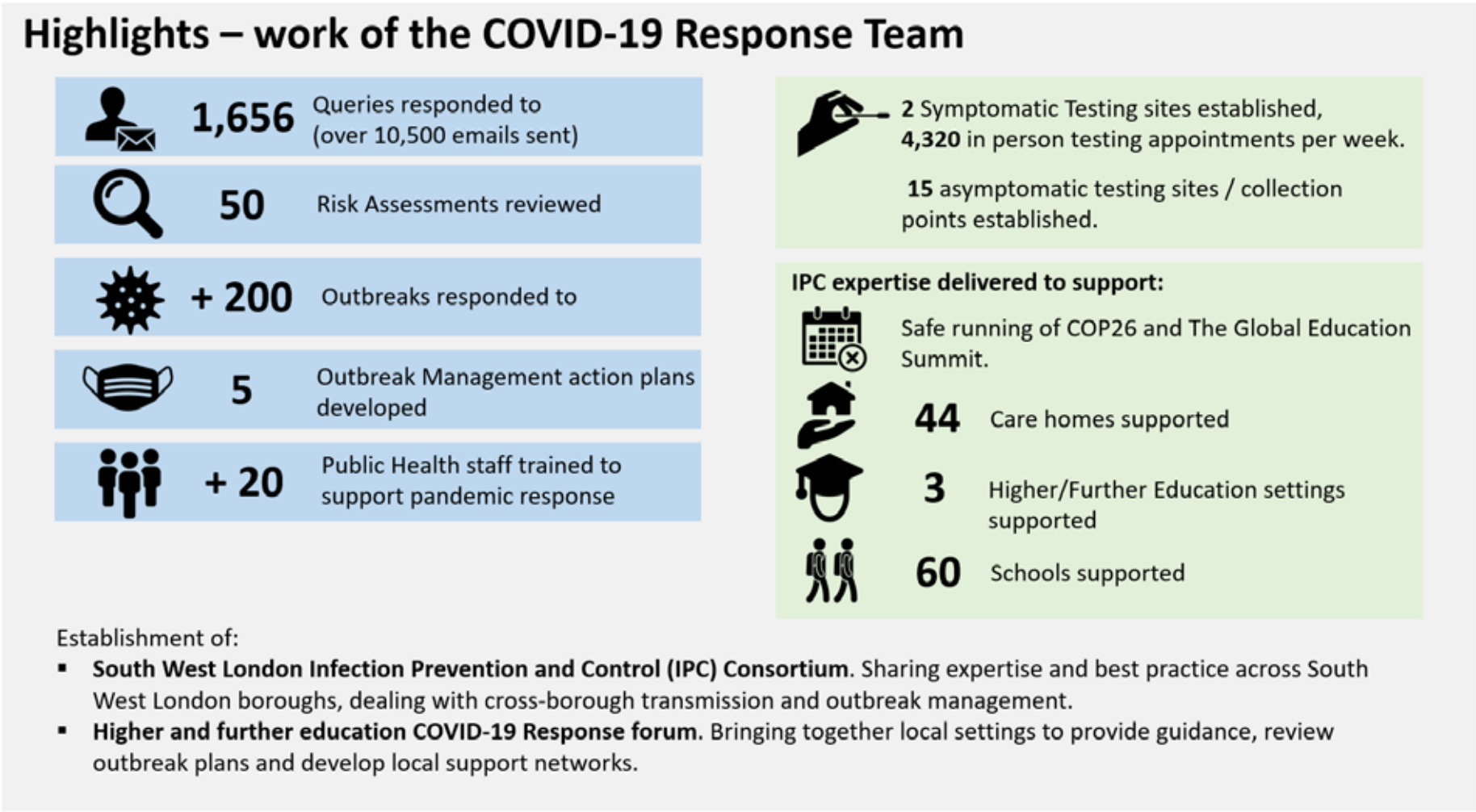


Figure 8 Highlights of work undertaken by the COVID-19 Response Team

4.5 Communications and Media

With the onset of the pandemic, the Communication team redirected almost all their resources to disseminating key COVID-19 messaging. They were central in amplifying the national campaigns, encouraging adherence to lockdowns, increasing uptake of testing and vaccines and keeping residents informed on the latest developments. Almost every media platform has been used to reach hundreds of thousands of residents including social media, e-newsletters, podcasts, radio, 'Q&A' sessions and television interviews. Some examples of the key messaging delivered during the development of the pandemic are included in **figure 9**.

Figure 9 Communications Highlights 2020-21

Throughout the pandemic the borough newsletter, including blog posts from the DPH and Richmond Talks Podcasts, and weekly Videos from the Leader of the Council kept residents up to date with the latest guidance, access to information from local experts and promoted support available. Other campaigns saw children having bedtime stories read to them by members of the Richmond Talking News (London Borough of Richmond Upon Thames, 2020), and 'Love Through the Letterbox' saw local youngsters write letters to care home residents over lockdown and for Christmas 2020 to spread festive cheer (London Borough of Richmond Upon Thames, 2020). More recently, the development of the innovative 'everything COVID' website aims to encourage vaccine uptake in young people (Everything COVID, 2021).

Regular meetings and collaboration have seen Public Health support the communications effort by providing timely and accurate information to support campaigns, especially with regards to supplying insightful data to help with targeting population groups. PH reviewed all COVID-19 communications prior to sign off by the DPH, ensuring they were current, accurate and evidence-based. The DPH and team also contributed content for media interviews, podcasts, or participated in public health briefings, events and online 'Q&A' sessions.

The communications output driving community engagement ensures the local population continue to be mindful of COVID-19 and encourages testing and vaccination, which is key for the role of the Local Outbreak Management Plan Working Group. Indeed, the collaborative working with the Communications Team has been a recurring theme throughout the pandemic. Furthermore, working relationships between the Council and NHS Clinical Commissioning Group Communications teams have been strengthened through collaborative work on promoting the vaccination programme.

4.6 Community engagement

Engaging with communities proved essential in the pandemic response. The Council continually engaged with stakeholders and residents at multiple levels throughout; informing and consulting the public, decision-making and acting together, and supporting local initiatives. Ideally as many community stakeholders as possible should be involved with the Council's COVID-19 response, driving community understanding, resilience, and empowerment. Sometimes engagement with all Richmond residents was sought, whereas other times collaboration with smaller groups within the community was preferred (London Councils, 2008). Engagement with specific groups is especially important when attempting health promotion for underserved cohorts, for example, those from a Black, Asian, or Minority Ethnic background, those shielding, or those experiencing economic hardship or homelessness (den Broeder, 2021). The UK Health Security Agency (UKHSA) have acknowledged importance of ongoing, tailored engagement from local authorities which reinforces national messaging, encourages compliance, and helps us understand barriers to uptake of public health advice (UK Health Security Agency, 2021).

In February 2021, Public Health briefings aimed to disseminate information regarding vaccines were launched in the form of Zoom call events. Furthermore, they provided attendees the opportunity to discuss and have questions answered. The council also held a Race Equality Network event – 'Let's Talk COVID-19 Vaccinations'- which was hosted by the DPH and aimed at increasing confidence in the vaccine amongst Black, Asian and Ethnic Minority groups through myth busting and conversing with faith leaders and other key local stakeholders.

During the government's 'Everyone In' campaign in March 2021, the council engaged with a local charity, SPEAR, to accommodate homeless individuals across South West London. This campaign saw hundreds of vulnerable people rehomed and many cases were likely prevented. Engaging this community provided an opportunity to address multiple challenges enabling access to accommodation services, healthcare and GP registration (McCulloch, 2021).

A Health and Wellbeing Day hosted in Richmond saw local support for vaccine hesitancy within the local homeless and asylum seeker communities. Held at the end of November 2021 at the centrally-located Twickenham Exchange the offer to local residents enabled access to flu and COVID-19 vaccinations and access to other key health and wellbeing services. Other services included for example, hepatitis C testing, provision of clothes and essentials (toiletries, hand sanitiser, food etc.), lateral flow testing kits, hairdressers, food vouchers and hot food. The initiative saw collaboration across multiple agencies, including the Council, SWL Clinical Commissioning Group, Healthwatch Richmond and SPEAR. Over 50 flu and COVID-19 vaccinations were given at the event, providing essential protection to a vulnerable demographic.

Clear communications and effective community engagement have been instrumental in encouraging the public uptake of preventative measures; especially important during the emergency response phase prior to vaccines and effective medical treatments.

COVID-19 Marshal recruitment and deployment:

- Public Health worked with the Council's Economic and Development team and COVID-19 Marshals Task and Finish group to provide infection, prevention and control training and Make Every Contact Count (MECC) training was provided to the marshals as well as developing appropriate messaging that was shared with businesses and residents.
- The marshals worked within areas of high footfall, including transport hubs - for example, outside rail and bus stations - in order to help reinforce the importance of adhering to COVID-19 regulations and provided information, guidance and reassurance to the residents and local communities.
- The marshals visited business premises delivering COVID-19 compliance advice, answered queries from residents, documenting any findings and highlighting any concerns to the Regulatory Services Teams and Environmental Protection Team.

4.7 Prevention Interventions

The Council's immediate emergency response was characterised by promoting and encouraging preventative measures to break the chain of transmission. The focus of national campaigns has been promotion of non-pharmaceutical interventions (NPIs) which are summarised in **figure 10**.

Local messaging on NPIs reinforced NPIs around points where increased social gathering was likely, for example Halloween, bank holidays or sports events.

Furthermore, the Council has led businesses' COVID-19 safety compliance (with Infection Prevention and Control visits conducted when necessary). The process for reviewing events helped mitigate risks of spread in large crowds, with local requirements around risk assessment and adequate demonstration of COVID-19 secure measures being a pre-requisite for event approval.

In addition to preventative measures, coordinated and Public Health driven response across local stakeholders was ensured through Local Outbreak Management Plans (LOMPs) and establishment of the LOMP Working Group.

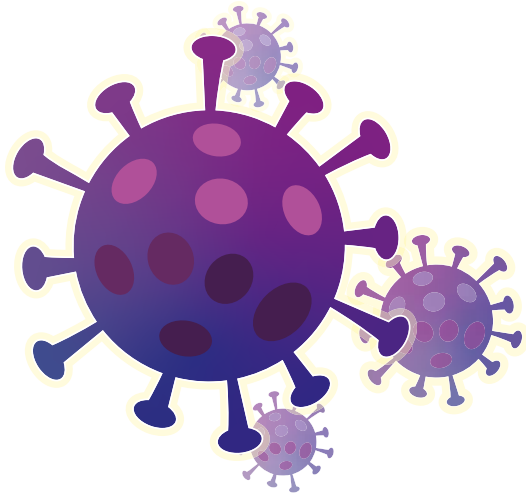


Figure 10 Non-pharmaceutical interventions (NPIs)

5 The Local Outbreak Management Plan Working Group

The Local Outbreak Plan Working Group comprised lead officers from different council directorates and partners, who would be instrumental in responding to the pandemic, with the Director for Public Health as chair.

Represented alongside public health colleagues were Communications, Adult and Social Care, Environment and Community Services and Children's Services, the NHS Clinical Commissioning Group, Housing and Regeneration, Regulatory Services, PHE South London, with other relevant officers invited on an ad-hoc basis. The breadth of expertise present reflects the coordinated, complex, and multifaceted response demanded by the pandemic.

5.1 The Local Outbreak Management Plan

The Local Outbreak Management Plan (LOMP) provides structure and guidance for the purpose, roles, and responsibilities individually and collectively of the LOMP Working Group. At the start of the pandemic DPHs were requested to develop and publish their plans at speed, when the knowledge of the pandemic and COVID-19 response was still being understood. The LOMP support preparedness, recognising that there will be outbreaks despite vaccination, and through evidence-based methods guides effort to prevent and contain said outbreaks. Duties for local authorities include (UK Health Security Agency, 2021):

- **Implementing test, trace, and isolate systems**
- **Surveillance and monitoring of COVID-19 locally**
- **Encouragement of asymptomatic testing**
- **Identification of VOCs**
- **Encouragement of compliance, testing and vaccination**

The LOMPWG should achieve these outcomes whilst considering:

- **Higher risk settings**
- **Vulnerable and underserved communities**
- **Compliance and enforcement**
- **Governance**
- **Resourcing**
- **Communications and engagement**
- **Data integration and information sharing.**

5.2 Action

Action Plans

Whilst the COVID-19 pandemic response was ongoing, the LOMPWG played a key role in delivering targeted 'action plans' to address changes in the local epidemiology. For example, if the levels of cases were rising further to review of local data, a set of actions to prevent further spread would be agreed as part of a LOMPWG action plan.

Some of these actions were broadly focused, such as increasing communications promoting interventions like facemasks, social distancing or vaccines, whereas others were highly targeted to specific areas or events (e.g. provision of IPC expertise to support safe delivery of the Hampton Court Flower Show).

Surveillance and Intelligence

Throughout the pandemic, daily surveillance reports have been distributed to the DPH, chief officers in the council, and key Councillors, allowing the LOMPWG to react quickly with emerging concerns in the local epidemiology. Data surveillance also allows for the effectiveness of interventions to be measured, helping to inform future strategies.

Testing

Responding to the COVID-19 pandemic required an effective and proactive programme of testing, contact tracing, and self-isolation to break chains of transmission. Partnership between national, regional, and local bodies is vital to ensure a coordinated coherent response. The LOMPWG have been essential in supporting symptomatic PCR community testing sites, supporting extensions to sites and continued delivery of vital testing infrastructure. Furthermore, the implementation of the asymptomatic Community Testing Programme (CTP) has enabled detection of local cases that could otherwise have posed a transmission risk.

Public Health, Community and Partnerships and Emergency Planning teams worked collaboratively with the UK Health Security Agency (UKHSA) to mobilise and ensure the continuation of a local in person testing offer via Local Testing Sites (LTSs) and Mobile Testing Units (MTUs). Sites were designed to support walk-through or cycling access to in person testing.

The team also worked with Emergency planning to coordinate the deployment of mobile testing units (MTUs) which, at a moment's notice, could be sent to businesses, buildings of mass occupancy (e.g. schools, care homes, etc) or areas of greater need.

Timely access to COVID-19 testing was essential for timely diagnosis, which not only helped individuals obtain appropriate medical care but also helped prevent further spread of infection within communities. LTSs provided an opportunity for vulnerable groups who couldn't access testing via other channels to obtain access (e.g., homeless individuals who couldn't order a home testing kit to a place of residence). It also provided opportunity for disabled groups and parents of children to obtain support with undertaking the testing procedure. Providing access to these groups is not only a legal and moral imperative but also helps prevent spread in the wider community.

Following a Local Authority GOLD meeting in January 2021, the Community Testing Programme (CTP) was rapidly upscaled with the mass use of lateral flow devices (LFDs) to identify asymptomatic individuals. Locally Public Health worked with other council Directorates to implement infrastructure to deliver mass asymptomatic testing at scale. Sadly, the entry into the 3rd national lockdown in January 2021 saw the national ambition of the programme scaled down, with rapid local adaption of the programme to provide a targeted offering for essential workers. The programme policy direction changing with the development of the pandemic required agile and rapid local adaptions to meet national policy change and local testing need.

The COVID-19 response team working closely with Policy and Emergency Planning has made use of local data, expertise, and relationships to establish asymptomatic testing sites and collection points across the borough. This included the establishment of testing within:

- Local pharmacies (8)
- Libraries (4)

Combined the CTP and PCR testing have helped with timely detection and containment of infection.

Contact Tracing

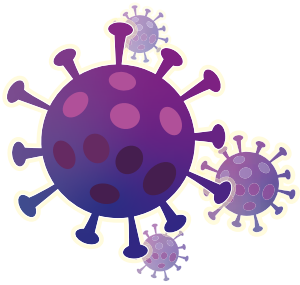
Contact tracing depends on being able to determine who a person who has tested positive for COVID-19 could have infected. In October 2020, Local Authorities were encouraged (but not mandated) to designate staff to trace and contact individuals. The benefit of this approach being the wealth of knowledge held locally on communities.

The four case tracers recruited were able to use local knowledge and relationships and door-knocking when needed to reach cases. They could also provide links to financial support schemes, encouraging compliance with self-isolation.

Outbreak Management and Prevention in Differing Settings

When more than one case was linked to a particular setting, the London Coronavirus Response Cell (LCRC) led on outbreak investigation. However, on some occasions if contact could not be made with the setting, there were concerns that an outbreak was not contained or there was poor adherence to infection prevention measures, the Public Health team would collaborate with them to control the outbreak and visit the location if required. Infection Prevention and Control specialist nurses were recruited to the Public Health team to strengthen the local pandemic response. IPC leads have been instrumental in building close working relationships with local settings, ensuring adherence to guidance and best practice and supporting timely control of outbreaks. In addition to timely IPC guidance, rapid deployment of MTUs to test staff or residents has been key in containing outbreaks. Some key settings that are supported with outbreak prevention and control include:

- **Care homes:** a priority throughout the pandemic but especially early on, with initiation of a special testing pathway and an IPC training offer. During the initial part of the pandemic a Strategic Care Home Oversight Group (SCHOG) was formed, with the Senior Clinical IPC Lead representing Public Health. All care homes were contacted on a daily basis to receive updates and provide support or PPE as required. The Public Health team have continued to work closely with care homes supporting with outbreaks, testing, and visiting rules (the latter two being subject to frequent changes in government guidance).
- **Schools:** experienced consistent challenges with outbreak management. Returning students led to outbreaks across the borough, especially during September 2020 and 2021. Council staff have liaised closely with the schools to monitor outbreaks and provide advice, support implementation of testing and vaccination. Engagement with parents around vaccination has been key to improving uptake and work with local police contacts ensured support for schools who were struggling with anti-vaccination protests outside their gates.
- **Universities and further education colleges:** A higher education forum was established at the start of the pandemic by the Public Health team, bringing together local settings to provide updates on key guidance and build a local support network for settings. Universities have been further supported through feedback on their local outbreak control plans by specialist IPC nurses in the Public Health team who have also provided individual setting support for outbreak management and advice on how to safely arrange provision of face-to-face teaching.
- **Businesses and retail:** COVID-19 Marshals played a main role in this, supporting businesses to reopen safely and providing them with certification to demonstrate their compliance with COVID-19 precautions. Furthermore, support for deployment of employer-based testing in February 2021 has been vital to detecting and preventing workplace outbreaks. Delivery and promotion of the employee based asymptomatic testing programme for businesses has also been a key area of work.
- **Hospitality venues such as pubs and restaurants:** wherever possible encouraging compliance is always the first priority. However, on some occasions the council temporarily closed venues that were struggling to adhere to regulations, instructing deep cleans, retraining of staff and advising on improved preventative measures.



COVID-19 Marshals

COVID-19 Marshals were employed to act on an advisory basis, to encourage, educate and seek engagement with the regulations, with both members of the public and businesses. They patrolled the borough daily, often in areas of high footfall (and could be deployed to areas where cases may be higher or rising), and their role involved:

- Distribution of letters and informative 'postcards' within the community updated with the latest recommendations and signposting to further information sources.
- Identifying businesses not complying with regulations and providing advice and support, escalating if necessary, for enforcement action or an IPC visit.
- Providing daily reports and insights that helps inform councils response to the pandemic.
- Sharing of information with partners, including the police, when needed, to coordinate approaches.

As part of intelligence-driven action plans developed by the LOMPWG, COVID-19 Marshals were deployed to settings in areas experiencing a rise in cases to provide targeted advice and feed back on the ground intelligence for further intervention.

Vaccination

Vaccination is now thought of as our main line of defence against coronavirus (UK Health Security Agency, 2021) and as such has been a key priority for the LOMPWG. Planning commenced for vaccination roll-out in October 2020 and the priority groups were receiving doses by December. The NHS Clinical Commissioning Groups led the roll-out under direction from the Joint Committee on Vaccination and Immunisation (JCVI).

Despite being an NHS-led programme, support from Council Public Health and Communications teams was delivered across several areas, from identifying sites to communications and engagement, for example, leading on logistics for The Stoop (the Harlequins Rugby Club ground) as a mass vaccination centre. Collating local insights into the barriers and enablers to vaccine uptake and engaging with local communities to instil confidence in vaccination have been key to improving local uptake.

Surveillance, engagement, and insights have been key to enabling a targeted approach, with many initiatives focused on improving uptake in local communities and addressing inequalities:

- Care Homes: The Public Health Clinical IPC lead worked collaboratively with NHS colleagues to engage with care home managers in an initiative aimed at improving staff vaccination. Targeted efforts were made to support and engage with care homes experiencing lower levels of staff vaccination coverage, to ensure vital protection for vulnerable residents in those settings, engagement focused on providing information to combat vaccine hesitancy and improving confidence in vaccination.
- The council's Insight and Analytics Team undertook data analysis to look at vaccine uptake to identify the extent to which particular groups were under-represented. A COVID-19 equality impact assessment was carried out in the borough. Data analysis was used to identify low uptake which informed subsequent targeted action. Richmond developed communications for residents, including videos to ensure messaging on COVID-19 and vaccines was easily accessible.
- Community vaccination champions were also deployed consisting of voluntary members of the public encouraging peers to get vaccinated.
- All the Council's eligible social care staff were offered the vaccine. The Council mounted a comprehensive Communications Plan to promote the vaccine to staff including the use of short stories from practitioners who had received the vaccine. The Council Staff website (The Loop) contained readily accessible information and advice for staff on understanding the vaccine, answers to frequently asked questions about the vaccine, staff vaccination stories and staff briefings related to COVID-19 vaccination.
- Several well attended on-line events about COVID-19 vaccines were delivered since vaccines became available. The Public Health team hosted a presentation on the COVID-19 vaccines attended by over 1,500 members of staff on 9th February 2021. The session responded to frequently asked questions and received very positive feedback.
- A further engagement session took place on 16th February 2021 with the Director of Public Health and staff from different minority ethnic groups who are part of the Race Equality Network (REN). The session was aimed at encouraging staff to receive vaccinations by addressing concerns, due to evidence suggesting that Black Asian and minority ethnic (BAME) groups have been less confident about the vaccine.

The vaccination effort continues, with the end of 2021 seeing a focus on vaccination of 12-15 year olds and delivery of the booster vaccination. Efforts to engage local communities, combat vaccine hesitancy and improve uptake in individuals from deprived backgrounds or Black, Asian or minority ethnic groups continue as an important area of collaborative work between the NHS, Communications and Public Health teams.

5.3 Addressing Health Inequalities

As the pandemic unfolded, it became evident that COVID-19 was having a disproportionate impact on particular groups of society. A report published by Public Health England in 2020; *COVID-19 review of disparities in risk and outcomes,* highlighted the increased risk of acquiring COVID-19, suffering serious illness and risk of dying amongst these groups, namely ethnic minority groups and those living in deprived areas.

In context of this, understanding efforts to support, protect and engage 'vulnerable and underserved communities' has and continues to be a priority of the Public Health team and LOMPWG

Despite the higher risks and rates of COVID-19 in these communities there is less engagement with interventions. In June 2021 92% of over-50s had received both vaccinations, however this varied from 95% uptake in the least deprived areas, to 87% in the most deprived. Further examples of disparities include the fact that uptake reached 90% in White British or Indian ethnicities but was less than 70% in Black ethnic groups (Public Health England, 2021).

Whilst the Covid-19 pandemic impacted on all residents, evidence from across London and indeed the country showed that it's impact were disproportionately felt amongst certain communities. The pandemic reinforced the need to address the wider determinants of health as the fundamental causes of poor health outcomes.

In response to the COVID-19 pandemic, Richmond introduced a number of measures to support residents during "lockdown" restrictions and subsequent COVID-19 related restrictions. These included the Community Hub helpline, Food Distribution Centre, and Shielding List, as well as directorate specific responses. In 2021, officers have been identifying and assessing impacts of COVID-19 on the different protected characteristics present in our diverse borough to understand these and shape our services and support appropriately. As part of their COVID-19 response, Richmond Council have been looking at publicly available data to identify areas of greater need, in order to support local residents and businesses. The Council made this information available on DataRich website to support the response of voluntary and community organisations.

6 Learning and reflection

The Pandemic response has enabled learning from the perspective of; mobilising the Public Health Team response to a crisis, working effectively with partners across the council, NHS and wider stakeholders and crucially how to engage and communicate better with residents, support settings, implement guidance and deliver services hyperlocally.

Positive working practices introduced during COVID-19 Response:

- Rapidly training and redeploying staff in areas of high demand to help protect population health.
- Introduction of agile practices to set up and shutdown task groups related to the pandemic rapid response.
- An intelligence-led approach to managing the pandemic, including data and analysis to understand in detail levels of need within communities. Use of analytics and insights to inform decision making around delivery of interventions such as testing, vaccination and tackling inequalities.
- Use of Borough Resilience Forum as an extension of the council response.
- Use of the LOMPWG as a forum for coordinating the response across many different agencies.
- Use of a single point of contact for Public Health via a shared mailbox function to support corporate priorities with timely, accurate and credible Public Health advice.
- Use of funding flexibly to support intervention and local communities, such as the Contain Outbreak Management Fund (COMF).
- Using the Community Action Model to protect health and tackle inequalities.
- Community engagement between Public Health team and members of the community and community leaders. Building on community relationships through engagement, for example, by wo rking with faith and voluntary sectors locally to reach underserved communities.

Ways we have worked more effectively with partner organisations or communities:

- Frequent communication with CCG, with increased collaboration.
- Establishing task and finish type groups within individual directorates and across the council to deal with specific issues e.g. Local Outbreak Management Plan (LOMP) working group.
- Providing guidance to the community hubs, developing and delivering a community action model.
- Delivery of regular community forums and partner meetings to gain local insights and provide updates and support.

- Collaboration and development of close working relationships with other directorates and pooling resources to:
  - Support local settings such as care homes and education settings working with relevant council directorates (Children's Services and Adult Social care).
  - Rapidly deliver urgent intervention e.g., mobilising testing.
  - Working with Communications and Community Partnerships to reach and better understand communities.

Areas and ways of working that have caused pressure, concern or could have been improved:

- Access to live national datasets earlier in the pandemic would have provided more timely and in-depth understanding of local epidemiology and enhanced delivery of the local response.
- Access to training earlier in the pandemic to support technical aspects of response and challenges with recruiting to specialist posts.
- Consensus and clarity on work that could be paused.
- Increased matrix working with colleagues working flexibly with Public Health and across council directorates.
- Dedicated staff working around the clock and long hours, additional work brought about by pandemic and competing priorities from existing work. Associated concerns for staff wellbeing.
- Calendars overpopulated with meetings, not allowing for time to focus on workload or staff welfare.
- Greater clarity on roles and responsibilities for teams and staff members. Duplication and unequal distribution of workload, this issue extended beyond the Public Health team and was evident across council directorates and external partners.
- Lack of holding emails to manage expectations with regards to timeframes and capacity.
- Greater anticipation of communications and media requests based on the developing situation. Enabling a coordinated response with agreed key messages during times of escalating concern.

New approaches to delivering that will be taken forward post-pandemic:

- Establishing working groups that provided a multi-agency forum to respond, e.g. LOMP Working Group.
- The PH Division's response brought opportunities for community engagement. Delivering through community and faith and voluntary sector (e.g. testing in Mosques and churches).
- Using contract variations to deliver additional services through existing providers e.g. pharmacies providing testing, and now COVID-19 vaccines.
- Use of a single point of contact for the Health Protection team via a shared mailbox.

Learning and working with communities to address inequalities:

Learning from COVID-19 and inequalities, the Public Health team is developing a public health community engagement plan as part of the COVID-19 recovery to embed effective mechanisms to engage with ethnic minority and vulnerable communities in Richmond. This includes the development and implementation of a Public Health Community Health and Well-being Champions programme and carrying out health needs assessment and a scoping exercise to identify suitable interventions to engage vulnerable communities into healthy lifestyles.

Richmond is also in receipt of a Covid Vaccine Champions grant for a Public Health-led programme that will support identification of communities with low uptake of COVID-19 vaccine, deliver capacity building solutions, and targeted vaccination activities including, community champions, communications and marketing materials.

7 Conclusion

Through an extraordinary effort the Public Health team, alongside many other colleagues both inside and outside of the council, have proved indispensable in tackling the biggest threat to our population health in modern times.

This report demonstrates the scale and intensity of the response delivered by one of many public health teams across the country.

The COVID-19 pandemic has had a huge impact on population health and outcomes. As we learn to live with COVID-19, Public Health is now faced with addressing a wide range of issues that have been exacerbated by the pandemic, existing pre-pandemic health challenges, and emerging health issues arising directly as a result of the pandemic. All the while, we maintain our readiness and continue to keep an eye on COVID-19, while responding to public health issues affected by the pandemic, including NHS health checks, child immunisations, cancer screening and diagnosis and an increase in mental health.

Acknowledgements

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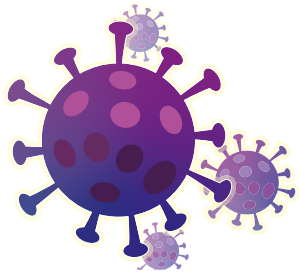
COVID-19 Data

COVID-19 Data from 2022 is available at:
https://coronavirus.data.gov.uk/ and on **https://www.datarich.info/**



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