Protecting our Health

Our response in Wales to the first phase of COVID-19

Chief Medical Officer for Wales
SPECIAL REPORT

Llywodraeth Cymru
Welsh Government

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Introduction

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When I presented my annual report last year, it contained a section on public health threats and I commented on how, in an interconnected world, we could easily face a public health emergency and that if we ignore health protection arrangements we would do so at our peril.

At that time, none of us could have known the circumstances that we would come to encounter in 2020 with the world-wide spread of a new form of coronavirus.

As with the rest of the world, in Wales we have had to respond to the very real threat posed by this pandemic, to our health, social care and wellbeing, our employment and education systems, our economy, and in fact to every aspect of our lives.

Many of you will know that my role as Chief Medical Officer (CMO) is threefold – to advise Ministers on health issues; to provide strong leadership to the medical profession in Wales and to advocate for better health for our citizens.

No-one will be surprised to hear that my role in advising Ministers has assumed an even greater level of responsibility and visibility during the pandemic.

I have also sought to provide strong and clear leadership to clinical colleagues at this most difficult time. Above all, the protection of the health of the people of Wales has been my number one priority.

My approach has been to ensure that our decisions are always based on the evolving scientific knowledge of COVID-19 and how it is affecting Wales and the UK, as well as emerging international experience and evidence.

The situation has often moved quickly and we have had to respond in an agile and rapid manner. The close working between politicians and health and scientific professionals that has occurred in our COVID-19 response has resulted in robust and evidence-based decisions being made in all our best interests.

That is not to say we have not had great challenges, but importantly we are working through them together and refining and continually improving our approach in response to new learning, both internationally and at home.

My team here at Welsh Government who have worked tirelessly to support me and Ministers over this period also deserve a special mention.

And of course the health and social care staff of Wales and other key workers who have been there for us all during this most difficult of times deserve special mention.

In light of the events of 2020, I have decided to produce a special report reflecting on how we in Wales have faced the challenge of the COVID-19 pandemic together and how we can seek to come out of this grave situation stronger and better prepared to tackle some of the challenges we were already facing.

Specifically, I look at what happened in the first phase of the COVID-19 response in Wales (considering the time period from January to August 2020) and the vast response which was mobilised by our services and society to address it.

COVID-19 reminds us that we do not live in isolation and that it is all too easy to be impacted, almost without warning, by global events. It reminds us how interconnected we are to our environment and those that share it with us and that our carelessness can rebound on us in previously unimagined ways.

This report will explore these issues and how they contribute to the increased risk of pandemics and other global hazards but, more importantly, it will outline how we can best use this knowledge here in Wales to make sure we reduce the impact of this pandemic as well as the chances of another one occurring.

I have also taken the opportunity in this report to focus on health inequities and examine the effects of the pandemic on different groups of people in Wales. It is a sad fact that the pandemic has exacerbated the situation for many people who are already the most disadvantaged or potentially neglected in our society, worsening pre-existing inequities.

This is a matter of great concern to me. However, having highlighted these inequities, COVID-19 has also provided us with a sharper focus to address them.

During this time, despite all the problems, some people have rediscovered nature and outdoor exercise; benefited from cleaner air as traffic reduced; taken up hobbies, developed artistic interests, cooking or gardening skills and spent time with loved ones.

Communities have come together to help and support each other and many have volunteered with our third sector organisations. We have discovered that it is possible to work and travel in different ways and people have been endlessly resourceful and creative.

Businesses have responded to the challenge through innovation and adaptation. And of course the health, social care and public sector response in Wales has demonstrated very clearly why we hold our key workers in such high esteem.

We must therefore take forward what we have learned and use it to re-evaluate our relationships with the planet and with each other and to say that we will no longer tolerate avoidable inequality and short term environmental planning. From tragic circumstances we may yet grasp a unique opportunity which we may never have again.

Thank you for your interest and for reading this report. I hope it will be thought provoking and reflect sufficiently on the efforts of the people and professionals of Wales. As ever I welcome feedback on anything it contains. I am confident that working together we will continue to address the many challenges that COVID-19 will continue to present us in the months and years ahead.

Chapter 1:
COVID-19 – the emergence of a pandemic

A global threat emerges

At the very beginning of January 2020, the first information about a cluster of pneumonia cases began to emerge from the city of Wuhan in Hubei Province, China (city population of 19 million).[01] On 9 January the World Health Organization (WHO) announced that a new coronavirus had been preliminarily identified as causing it.[02] By the end of that same month, there were over 9,000 confirmed cases and over 200 reported deaths globally.[03] It had become apparent that human to human transmission was possible and that this new virus had become a threat to the whole world, through the disease syndrome it causes: COVID-19.

What is COVID-19?
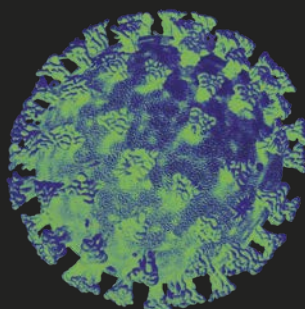
COVID-19 is a disease caused by a new type of coronavirus named SARS-CoV-2. Coronaviruses are named after the Latin word for crown (corona), similar to 'coron' in Welsh, which relates to its crown-like appearance on the surface of the virus when it is looked at under a microscope.

Most coronaviruses infect animals, such as bats, birds and mammals. Sometimes they can change the host they infect; in COVID-19 the SARS-CoV-2 virus is able to infect humans and then be passed on between humans.

As a result of these links between animal and human infections, there has been close collaboration with the Chief Veterinary Officer (CVO) for Wales and her team, to keep up to date with the most recent evidence around any transmission in animals.

COVID-19 can cause a range of symptoms including fever, dry cough, loss of taste or smell, fatigue, aches and pains, nasal congestion, headache, conjunctivitis, sore throat, and diarrhoea.

These symptoms can be mild but some groups of the population are at higher risk of developing a more severe infection, including those in older age, or with obesity and people with underlying medical conditions such as heart and lung problems, diabetes or cancer.

What we know about SARS-CoV-2 and COVID-19 is constantly changing as more evidence is gathered. Up to date information can be found on the following links:

https://gov.wales/coronavirus

https://www.ecdc.europa.eu/en/covid-19/latest-evidence

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

**References:
Welsh Government[04], ECDC[05], WHO[06].**

The connectivity of the world in 2020, through both communication and travel, meant that people and governments everywhere quickly found themselves uniquely connected and susceptible in both suffering and response. Travel was shown to facilitate the spread of COVID-19 from affected to unaffected areas and the virus rapidly spread from China to various parts of the world, including Europe.

By the beginning of March there were over 1,500 confirmed cases and 33 reported deaths in Europe, with over 87,000 cases and nearly 3,000 deaths globally.

The modern media meant that, here in the UK, we watched on with alarm as increasing numbers of people in China and then in other countries, such as Italy, died. This was despite the previously unimaginable efforts of their health systems and professionals.

We also began to understand the extent of the response that might be required to try and combat it, as a whole city in China went into 'lockdown' and hospitals were built in days.

On this emerging, yet still seemingly surreal, backdrop, the Governments, health and social care services, public health organisations and wider population of the UK began to prepare ourselves for this new and hugely challenging threat.

Our response to the first phase of the pandemic in Wales and the UK

At the beginning of 2020, as evidence increased about the spread and effects of COVID-19, the UK Government and Welsh Government began to develop a rapid and comprehensive response to it, despite incomplete international data and, initially, no developed test for the disease. It soon became clear that the response would need to be unprecedented in scale and speed and would need to prepare our health and care systems as well as our society as a whole for what was to come.

By the end of January the first two cases of COVID-19 were confirmed in England[07] and, on 28 February, the first case was confirmed in Wales in a person who had travelled back from Italy[08]. Initial travel restrictions and advice for returning travellers were implemented in the UK to try and prevent the arrival of further imported cases and resulting clusters of disease.

In Wales, the Welsh Government activated emergency arrangements, including the Emergency Coordination Centre Wales and a 'COVID-19 Planning & Response Group' which brought together Welsh Government officials and National Health Service (NHS) and social care representatives.

Together, they and many others in Welsh Government, worked alongside my team to co-ordinate and assist the health and social care systems in the huge efforts that would be needed to prepare for and combat the virus and the effects of COVID-19 on Wales.

By March, as numbers of cases were increasing, the UK Government had worked with the Governments of the devolved nations to produce a 'Coronavirus Action Plan'.[09] On 12 March, a day after the WHO declared COVID-19 as a pandemic,[10] the UK moved from its initial 'containment' phase to a 'delay' phase (as outlined in the Action Plan).[11] Clear advice was given on the symptoms of COVID-19 to look out for (a new continuous cough or high temperature) and on self-isolation if these symptoms developed.

At this point in the pandemic there were 60 confirmed cases in Wales and, on 16 March, Wales reported its first death through the Public Health Wales (PHW) rapid surveillance system,[12] (according to Office for National Statistics (ONS) death registration statistics this first death to a Welsh resident occurred on 15 March).[13]* Shortly afterwards, legislation was passed to provide emergency powers to respond to the outbreak; in Wales, this subsequently became the Health Protection (Coronavirus Restrictions) (Wales) Regulations 2020.

Although people in the UK had already been asked to stay at home, work from there and reduce non-essential travel, the rapid imposition of a series of restrictions that this legislation enforced, led to a new way of life in Wales and the UK (figure 3).[14]

In Wales, all schools closed from 23 March, except for children who were either vulnerable or children of key workers, and GCSE and A-Level exams were cancelled. All nightclubs, theatres, cinemas, gyms and leisure centres also closed and, shortly afterwards, tourist facilities and play and amusement centres closed.

On 23 March, the First Minister for Wales announced that all remaining non-essential businesses would close, all social gatherings of more than two people were prohibited and everyone had to 'stay at home' except for once a day to shop for food and to exercise close to home.

By this day, there were a total of 666 confirmed cases and 24 reported deaths in Wales (based on ONS data 35 deaths occurred).*

One critical aspect of the way Wales and the UK worked to protect individual members of our society from COVID-19 during the first phase of the pandemic was in developing a system of 'shielding' for those people who were most vulnerable to its effects.

On 24 March, I wrote to almost 100,000 people who had been identified through their medical records as most vulnerable and advised them to stay home for 12 weeks. This list included people who had had transplants, people on certain cancer treatments and those with severe lung disease.

The number of people who were advised to shield increased further in May, after a refinement of the shielding criteria; ultimately, there were around 130,000 people shielding in Wales. These individuals made a huge sacrifice, together with their families, in an attempt to safeguard themselves from the effects of COVID-19 and to protect the NHS from becoming overwhelmed.

To support them during this time, local authorities and community groups came together under the direction and support of the Welsh Government to offer help such as food box deliveries.

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* For a more detailed explanation of the different sources of data on COVID-19 related deaths in Wales please see https://digitalanddata.blog.gov.wales/2020/05/05/chief-statisticians-update-explaining-covid-19-mortality-data-sources-for-wales/

Individuals' details were also supplied to major food retailers and pharmacies so that priority online shopping slots and medication deliveries could be offered to them.

Alongside this wider government action, the UK's public health organisations also mobilised themselves to try and reduce the spread of the virus. Here in Wales, CMO's team worked closely with PHW to produce and publish public health information.

Within a few weeks of the publication of the viral gene sequence PHW started testing individuals with suspected COVID-19 with a Cardiff test. PHW also began the process of 'contact tracing' with the aim of stopping the spread of the virus in the wider community. Later PHW put in place arrangements to monitor returning travellers and visitors to Wales offering advice on quarantine measures at points of entry to Wales, such as Cardiff Airport.

Other normal public health activities, such as screening and health improvement activities, were paused although screening programmes are now being restarted. Local public health teams, reporting to Directors of Public Health, mobilised the public health response in health boards and PHW mobilised a large proportion of its staff to support the efforts of health protection teams to supress and monitor the spread of the virus.

Building on established surveillance methods for respiratory diseases, the Communicable Disease Surveillance Centre (CDSC) in PHW introduced an extensive range of epidemiological surveillance systems to map the spread and impact of the virus.

The NHS Wales Informatics Service (NWIS) also worked with Welsh Government to develop indicators of the effect of COVID-19 on hospital services.

This led to the creation of a live dashboard for the whole service, which assisted day to day management, for example by indicating where drugs used for ventilation should be distributed.

As the number of cases of COVID-19 increased, it was critical that all decisions that I, and the Ministers in Welsh Government, took to safeguard the health of the people of Wales were underpinned by our growing knowledge. For example, throughout the initial response to COVID-19, plans were constantly informed by the emerging and visible experiences of other countries, such as China and Italy, and indeed from other parts of the UK that were first affected, such as London. Technical, scientific and modelling data were also of vital importance. To ensure these data were effectively interpreted, the Chief Scientific Advisor for Health and team established a Technical Advisory Cell (TAC).

The Technical Advisory Cell translated information from the UK Scientific Advisory Group for Emergencies (SAGE), PHW and other international and national sources into the Welsh context; a summary of which has been published weekly since May.

Sub groups of were also developed to support the wide range of stakeholders across Wales, including specific sub-groups covering:

a. **Risk and Behavioural Communications**

b. **All-Wales Modelling forum, to support the work of planners within the NHS**

c. **Research**

d. **International evidence**

e. **Wider socio-economic harms**

f. **Testing**

g. **Children and Schools**

h. **Environment Modelling.**

IN DEPTH: Our growing understanding of COVID-19

What are the symptoms of COVID-19?

In the early stages of the pandemic the most common recognised symptoms of COVID-19 were a persistent cough, fever and difficulties with breathing. Over time, and as evidence emerged, a loss of taste or smell was also found to be strongly linked with COVID-19, so this was added to the list of symptoms that would require a test.

Other symptoms have also been recognised, including headache, general weakness or fatigue, muscle aches, sore throat, runny nose and diarrhoea (although these are not part of the official UK definition for testing).

For the most up to date information on what symptoms to look out for please visit: https://111.wales.nhs.uk/

How does the virus spread?

The virus is mainly transmitted by small droplets spread through sneezing, coughing, or when people interact with each other for some time in close proximity, for example when talking loudly, laughing, singing and shouting.

Transmission from aerosols is also thought to play a part, but it is still unclear how much of a role this has in overall transmission.

It appears to survive for longer in cold and wet conditions and sunlight appears to reduce the time it is able to survive.

The most important measures that the people of Wales have been and can continue to take towards controlling the virus are: to wash hands regularly; avoid touching surfaces that others do; observe social distancing or wear 3-layered cotton face coverings if unable to do so; self-isolate if they have symptoms and get tested immediately.

When is COVID-19 infectious?

The incubation period for COVID-19, which is the time between exposure to the virus and symptom onset, is on average 5-6 days, however it can be up to 14 days. Evidence suggests that approximately a third of people with COVID-19 will not show symptoms.

There is also some evidence suggesting that transmission can occur from a person who is infected even two days before showing symptoms; however, uncertainties remain about the effect of transmission by asymptomatic persons (those without symptoms). This evidence helps inform the Welsh 'Test, Trace and Protect Programme' coordinated by Welsh Government. Knowing when a person is more likely to be infectious, alongside how the virus can be transmitted, allows us to identify close contacts that may go on to develop the virus. When these close contacts self-isolate this limits the chance of the virus spreading to others.

References:
Welsh Government[04], ECDC[05], WHO[06]

Communication and engagement

The response to the Covid-19 pandemic has depended on the sacrifices of people across Wales to follow the guidance.

This will continue to be a crucial part of how we navigate through this response in Wales and around the world. Below is a summary of the key messages that we all can follow in order to reduce the risk of COVID-19 spreading.

Many of these decisions were based on our growing understanding of the virus itself, particularly as we began to learn about the reproduction, 'R' number, for COVID-19.

This number (the average number of people an infected person transmits the disease to) changed as the virus spread out across the UK and modelling therefore allowed the best decisions to be made about restrictions at every point.

Similarly, as our understanding of other aspects of the disease increased, this knowledge constantly informed real-time decision making, for example when 'a loss of or change to taste and smell' were added to the existing key symptoms of COVID-19.

Modelling experts in Welsh Government and PHW also joined with others across the UK to forecast 'reasonable worst case scenarios' to inform clinical leaders and the planning of health and social care systems.

As restrictions on people's lives in Wales changed and as our knowledge about COVID-19 increased, it was crucial that the public understood and followed often rapidly evolving public health advice.

To try to ensure this, Welsh Government and PHW needed clear and effective communication with partner organisations and the general public throughout the first phase of the pandemic.

The extent and speed of this direct communication across all forms of media had never previously been undertaken and relied on the exceptional collaborative efforts of communication teams working together across organisations.

Understanding the behaviour of the general public in response to these messages was also important.

PHW, for example, conducted regular public engagement surveys as well as a Health Impact Assessment of the 'Staying at Home and Social Distancing Policy' in Wales, both of which informed communication messages and future approaches[15].

IN DEPTH: What is the 'R' number?

The reproduction number, or the 'R' number, is the average number of people an infected person transmits the disease to at some point in an epidemic.

There are two key different reproduction numbers that have been used:

R0

The basic reproduction number.

This is the average number of people an infected person transmitted the disease to at the start of the epidemic, before anyone has immunity to it.

Rt

The reproduction number at a point in time.

This is the average number of people an infected person transmitted the disease to at some point in the epidemic.

Infected person
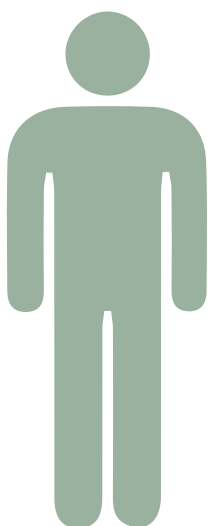
Average number of people infected

2.8
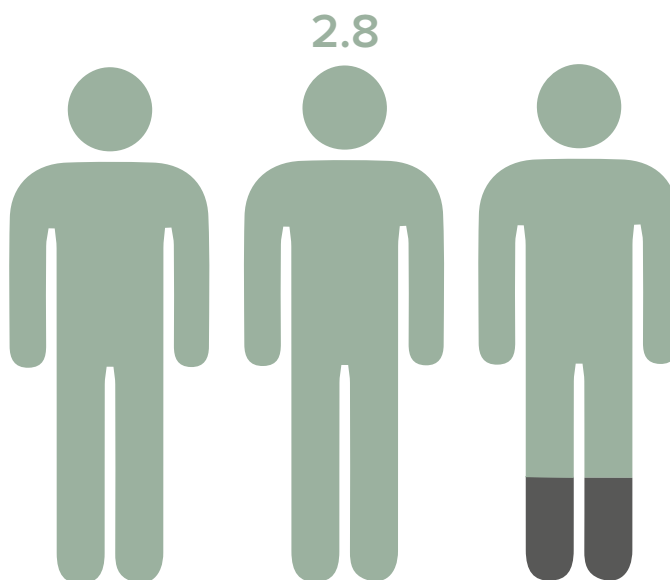
If the R number is below 1, each case will give rise to fewer than one additional case, so over time case numbers will dwindle to zero.

However, if R is above 1, case numbers will increase exponentially. The higher the R, the faster this increase will occur.

Measles is one of the most infectious common diseases with an R_0 value of 12-18. R_0 for COVID-19 was estimated at around 2.8.

This means that in the absence of immunity or mitigation measures, each case would pass on the virus to a further 2.8 people on average.

Sources:
ECDC[05], Welsh Government[16]

Protecting our health service

Alongside the Welsh Government and public health system response to the threat of the virus, our health and social care systems needed to prepare themselves for the challenge of caring for patients affected by the virus.

There was also concern that health and social care services in Wales and the UK as a whole could be overwhelmed.

By March, the Welsh Government had set out a framework of actions for the NHS to move to a different phase of preparation, in order to be able to respond effectively to the needs of patients and ensure that services were not overwhelmed in the weeks that followed.

These actions were wide-ranging and included, for example: the scaling back of all non-urgent outpatient appointments, day cases and elective admissions to create additional critical care capacity; and the redeployment and retraining of the existing workforce as well as recruitment of additional workforce to provide extra capacity.

Importantly, the Welsh Government guidance to support these rapid changes to health systems in Wales was informed by senior clinicians from networks, professions and colleges across Wales.

To support this decision making in challenging circumstances, Welsh Government also convened a COVID-19 Moral and Ethical Advisory Group for Wales (CMEAG-Wales) to advise on issues relating to moral, ethical, cultural and faith considerations, and provide a source of advice on issues arising from the emergency response to the pandemic.[17]

Secondary (or hospital-based) care had to make rapid and extensive changes to respond to the pandemic.

By mid-March, modelling, based on scientific evidence, intelligence and the experience of other European countries, projected that the NHS in Wales would need a huge increase in critical care and other hospital beds to manage the point of peak demand for COVID-19, anticipated to be 3 to 4 weeks later.

As a result, critical care beds were more than doubled to over 400 (with further surge capacity potentially available if needed); beds on hospitals sites were increased by approximately 10,000 and field hospital sites were identified across Wales, including the Dragon's Heart Hospital in the Principality Stadium.

Aneurin Bevan University Health Board's (ABUHB) Grange University Hospital was also completed early, in case it was required, and private hospital capacity was secured across Wales to help maintain the provision of some essential non-COVID-19 services.

A COVID-19 treatment pathway was developed to support consistent and up to date practice across Wales. It was implemented through a digital platform that could be updated as new evidence emerged and thousands of NHS Wales staff registered to make use of it.

A national clinical audit was developed in a matter of weeks and delivered for hospitalised cases of COVID-19. There was also rapid procurement of equipment, such as ventilators, personal protective equipment (PPE) and medical supplies.

IN DEPTH: Supporting clinicians to provide the best, evidence-based care for their patients

One of the greatest challenges for clinicians in the first phase of the COVID-19 pandemic was that there was little robust evidence and no established standards for the best way that patients with the condition should be treated. It became apparent early on that there would be multiple changes to guidelines from national bodies, thus presenting clinicians with a real difficulty in keeping abreast of the latest evidence and recommendations.

In response to this, the Respiratory Health Implementation Group (RHIG) worked with the Institute of Clinical Science and Technology to create and implement a national guideline that was dynamic and thus reflected the changing evidence.

Since its launch in March, the digital guideline has been providing information on a standardised approach to the assessment, triage and management of COVID-19 patients on dedicated COVID-19 wards and critical care units.

With over 150 videos delivered by over 30 clinical specialists across Wales, it covers topics such as clinical assessment, PPE, managing comorbidities and palliation.

An important principle of the guideline is that healthcare professionals need to be signed into the on-line system to access it, thus enabling them to be notified of any updates as they happen.

Despite being developed in only three weeks, the guideline has become a unique and essential tool for clinicians all over Wales. Users have reported turning to the guideline to stay up-to-date with reliable information in a rapidly changing medical field and have found that the guideline has informed their practice.

Importantly, the guideline is also dynamic, meaning that the clinical process, QR readers and digital updates associated with it frequently change as new evidence emerges.

In its first five weeks alone, it had undergone 18 updates and it will continue to be informed by new treatment outcomes and information, for example through the findings of the ongoing national audit of all COVID-19 patients in secondary care.

This means that the guideline will continue to ensure that all clinicians in Wales have the information available to allow them to manage patients with COVID-19 in the best way, using a standardised, evidence-based approach.

At the peak of the initial wave in Wales there were over 350 new confirmed cases a day and sadly more than 40 deaths per day due to COVID-19 being reported.

The maintenance of essential services (both COVID-19 and non-COVID-19) was supported by a range of clinical guidance, which was subject to a quality assurance process coordinated by Welsh Government and then published online.

Fire and rescue services also played a key role in the wider response to the pandemic by increasing available capacity to support the core ambulance response and streaming and assessment of patients. In particular, the Welsh Ambulance Services NHS Trust was supported by an agreement that fire and rescue personnel would drive emergency ambulances and non-emergency patient transport in the event of potential shortages of drivers due to sickness absence and/or higher activity levels. Seven Mass Decontamination Units (MDU) were also deployed at hospital sites across Wales to provide additional temporary capacity.

Primary and community care services were also affected and rapidly adjusted to circumstances. A community framework for the management of COVID-19 was created that included the creation of cluster based hubs to meet demand. New ways of working effectively were developed to support the delivery of safe services when face-to-face appointments had to be limited.

These included the widespread use of telephone assessment, the rapid roll-out of video technologies to support 'virtual' clinics; formalised electronic consultation and new digital support enhancing communication between primary and secondary care.

Other approaches included: new ways of working across community pharmacies to ensure essential services continued; a new framework for dental services in COVID-19 was drawn up, which ensured emergency dental care could continue safely; developing a cluster model of emergency and essential eye care services; a significant increase in 111 capacity and the development of an online symptom tracker.

A case note review of how patients presented with COVID-19 to hospital was undertaken. This indicated the potential for people to present at an advanced stage of deterioration and this resulted in revisions to the community framework and public advice.

Further work was also done to prepare for winter to enable primary and community care services to differentiate COVID-19 from colds and flu as part of the COVID-19 pathway. Close working between the NHS and the social care sector also meant that social care settings received essential support and advice.

During the first phase of the pandemic, Welsh Government also positioned mental health services as essential services within the NHS and invested £1.3 million in support services for the general public to reduce pressures on Local Primary Mental Health Services.
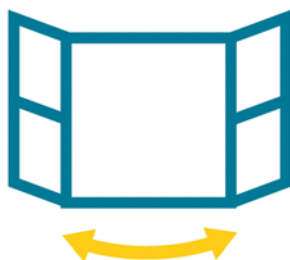
Open the windows of the **room** where the health visitor will be **meeting** you, so that it is **well ventilated**

This provided a range of support including access to online Cognitive Behavioural Therapy (CBT), available without a referral, and information signposting people to various resources including the Young Person's Mental Health Toolkit, CALL Mental Health Listening Line, Silver Cloud online CBT and Activate Your Life. Welsh Government also invested £5m to support mental health and well-being in schools, including extending schools counselling.

Welsh Government also worked closely with partners on the needs of the most vulnerable substance misuse population to ensure that appropriate guidance was in place to support them.

Substance misuse services adapted rapidly to the changing circumstances, moving to providing online consultations and psychological support services and ensuring ongoing support.

This included, where necessary, delivering opioid substitution therapy medications to those who were self-isolating or unable to access their medication for other reasons and working with the national helpline DAN 24/7 to ensure the website had relevant information about COVID-19 and services available during this time.

To support prescribing services and community pharmacies which were under pressure, the Welsh Government also agreed to support the rapid implementation of injectable buprenorphine, which replaced daily supervised consumption with a monthly injection, where clinically appropriate and chosen by the service user.

Welsh Government also published specific guidance to assist substance misuse and homelessness services[18] and those working with vulnerable populations, especially those with drug and/or alcohol use disorders, co-occurring mental health, and complex needs.

Innovation in digital technologies was a critical part of enabling our response to COVID-19 across the health and social care sectors in Wales and the UK.

Multiple projects were accelerated or implemented which supported patients to continue to gain access to vital healthcare during this time including video consultations and device loans.

This work also enabled clinicians and managers to increase communication between themselves, for example, through increased access to remote working and the accelerated rollout of collaboration tools.

Welsh Government worked together with partners to face the huge challenge of developing a Contact Tracing Digital Platform that could provide the basis for the 'Test, Trace, Protect' programme, as well as working with PHW and NWIS to train a workforce to be able to use this.

Much of this innovation also relied on rapid improvements in the underlying infrastructure to support these technologies, which was also undertaken during this time. This is further captured in Chapter 4.

Supporting our carers

Despite the efforts of frontline staff and managers, the effect of the pandemic on social care was devastating. COVID-19 had a disproportionate effect on those who were elderly and frail particularly in nursing homes, in which many became ill with the virus and sadly died.

Early in the pandemic, the Welsh Government and PHW rapidly developed and updated comprehensive guidance to support care homes and other closed settings to try to reduce this risk for people resident in these settings.
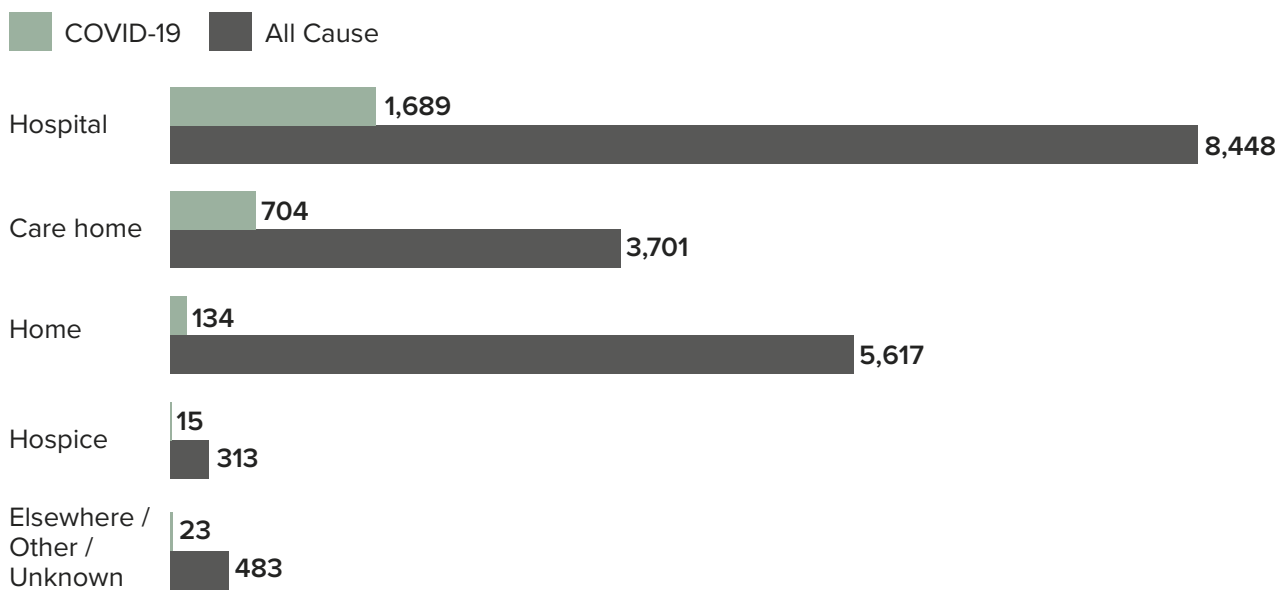
This included guidance that I issued with the Deputy Director General on visitors to these settings.

The Welsh Government also worked pragmatically to rapidly but carefully reduce the pressures on the sector by, for example, ceasing inspections, altering pre-employment checks and temporarily reducing some mandatory reporting.

Social care staff were also supported by provision of free PPE, guidance and equipment to protect themselves and residents and measures were put in place to reduce the spread of the virus in these settings, such as closures to new admissions following outbreaks.

Welsh Government funding for the supply of digital devices for care homes and hospices also helped in some way to reduce the isolation and mental distress for residents as visiting ceased.

Figure 1

Place of death, deaths from COVID-19 and all causes, count, persons, all ages, Wales, week ending 06 Mar to 04 Sept (Weeks 10 to 36) 2020*.[19]

COVID-19   All Cause

Hospital
1,689
8,448

Care home
704
3,701

Home
134
5,617

Hospice
15
313

Elsewhere / Other / Unknown
23
483

Source: Public Health Wales Observatory, using Public Health Mortality (PHM), Office for National Statistics (ONS)

The efforts of social care staff across Wales were exemplary as they tried to understand and respond to changing and increasing knowledge of the vulnerability of their clients, supported by the system and Welsh Government.

Carers and some health professionals slept in care homes and avoided contact with their families to ensure safe care for the most vulnerable continued.

*COVID-19 deaths include where there was any mention of COVID-19 on the death certificate (ICD-10 U07.1 and U07.2). Deaths are counted based on usual area of residence. Figures are based on the date the death was registered, not when it occurred. There is usually a delay of at least five days between occurrence and registration. Further information on this can be found on the ONS website. A small number of deaths could not be matched to a place of death type. These have been combined with deaths for 'Elsewhere / other / unknown'

Informal carers have also faced a hugely increased burden during the first phase of the pandemic, particularly as many of their support networks have stopped.

The Welsh Government has recognised the incredible efforts of carers with, for example, the implementation of the social care worker special payment scheme; increases in funding for schemes such as the Shared Lives Scheme and Carers Wales; and the distribution of 440 laptops to young carers aged 16-18 years.

The sacrifice of individuals in the health and social care sector, as well as other key workers, also saw a moving public response, ranging from the Thursday evening 'clap for carers' to rainbow posters painted by children in windows and chalked on many pavements.

Social care also crucially responded in varied ways to safeguard children and adults across Wales. As the first phase of the pandemic progressed, there was growing concern that some older people may have been vulnerable to domestic abuse during the lockdown and the Welsh Government and the Older People's Commissioner worked closely to combat this, through, for example, the Abuse of Older People Virtual Group.

There was also concern that vulnerable children might be more at risk and being able to stay in contact with these children was more challenging as face-to face contact reduced.

Measures were put in place to try and reduce these risks, including developing guidance for Children's Social Services, ensuring foster carers were treated as 'essential workers', weekly data collection on safeguarding children and looked after children and ensuring that looked after children at risk of placement breakdown were prioritised.

Underpinning much of the response from both the health and social care sectors was the need for a rapid increase in the workforce across Wales. Thousands of healthcare professional students opted to be deployed into clinical roles to support the NHS Wales response and over 2,500 healthcare professionals on temporary professional registers signalled that they were prepared to return to NHS Wales.

Social Care Wales also contacted almost 1,000 former social workers who had been registered during the past three years, inviting them to re-register and return to work.

The work and speed needed to prepare the workforce for this new challenge was considerable. Throughout this period, Welsh Government worked collaboratively with NHS Employers and trade unions.

This included measures such as the creation of an employment COVID-Hub Wales, to support the deployment and redeployment of staff, and the introduction of flexible terms and conditions to ensure our workforce were able to follow public health advice on self-isolation or when shielding, without fear of being disadvantaged.

Ensuring as safe an environment as possible for the workforce was also key and the importance of the provision of sufficient PPE became an essential issue early on in the response.

The challenges of increased demands for PPE and the limitations and restrictions on global supply chains, were further complicated by the need to adapt and respond to changing PPE guidance in light of new knowledge.

Nevertheless, through collaborative efforts, PPE supplies were stabilised in the UK and Wales through a combination of existing and new procurement and manufacturing routes, including the development of Welsh manufacturing options: this enabled the distribution of PPE to continue at scale.

In response to concerns about the increased vulnerability of some members of the workforce to COVID-19, the NHS and social care system in Wales also adopted the All-Wales COVID-19 Workforce Risk Assessment Tool (see chapter 3 for further details).

This is a two-stage risk assessment, designed to help people consider their personal risk factors for COVID-19 and how to stay safe from it at work and is suitable for use for all staff who are vulnerable or at risk of contracting coronavirus, including people from Black, Asian and Minority Ethnic backgrounds.[20]

The Welsh Government also recognised the importance of maintaining the health, well-being and resilience of staff during these extremely challenging times and provided funding for a confidential Samaritans listening support helpline, dedicated to all health and social care workers in Wales, and supported a number of free-to-access health and wellbeing support apps such as Mind, Sleepio & Daylight and SilverCloud.

Additional funding was also made available to bolster Cardiff University's existing provision of Health for Health Professionals (HHP) Service Wales so that it could be made available to all of the NHS workforce.

A bespoke Death in Service Scheme was also introduced in order to provide some financial compensation for the dependents of health and social care workers who tragically died from COVID-19 as a result of their work.

A public health response

As the numbers of cases in Wales continued to increase, PHW made the case for a comprehensive public health response to be developed rapidly and at scale.

In particular, Wales needed further enhanced COVID-19 surveillance and an effective case identification and management system. PHW prepared a Public Health Protection Response Plan, which brought together expert health protection advice informed by international evidence and developed in consultation with local authorities and health boards in Wales.

This set out the public health actions that were needed including preventing the spread of the disease through contact tracing and case finding; population surveillance; and sampling and testing.

In May, Welsh Government published our 'Test, Trace, Protect' (TTP) strategy, informed by this expert public health advice. TTP launched on 1 June to identify people suspected of having COVID-19, trace individuals who have been in close contact with a person who has tested positive and provide advice and guidance.

At this point in the pandemic there were a total of 14,680 confirmed cases and, sadly, 1,379 reported deaths in Wales (and according to ONS death registration statistics 2,291 deaths of Welsh residents had occurred). Whilst PHW continued to manage the response to specialist settings such as care homes, clusters and outbreaks of COVID-19, a wider system developed.

This was co-ordinated by a Welsh Government TTP led infrastructure with regional leadership by health boards working with local authorities. Supported by PHW, local public health teams and others working for Directors of Public Health in health boards, developed multi-agency community sampling teams and Coronavirus Testing Units (CTUs) to provide access to testing across Wales.

These increased facilities initially focussed on providing testing for healthcare and other 'key' workers but then enabled more widespread testing for the general population, with sampling centres in key locations across Wales.

This capacity for sampling was subsequently increased further through the support of Joint Military Command (Wales).

They initially operated 8 Mobile Testing Units (MTU) and at their peak were operating 14 MTU across all of the health boards in Wales. Home testing using the UK Government web portal also added additional capacity. Local authorities came alongside health boards and in some instances took over this essential function of TTP co-ordination on behalf of the local public health system.

Alongside this increased sampling capacity, testing capacity was also needed, with a subsequent increased requirement for testing kits, chemicals and machines to undertake the tests and a skilled workforce to run and interpret them. Obtaining the technology and equipment to undertake sampling and testing on such a wide scale was challenging, particularly in the midst of the pandemic when the rest of the world was also trying to do the same.

This led to new approaches and collaborations, such as the use of high throughput laboratory equipment in the University Hospital of Wales and Magden Park, working with university partners, expansion of the workforce and the introduction of digital solutions such as delivering results by text message.

PHW also worked in collaboration with partners such as Cardiff University to develop sensitive surveillance techniques to describe the pattern of infection and spread of COVID-19; identify clusters and outbreaks; and allow real-time monitoring of transmission in different areas.

Indeed, throughout the first phase of the COVID-19 pandemic, the Welsh, and UK, response was characterised by a unique level of collaborative working at every stage.

Working across the four nations was of vital importance, particularly in the early stages of the response, when co-ordinated work occurred through the CMOs, Chief Nursing Officers (CNOs), senior public health and policy professionals and clinical groups.

Maintaining this four nations approach to a completely new pandemic, wherever appropriate, allowed co-ordination in important areas such as the supply of PPE; shared learning from the construction of additional bed capacity; shared expectations for the NHS and care system; and help across the NHS as it was needed ('mutual aid').

Significant support was also received from Senior Military Planners, embedded within Welsh Government, and from Military Liaison Officers, deployed to health boards, the Welsh Ambulance Service NHS Trust and Velindre NHS Trust.

These Military Planners and Liaison Officers brought expertise and knowledge across a range of areas, including crisis response, logistics and construction.

Similarly, government, local authorities, health boards, clinicians, charities and businesses worked together as never before in, for example, the huge and complex challenge of identifying and supporting people who would need to shield in Wales.

The wider effects of COVID-19 on our health and society in Wales

By the beginning of May, evidence suggested that the number of new cases of COVID-19 were plateauing in the UK and that we might be past the initial peak of the disease[21].

At this point in the response the total number of confirmed cases had passed 10,000 and the average number of new daily cases was less than 200.

On 8 May, the lockdown in Wales was extended for another three weeks.

Nevertheless, minor amendments and changes began a process of carefully and slowly lifting the restrictions that had been imposed on people's lives: people were allowed to go out to exercise more than once a day whilst still ensuring they 'stay local'; garden centres re-opened; and councils began to plan for the re-opening of some facilities.

In all parts of government and our health and social care systems, discussions began on how we could start the process of recovery whilst not risking an increase in cases and whilst still ensuring that we were prepared for a second phase of the pandemic that might be to come.

Informing these decisions was the greater understanding we had developed about the extent and depth of the harms from COVID-19 to all in our society.

In particular, increasing evidence had shown that COVID-19 had the potential, and in many cases was already, having harmful effects on the people of Wales through four key ways (see Figure 2).

Figure 2
Four harms related to COVID-19[22]
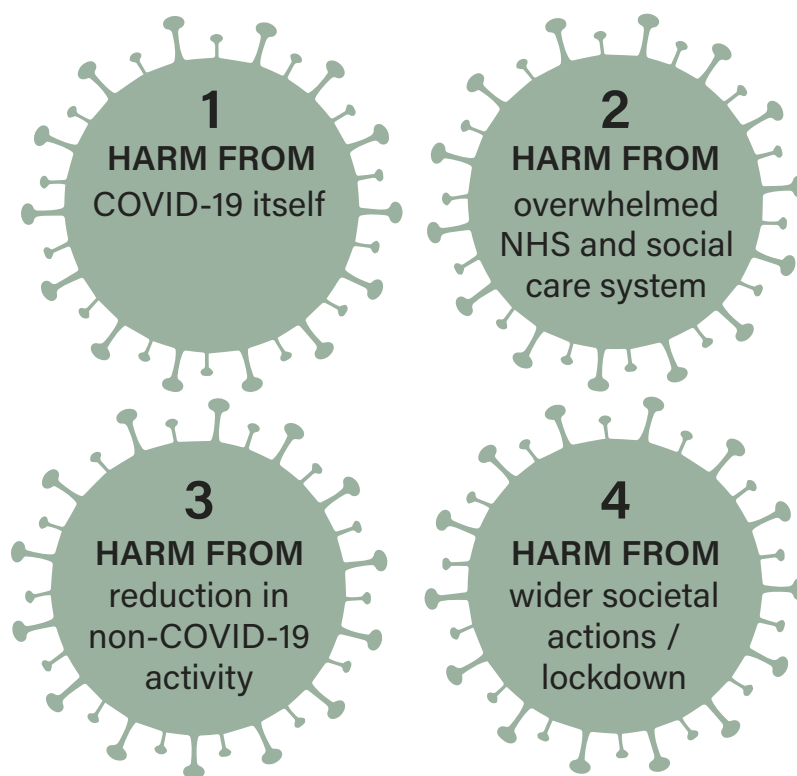
The most obvious way that COVID-19 was harming the people of Wales was through the direct harm to individuals from infection and complications from the illness, including for those who developed severe disease or died as a result.

Sadly, COVID-19 had harmed many individuals and families in Wales in this way.

The second threat was from the harm caused if health services had become overwhelmed due to demand from patients with COVID-19.

However, as cases continued to drop, it became clearer that mitigating measures had been largely effective in preventing this occurring and had undoubtedly saved more people in Wales from losing their life in the first phase of the pandemic.

The third of these was the harms from non-COVID-19 illness, for example if individuals did not seek medical attention for their illness early and their condition worsened, or more broadly from the changes in NHS service delivery made during the first phase of the pandemic in Wales.

Finally, there was increasing evidence that the wider economic and societal effects of our response to the pandemic were creating harms, ranging from economic effects such as job losses, effects of school closures on children and effects of isolation and loneliness, particularly for vulnerable groups.

It was also becoming apparent that these effects were not being felt equally and might in fact be widening existing health inequalities and inequities in our society.

As the number of new cases of COVID-19 slowed over the summer months of 2020, we had an opportunity to consider what factors may have contributed to the development of the pandemic and how we in Wales could prevent future pandemics.

This is explored in more detail in Chapter 2 of this report.

Furthermore, as our thoughts turned to how we could stabilise and return our health and social care systems, economy and wider society to some form of normality, we had a unique opportunity to work together to understand and mitigate health inequities in our society that COVID-19 exposed.

This is explored in more detail in Chapter 3 of this report, while Chapter 4 addresses the process of stabilisation following the end of the first intense phase of the COVID-19 pandemic in Wales.

Figure 3

Timeline of key events[04, 23, 24]

December 2019

31st: WHO picked up a media statement by the Wuhan Municipal Health Commission from their website on cases of 'viral pneumonia' in Wuhan.

January 2020

9th: WHO reported that Chinese authorities have determined that the outbreak is caused by a novel coronavirus.

30th: declared as a Public Health Emergency of International Concern.

31st: first UK cases confirmed.

February 2020

11th: WHO announced that the disease caused by the novel coronavirus would be named COVID-19.

March 2020

5th: first UK death recorded.

11th: WHO describes COVID-19 as a pandemic.

12th: UK in 'delay' phase: advice given on self-isolation.

23rd: UK 'lockdown' begins with only essential services continuing.

April 2020

9th: WHO marked 100 days since the first cases of 'pneumonia with unknown cause' were reported.

May 2020

18-19th: the 73rd World Health Assembly, the first ever to be held virtually, adopted a landmark resolution to bring the world together to fight the COVID-19 pandemic.

June 2020

16th: initial clinical trials from UK show dexamethasone could be an effective treatment.

July 2020

4th: WHO announced the hydroxychloroquine and lopinavir/ritonavir arms of the Solidarity trial were being discontinued.

January 2020

24th: written statement from Minister for Health and Social Services "... Due to the enlarging geographic area affected, and evidence of person to person transmission, it is likely that people will require assessment in Wales and the wider UK."

February 2020

28th: first recorded case of COVID-19 in Wales.

March 2020

13th: suspension of a number of NHS services.

16th: first recorded death in Wales.

23rd: all schools in Wales were closed except to vulnerable children and children of key workers (but had until 20th March to close).

24th: guidance on shielding for the extremely vulnerable published.

April 2020

2nd: video consultation service rolled out to all GP practices in Wales.

13th: Dragon's Heart Hospital opens.

24th: Welsh Government published its 'framework for recovery' from the pandemic.

May 2020

5th: Welsh Government's Public Health Protection Response Plan announced.

18th: 'loss of smell and taste' added to symptoms of COVID-19. People in Wales able to request a home coronavirus test via an on-line booking system.

June 2020

1st: contact tracing begins in Wales.

29th: schools re-open in Wales.

July 2020

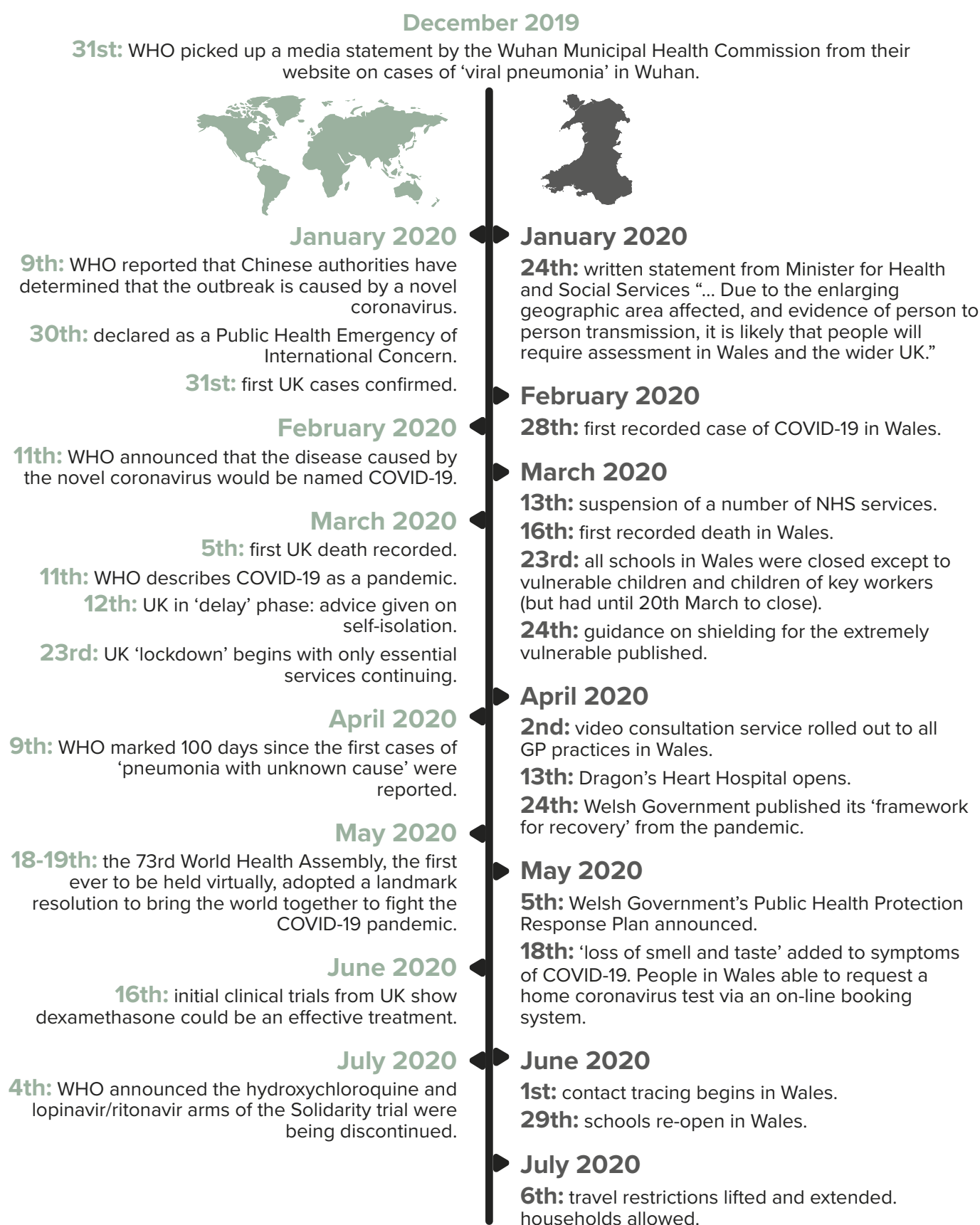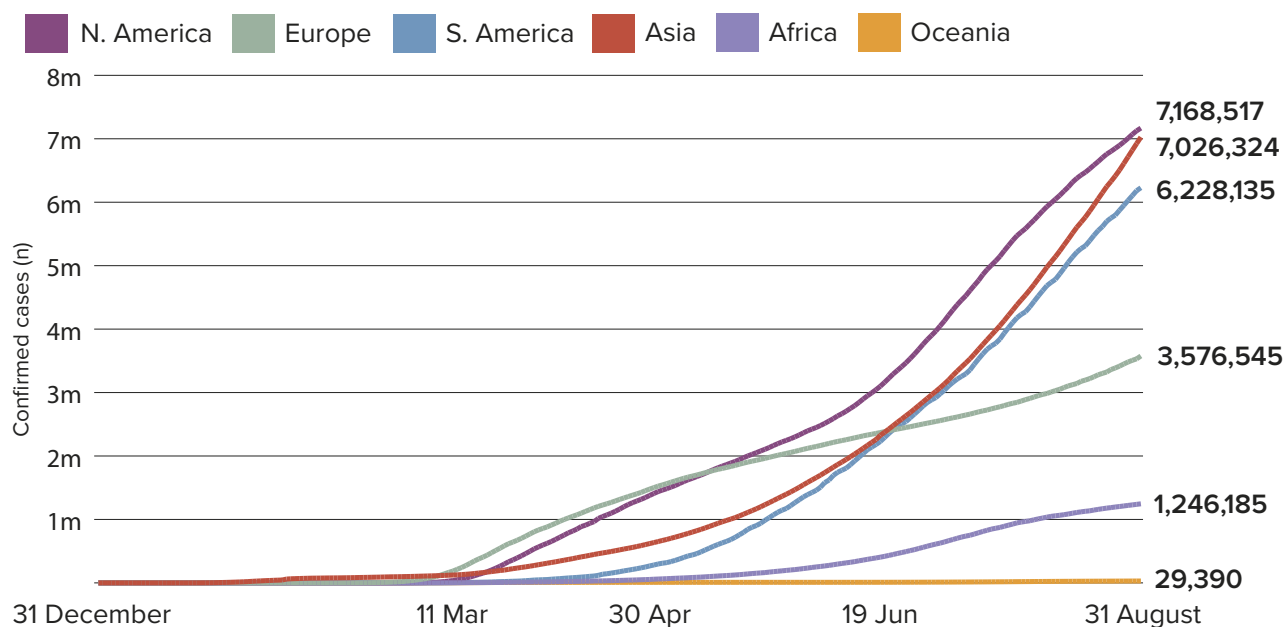**6th:** travel restrictions lifted and extended. households allowed.

Figure 4

Cumulative confirmed COVID-19 cases, 31 December 2019 – 31 August 2020*

*The number of confirmed cases is lower than the number of actual cases
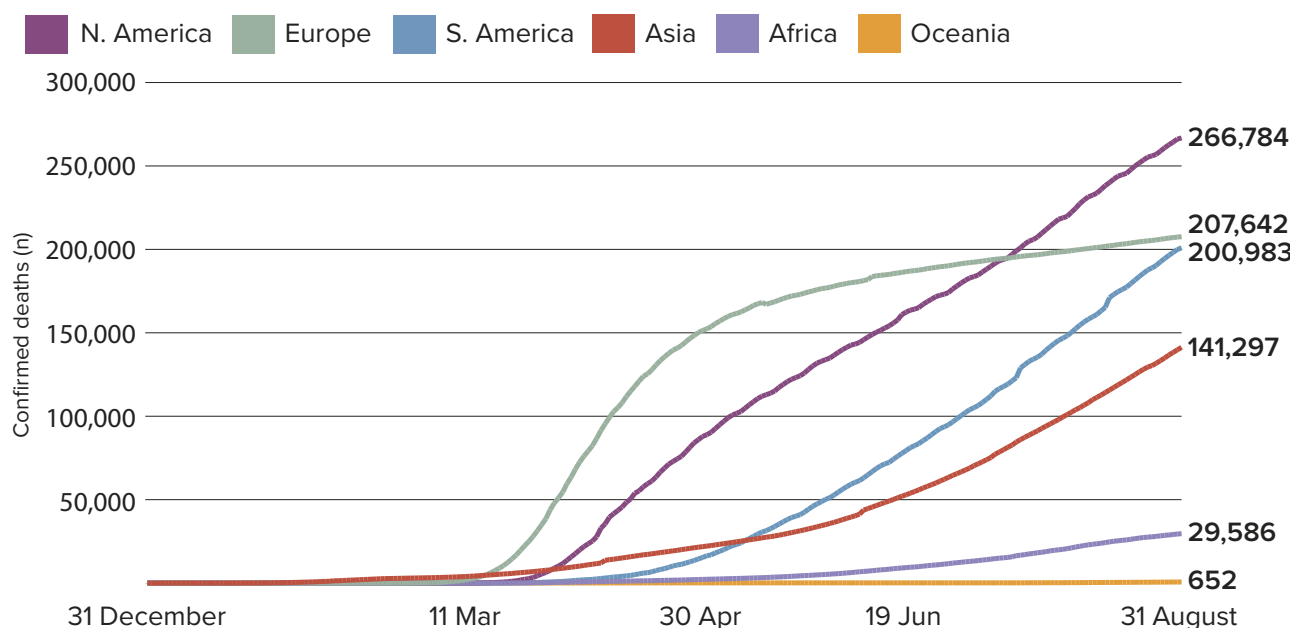
Source: Our World in Data, using data from ECDC

Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina and Joe Hasell (2020) – "Coronavirus Pandemic (COVID-19)".
Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]

Figure 5

Cumulative confirmed COVID-19 deaths, 31 December 2019 – 31 August 2020*


*The number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19

Source: Our World in Data, using data from ECDC

Max Roser, Hannah Ritchie, Esteban Ortiz-Ospina and Joe Hasell (2020) – "Coronavirus Pandemic (COVID-19)".
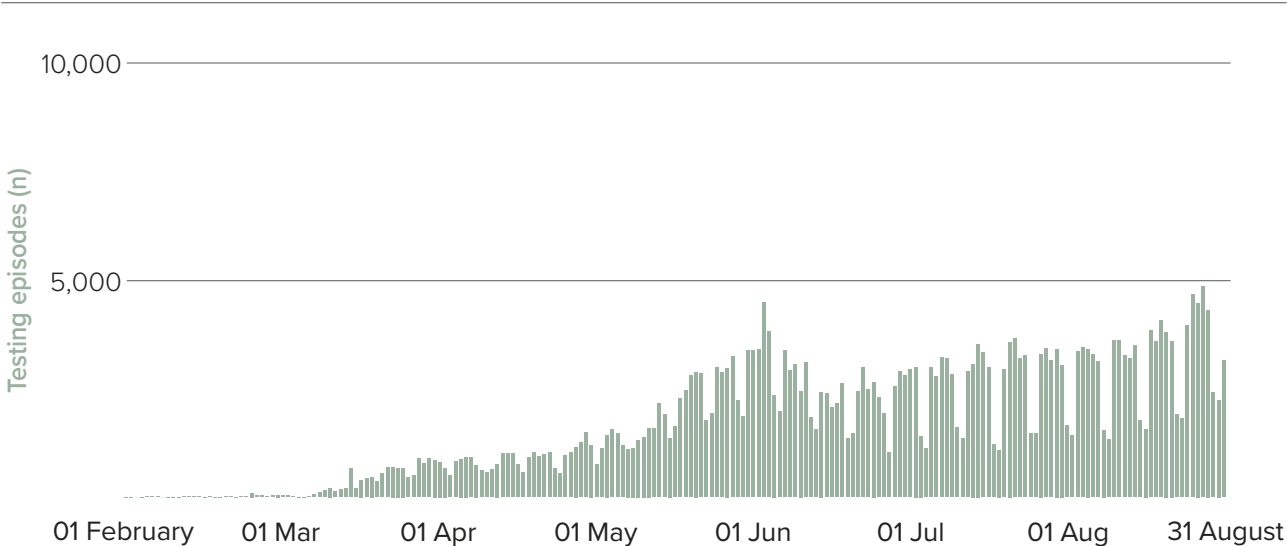Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]

Figure 6

Confirmed cases in Wales by sample date, February – August 2020*
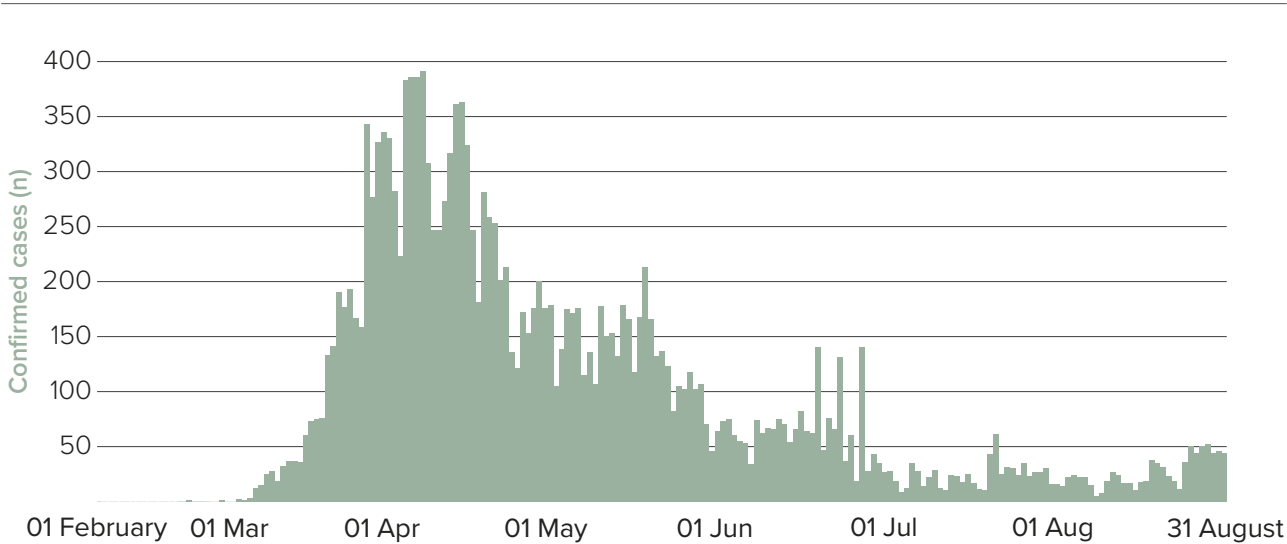
Source: Public Health Wales Rapid COVID-19 Surveillance

Figure 7

Testing episodes in Wales, February – August 2020*

*Individuals may be tested more than once for COVID-19. Information presented here is based on 6-week episode periods. If an individual is tested more than once within a 6-week period they are only counted once and if any of their test results are positive, that is the result which is presented.

Source: Public Health Wales Rapid COVID-19 Surveillance

Figure 8

Suspected COVID-19 deaths in lab confirmed cases in Wales, March – August 2020*
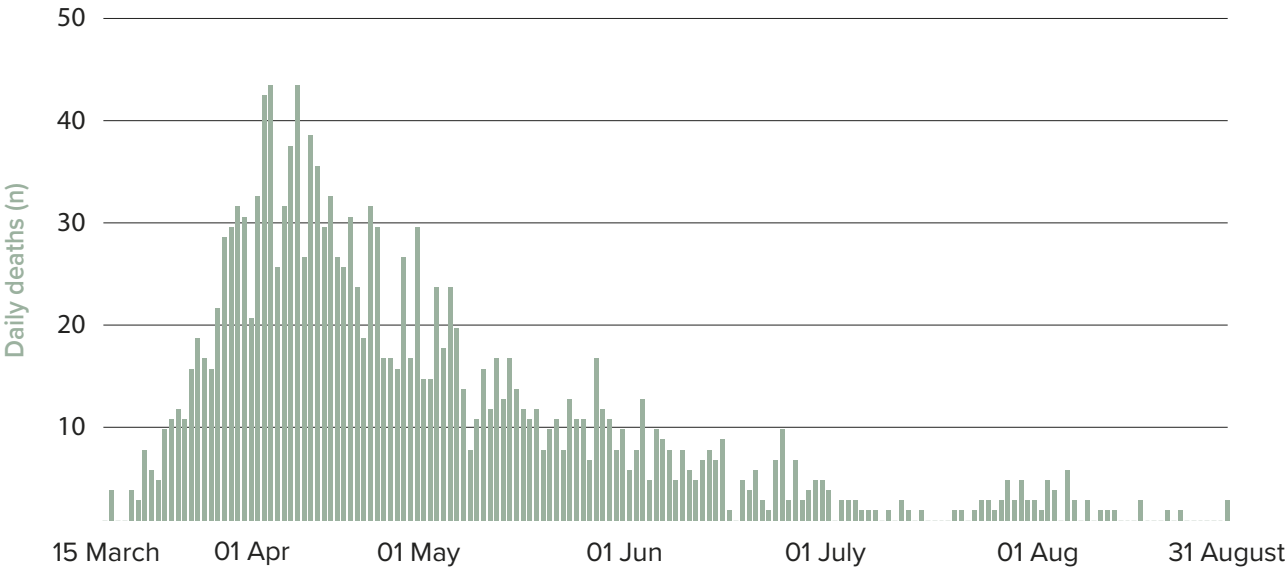
*These figures include reports to PHW of a death of a hospitalised patient in Welsh hospitals or care home residents where COVID-19 has been confirmed with a positive laboratory test and the clinician suspects this was a causative factor in the death.

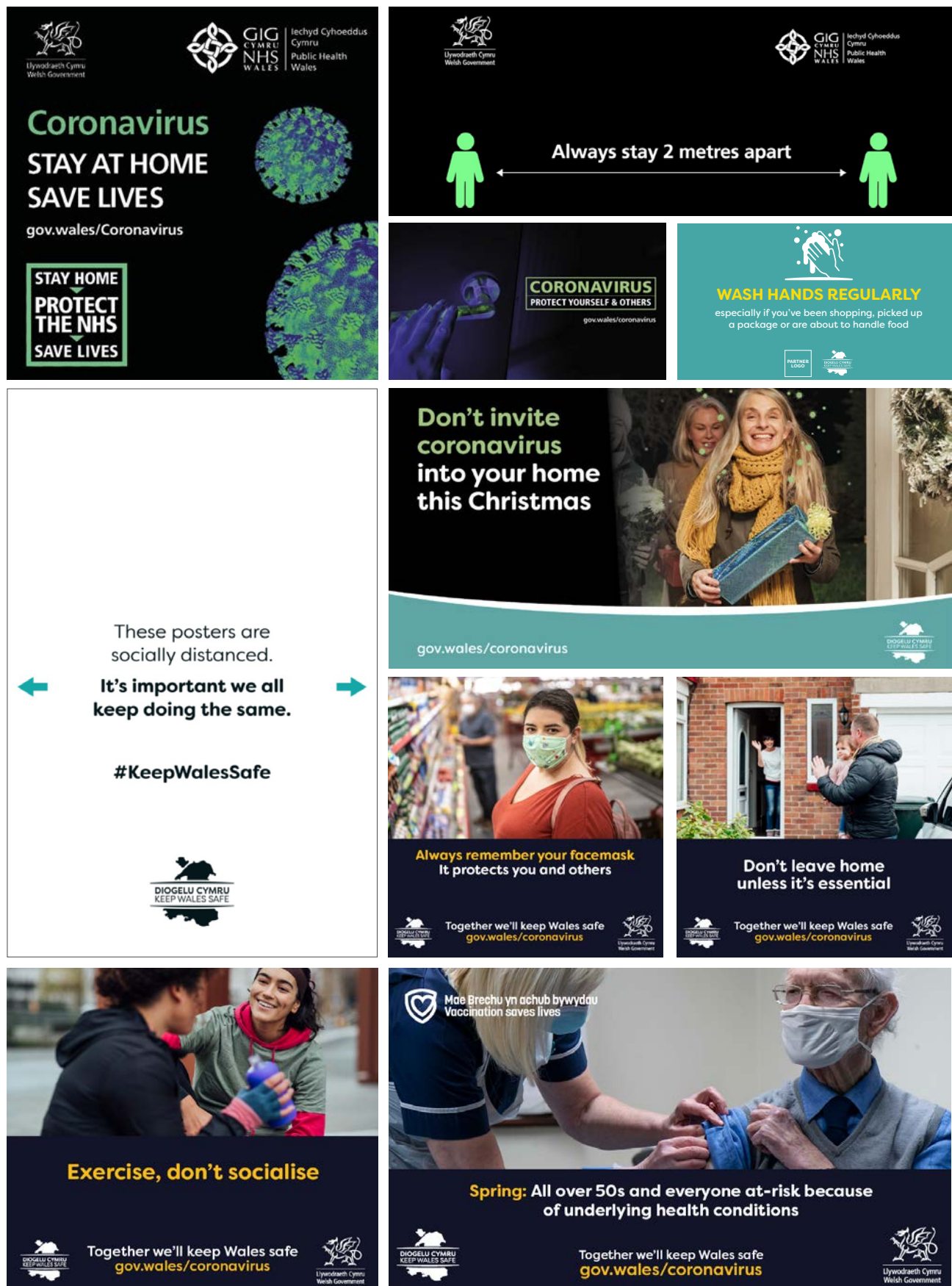Source: Public Health Wales Rapid COVID-19 Surveillance

Figure 9

Change in mobility from baseline, average of Welsh local authorities (7 day rolling average)
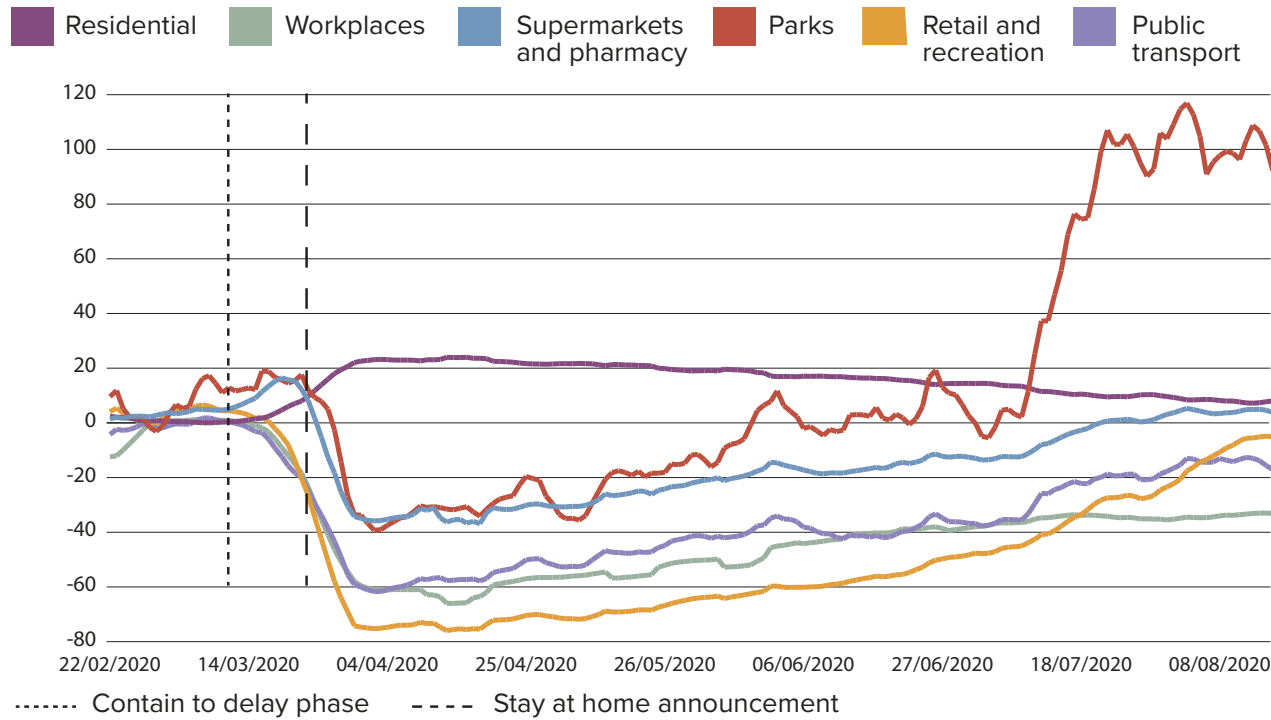
Source: Technical Advisory Cell report, using Google mobility data

Figure 10

Communication material

Chapter 2:
Preventing pandemics

Our response to COVID-19 here in Wales will continue to inform our planning across health, social care and all areas of society for years to come. We will continue to adapt as we learn more about the disease and its impacts on the health and wellbeing of the people of Wales.

It is already clear in Wales and in other countries around the world that the devastating consequences run much further and deeper than the direct impacts of the disease alone.

Health services responded quickly to the initial surge in demand from COVID-19 cases, and the rest of society responded to the measures that were put in place across the country, including social distancing, closing of businesses and schools as well as many other aspects of our daily lives.

While we make the most of all the available skills and expertise in Wales to help reduce the harms associated with COVID-19, we must also make sure that as we plan and implement our ongoing response we also use the opportunity to reduce the chance of other pandemics occurring in the future, as new viruses emerge as threats to the population.

IN DEPTH: What is a pandemic?[25]

The World Health Organization defines a pandemic as:

'the worldwide spread of a new disease.'

The reason a pandemic has such a devastating impact on society is because the new infection that emerges is able to spread quickly around the world and infect people who have never had the opportunity to mount an immune response before.

This means large numbers of people can become infected in a short space of time.

All pandemics will be slightly different in how they spread across the world, but all have the potential to have a significant impact on all parts of society.

There have been many pandemics before this one, and unfortunately there will be others in the future.

What we do not know for sure is when the next one will happen.

We must therefore make sure that we use knowledge and skills from across all areas of society to understand what causes pandemics and use this in our planning to reduce the chance of another one emerging. This would also include having the right systems in place to keep the impacts of any future event as low as possible.

This chapter will explore some of the key things we know about pandemics and how we can best use this knowledge here in Wales to make sure we can reduce the chances of another one occurring for us and for future generations.

There are three important points to emphasise if we are to successfully work towards preventing the next pandemic:

1) We must use learning from past events to prepare for pandemics alongside all other hazards which have the potential to have a devastating impact on the people of Wales.

2) Preventing the next pandemic will need us to work closer than ever before across human, animal and environmental disciplines.

3) Wales has a unique opportunity to bring different sectors and disciplines together to prevent the next pandemic and tackle other global challenges such as climate change and biodiversity through the Well-being of Future Generations (Wales) Act 2015.

   Doing so links closely to preventing cross-species emergence and transmission of future diseases.

Learning from past events to prepare for pandemics alongside all other hazards

There are many examples of pandemics throughout history with varying degrees of impact on society.

Examples include the severe H1N1 influenza pandemic in 1918-19 ("Spanish Flu"), with an estimated 200,000 extra deaths in the UK from the virus[9], as well as the much milder H1N1 influenza pandemic in 2009-10 ("Swine Flu"), with around 450 extra deaths in the UK from the virus, of which 28 were recorded in Wales.[26]

There are also other new viruses that have or had the potential to become a pandemic but were effectively controlled. These include Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)[9].

Any new infection that emerges at a particular point in time around the world should be regarded as having the potential to develop into an epidemic and then into a pandemic*[27].

This is why we depend on strong working relationships with agencies across the world, which include governmental, national and international health organisations, to identify these infections early on and to stop any spread in order to avoid a pandemic. Such agencies include the European Centre for Disease Prevention and Control (ECDC), the World Health Organization (WHO) and the World Organisation for Animal Health (OIE).

* Epidemic: The occurrence in a community or specified population of deaths or cases of a condition in numbers greater than usual expectation for a given period of time. Pandemic: An epidemic occurring worldwide or over a very wide area, crossing international boundaries, and usually affecting a large number of people.

Pandemics are a stark reminder of how interconnected we are and how a hazard which starts in one part of the world can within a matter of weeks spread quickly across the globe and affect the world's population for many years to come.

There are international health laws in place (such as the 2005 International Health Regulations) that countries across the world are signed up to that are designed to prevent, protect against, control and provide a public health response to the spread of disease.[28]

As part of this there are systems in place for countries to be able to detect and respond quickly to infectious diseases and environmental threats. Wales, as part of the UK, is signed up to these international regulations and the systems around them. As part of these responses Wales works closely with colleagues in the other UK nations to help prevent the spread of diseases around the world.[29]

There are equivalent controls to prevent the spread of high-risk animal diseases, including those that represent dangers to human health[30], as well as parallel sets of standards which exists for the control of food and water-borne infections and food and water standards.[31]

It is also worth noting that, while these global health regulatory frameworks are well designed to manage known risks, it is much harder to manage new and emerging risks.

There are many other hazards beyond new diseases that have the potential to cause global disasters, including extreme weather events causing drought, crop failures and flooding, impacts of climate change and the effects of air pollution.

Being able to prevent and manage these global hazards relies on strong links both within and between countries, and including human, animal and environmental disciplines. We call this a 'One Health' approach.

To avoid the next pandemic or the next global disaster, we need to not only respond to a threat as it emerges, but we must also identify the risks which are on the horizon and work together, both across the different sectors in Wales and across different countries around the world, to reduce and even prevent the risk of these hazards becoming a reality.

The United Nations Sendai Framework for Disaster Risk Reduction 2015-2030 provides Member States (which includes the UK) with actions on how to reduce the risk of disasters[32]. It lists a total of 302 hazards which are grouped into eight categories, as shown in Table 1.

The risk of these hazards occurring and the impact they would cause are constantly changing over time across Wales and the world.

Some hazards are more likely in some countries than others and the impact of any hazard might vary across countries.

These risks are often linked and one disaster can often lead to another. For example, a large power outage could result in civil unrest, or the effects of climate change can increase the risk of other hazards from occurring, including flooding, drought, wildfires and emerging infectious diseases.

Even if the hazards are not linked, there is always the chance that more than one disaster could occur at any one time. This would be made all the more likely if risks are not controlled.

Table 1
List of hazards

Hazard	Examples
Meteorological and hydrological	flooding, drought, extreme events
Extraterrestrial	UV radiation, meteor impact
Geohazards	riverbank / coastal erosion
Environmental	air pollution, wildfires, radiation/nuclear
Chemical	industrial accidents, asbestos, microplastics
Biological	COVID-19, suicide cluster, deliberate releases of anthrax spores
Technological	power outage, cyber data breach
Societal	armed conflict, civil unrest

Source: UNDRR[33]

For example, drought and failed crops can lead to food insecurity and increased civil unrest and armed conflict following increased competition for scarce resources, as is the case in parts of the world right now.

During the COVID-19 response Wales has responded to other incidents which have required input from a number of agencies. Examples include a response to severe flooding due to Storm Dennis in February and a fire and diesel spill following a train derailment in Carmarthenshire in August.

It is important that we are able to effectively identify and monitor these risks within countries as well as globally in order to make sure we are able to reduce them where possible and to put plans in place to minimise the impacts if they do occur.

As we have seen during the COVID-19 pandemic, these hazards can have serious effects in terms of mortality and societal impact, so it is important to make sure we do all we can to control and mitigate these risks as much as possible.

IN DEPTH: Air pollution as an example of an environmental health hazard in Wales[34, 35]

Outdoor air pollution is the largest environmental risk to health.

Breathing in pollutants like fine dust particles (PM2.5) and nitrogen dioxide (NO2) produced by a number of sources including road transport, industrial processes and domestic burning, can increase health risks, especially from heart and lung diseases.

Air pollution can also compound other factors that influence our health and wellbeing and make problems worse, especially for vulnerable groups, which include children, older people and those with chronic lung or heart conditions.

A provisional analysis of air quality monitoring data in Wales assessed whether there was any impact on air quality in Wales during the COVID-19 lockdown period. Measurements at air quality monitoring sites across Wales suggests that concentrations of some air pollutants – notably nitrogen dioxide – fell during the COVID-19 lockdown period (end of March to end of May).

But, we need more data about this to strengthen our understanding of longer-term impacts.

What we can see from this analysis is that behaviour change – so, altering our need to travel and how we do it (by walking and cycling more and using cars less) – can deliver really positive impacts for our environments and health.

We need to make sure we recognise this and link policies so we sustain improvements wherever feasible.

The Clean Air Plan for Wales

The aim of the Clean Air Plan for Wales is to improve air quality and reduce the impacts of air pollution on human health, biodiversity, the natural environment and our economy.
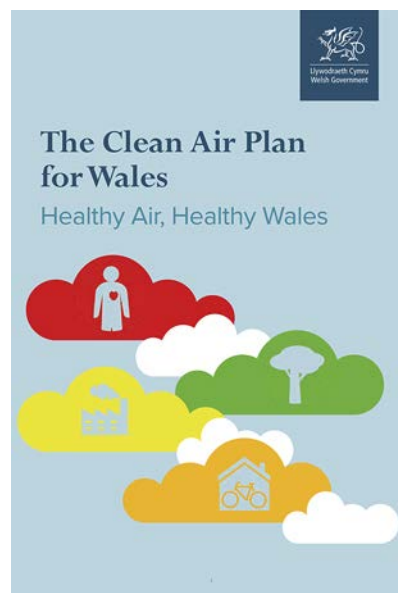
There are ambitious proposals in the Plan such as setting new air quality standards for Wales, establishing new monitoring networks and reinventing our approach to assessing and managing local air pollution problems in a broader public health context.

It also recognises the overlaps with climate change and decarbonisation. Indeed, many of the actions we can take, for example using our cars less and walking and cycling more, not only directly benefit our own health and wellbeing but can help us mitigate and adapt to consequences in these areas, and also reduce air pollution.

The Clean Air Plan moves us away from thinking about air pollution as a solely environmental issue and encouraging us to focus on improving air quality for reasons of good health and to reduce inequities.

As we continue to respond to the challenges of COVID-19, we must also take into account the other risks that run alongside and to make sure our planning takes these hazards into account in order to avoid the risk of these impacting negatively on society, both in the short and longer term.

The World Health Organization declared COVID-19 as a Public Health Emergency of International Concern (PHEIC) on 30th January 2020, which puts a number of additional measures into place to ensure even greater global collaboration and coordination to reduce spread of the infection[36].

We must also make sure that we continue to work together across all areas of society to deal with this emergency alongside other emergencies which constitute a risk to the health of the people of Wales as well as the planet.

One of the most urgent threats to our health is climate change, which was clearly highlighted here in Wales through the Senedd becoming the first Parliament in the world to declare a climate emergency.

Visual representation of the change in temperature as measured in Wales 1884-2019
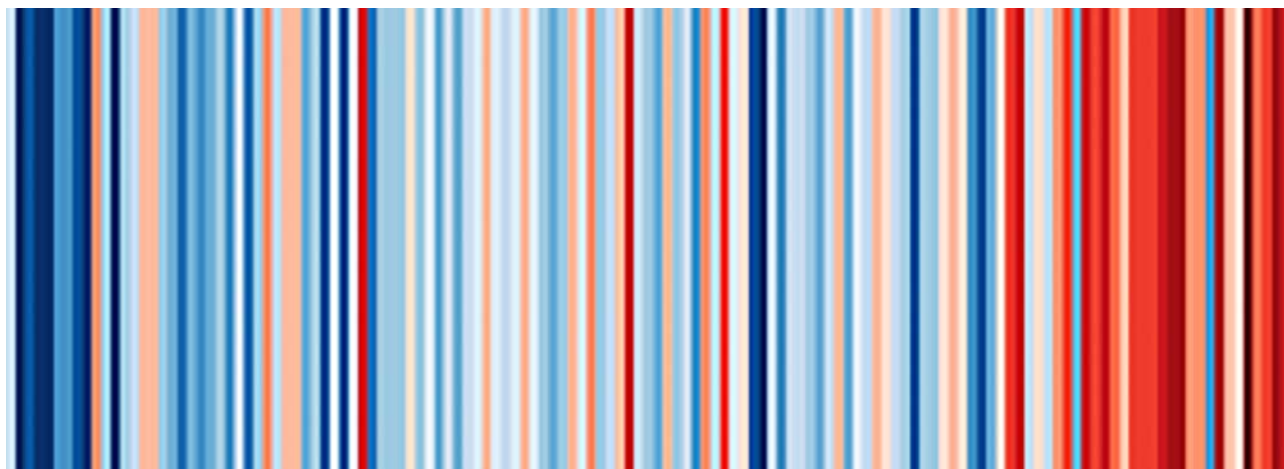
Each stripe represents the temperature in that country averaged over a year. The average temperature in 1971-2000 is set as the boundary between blue and red colours. Credit: Professor Ed Hawkins (University of Reading). For further details please visit **https://showyourstripes.info/**

Welsh Government has also published the first government-wide statutory decarbonisation plan "Prosperity for All: A Low Carbon Wales" last year, which sets out policies and proposals, across all sectors of our economy, to meet our current carbon budget and set a longer term decarbonisation trajectory for Wales[37].

Next year Welsh Government will be publishing our second Low Carbon Delivery plan to coincide with the United Nations Climate Change Conference (COP26), which will set out how we will meet our second carbon budget (2021-2025).

It will be an All Wales Plan, recognising the contribution that the NHS, as the largest public sector organisation in Wales, and all other sectors must make.

This should offer a clear signal for us to continue to work together on these urgent threats in order to secure a healthy planet for all[38,39].

The Future Generations Report, recently published by the Future Generations Commissioner for Wales offers a timely synthesis of good practice and opportunities for improvement in how we plan and respond to these wide risks. This will mean engaging all of society and all public sector bodies as set out in the Wellbeing of Future Generations Act around areas such as placemaking, transport, housing, decarbonisation and responding to the challenge of preserving and improving biodiversity by meeting Welsh Government biodiversity objectives[40].

There are many examples of actions that can help to embed biodiversity across an organisation's activities, such as supporting active recreation, education, flood prevention, as well as local food growing[41].

Wales' biodiversity strategy, the Nature Recovery Action Plan for Wales, has been refreshed for 2020-21 to take into account the growing evidence around the scale of the loss of biodiversity and the changing policy context in Wales.

This includes the legislative framework and the Natural Resources Policy, the expected impacts of our exit from the EU, the escalating ecological crisis and the need to respond urgently to that alongside the response to the climate emergency.

The refreshed plan reflects the need for action to build resilient ecological networks across our whole land and seascape to safeguard species and habitats and the benefits they provide, addressing the root causes of biodiversity loss, and targeting interventions to help species recover where necessary.

Preventing the next pandemic – the role of human, animal and environmental disciplines

COVID-19 is a disease caused by the virus SARS CoV-2. It is likely the virus originated in an animal, quite possibly a bat, then it has mutated and jumped from this animal species, either directly or indirectly, to infect people, just as SARS-CoV-1 and MERS-CoV, to which it is closely related, did in 2002-03 and 2012 respectively.

Not all infections in animals will infect humans, although animals contain a large reservoir of infections that could be a potential source that can pass to other animals or humans under the right conditions.

Any changes in the way humans, animals and the environment interact with each other all play a part in changing the risks of different infections jumping from animals into humans. This may include factors such as: climate change; increase in global travel; global transport of food and intensive food production and humans living much more closely to animals in their natural habitats[42].

Recent global changes in the interaction of humans with animals and the environment, has meant that new diseases in humans are emerging more frequently from animals. Because of this, urgent action is needed to ensure we understand the risks and how to reduce them in order to avoid adverse effects.

Agencies such as the Animal and Plant Health Agency (APHA) monitor the occurrence of certain animal diseases, which can highlight the potential for transmission between animals and humans. This will help to assess and manage the risk to human, environmental and animal health[43].

The links between human, animal and environmental health are complex and include a number of issues that span areas such as air and water quality, biodiversity and food security.

These areas and disciplines should collectively inform policies that address the challenges posed by current and future emerging infections.

The drivers of pandemics are similar to those that contribute to climate change and biodiversity loss- two long-term challenges that have continued during the pandemic.

Much of this has been brought about by human activity and therefore a key component of this response is to minimise the impact of human activity on animal and environmental health[44].
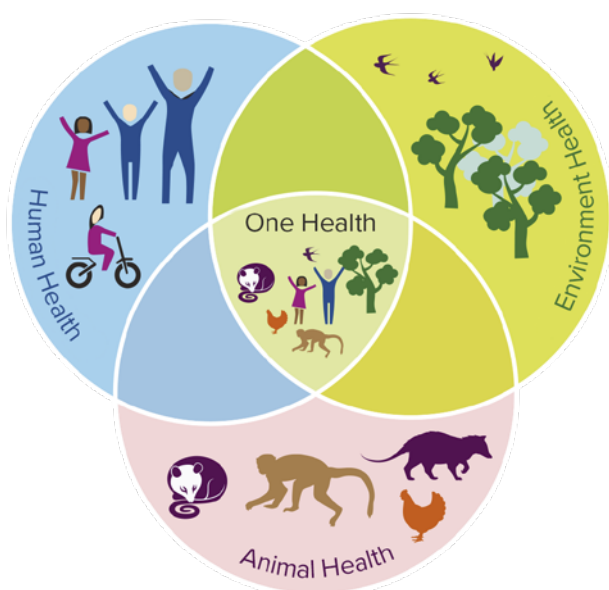

These issues also have the potential to further widen inequalities in health outcomes, within Wales and across the world.

One Health is a concept that tries to link up the complex factors to help find a solution in tackling these big issues.

Figure 11
One Health

Source: United Nations Environment Programme

The roots of the 'One Health' concept originated in the late nineteenth century, but the current 'One Health' movement emerged following the global response to avian influenza ('bird flu').

The key principle behind 'One Health' is that the health and well-being of humans, animals and ecosystems are linked and it is therefore necessary to work across sectors and disciplines to address issues or risks that occur at the animal-human-ecosystems interface.

IN DEPTH: A One Health approach to antimicrobial resistance in Wales

Modern health care systems depend on the ability to treat bacterial infections for both people and animals.

It has been estimated that penicillin alone has prevented an estimated 200 million human deaths globally since it was introduced in the 1940s.

However, bacteria can and do develop resistance to antibiotics and, left unchecked, by 2050 antibiotic resistance could put at risk 10 million human lives per year around the world (Review on AMR, 2014 https://amr-review.org/).

Antimicrobial resistance (AMR) is driven by use, both in people and in animals, and can transfer between them.

A One Health approach is essential to address the risk and keep antibiotics effective for future generations.

The Welsh Implementation Plan is Wales' contribution to the UK Five Year National Action Plan (2019-2024).

The UK has a holistic 5 year plan and 20 year vision to tackle AMR in people, animals and the environment.

We adopt the same approach in Wales and exploit our connectedness to ensure that our AMR control work is fully joined-up and that we learn as much as we can from what works in human medical and animal veterinary settings.

Examples of our One Health approach in action in Wales:

- **Learning from experiences and expertise in the NHS to develop antibiotic prescribing guidance for veterinary clinicians.**

- **Combining efforts and resources to deliver cross cutting messages on the safe use of antibiotics for World Antibiotic Awareness Week and European Antibiotic Awareness Day.**

- **Aligning our AMR policies to the principles of the Well-being of Future Generations Act.**

- **Developing new approaches to understand the role of environmental spread of AMR, through monitoring of water sources.**

- **Mutual learning between veterinary and medical sectors on infection prevention and control.**

It is a 'whole of society' approach with collaboration across different disciplines and sectors that are involved in human health, animal health and the protection of the natural environment, in order to obtain optimal health and well-being outcomes.

Adopting a One Health approach, which unites medical, veterinary and environmental expertise, can help governments, businesses and civil society achieve enduring health for people, animals and environments alike.

For this to succeed in Wales there needs to be strong cross-sector coordination, collaboration and communication for 'One Health' inside and outside Welsh Government, including public bodies, academic institutions and the third sector.

Cross-sectoral working should be encouraged on specific 'One Health' priorities, including zoonoses, antimicrobial resistance, disaster preparedness and food safety.[45]

IN DEPTH: Environmental sustainability in healthcare

'If the health sector were a country, it would be the fifth-largest emitter on the planet.'*

Health Care's Climate Footprint (Health Care Without Harm, 2019)
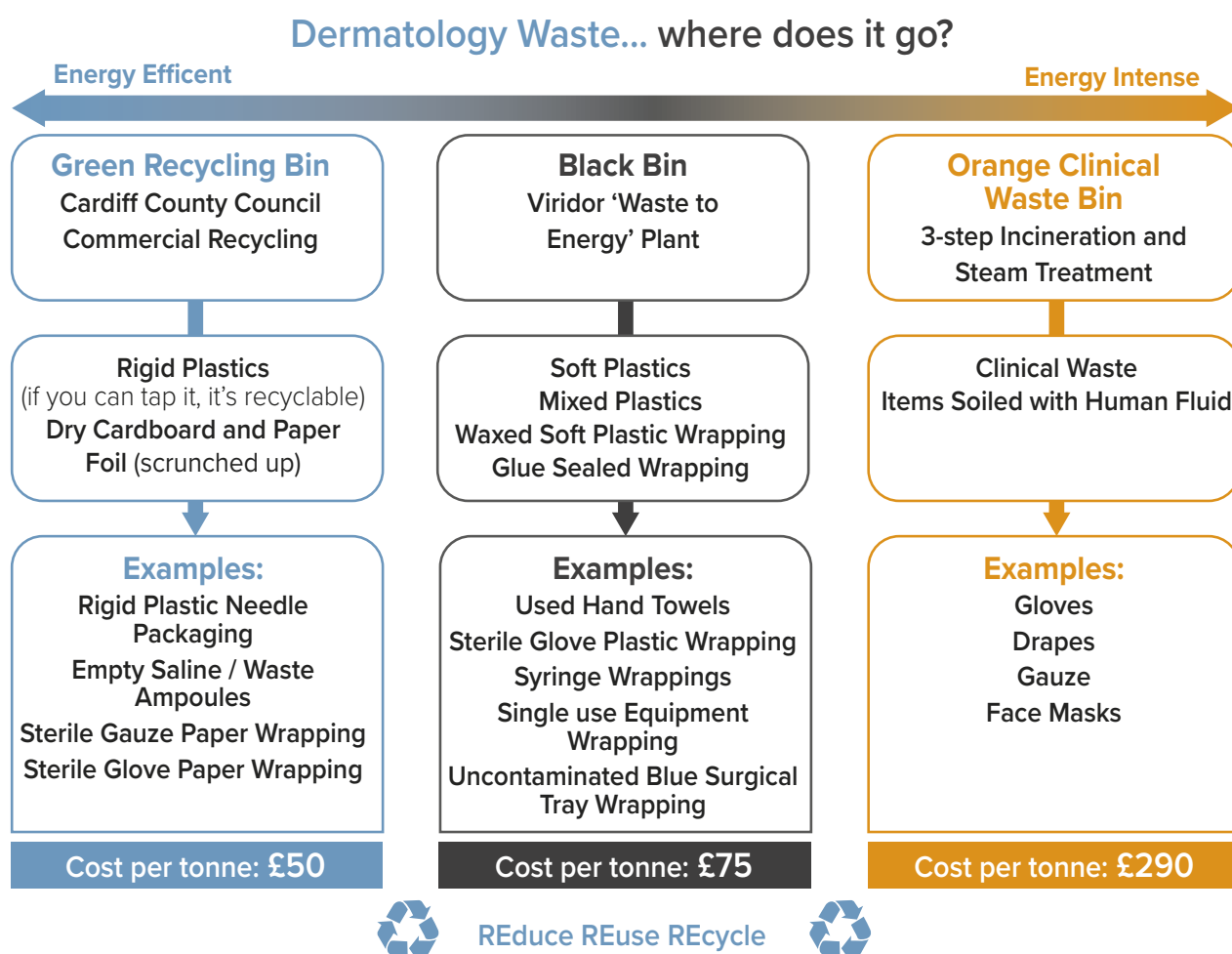*Refers to the global health sector

Health professionals from around the world have shown that they are also strong supporters of action to protect the environment – and thereby the health of the populations that they serve.

Wales is no exception. Here are some examples of how NHS Wales staff are promoting environmental sustainability:

- **The Welsh Environmental Anaesthetic Network (WEAN): WEAN is coordinating a multicentre, grassroots initiative Project Drawdown, aiming to reduce the CO_2 equivalent (CO2e) emissions of inhalational anaesthetics by 80% across Wales by 2021. Data from just 7 out of 18 acute hospitals so far extrapolates to a staggering 1.59Kton CO2e savings. This corresponds to 26,291 tree seedlings grown for 10 years to sequester this amount of carbon dioxide.**

- **Staff-led Climate Change Network in Aneurin Bevan University Health Board (ABUHB): a number of initiatives have emerged as a result of this network, such as serving staff food in recyclable takeaway containers and their own lunch boxes. Biodiversity activities and resilience have been actively promoted and this is evidenced in the Llanfrechfa walled garden community and the design of the new hospital gardens to be sustainable.**

- **Green Theatre initiative in Cardiff and Vale University Health Board- this initiative has been set up to support reduction in waste from theatres and encourage recycling where appropriate. For example, see the dermatology waste diagram below.**

- **There is a Welsh Clinical Leadership Fellow post in Sustainable Healthcare and a Welsh Sustainable Ophthalmic Scholar, helping to promote sustainable principles in our future healthcare leaders.**

This is an example of a poster displayed in theatres as part of the Green Theatre initiative, showing how dermatological waste is disposed of and the relative energy efficiency of each disposal method

Dermatology Waste... where does it go?

Energy Efficent ⟵   ⟶ Energy Intense

Green Recycling Bin	Black Bin	Orange Clinical Waste Bin
Cardiff County Council Commercial Recycling	Viridor 'Waste to Energy' Plant	3-step Incineration and Steam Treatment
Rigid Plastics (if you can tap it, it's recyclable) Dry Cardboard and Paper Foil (scrunched up)	Soft Plastics Mixed Plastics Waxed Soft Plastic Wrapping Glue Sealed Wrapping	Clinical Waste Items Soiled with Human Fluid
Examples: Rigid Plastic Needle Packaging, Empty Saline / Waste Ampoules, Sterile Gauze Paper Wrapping, Sterile Glove Paper Wrapping	**Examples:** Used Hand Towels, Sterile Glove Plastic Wrapping, Syringe Wrappings, Single use Equipment Wrapping, Uncontaminated Blue Surgical Tray Wrapping	**Examples:** Gloves, Drapes, Gauze, Face Masks
Cost per tonne: £50	Cost per tonne: £75	Cost per tonne: £290

REduce REuse REcycle

For more information please click on the following links:

https://www.walesdeanery.org/leadership-fellows

https://lshubwales.com/success-stories/project-drawdown-cav-uhb-anaesthesia-climate-smart-initiative

https://sustainablehealthcare.org.uk/

Well-being of future generations

Wales has a unique opportunity to bring different sectors and disciplines together to prevent the next pandemic and other hazards through the Well-being of Future Generations (Wales) Act 2015 (WFG Act).

Future generations in Wales are facing a number of different health issues, including air pollution, climate change, a persistent obesity problem as well as the impacts of the COVID-19 pandemic.[40] We know there are many hazards and risks across society that can have an impact on all aspects of our lives.

We also know that these factors are all linked together in a complex network and therefore the solution to these big challenges cannot be tackled by single groups or one strategy but need to be worked on together by many organisations sharing their expertise and perspectives, including experts in human, animal and environmental health.

Wales has been at the forefront of developing laws and policies in this area for a number of years. These can be used as a framework to plan our response to COVID-19 and the other threats facing Wales and the world in years to come.

Following devolution of the Welsh Government, Wales became one of the first countries in the world to legislate on sustainable development in response to contemporary social, economic and environmental challenges. As a result of public consultation and the scrutiny process, the legislation expanded to include cultural issues and sought to embed a "Health in All Policies" approach.

It is the duty of all public bodies to implement the WFG Act, which is intended to create a collective common purpose and places a duty on public bodies to demonstrate progress to the independent Future Generations Commissioner and the Auditor General for Wales.

The WFG Act requires us to think differently about what we need to do to achieve the seven statutory well-being goals.[46]

The WFG Act was published just ahead of the United Nations Sustainable Development Goals (SDGs), which 196 countries are signed up to deliver.

Figure 12
The seven well-being goals

Figure 13

The relationship between the Sustainable Development Goals (SDGs) (United Nations 2015) and the Well-being of Future Generations Act (WFG Act) (Welsh Government 2015)

Sustainable Development Goals (SDGs)

Relationship between the SDGs and the WFG Act

For more information please click on the following link

https://gov.wales/written-statement-wales-and-sustainable-development-goals-wales-supplementary-report-united

The WFG Act is one of the most comprehensive pieces of legislation promising to deliver the Global Goals, and is therefore the focus of much international attention.

Five of the seven objectives of the WFG Act match all of the 17 SDGs, while the other two provide the specificity of the local dimension – "A Wales of vibrant culture and thriving Welsh language"- and link back to the international dimension of the SDGs – "A globally responsible Wales".

Within the WFG Act, public bodies are asked to implement the Sustainable Development Principle, also known as the five "ways of working": long-term; prevention; integration; collaboration; involvement.

These common ways of working are designed to help us to work together in Wales as one public service in order to address the challenges we face, whether it is to improve equality, create a low carbon economy, or contribute to a country with a healthy ecosystem and connected communities.

The PHW, report 'Implementing the Sustainable Development Principle'[47] reviews the international evidence in support of this legislative approach and provides examples and recommendations for putting the five ways of working into practice.

The WFG Act is clearly influencing the approach being taken to post-Covid-19 recovery led by the Counsel General.

Drawing on views from my team and others inside Government and seeking ideas and insights from stakeholders and civil society, he is making the connections between the economic, social, environmental and cultural key issues, such as: how to invest in our people by equipping them with the skills for the post-COVID-19 economy; how to maximise the use of our natural resources sustainably; how to innovate in our social housing; how to foster the creativity of our indigenous businesses; how to maximise digital technology and how to reimagine our town centres to become vibrant community hubs again.

We know that these factors are drivers for improving health and preventing illness; meaningful and secure employment, good housing, education, unpolluted air and water, access to green space and affordable food are all known determinants of health and wellbeing and can impact on health inequalities.

## IN DEPTH: Wales and Africa – towards finding shared sustainable solutions globally

For more than a decade, Wales has been developing and deepening community-based links and partnerships with countries in sub-Saharan Africa through the successful Wales and Africa programme (previously named Wales for Africa).

Every one of the Wales and Africa partnerships characterise the Welsh approach to international development, where experiences and knowledge are shared in a spirit of mutual respect and reciprocity. This vibrant, civil-society-based approach has seen friendships formed across Wales and Africa, as people work together practically, purposefully and meaningfully towards achieving the UN's Sustainable Development Goals (SDGs).

The African diaspora in Wales plays an important role in building and sustaining these relationships. Welsh health boards have an active health link in Africa and other areas of the world and significant numbers of people across Wales have been engaged with the 900-plus organisations in Wales working in Africa, including international development and solidarity issues or through their support for Fair Trade.

This programme will continue to play a part in Wales' role as a globally responsible nation.
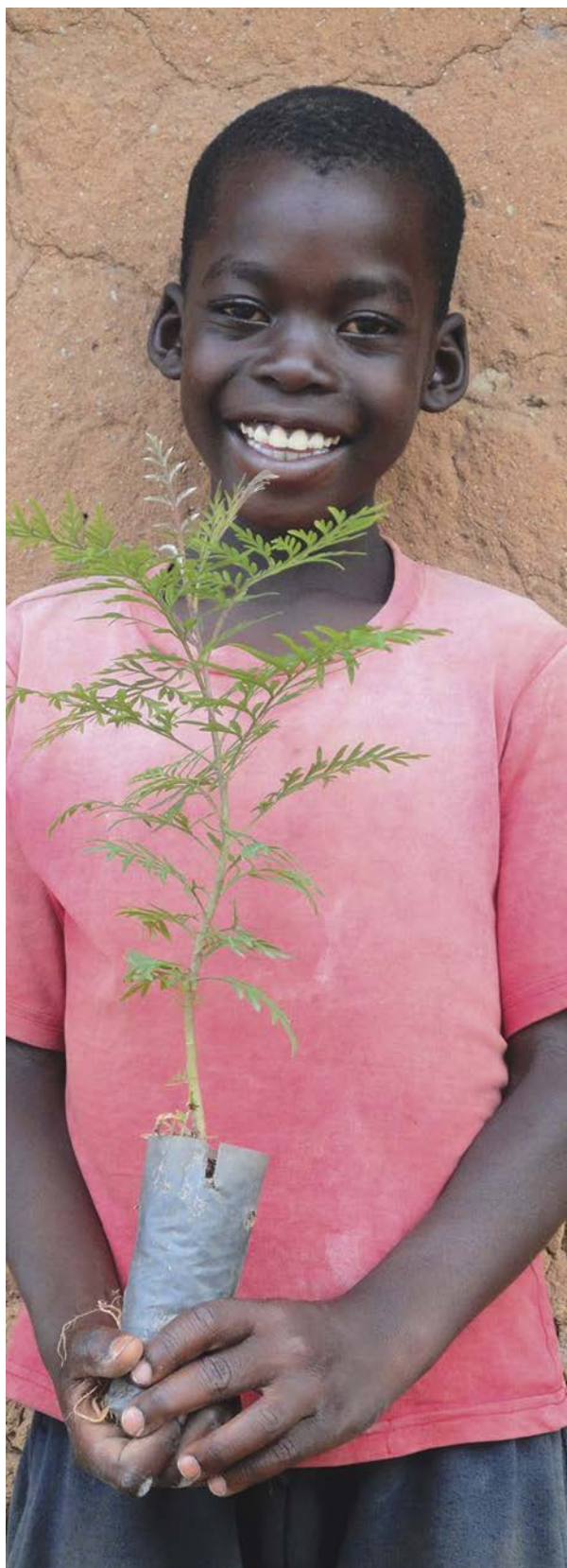
One part of the programme, the Welsh Government Wales and Africa Grant Scheme, enables community groups and organisations throughout Wales to access funding for small-scale Wales-Africa projects.

Recent grants have been awarded to support the COVID-19 response in these countries.

Here are just some examples:

- **Chomuzangari Women's Cooperative (£12,595) – Supporting the Hope Foundation and the community of Chomuzangari (Zimbabwe) to be more resilient to the coronavirus pandemic through providing clean water, washing facilities, hygiene materials and public education in local languages.**

- **Swansea Bay Health Charity (£12,900) – Strengthening of a COVID-19 19 isolation and treatment unit in Liberia, West Africa, specifically at ELWA Hospital. Used to procure vital medication and personal protective equipment to ensure the unit is able to function effectively.**

- **United Purpose (£13,542) – This project will reach 2,870 of the most socially excluded people in high density areas of Dakar, Senegal with accessible information and hygiene materials to prevent the spread of COVID-19. It will facilitate handwashing and social distancing in crowded community locations, and support individuals facing economic hardship to re-orient their livelihoods.**

For more information on Wales and Africa and the International Strategy:

https://gov.wales/wales-and-africa

https://gov.wales/international-strategy-for-wales

Chapter 3:
COVID-19 and its effects on health inequities in Wales and the UK

Even before the COVID-19 pandemic reached the UK, we know that there were significant health inequalities affecting the lives of people in our society. Since the 1970s, multiple reports have highlighted the extent and effects of these in the UK and in Wales.[48, 49, 50] In particular, there was already clear evidence that many people's health was affected by socioeconomic inequalities.

This means that people in different social and economic circumstances experienced differences in health, well-being and the length of their life.[50]

The figures are stark. We know that deprivation and poverty affect a large number of people; in Wales, between 2016-17 and 2018-19, 23% of all people lived in relative income poverty[*], with 28% of children affected.[51, 52] Analysis (based on 2016-2018 data) shows that the gap in life expectancy between the most and least deprived areas was 9.0 years for men and 7.4 years for women.[**53, 54] However the gap in *healthy* life expectancy between the most and least deprived was even greater, at 18.2 years for men and 19.1 years for women.[54] In 2018, males and females living in the most deprived areas were also 3.7 and 3.8 times more likely to die from an avoidable cause than those living in the least deprived areas respectively.[55]

Over the last decades we have also developed a greater understanding of how wider factors can determine a person's health status, alongside individual factors such as ethnicity and gender.

We know, for example, that many wider determinants of health such as housing, education, employment and environment may contribute to less healthy lives and factors such as smoking, poor diet, and a lack of physical activity are also influenced by mental wellbeing, which can be low if these determinants are poor.[50]

For many chronic diseases, such as heart disease, obesity, and type 2 diabetes, such determinants can work together to contribute to ill-health, interacting and compounding each other to increase health inequalities throughout a person's life and, in some cases, also impacting the next generation. [50, 56, 57]

For some individuals, these inequalities may also be increased further by barriers to accessing healthcare, marginalisation from society or discrimination. For example, in some cases, health inequalities are deepened because of other factors such as mental health problems, homelessness, substance misuse disorders and an inability to effectively access healthcare through, for example, language barriers or failure to provide access for disabilities.[50]

In the absence of fair access to the same determinants of health assets (such as work, leisure and education) and other health promoting opportunities, those with sensory, physical or learning disabilities may face systemic and structural inequalities unless specific focus to avoid this is maintained.[58]

Finally, we now also understand that many of these health inequalities are not inevitable, they are health *inequities*, or systematic inequalities between social groups that are judged to be avoidable and unfair.[59, 60]

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* Defined as living in a household where the total household income from all sources is less than 60% of the average UK household income (as given by the median).

** Defined using the Welsh Index of Multiple Deprivation 2019 (WIMD 2019); the official measure of relative deprivation in Wales. Each Lower-layer Super Output Area (LSOA) in Wales is scored according to its level of relative deprivation, which is calculated using eight domains of life including education and health. These scores can then be ranked and split into groupings such as tenths (deciles) of area deprivation. The scores are based on the area as a whole, so it is wrong to conclude that everyone within an LSOA necessarily experiences the same level or type of deprivation.

Throughout this Chapter we therefore continue to use the term inequity wherever it is applicable.

In Wales, the extent and impact of these inequalities and inequities have been well recognised and the Welsh Government had already been putting in place strategies and legislation to try to tackle them.

The WFG Act, for example, puts a more equal and a healthier Wales as two of its well-being goals.[46] Wales is now an influencer country within the World Health Organization (WHO)'s Europe an Region, working on solutions to tackling health inequities through the Health Equity Status Report Initiative (HESRi)[59] and Wales is also recognised as a lead partner in the Joint Action Health Equity Europe (JAHEE) programme. These build on the foundations of 'Fairer Health Outcomes for All',[61] and alongside more recent strategies and plans, such as Prosperity for All,[62] A Healthier Wales,[63] the Nation of Sanctuary Plan,[64] the Strategic Equality Plan 2020 to 2024[65] and the commencement of the Socio-economic Duty[66].

Despite these ongoing efforts to tackle existing health inequities and to reverse trends in them, while no-one could have been prepared for the devastation that the COVID-19 pandemic would bring, some people were more vulnerable to its direct and indirect effects than others.

This became increasingly evident during the first phase of the pandemic as our understanding developed that COVID-19 was harming people in four ways (as described in Chapter 1) and exacerbating pre-existing inequalities and inequities in our society. Firstly, we know that the direct effects of the disease have affected people's health differently, depending on factors such as their age, sex, ethnicity and their underlying health conditions.

Secondly, it has become increasingly clear that the indirect effects of the disease and our response to it have also widened existing health inequities (figure 14).

Figure 14:

'The syndemic of COVID-19, non-communicable diseases and the social determinants of health', as suggested by Bambra et al. This illustrates how COVID-19 interacts with and exacerbates existing social inequalities in chronic diseases and in the social determinants of health[67]
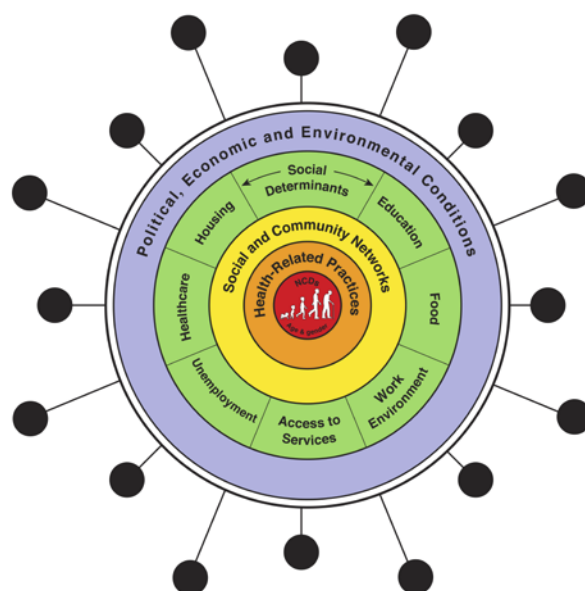
The direct effects of COVID-19 have exacerbated pre-existing health inequities in our society

As the first phase of the pandemic progressed, we gained more evidence and a greater understanding about the direct effects of COVID-19 on people in the UK. In particular, we learned that it was not affecting everyone equally. From early on in the pandemic, there was concern that older people would be at greater risk from the effects of COVID-19. Sadly, over the subsequent months, evidence showed that the majority of deaths involving COVID-19 in the UK were among people aged 65 years and over and this pattern was also seen in the distribution of deaths in Wales (figure 15).[68]

A Public Health England analysis from June showed that the largest difference identified in the direct health effects of COVID-19 was related to a person's age. Amongst those already diagnosed with COVID-19, people who were 80 or older were seventy times more likely to die than those under 40 in England.[69]

In Wales, throughout the months of March to June 2020, across all age groups, males also had a higher rate of COVID-19 deaths than females.[70]
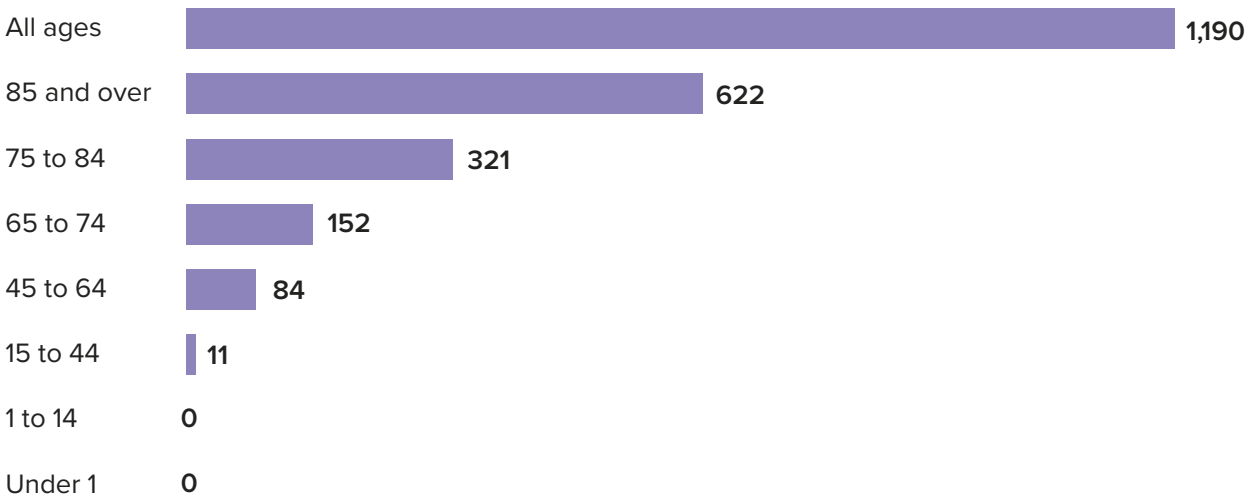
Analysis from England also showed that, despite making up 46% of diagnosed cases, men made up almost 60% of deaths from COVID-19 and 70% of admissions to intensive care units in England.[69]

Overall, working aged males diagnosed with COVID-19 were twice as likely to die as working aged females in England.

The reasons behind this difference are not yet fully understood but it has been suggested that different risks of acquiring the infection could have been a factor, through behaviour or occupation, as well as differences in how women and men develop symptoms, access care and are diagnosed, or by biological and immunological differences that put men at greater risk.[69]
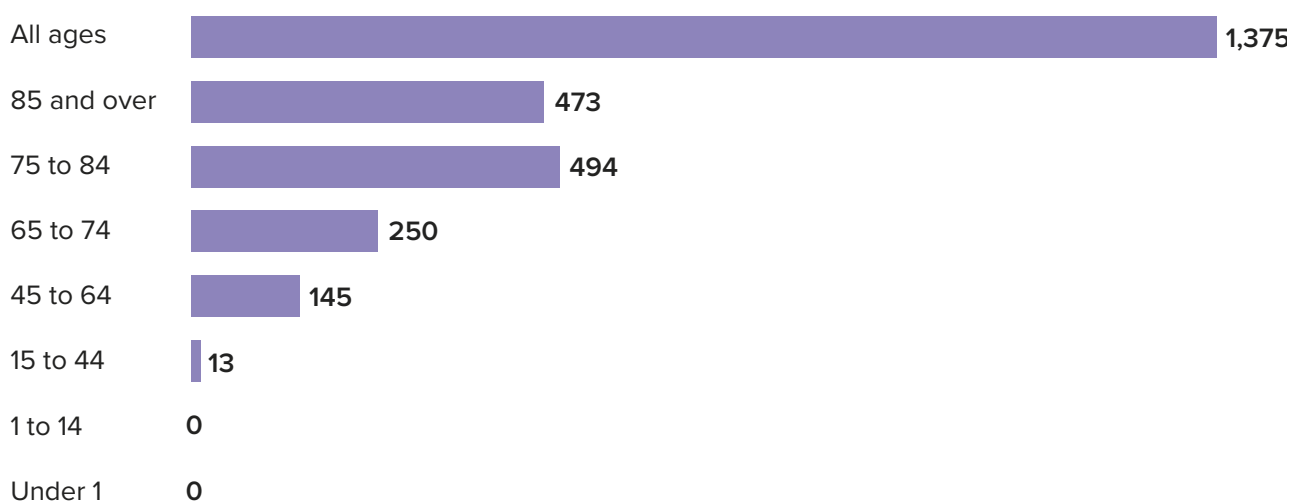
Figure 15:

Deaths from COVID-19 by age group, count, FEMALE, Wales, week ending 06 Mar to 04 Sept (weeks 10 to 36) 2020

Age group	Count
All ages	1,190
85 and over	622
75 to 84	321
65 to 74	152
45 to 64	84
15 to 44	11
1 to 14	0
Under 1	0

Source: Public Health Wales Observatory, using Public Health Mortality (PHM), Office for National Statistics (ONS)

Figure 16:

Deaths from COVID-19 by age group, count, MALE, Wales, week ending 06 Mar to 04 Sept (weeks 10 to 36) 2020

Age group	Count
All ages	1,375
85 and over	473
75 to 84	494
65 to 74	250
45 to 64	145
15 to 44	13
1 to 14	0
Under 1	0

Source: Public Health Wales Observatory, using Public Health Mortality (PHM), Office for National Statistics (ONS)

During the first phase of the pandemic, it also became increasingly evident that COVID-19 was disproportionally affecting the health of people from more deprived backgrounds. In Wales, there has been evidence of a socioeconomic gradient in hospitalisations and deaths.[71]

Data have shown that the age-standardised rate for admissions to hospital for COVID-19 in the most deprived quintile (fifth) was around twice that of the least deprived quintile.[72]

Intensive care data for Wales have also shown that there was a greater proportion of patients in critical care with COVID-19 from the most deprived quintile than other quintiles (figure 17).[71]

Finally, the mortality rate involving COVID-19 in the most deprived areas in Wales was nearly twice as high as that in the least deprived areas, with 121.4 deaths per 100,000 people in the most deprived quintile, between March to July, compared to 65.5 deaths per 100,000 in the least deprived areas.[73]

Analysis from England has similarly shown that people living in deprived areas had both higher diagnosis and death rates from COVID-19.[69]

Figure 17:

ICNARC Data: Welsh Index of Multiple Deprivation (IMD) distribution (%) of patients critically ill with confirmed COVID-19 up to 11th June 2020
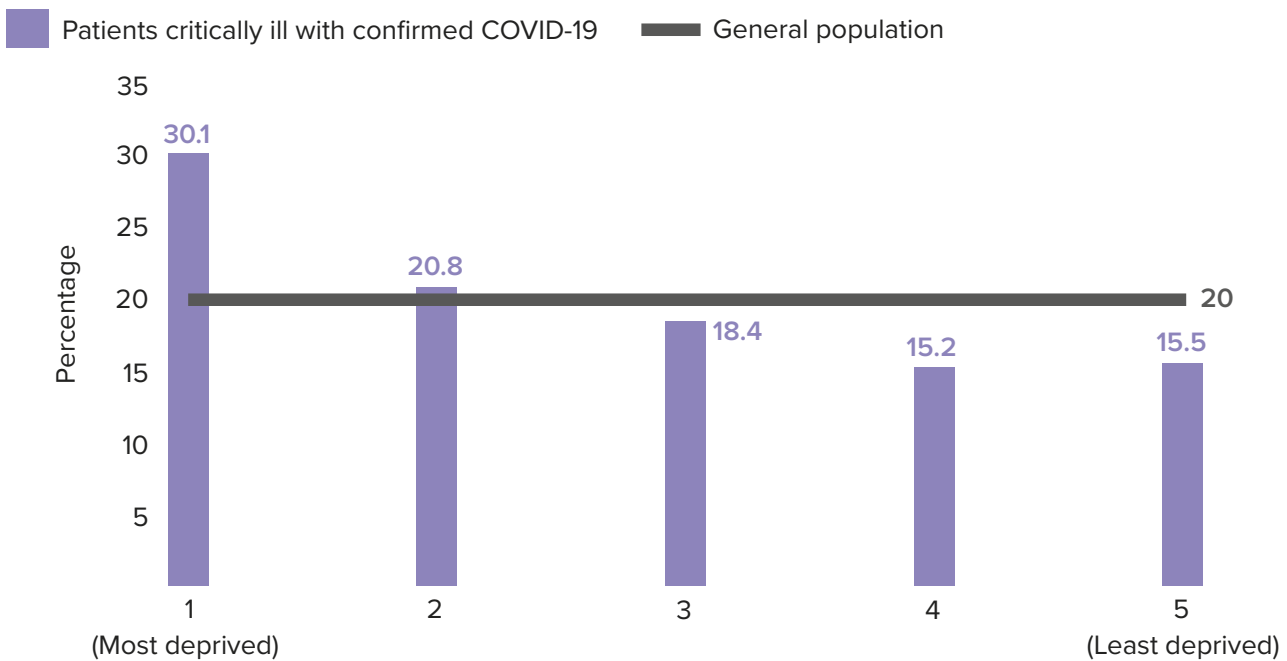
Source: ICNARC. ICNARC report on COVID-19 in critical care: England, Wales and Northern Ireland day month 2020. ICNARC, London UK

Figure 18:

Deaths from all causes, age-standardised rate per 100,000, persons, all ages, Wales by deprivation fifth, week ending 06 Mar to 04 Sep (weeks 10 to 36), 2015-2020
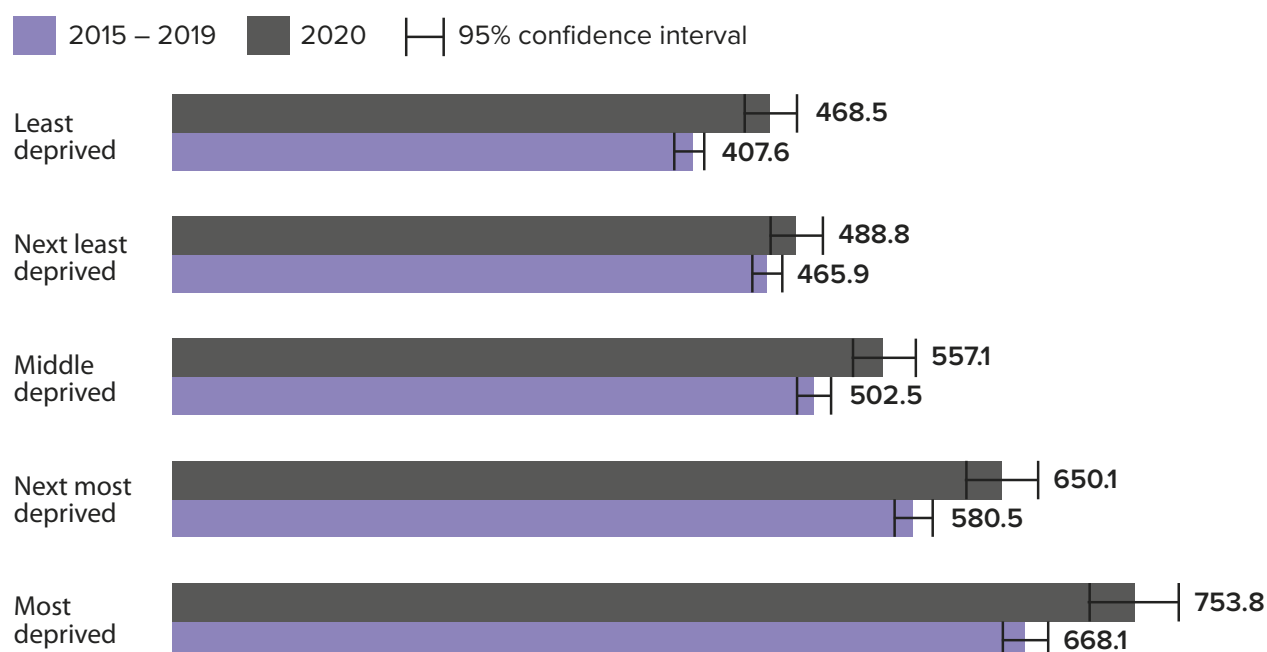
Source: Public Health Wales Observatory, using Public Health Mortality (PHM) & Mid Year Population Estimates (MYE) Office for National Statistics (ONS) & Wales Index of Multiple Deprivation (WIMD) 2019, Welsh Government

Although not yet fully understood, possible factors underlying this difference may have included underlying health conditions such as obesity and heart disease, disabilities and specific risk factors or syndromes, being closer to centres where there were high transmission rates, public facing occupations and crowded living environments.

For example, analysis has shown that, of the deaths involving COVID-19 that occurred in England and Wales in March to June 2020, there was at least one pre-existing condition in 91.1% of cases.[74]

We also know that many of the pre-existing health conditions that evidence suggests increase the risk of having severe infection (such as having conditions like diabetes and obesity) are also affected by socio-economic inequalities.[56, 75]

Similarly, occupational, analysis of data from England and Wales has shown that jobs involving close proximity with others and those where there is regular potential exposure to disease have had some of the highest rates of death from COVID-19.[76] Increased death rates from COVID-19 were seen for men and women in 'caring, leisure and other service occupations', which includes nursing assistants, care workers and ambulance drivers, and for men who were 'elementary workers', which includes occupations such as factory workers, construction workers and security guards.[76]

An example of the likely importance of many of these factors has been seen in the outbreaks of COVID-19 that have been identified in food processing plants here in Wales and across the world in the first phase of the pandemic.[77]

It has been suggested that these types of settings may be susceptible because of multiple interacting factors, including the working environment that helps the virus survive, and the nature of the often crowded working places, shared transportation and accommodation, which helps it transmit.[77, 78]. However there are also concerns that the low-paid and insecure nature of these jobs, alongside the often young as well as migrant nature of the workforce, may make workers more likely to stay at work when they are unwell.[78]

Taken together, many of these factors deepen our understanding as to why people from more deprived backgrounds may have been more affected by COVID-19 in the first phase of the pandemic.

IN DEPTH: Safeguarding the health of homeless people in Wales

Since the onset of COVID-19, the Welsh Government has been working in collaboration with partners to ensure the needs of the most vulnerable in our society are met.

One particularly at risk group during the pandemic was people who were already, or found themselves newly, homeless during this time.

As the stay-at home regulations came into force in Wales, the Welsh Government took immediate action to protect those who were homeless.

This included providing detailed guidance and £10 million of extra funding to ensure no one was left without access to appropriate accommodation and support, to allow them to follow public health advice on basic hygiene and hand washing and enable then to self-isolate if they became ill.

Since this time, more than 2,200 people have been helped into temporary or emergency accommodation, together with the support they needed to keep them safe.

This includes people who were previously sleeping on the streets, sofa surfing, fleeing domestic abuse or in unsuitable temporary accommodation. Many of these people were accessing accommodation and support services for the first time and this therefore presented an opportunity to achieve stability, the first pre-requisite to transform their lives.

Whilst the emergency homeless response is ongoing, Welsh Government has made it clear that no one should be forced back onto the streets or into unsuitable accommodation when the pandemic ends.

A further £50 million has therefore been allocated for the next 'phase' of the response to homelessness and towards the goal of ending homelessness in Wales.

Every local authority in Wales has been supported to prepare a Phase 2 Plan, setting out how they will ensure that no one need return to the streets and focussing on innovation, building and remodelling, to transform the accommodation offer across Wales.

A wide range of proposals have been received and funding has been provisionally allocated to 70 projects, which will make a significant impact either supporting people into settled accommodation or transforming services for the long term.

Alongside these measures, Welsh Government also sought to prevent homelessness during this time. At the start of the pandemic, Welsh Government put in place measures to ensure no tenant would be evicted with less than three months' notice. In August, to further increase protection for renters, notice periods were increased to six months, other than on grounds relating to anti-social behaviour. The Welsh Government also provided an additional £1.4m to boost services that support people in Wales to manage problem debt and improve their household income and an extra £8m for a Tenancy Saver Loan scheme to help private rented sector tenants who are in rent arrears, or struggling to pay their rent as a result of COVID-19.

Evidence has also emerged that people from ethnic minority backgrounds have also been disproportionately affected by COVID-19 in the UK.

Recent estimates have shown that 5.9% of the Welsh population described themselves as Asian, Black, 'Mixed/Multiple ethnic group' or 'Other ethnic group' at the end of 2019.[79]

There are significant limitations in the quantity and quality of what we know about ethnicity and health as this information is often not recorded in health records and death certificates. However analysis of data we do have has shown that a third of cases admitted to critical care in England, Wales and Northern Ireland, with confirmed COVID-19, were people from ethnic minority communities.[79]

Even after taking account of age, in England and Wales, Black males had a higher rate of death involving COVID-19 than males of other ethnic backgrounds: their rate of death was 2.9 times greater than those of White males[80]. There were also notably raised rates of death among males in the Bangladeshi or Pakistani, Indian, and Other ethnic group.

The pattern for females was largely like that of males: females of Black ethnic background had the highest rate of death involving COVID-19, 2.3 times higher than White females.[80] All other ethnic groups, other than those of Chinese origin, had a raised rate of death compared with White females.[80]

IN DEPTH: Safeguarding the health of people from ethnic minority communities in Wales

Over the course of devolution, successive Welsh Governments have worked hard to reduce inequalities wherever they exist in Wales.

In April, evidence emerged of the disproportionate impact of COVID-19 on people from ethnic minority communities. In response to this, the First Minister set up the Black, Asian and Minority Ethnic COVID-19 Advisory Group under the leadership of Judge Ray Singh, with its two sub groups chaired by Professor Keshav Singhal and Professor Emmanuel Ogbonna.

Prof Singhal's group examined the immediate risk to ethnic minority communities health and social care workers during the pandemic, which led to the development of the All Wales COVID-19 Workforce Risk Assessment Tool. This is now in widespread use in the NHS and social care in Wales and has been rolled out in other workplace settings, helping to safeguard people's health and wellbeing. Prof Ogbonna's group examined the socio-economic factors which contributed to this disproportionate impact. Its subsequent report highlighted the entrenched inequalities experienced by people from a ethnic minority communities which COVID-19 has highlighted.

(available at: https://gov.wales/sites/default/files/publications/2020-06/first-ministers-bame-covid-19-advisory-group-report-of-the-socioeconomic-subgroup.pdf

with a supporting analysis of data available at: https://gov.wales/coronavirus-covid-19-and-black-asian-and-minority-ethnic-bame-population-wales)

Some of the immediate actions that have been undertaken since April include:

- The development of the All Wales COVID-19 Workforce Risk Assessment Tool which was rolled out initially to health and social care settings and a version adapted for education settings. More recently, a more general workplace version has also been made available.

- 'Keep Wales Safe' communications which are available in 36 languages.

- Test, Trace and Protect (TTP) services expanded to include the tracking app as well as work to establish ethnic minority outreach workers within communities.

- The scoping of a Race Disparity Unit which will be integral to pressing forward race equality in Wales and driving equality.

- Health Education and Improvement Wales (HEIW) reviewing the mandatory equality training package and undertaking the revisions needed.

Importantly, Welsh Government is also taking forward its commitment to produce a Race Equality Action Plan for Wales, to bring about long-term, sustainable change for our society.

The vision for the plan is grounded in a recognition of the need for fundamental change and reflects the Welsh Government commitment to listen to ethnic minority communities people and take action to make change in ways that are tangible.

The plan will be developed through extensive engagement and co-constructed with ethnic minority communities and organisations who represent them.

It will be guided by lived experience, data highlighting areas of racial disparity and the huge body of evidence in the form of previous reports, public inquiries and other recommendations for change.

The plan will be broad-based and encompass issues which impact on all groups, such as structural and systemic racism, as well as the interests of specific communities and intersectionality by addressing the issues relevant to particular groups.

Our understanding of the reasons why people from ethnic minority backgrounds have been so affected by COVID-19 is still developing; the reasons are also likely to be varied and depend on the many individual differences between diverse ethnicities.

In June, the Socio-economic Sub Group of the Black, Asian and Minority Ethnic COVID-19 Advisory Group in Wales developed an extensive report looking in detail into the range of socioeconomic factors that might be influencing adverse COVID-19 health and social care outcomes for individuals from ethnic minority backgrounds.[81] This was supported by an analysis of data[79] relevant to this report. The Welsh reports were published alongside Public Health England's report 'Disparities in the risk and outcomes of COVID-19',[69] as well as a second report on the differential impact of COVID-19 on ethnic minority communities, 'Beyond the Data'.[75]

These reports identify and explore multiple possible reasons underlying this difference, including those related to socio-economic factors and occupation.[69, 81]

Evidence suggests, for example, that people from ethnic minority backgrounds are over-represented in Wales in jobs that are thought to be at higher risk of COVID-19, such as health and social care workforces, as well as taxi drivers, chauffeurs and chefs.[81] These reports also suggest that the effects of overcrowded housing may also have been a factor for some people from ethnic minority backgrounds, particularly for asylum seekers and refugees, who often live in difficult housing situations that may have made them even more vulnerable to COVID-19.[81]

However, even after adjusting for region, population density, socio-demographic and household characteristics, the raised risk of death involving COVID-19 for people of Black ethnic background of all ages together was 2.0 times greater for males and 1.4 times greater for females compared with those of White ethnic background.[80] Males of Bangladeshi, Pakistani and Indian ethnic background also still had a significantly higher risk of death involving COVID-19 (1.5 and 1.6 times, respectively) than White males once all these factors were accounted for.[80]

Analysis from England also suggests that another possible factor in this difference may have been related to underlying chronic health conditions that increase the risk of having severe infection.[75] However other reasons, some of which are not yet fully understood, may also have been important. Evidence suggests, for example, that even before the pandemic, some people from ethnic minority backgrounds faced greater difficulties accessing healthcare and receiving clear health and social care messages and that unconscious bias, racism and racial inequality may be affecting health inequities in the UK.[81]

Other differences in mortality rates have also become apparent during the first phase of the pandemic. For example, we have also seen that people with disabilities before the pandemic had higher mortality rates from COVID-19. In England and Wales, after adjusting for region, population density, socio-demographic and household characteristics, the relative difference in mortality rates between those registered as disabled and limited a lot by their disability was 2.4 times higher for females and 2.0 times higher for males.[82]

It also remains unclear how the long-term complications of COVID-19 (explored further in Chapter 4) may affect inequities in health.

However it seems highly likely that the groups of people who we already know have been disproportionally affected in the first phase of the COVID-19 pandemic may also be more impacted by its long-term health complications.

IN DEPTH: Providing support for sanctuary seekers in Wales

During the COVID-19 pandemic, there were particular concerns about the challenges that sanctuary seekers would face during this time. These included people not accessing the medical help they needed or following public health advice because of a lack of understanding of the system, language barriers, digital exclusion and the closure of face-to-face support services.

Other potential problems included vulnerable people with a history of trauma being isolated and more at risk of abuse and people confined in cramped accommodation, because of social restrictions or self-isolation, which might create or worsen existing mental ill-health.

In response, weekly calls with statutory and voluntary sector partners involved in commissioning, co-ordinating or providing services were held. This allowed them to work effectively to identify problems and address them quickly.

An example of this collaborative action was the development of an information leaflet on COVID-19 in booklet form in seven languages (Albanian, Arabic, Bengali, Farsi and Kurdish Sorani, Welsh and English – see below).

Copies were distributed to all households with asylum seekers in Wales and arrival centres in Cardiff, as well as being made available on-line and through social media.

Organisations also collaborated to ensure that easy share resources and 'Recite me' software was available for important information on COVID-19, for example on the PHW website.

This further increased accessibility to this information for sanctuary seekers as well as people in Wales with disabilities that make accessing this information more challenging.

The Wales Strategic Migration Partnership also helped arrange for sanctuary seeker families to have free school meal provision, food parcels and provision of mobile phones.

Other voluntary sector organisations such as Oasis have also fed hundreds of people daily, delivering meals to those who access their centre or who are in hotel accommodation where there are no full board basis provisions.

Together, partners have worked hard to address any gaps in services and ensure that everyone is kept safe and aware of the latest public health guidance during these extremely challenging times.

The indirect effects of COVID-19 on our health, economy and society have also had unequal effects

As the first phase of the COVID-19 pandemic developed, it became clearer that the effects of the wide-ranging response to COVID-19, from our governments, health and social care systems and wider society, was also affecting people unequally (figure 19).[83]

Figure 19:

WHO Europe's illustration of the phases of social and economic impacts from COVID-19 and the threat they pose to the health and well-being of populations

1st

Phase of Social and Economic Impact

Job loss

Employment insecurity and underemployment

Excess mortality and morbidity

Increase in gender-based violence

Increased alcohol consumption

Increase in levels of stress & anxiety

Increase in poverty risk and working poor

Higher infection and death rates of marginalized populations and those with poor health and in territories with fragile health systems

Hunger – food and fuel insecurity

2nd

Phase of Social and Economic Impact

Loss of gender equality gains

Food shortages

Rising suicides

Increase in avoidable hospitalizations

Shortage of informal care and increased isolation of older people

Unemployment rises and stays high

Mental health problems

Increase in poverty risk

Rising crime

Firm closures

Criminal exploitation, loan sharks and recruitment into organized crime

Stigma and xenophobia

Adverse childhood experiences

Increasing family stress

Disadvantage children less able to catch up on schooling

Rising levels of not in education, employment, or training

Alcoholism and addiction

Housing insecurity – Increasing homelessness

3rd

Phase of Social and Economic Impact

Long-term ill health

Breakdown of social cohesion

Increased inequality

Slower recovery and widening economic and health gaps between geographical areas

Increase in avoidable hospitalizations

Long-term unemployment

One significant impact of this response to COVID-19 related to access to care and treatment for other, non-COVID-19 related health conditions. The cancellation of non-emergency health care and cancer screening services, the 'stay at home' message, 'lockdown' restrictions and likely anxieties about attending healthcare settings such as hospital Emergency Departments, may have affected investigation and treatment for other conditions, potentially introducing indirect harms as a result.[15, 72]

For example, during the initial months of the first phase of the pandemic, clinicians in the UK voiced concerns about a drop in attendances for conditions such as cardiac problems[84] and a reduction in people seeking help for possible cancer symptoms.[85] There was concern that people from more deprived backgrounds may have been particularly affected by some of these indirect harms[72, 86] This may also have been of particular concern for people already living with chronic conditions, those awaiting routine surgery and for elderly and disabled people, who were less able to access their usual care and support networks.[87]

However, perhaps the most significant inequalities created by our response to the pandemic have been those related to the impact on the economy, personal income and job security. These economic effects of the response to the pandemic have exacerbated pre-existing socio-economic inequalities in our society. Evidence suggests that they also have the potential to have both short and long-term health impacts for parts of our society. For example, a report examining existing evidence from previous recessions has shown that economic downturns have adverse effects on people's health in the short and longer term[88] and recent UK research has linked the prevalence of chronic conditions and longstanding illness to unemployment over the medium term.[89]

Data suggest that, at the end of May, 20% of Welsh businesses were temporarily closed or paused for trading, the highest percentage of any of the UK nations, with these closures most likely to have been in rural areas and the Valleys, and 65% of businesses experienced a decrease in turnover.[90] Individuals were also hugely affected: evidence suggests that 22% of households in Wales lost at least 20% of their weekly earnings between February and April, with workers in Wales less able to work at home than in other parts of the UK.[90]

Even before the pandemic, many people in our society were struggling: research suggests that around 30% of UK low-income households pre-crisis reported that they could not manage a month without their main source of household income.[91] Analysis suggests that these closures have impacted significantly on people with less income, with almost half of the lowest-earning 10% of Welsh workers in shut down sectors of the economy.[92]

Women and young people were also more likely to have been employed in industries that closed,[93] with employees under the age of 25 almost three times as likely to have been working in shutdown sectors (figure 20).[92]

The closure of schools and childcare, alongside the need to care for older relatives who were shielding are also likely to have compounded this impact on some women, particularly for single parent families.[87]

Figure 20:

The share (percentage) of employees in shut-down sectors in Wales by gender and age[92]
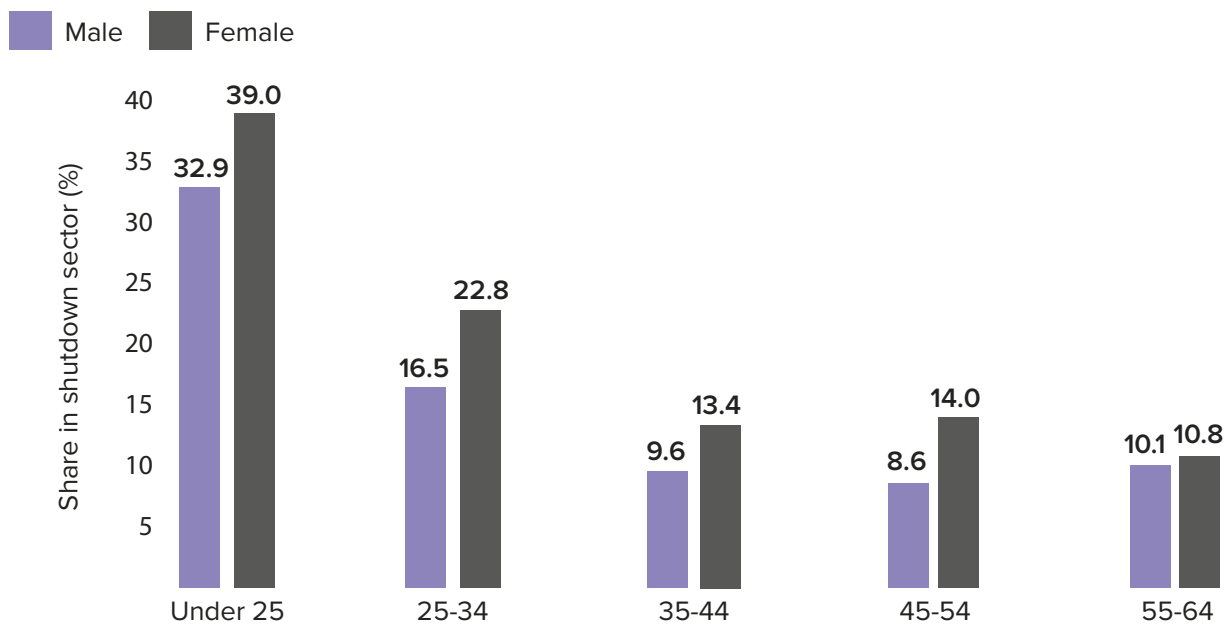
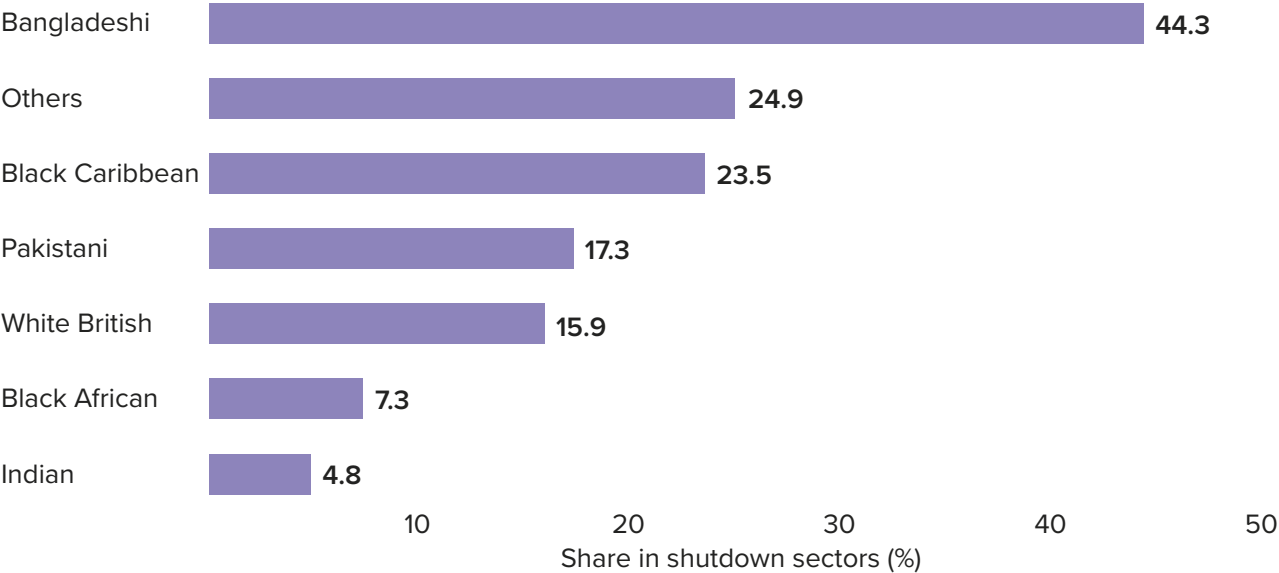Source: Cardiff University Wales Fiscal Analysis (Labour Force Survey, 2019)

Analysis also suggests that people from ethnic minority backgrounds may have been disproportionately affected by the economic impacts of lockdown and a resultant loss of their income (figure 21).[94] Evidence suggests that even before the pandemic, employees from minority ethnic groups in Wales earned, on average, 7.5% less per hour than White British employees in 2018[79] and almost 11% of the people living in the most deprived 10% of small areas (Lower Super Output Areas), were from a ethnic minority background, more than double the proportion of people in those groups as are in the total population.[79]

UK evidence suggests that people from some ethnic minority backgrounds are more likely to have been employed in shutdown sectors, to be self-employed and may have less ability to rely on partners' incomes or family savings.[81, 92, 93, 94]

In Wales, analysis has shown that workers of Bangladeshi, Black Caribbean and Pakistani ethnicity were more likely to have been working in shut-down sectors.[92]

For many people, these factors show 'intersectionality', interacting and compounding each other through the course of individuals' lives, for example by further deepening inequities for people from ethnic minority backgrounds.[72]

Figure 21:

The share (percentage) of employees working in shut-down sectors in Wales before the crisis by ethnicity

Bangladeshi — 44.3
Others — 24.9
Black Caribbean — 23.5
Pakistani — 17.3
White British — 15.9
Black African — 7.3
Indian — 4.8

Share in shutdown sectors (%)

Source: Cardiff University Wales Fiscal Analysis (Labour Force Survey, Quarter 1 2014 to quarter 4 2019)

The effects of the physical and social isolation from restrictions to respond to COVID-19 have also not been felt equally across society.

For most people, reduced interpersonal and social contact has resulted in a worsening of mental well-being and increase in feelings such as isolation, loneliness, anger, confusion and anxiety, as well as a worsening of mental health conditions.[15]

However, a health impact assessment of the effects of 'lockdown' measures suggests that certain groups of people may have been particularly vulnerable to them or have had less resources to be able to cope with them.[15]

These are likely to have included women, women with children, those on low incomes, key workers such as healthcare workers, those with existing mental health conditions, those who have been shielded and older people.[15]

Many older people are likely to have experienced anxiety and stress because of concern about the disease itself as well as the social isolation it created, particularly given the need for many older people to shield.[15]

Similarly, 'lockdown' and social isolation measures have had a profound effect on the lives of disabled people.

Alongside the health implications of the disease, reduced support available to them, increased social isolation and anxieties over the pandemic, the changes made to our physical environments and social restrictions have also affected these individuals.

For example, social distancing has meant that some people with visual impairments who were previously independent have had to start to rely on others to go out and some people with learning disabilities who live independently have felt unsure of how to follow new legislation.[87]

IN DEPTH: Supporting children and families during COVID-19

Prior to COVID-19, Welsh Government was already working with Sport Wales and PHW, through a £5.4 million Healthy and Active Fund (HAF), to sustainably increase the physical activity of children and young people, who are currently sedentary or have very low levels of activity, and to improve mental well-being.

HAF is being delivered through 17 different projects over 3 years, with priority given to projects that reduce inequalities in outcomes across a number of groups, including children and young people and people who are economically inactive or who live in areas of deprivation.

Sadly, the COVID-19 pandemic put these children and adults at an even greater risk of sedentary lifestyles and worsened mental well-being and inevitably impacted on the HAF project delivery. However, where possible, projects used existing resources, expertise and networks to identify creative ways to build and deliver resources and activities for their participants, to help them embed physical activity into their daily routine.

For example, one such project, StreetGames' Family Engagement Project, used a variety of approaches to continue to engage with families despite the 'lockdown' restrictions.

These included delivering food parcels to those most at need, the delivery of family wellbeing interventions, through a mobile app and a Youtube channel, and well-being calls over the phone and in person. On-line activities were also offered, ranging from family fitness classes, quizzes, and wellbeing challenges, and activity journals and sports equipment were distributed to support families to remain active at home.

Evidence also suggests that people living in more deprived areas have been more likely to have been self-isolating, been feeling anxious and isolated, and been reporting greater worries about their mental health.[95] This may also have affected how they have coped and responded to it.

Survey data have suggested that people living in deprivation are more likely to have increased how much they are watching TV / Netflix or gaming compared to more affluent counterparts, whilst those in the most affluent areas are more likely to have increased spending time outdoors and doing exercise which may, in part, reflect having access to safe, well-kept green spaces.[72, 95]

Results also suggest that people from ethnic minority backgrounds may have been experiencing greater feelings of anxiety and isolation in comparison to people from White backgrounds, with over a quarter worrying a lot about their mental health[81, 96,] (figure 22).

IN DEPTH: Supporting older people isolated during the pandemic

In response to the growing concern about the mental and social isolation being experienced by older people in our society, Welsh Government worked with, and provided funding for, Age Cymru to develop and deliver support to informal volunteers and to develop a volunteer – led telephone befriending service to complement the work of the informal volunteers during the pandemic.

Known as 'Ffrind mewn Angen' / 'Friend in Need' the scheme supports friends or neighbours who are providing informal help to older people with activities such as shopping, collecting prescriptions and social contact, to access a range of online resources to support them and enable them to sign up for updates and additional information.

Giving people the chance to connect, to share their concerns, to chat and to laugh with another human being can be a huge source of comfort and the scheme has also enabled older people to be able to connect with a trained and vetted Age Cymru volunteer for a free weekly friendship call.

Further funding has also been made available to local authorities across Wales to support the integration and delivery of the scheme with existing programmes and help that is available. It will provide support for training for volunteers, increasing capacity for existing programmes of work and supporting the development of digital skills to increase inclusion.

Figure 22:

Percentage of respondents from ethnic minority backgrounds and white backgrounds feeling anxious, isolated or worrying a lot about their own mental health in surveyed adults resident in Wales*
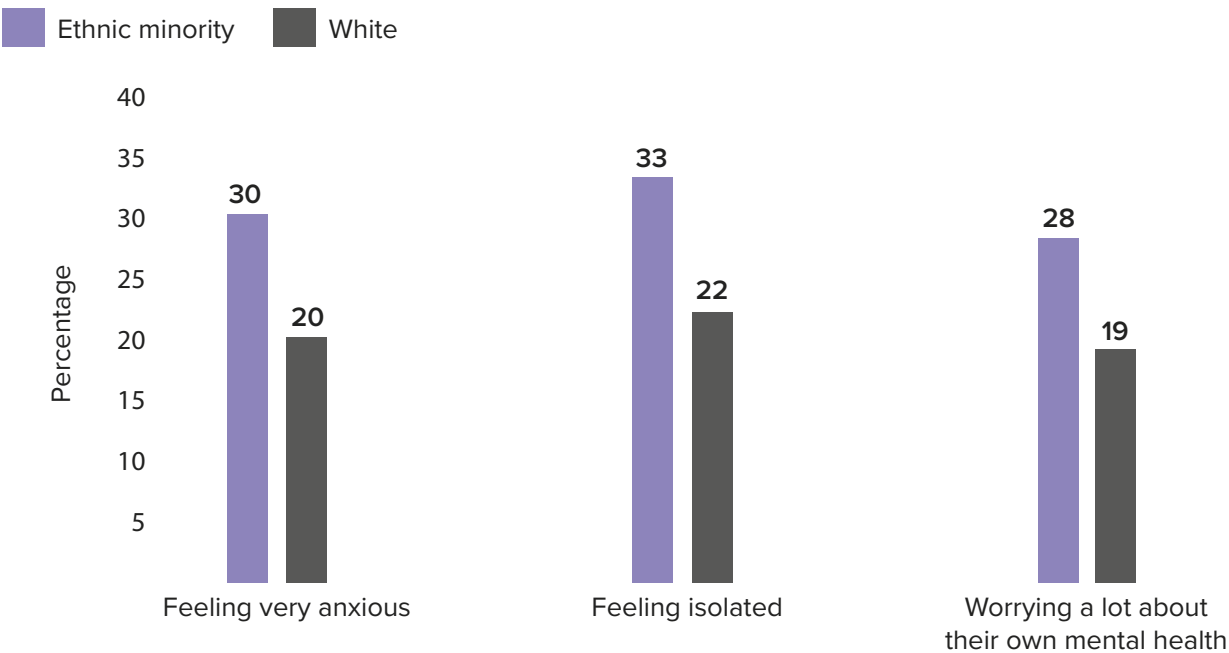
*Figures averaged over six weeks of the Public Health Wales 'How are we doing in Wales' weekly national telephone survey of adults resident in Wales. Percentages adjusted for age, gender, week and deprivation.

Source: Public Health Wales

Finally, we have also become increasingly aware that societal restrictions put in place to respond to the pandemic may have increased the vulnerability of some children and adults to domestic abuse and sexual violence.

Many families isolating together may have experienced a rise in tensions. There is the potential for an increase in emotional, physical, or sexual abuse and financial control when an abuser is spending more time in the home with more access to family members and children.

Reports from England suggest that there was a rise in experiences of abuse during lockdown, with markedly increased calls to Refuge and NSPCC Childline.[97]

In Wales, calls to the Live Fear Free helpline decreased during the initial stages of lockdown but, as restrictions on movements eased, those numbers rose and are now at similar levels to before the COVID-19 pandemic began, with calls more complex and assessed at higher risk.[98] One possible reason for this may have been that living in lockdown decreased opportunities for people to seek help as privacy to do so was compromised. This risk of abuse may also have been compounded by increased difficulties in accessing in-person services for domestic abuse and fewer opportunities for interactions with people who can identify abuse, such as GPs, health visitors, social workers and teachers.[98]

Although anyone can be at risk from domestic violence and other forms of abuse, there are also concerns that some people from ethnic minority backgrounds and migrant women may have faced particular difficulties in leaving abusing situations during 'lockdown'.[98]

When considering all these wide-ranging impacts of our response to COVID-19, it has become increasingly apparent that the effects on children and young people have been profound, despite the fact that they have been relatively unaffected directly by the disease itself.[15]

'Lockdown' restrictions and closure of educational and childcare facilities have affected not only their education and development but led to major changes to their routines and structures and reduced their opportunities for socialising with peers and wider family, such as grandparents.

These impacts could also further worsen the inequalities that existed before the pandemic, with reports suggesting that some young people and children, such as those from low-income households and those with special educational needs, may have been particularly adversely affected.[15, 87]

The digital exclusion of children from more deprived backgrounds has also been of great concern, as learning moved to online platforms. Research has shown that children from more affluent families in England were spending 30% more time on home learning than those from poorer families.[87]

As outlined earlier, for children, the effects of the social restrictions and isolation may also have led to increased exposure to adverse childhood experiences and emotional trauma. With the ongoing economic effects of the pandemic, these impacts have the potential to affect the future of children, particularly for those from more deprived and vulnerable backgrounds.

IN DEPTH: Safeguarding Gypsies, Roma and Travellers

As the COVID-19 pandemic spread in Wales, it became essential to ensure that public health information was reaching all groups of people in our society. In response to this, Welsh Government convened an expert Gypsy, Roma and Traveller stakeholder group drawn from local authority and third sector service providers working directly with communities. The group has been meeting regularly with Welsh Government and other organisations, such as PHW, to identify issues affecting communities and to provide cultural insights, knowledge and advice on the likely impacts of policies and service provision.

This group subsequently supported the development of Welsh Government guidance, (https://gov.wales/guidance-those-supporting-gypsy-and-traveller-communities) written to outline the key considerations to be made when providing support to Gypsies and Travellers living on public, private and unauthorised sites.

This guidance highlighted how Gypsies and Travellers are likely to face specific risks and vulnerabilities such as: overcrowding and difficulties maintaining social distancing or enabling self-isolation; limited toilet and washing facilities with the closure of leisure centres and retail parks; difficulties keeping up to date on evolving public health messages due to literacy or digital exclusion issues; a higher number of underlying health conditions; and additional risks and vulnerabilities including racism and discrimination, poverty and barriers to accessing mainstream services.

Local authorities, police services, health boards and third sector organisations worked together, informed by this Welsh Government guidance, to provide on-the ground support to local communities, including groups known to be particularly vulnerable. Welsh Government also commissioned a special Coronavirus edition of 'Travellers Times' — a magazine produced specifically for people from these communities and including stories and insights shared by community members in Wales below.
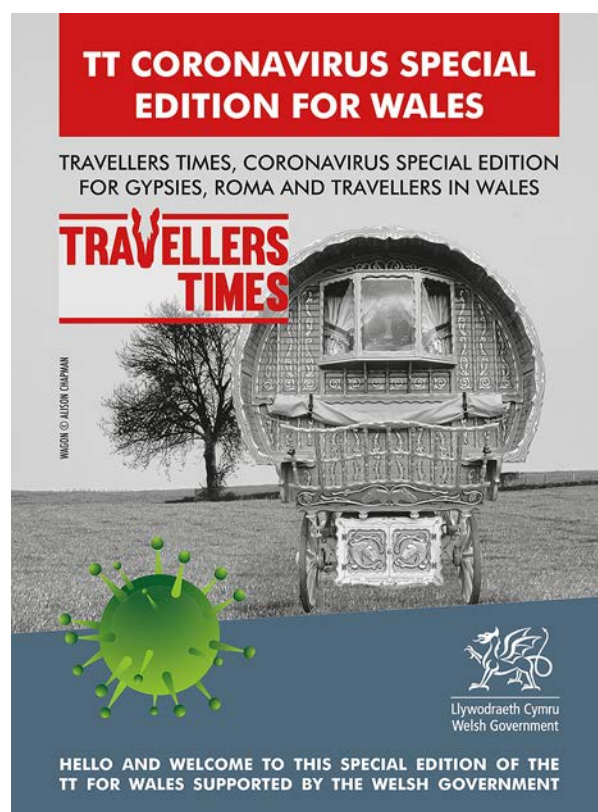
The special edition provided information about the virus, public health advice, information on children restarting school and approaches to coping with the additional mental health pressures that the virus might produce. This collaborative approach to meeting the health needs of Gypsy, Roma and Travellers in Wales will continue, not just to help protect these communities from the effects of COVID-19 but also in supporting them with wider healthcare needs.

Understanding the potential harms arising from societal inequities exacerbated by the pandemic

The effects of COVID-19 have impacted everyone in Wales, regardless of societal group. However, as we have seen over the first phase of the pandemic, both the disease itself and our wide-ranging response to it have affected people differently. Taken together, this impact has disproportionately affected many of the people who were least prepared to face its effects and has the potential to further exacerbate existing health inequities over the long-term.

Nevertheless, the pandemic has also exposed and highlighted these inequities in a way that years of multiple reports and strategies may not have been able to do as clearly. As our report has shown, COVID-19 has also forced innovative and often more effective ways of working in our response to it, so that change could happen at speed and with tangible results. By further examining and responding to the emerging evidence about the effects of the first phase of the pandemic on these pre-existing inequalities and inequities, we now have an opportunity to better understand them and create a fairer society.

As this report is written, we are all, both as individuals and a nation, trying to find a 'new normal' way of living, whilst trying to prevent further increases in cases.

However, as we have seen, this new 'normal' exists alongside already vast societal inequalities and health inequities and many in our society will take longer to recover from the effects of the first phase of COVID-19 and potentially be more at risk from the effects of future phases.

There is a danger that further societal restrictions could impact the lives of many in our society but also particularly negatively impact the life chances of many of our children and young people, especially those from the least well-off and from ethnic minority backgrounds. This tension reflects the need for delicate balance.

The longer-term reduction of health inequities must therefore be central to re-stabilising our society after this first phase of the pandemic and in managing subsequent phases. This means that alongside monitoring the rate of transmission of the virus and other indicators such as numbers of cases and hospital admissions, we must also monitor closely the wider impacts of any future restrictions on our population. In particular, we need to recognise that since the risk of adverse outcomes from COVID-19 is not universal across the population, more support will be required for those people with greater needs as we try to improve inequities by 'progressive universalism'.[99]

Policy decisions need to consider how proposals will affect inequities, through the use of tools such as equality and health impact assessments. We also need to monitor how effective our efforts to reduce inequities are and this will require improved data monitoring and analysis, for example to understand more about how individual characteristics may affect health outcomes.

In the long-term, the COVID-19 pandemic has also further highlighted the importance of public health prevention work to reduce unhealthy lifestyles and behaviours which can increase health inequities through chronic conditions.

Ensuring we live in a fair society where everyone can achieve their full health potential is important to us all. This is because when we leave people behind in health this affects the wider social, economic and environmental determinants in our society. An inequitable society means we lose out on the opportunity for marginalised groups of people to be part of our diverse and flourishing future.

COVID-19 has made us all recognise as never before what happiness and good health means to each of us, our families, friends and neighbours.

For many of us it has also made us understand how precious and precarious our good health is, how rapidly it can be taken from us and what health inequities really mean for many people. In Wales, we are already well-equipped with legislation and political drive to reduce health inequalities through our 'Health in All Policies' (HiAP) approach and WFG Act.

Despite the suffering it has caused, COVID-19 has provided us with a once in a generation opportunity to use this political and societal will to effectively come together to reduce health inequities.

Chapter 4:
Establishing a 'new normal'

In April 2020, the Welsh Government published its plans for how restrictions related to COVID-19 would be eased as infection rates in the population of Wales decreased. Consideration of how to balance the harms, begin to ease restrictions and develop a broader recovery for Wales was, as the Welsh Government stated, 'the biggest challenge we have faced'.[100]

To enable recovery, Welsh Government set out a framework for assessing the evidence on current infection rates, whether any proposed changes would affect these and how the public health surveillance and response would be enhanced to prevent infection and track the virus as restrictions were eased.

By May 2020, the Welsh Government went further to explain the detail of how it would 'unlock' the restrictions to society and the economy arising from the COVID-19, response. With these new plans for society came the recognition that anything that was done to ease formal restrictions or change behaviours could lead to an increase in transmission of the virus.

Therefore every 'easement' of a restriction had to be informed by scientific expertise and the international evidence. Careful planning was also needed to ensure that measures could be put in place to reduce the effects on virus transmission with 'circuit breakers' that could be triggered to re-impose the restriction if needed.

A traffic light approach was adopted, with 'red', 'green' and 'amber' phases to illustrate how to begin to lift restrictions, based on continued progress in containing the virus. Plans for easement needed to be developed which covered all areas of society and the economy and which recognised the inter-linked nature of decisions. The need to focus on the most vulnerable in society, as well as the societal inequalities thrown into sharp focus by COVID-19, were also important considerations.
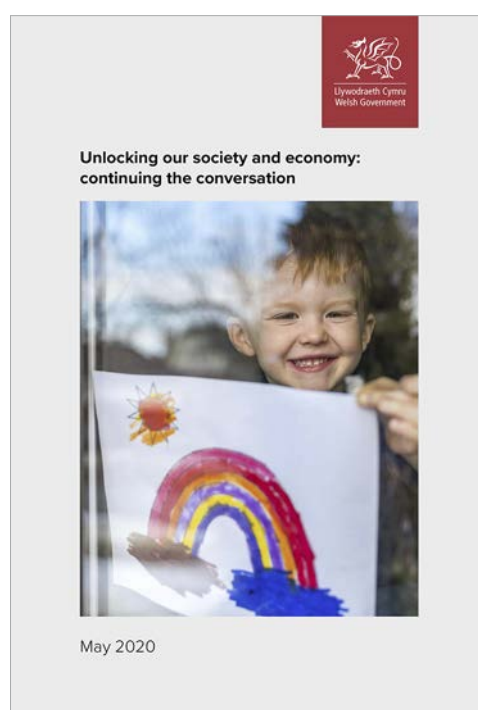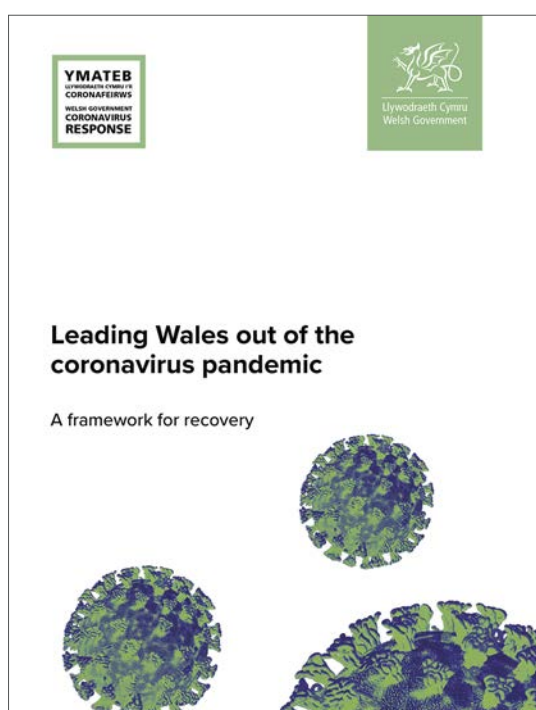
Emerging from initial lockdown and recognising the national effort

The easement of the control measures that had been put in place since March began on 29 May when the First Minister announced that the 'stay at home' message was changing to 'stay local'.[101] He also announced a timetable for other changes, such as allowing two households to meet outdoors, and that non-essential retail businesses should begin to prepare to reopen.

Shortly afterwards, the Welsh Government also recommended "that 3 layer face coverings should be used in situations where social distancing measures can be more difficult... for example, on public transport".[102]

Further announcements followed, including plans for the re-opening of all schools for 3 weeks, and in some schools for 4 weeks, from 29 June and a timeline for holiday accommodation to re-open and restaurants, cafes and bars to open outdoors in July.

The 'stay local' restriction was lifted on 6 July, paving the way for travel across Wales and the opening of visitor attractions.[103] This date also marked the start of a new easing of social restrictions to allow two separate households to join together to form an exclusive extended household.

By the end of July 2020 there had been 17,339 cases of COVID-19. Tragically, there had been a total of 1,567 reported deaths in Wales and, according to ONS death registration statistics, 2,529 deaths of Welsh residents had occurred. However, by the end of July there were less than five deaths reported per day.

Further easements continued throughout the summer, with adjustments made as experience, from both the rest of the UK and internationally, informed our understanding of the disease and its management.

From 16 August, people identified as the most vulnerable in our society were able to stop 'shielding', as restrictions on their lives were lifted, and extended households were allowed to increase in size from 22 August.

As these restrictions on our society eased, people began to return to all aspects of their former lives such as exercising in gyms, working in offices, socialising with friends and families, returning to school and travelling in the UK and abroad.

The continued approach to carefully easing restrictions and safeguarding all of us in Wales was explained further in the Coronavirus Control Plan for Wales, published in August by Welsh Government.[104]
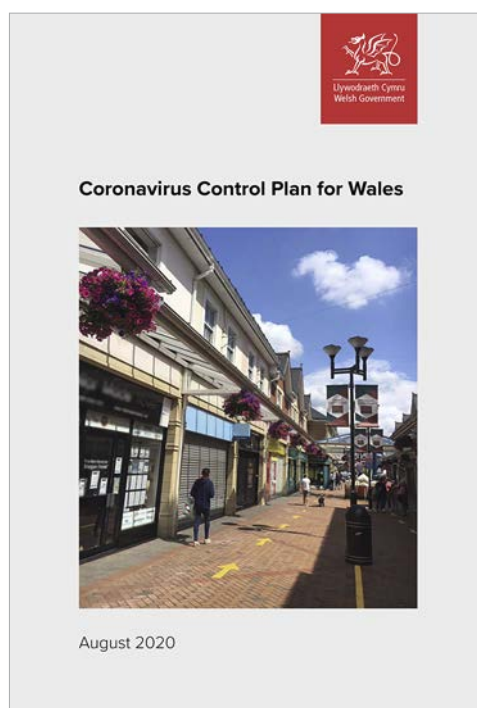
This outlined how the impacts of the restrictions and the relaxations would be monitored using a number of indicators and explained that controlling COVID-19 was a collective effort, with everyone having a role to play.

Alongside these societal steps in 'unlocking' the restrictions imposed in phase 1 of the pandemic, the Welsh NHS also began a process of stabilisation. This was informed by a much greater understanding of the harm from COVID-19 itself, the potential for transmission to other patients and staff and the effect of the pandemic on patients with other non-COVID-19 related health conditions. Therefore plans for any potential future increase in cases of COVID-19 had to be developed, balanced with plans for maintaining essential services, including urgent and emergency cancer treatment.

There was also recognition that we needed to ensure that our critical care system is strong, resilient and prepared for future increases in cases. This meant that the increase in critical care facilities and workforce that occurred in the first phase of the pandemic needed to be maintained and strengthened.

This process of stabilisation also marked the start of the wider health care system aiming to restore as many normal and routine activities as possible where and when it was safe to do so, and considering how attendance at these could be increased.

The decisions on how and when this could happen were and continue to be complex and based on many, often locally relevant factors.

For example, national planning remained necessary to ensure sufficient available PPE and other equipment. More localised, individualised plans were needed to ensure COVID-19 patients could be separated from other patients in different settings whilst social distancing and enhanced infection control measures were implemented.

Similarly, rapid but careful work needed to consider how best to restart nationwide services such as screening programmes and health checks, whilst considering how these might affect individual risk for staff and patients.

There has also been sustained planning of how administration of vaccination to COVID-19 will be undertaken alongside this routine NHS work.

IN DEPTH: Digital innovation during COVID-19 in Wales

Many of the new ways of 'COVID-working' reflect the policy aims set out in A Healthier Wales. This included supporting 'closer to home' ways of delivering services, enabling self-management and making services more consistent across the whole of Wales.

Whilst it is important to recognise that digital approaches should and will play an important part in our ongoing response, it is also essential that face-to-face and hands-on human contact will remain a key part of other aspects of high quality health and social care. Ongoing evaluation and consultation work with staff, patients and the public will make sure that digital technologies will continue to help to provide high quality care to people across Wales. There are many examples of innovation and new ways of working that have been introduced in response to the first phase of the pandemic in Wales.

Here are some examples:

Digital Eye Care Programme

There was an accelerated rollout of a digital eye care programme, including the equipment and software required to enable remote diagnostics and e-referral. This helped to reduce hospital attendance, in particular for shielded/vulnerable individuals.

Digital Inclusion

Devices were made available to care homes across Wales as part of the flagship Digital Communities Wales Programme.

This enabled residents and families to access new digital health and care services remotely, which has helped residents stay connected to families during times where visiting restrictions have been put in place.

Technology Enabled Care Programme

An all-Wales rollout of video consultation to all GP surgeries, community care settings and secondary care (outpatients) settings. Dementia and mental health support and care were also offered virtually.

Remote working – Teams and Office 365 Programme

Early on in the response there was an accelerated rollout of Microsoft Teams and Office 365 to over 90,000 NHS Wales staff, including personal devices. This has enabled secure home working and supported ongoing service delivery during the pandemic response.

Wales COVID-19 Vaccine Delivery Programme Board

The NHS Wales Informatics Service has developed the new Wales Immunisation Service, an informatics solution to facilitate national rollout of a COVID-19 vaccination programme.

Research has also been ongoing to understand more about the long-term health and psychosocial effects of COVID-19, with evidence increasing about 'long COVID', the 'term being used to describe illness in people who have either recovered from COVID-19 but are still reporting lasting effects of the infection or have had the usual symptoms for far longer than would be expected'.[105] Reports suggest the longer-term effects of COVID-19 may include lung fibrosis, pulmonary vascular disease, cardiovascular symptoms, liver, kidney dysfunction and inflammatory disorders.[106]

Welsh Government and health and care systems have been working to meet the longer-term needs of people who have had COVID-19 and those whose health and level of activity and participation has been impacted by the pandemic.[107] In particular, it has been recognised that it is likely that people affected by COVID-19 are likely to benefit from increased rehabilitation.

Welsh Government has therefore developed evaluation guidance and a framework to support heath boards, local authority and third sector services to understand the demand for, and evaluate the impact of, rehabilitation in people affected by the COVID-19 pandemic.[108] Activity in urgent and emergency care systems in Wales was also closely monitored to ensure they were able to plan and respond to demands. Whilst activity reduced significantly during the first months of the pandemic, there has been a gradual return to the 'normal range' of activity at Emergency Departments from June. By August, ambulance arrivals at Emergency Departments and emergency admissions to hospital were also nearly back to the 'normal range'.

Although calls to 111 stabilised, after increasing significantly at the beginning of the pandemic, demand remained higher than would usually have been seen by the service at that time of year.
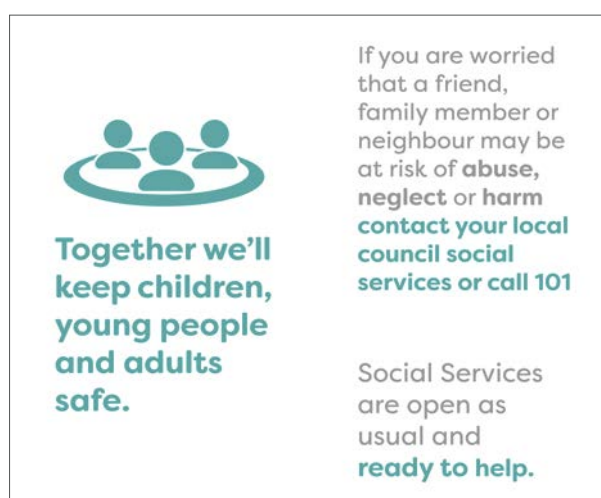
As emergency and urgent care activity increased, health boards had to minimise risk for patients and staff by adhering to new guidance, such as on physical distancing. However it was also important to use this time to maximise opportunities to redesign access to these services. The Welsh Government followed closely how people's behaviour differed when accessing services during this time and continued to work with NHS Wales and partners on a range of actions as part of a redesign of the urgent and emergency care systems.

This included the development of 'phone first' models, targeted at people with non-urgent complaints, with the new 'CAV 24/7' phone first service launched in the Cardiff and Vale University Health Board area on 5 August. This will be subject to detailed evaluation of staff and patient experience in order to enable further development and implementation, with the intention that this could be scaled to a national approach across Wales if successful. Similarly, the social care sector began reinstating their wider services whilst still managing the ongoing risk from COVID-19 and preparing for any future increases in cases.

Working with local authorities, the third sector, Care Inspectorate Wales and PHW, the Welsh Government developed a national approach which organisations could adopt and adapt as necessary. A critical focus of this work was to ensure that residents of care homes and other closed settings continued to be as protected as possible from COVID-19 outbreaks.

However this also had to be undertaken against the significant challenge of the continued sustainability of care homes because of factors such as the need for their workforce to self-isolate, closures to new admissions if cases were identified and increased costs. New approaches, such as the use of the Care and Support Capacity tool, have helped with these challenges, for example in tracking care homes vacancies.

Social care services have also continued to develop work to safeguard children and adults in Wales, including a multi-media communications campaign to promote awareness that safeguarding is everyone's responsibility and to encourage people to report their worries if they feel that a friend, neighbour or relative may be at risk of neglect, harm or abuse.

If you are worried that a friend, family member or neighbour may be at risk of **abuse, neglect** or **harm** contact your local council social services or call 101

Together we'll keep children, young people and adults safe.

Social Services are open as usual and **ready to help.**

Particular emphasis was placed on the ongoing importance of looking after children and older people, given the physical and mental wellbeing difficulties that many have faced during the pandemic and concerns about a possible increased vulnerability to abuse.

To further support the ongoing work in preparing the health and social care systems, the Welsh Government published a Winter Protection Plan in September[109].

This set out the actions to be taken across the health and social care system over the following six month winter period, including the development of plans and contingencies to respond to future COVID-19 demands; the further upscaling of essential services and reintroduction of routine 'COVID-19-safe' services; preparedness for winter and seasonal pressures; social care and support to nursing homes; and a focus on the well-being and resilience of staff. Equally the plan also re-emphasised the crucial role that the public would play in these plans by adhering to guidelines regarding social distancing, good hand hygiene and the use of face coverings where appropriate.

Throughout the first phase of the pandemic, the work of the NHS and social care in Wales has also been crucially supported by ongoing research into COVID-19. Research has been a key priority in Wales to help us better understand what can improve outcomes for patients with COVID-19 and clinicians and scientists have engaged in international-level research.

Through Health and Care Research Wales, the Welsh Government has actively promoted and supported a co-ordinated UK research effort in response to the pandemic. A single, UK process was implemented that allowed the UK to prioritise the COVID-19 studies which would hold the most potential for tackling the challenges we face. This approach provided better UK-wide portfolio oversight, reduced research duplication and helped to ensure that only the best and most urgent research was funded.

In the first phase of the pandemic, Wales-based researchers were encouraged to apply to the NIHR (National Institute for Health Research)/MRC (Medical Research Council) and UKRI (UK Research and Innovation) rolling call for proposals for rapid research into COVID-19.

Wales also contributed researchers to the College of Experts and Funding Committees that assessed applications. UK research during this time has included:

- PRINCIPLE (a platform trial of interventions against COVID-19 in older people)

- RECOVERY (a trial to evaluate if existing or new drugs can help patients hospitalised with confirmed COVID-19)

- REMAP-CAP (a platform trial for severely ill patients with COVID-19).

These trials have already provided evidence about drugs for treating COVID-19, such as on the steroid, dexamethasone, which has been identified as improving survival rates in certain patients with COVID-19. Subsequently, Wales-based researchers were directed to the cross-programme NIHR Recovery and Learning call which looked at longer term issues related to COVID-19.

IN DEPTH: Genomic sequencing in Wales during the first phase of the COVID-19 response

Genomic sequencing is the sequencing of the entire genome of an organism such as SARS CoV-2, which can help us to understand more about the virus and its spread.

As part of Welsh Government's response to the COVID-19 pandemic, the PHW Pathogen Genomics Unit (PenGU) has been working collaboratively with key partners to sequence and analyse SARS-CoV-2 samples from patients in Wales.

The team's efforts have led to Wales becoming a global leader in COVID-19 genomics.

Their work is feeding into a £20m project being led by the COVID-19 Genomics UK (COG-UK) consortium, an innovative partnership of organisations across the UK including PHW, Genomics Partnership Wales and Cardiff and Vale University Health Board.

The team has been sequencing every available Welsh COVID-19 case identified in a Welsh NHS laboratory, as well as supporting outbreak analysis across Wales, looking for important virus changes, and tracking the spread and entry of the virus in Wales and the UK.

They have also built an analysis and reporting system from scratch. This was done so these systems can be applied to other genomics activities, to further benefit patients. The data is being shared with NHS colleagues at a local level, while the team is working within PHW at a national level to support the pandemic response.

The work being done by the team is very much a collaborative effort with partner agencies such as the All Wales Medical Genomics Service and Cardiff University also providing a great deal of support.

Further information can be found on the following links:

https://phw.nhs.wales/news/a-genomic-giant-public-health-wales-genomic-sequencing-and-sharing-efforts-put-wales-in-top-three-worldwide-as-part-of-covid-19-response/

IN DEPTH: Innovative ways that scientists and clinicians in Wales has been responding to the challenge of COVID-19

Some examples of Welsh innovation include:

Network of data experts looking to solve the UK's most pressing health care challenges.

Data specialists at PHW, NHS Wales Informatics Service, Population Data Science at Swansea University and Social Care Wales, will join a national network of experts who are working to address some of the biggest challenges facing health and care services today, both nationally and locally.

The Networked Data Lab, created by the independent charity the Health Foundation, is the first network of its kind, bringing together analytical teams from across the country to develop a deeper understanding of the factors affecting people's health in the UK.

It will focus on today's most pressing challenges, such as understanding how to mitigate the impact of COVID-19 on vulnerable people who are shielding or identifying the unmet need of those with severe mental illness.

COVID-19 Vaccines

Wales has also been actively involved in vaccine development. Co-ordinated by Health and Care Research Wales, a collaboration between PHW, Aneurin Bevan University Health Board and the Centre for Trials Research at Cardiff University took part in the early phase of a vaccine trial sponsored by the University of Oxford and funded by CEPI (Coalition for Epidemic Preparedness Innovations) UK Research and Innovation.

Health and Care Research Wales has also been active in the development of the UK Vaccine taskforce driven initiative alongside the National Institute for Health Research, NHS Digital, and the Northern Ireland and Scottish Governments – a COVID-19 vaccine research registry to enable large numbers of people to be recruited into the trials.

This has allowed the population of Wales to play its part in finding an effective vaccine through trials.

Led by my office, the Wales COVID-19 Vaccine Programme Board (involving all Wales NHS bodies and representatives from social care, professional groups and partners including citizen organisations) meets regularly to shape the complex system required to deliver a rapid vaccination programme across Wales.

Convalescent plasma and therapeutic treatments research

Research has been ongoing into whether antibodies in plasma collected from people who have recovered or are recovering from COVID-19 can help critically ill patients, as well as other patients with confirmed COVID-19. The therapy, known as convalescent plasma, has already been introduced in two urgent research studies taking place in Wales, alongside the treatments they are already trialling. Six Welsh health boards have participated in the two UK-wide studies, REMAP-CAP and RECOVERY. REMAP-CAP is a platform trial for severely ill patients with COVID-19, and tests multiple treatments at the same time. These treatments include antiviral therapy, immune modulation therapy, therapeutic anticoagulation and, now, convalescent plasma.

Further information can be found on the following links:

https://phw.nhs.wales/news/public-health-wales-joins-network-of-data-experts-looking-to-solve-the-uks-most-pressing-health-care-challenges/

https://www.nhsconfed.org/resources/2020/08/how-nhs-wales-has-adopted-new-ways-of-working-in-response-to-covid-19

https://www.health.org.uk/funding-and-partnerships/the-networked-data-lab

Building back better

Over the first phase of the COVID-19 pandemic, the disease has touched every part of the world and affected all its peoples. Whilst leaders and societies responded differently to the threat from the pandemic, across the globe, the health, social, political and economic effects have been felt deeply and its international political and health institutions have been shaken as never before.

Here in Wales, as with the UK more generally, we have seen vividly illustrated the vital importance of public health and our preparedness for pandemics.

Our health and social care systems and clinicians have faced an extraordinary challenge to rapidly learn how to manage and treat people affected by COVID-19 both in the short and long-term.

We have also seen how our health and social care staff in Wales have given far beyond their 'normal' jobs to work together to safeguard lives and health. In some cases, this has cost them their lives – a sacrifice that we must never forget. Our sincere thanks must be extended to all key workers and their families who have supported this national effort, often at personal cost.

Our society has been tested in a way that has not been seen before in peacetime. During this crisis, we have understood and valued the importance of our mental health and wellbeing and what brings us happiness as never before; the loss of these often simple pleasures, such as meetings with friends and relatives, playing sports, parties and celebrations, has been distressing. We have also felt worry, anxiety and fear for ourselves, our families and neighbours and, for many of us, there has been anxiety about our future health and economic welfare.

Some have been unable to be with loved ones as they have passed away and these have been unimaginable times of grief and loss.

Some in our society have also felt more alone than normal through physical or social isolation from others. However, this time has also shown us how our communities can come together in new ways.

The extent to which individuals and organisations across Wales have worked together during the first phase of the pandemic has been hugely innovative and vital for our response to it. In a matter of months, the barriers and differences that had sometimes existed between teams, groups or organisations were broken down to allow a new collaborative approach. This meant that actions were taken effectively and without unnecessary bureaucracy. The NHS, local government and essential services worked as one.

The response from local and national organisations was also supported by new partnerships, such as with charities, universities, thousands of volunteers and the military, who supported key elements. As we continue to move forward in responding to COVID-19, as well as providing wider health and social care services, it is critical that this collaborative approach to working is not lost and separated systems of working do not re-emerge.

As part of the rebuilding of health and social care services, it has also become increasingly evident that, despite the devastation that COVID-19 has caused already, the response to it has accelerated and innovated important new ways of working. This has included the significant shift in terms of digitally supported ways, such as more home working, virtual clinics, triage processes, and remote consulting.

These changes need to be extended and built on to continue to allow these improvements in health and social care to develop whilst still enabling patients to obtain the face-to-face care that is most appropriate for them and valued by them at other times.

We must continue to build on the evidence of effective interventions for short and long term challenges, as we continue striving to protect the health of the people of Wales.

Continuing to protect health and to save lives from COVID-19 will remain the immediate focus of our efforts in Wales.

Yet, alongside this, we must also continue to strive to reduce the many inequities that this pandemic has exposed and exacerbated.

To do this, we will all need to show the same level of innovation, collaboration and determination that we have shown fighting the COVID-19 pandemic together thus far, whilst we deliver an effective, swift and safe vaccination programme for the population in Wales.

Key messages

1

Responding to the coronavirus crisis has meant major changes to the lives of all across Wales and has meant making difficult decisions in order to save lives and protect our NHS.

2

We will continue to face significant challenges as we deal with changes in the number of cases and demand on healthcare services, as well as balancing the direct and indirect harms from COVID-19.

3

Maintaining and strengthening our Test, Trace and Protect (TTP) programme is an essential part of protecting the people of Wales.

4

We are continuing to learn about the disease and to understand its transmission and risk factors, as well as understanding the wider harms associated with the crisis.

5

We should prepare for future pandemics alongside other hazards which have the potential to have a negative impact on the people of Wales.

6

Preventing the next pandemic will need us to work closer than ever before across human, animal and environmental disciplines.

7

Wales has a unique opportunity to bring different sectors and disciplines together to face emerging challenges through the Well-being of Future Generations (Wales) Act 2015.

8

Even before the COVID-19 pandemic, we knew there were health inequities in our society.

9

The COVID-19 pandemic has exacerbated many existing health inequities in the Welsh population, with direct and indirect effects having a disproportionate impact on some groups more than others.

10

The reduction of health inequities should be a central part of every action that we take in re-stabilising our society and protecting our population from the impacts of COVID-19.

Recommendations

Recommendation 1:
Focus on health protection services

The pandemic has shown the importance of having in place strong and resilient health protection arrangements at a local, national and international level.

The Welsh Government, Public Health Wales, health boards and local authorities should review and enhance investment in health protection services, working together to ensure a robust and integrated system of health protection and surveillance of health threats is in place and able to respond to future threats.

This should involve effective horizon scanning and maintaining close links with UK Public Health Bodies, the European Centre for Disease Prevention and Control (ECDC) and the World Health Organization (WHO).

Recommendation 2:
Continually monitor the resilience of our COVID-19 response systems, including case management and contact tracing systems

The Test, Trace and Protect (TTP) programme is a cornerstone in our efforts to reduce transmission of COVID-19 and to save lives. To ensure maximum effectiveness we need to keep reviewing and adapting the delivery of the programme as the nature of the pandemic changes and in line with new scientific evidence.

The Welsh Government, Public Health Wales, health boards and local authorities should continue to pool resources and expertise with partners to be able to maintain a resilient contact tracing and case management programme that can meet the changing demands brought by fluctuations in COVID-19 transmission in Wales.

Recommendation 3:
Prepare for future pandemics

Preparing for future pandemics is essential, so that when they occur we are in a position to act quickly and decisively.

We need to regularly review our strategic response based on our developing understanding of preparing for and responding to this and future pandemics.

The Welsh Government, Public Health Wales, health boards and local authorities should ensure that practical response mechanisms which were put in place for COVID-19 are well documented, fully understood and continually revisited so they can be continually improved and activated rapidly if required in any future pandemic or crisis, alongside existing emergency response mechanisms.

Recommendation 4:
Engage fully with the public on all parts of the response

Reducing the levels of COVID-19 in our communities is only possible when we all change our behaviours and follow the guidance.

Solutions to many of the challenges responding to COVID-19 rely on engaging with the public and the communities where we live and work.

This work should underpin all our efforts. It is essential that sufficient time and resource is given to informing, influencing and capturing the opinions of those whose lives have been affected.

National and local government, along with partners and the people of Wales, should ensure there are strong mechanisms by which we are able to listen and co-produce the solutions to the challenges we face together with citizens.

Recommendation 5:
Adopt a One Health approach to sustainable development in Wales

The response to the pandemic in Wales has forged a number of strong collaborations across government, sectors and society which should be built upon and used to tackle common issues to help us develop a whole of society approach to future planning.

The Welsh Government and its partners should prioritise some of the 'wicked issues' we face as a society.

These include threats from climate change, zoonoses, antimicrobial resistance, as well as food and water safety and security. These should be addressed using a 'One Health' approach.

The Wellbeing of Future Generations Act is a vehicle for embedding sustainable development into our planning for future generations.

Recommendation 6:
Enable the health and social care response including the COVID-19 vaccination programme

The response from our health and social care services as well as other key workers across Wales has been outstanding, with creative solutions rapidly developed to adapt to the needs of the response and the needs of our citizens prioritised above personal needs.

The Welsh Government, local government, NHS Wales and social care organisations should maintain and add to existing innovation and creative solutions, with particular attention given to the wellbeing of our health and social care workforce and wider key workers whilst providing sustainable services.

The Welsh Government's Vaccination Strategy for Wales (January, 2021) outlines the scale of the vaccination challenge that our services are preparing to deliver.

Recommendation 7:
Continue to monitor inequities and where they exist identify solutions to address them

There has been a greater amount of disease and death in certain groups of the population in Wales due to COVID-19. Some of these difference are avoidable and unjust.

The Welsh Government, NHS Wales, social care organisations, local authorities and voluntary organisations, should sharpen their focus on reducing health inequities by ensuring policies are routinely subject to impact assessments and are targeted at those most in need, as well as monitoring and mitigating the effects on our most vulnerable groups.

This includes children and young people, older people, those with protected characteristics, those on low incomes and those that have been disrupted the most during the pandemic.

Recommendation 8:
Ongoing research into tackling and monitoring of the direct and indirect long-term effects of COVID-19

We have continued to learn about COVID-19 and its effects throughout the pandemic. However, there is still much that is yet be discovered.

Research is at the heart of making sure that we continue to use the best available evidence to address the direct and indirect effects of COVID-19 and to make sure we are able to make the best decisions for the health and wellbeing of the people of Wales.

Welsh Government, Health and Care Research Wales, the research community, universities and partners should continue to collaborate on helping us to answer the most important questions so that we can plan a way through the response that protects our health and the health of future generations.

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