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# **United Kingdom of Great Britain and Northern Ireland Country Report**

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## Executive Summary

This report provides a high-level overview of selected aspects of the pandemic preparedness of the United Kingdom of Great Britain and Northern Ireland (UK) and its response, in 2020, to the COVID-19 pandemic. During 2020, the UK recorded a high number of cases and deaths, with over 2 million cases and over 70,000 deaths by the end of 2020.

The UK consists of four nations and through the devolution of power, health is the responsibility of the Devolved Administrations in Northern Ireland, Scotland and Wales and the UK Government in England. The National Health Service (NHS) is the publicly funded health system of the UK is free to use by UK residents and funded through general taxes. The NHS consists of four organisations, one in each nation which collectively form the NHS. All four nations have a public health authority responsible for public health issues, these are Public Health England, Public Health Agency, Public Health Scotland, and Public Health Wales. One single body, the Medicines & Healthcare products Regulatory Agency, is responsible for approving medicines for use in the UK.

While the four nations can take a coordinated approach in the response to a pandemic, they have the autonomy to make decisions for the residents of their nations. During the 2020 pandemic, after an initial coordinated response, the four nations took differing approaches.

## Pandemic Preparedness

Pandemics were recognised as a key threat and identified within the UK's National Risk Register prior to 2020. Following the 2009/10 H1N1 pandemic, a new strategy document was published in 2011 for pandemic preparedness (superseding existing plans), incorporating learnings from H1N1 and produced for the whole of the UK by the UK Government's Department of Health. This strategy document was one of a collection of linked documents relevant to pandemics. However, no single document could be found to provide an overview of how each of the documents should be used in conjunction with another.

Preparedness and response plans had been tested through several exercises. Two of the most notable being Exercise Cygnus (2016) and Exercise Iris (2018)<sup>1</sup>. Based on these exercises, no updated publicly available plans could be found despite identification of gaps in the preparedness of the UK. Critically, through Exercise Cygnus, it was noted that the UK was not prepared for a serious pandemic.

Focussing on communications, governments and official health authorities used a range of communication channels prior to 2020 in both normal and crisis periods, with more traditional forms of communication having been used for decades and a core part of communications strategies. Newer communication channels were also used, with most of the government and official health organisations using social media/social networking platforms. The extent to which and the style of usage varied between organisations with some having created a substantial amount of content prior to 2020 and having established followers, whereas others posted less frequently and smaller numbers of followers/subscribers.

In terms of planned communications during a pandemic, it was planned to use communications that are typically used in seasonal influenza, but these messages were limited as noted in Exercise Cygnus report. Furthermore, while there is the potential for a central communications source, it was also

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<sup>1</sup> More about Exercise Cygnus: <https://www.gov.uk/government/publications/uk-pandemic-preparedness/annex-a-about-exercise-cygnus> and Exercise Iris: <https://www.gov.scot/publications/exercise-iris-report/>

recognised, in the Exercise Cygnus report, that localised communications may also be necessary and there was limited information of how this would be operationalised.

### Response measures

Initially, the UK had a coordinated response to the pandemic with a 'lockdown' being implemented at the end of March 2020. Throughout 2020 many of the high-level decisions were similar, including the introduction of quarantine of travellers arriving from overseas in June 2020; no border closures in 2020; no need to show proof of a negative test before entering the country; and approval of the first vaccine and start of the mass vaccination programme in December 2020. However, there were also significant differences in the individual country responses, with each nation implementing different approaches, which began with the easing of lockdown in May 2020. Throughout 2020, there were many changes to the rules of what was and what was not allowed, which differed between and within nations. By the end of 2020, the UK was in a second wave of infections and had cumulatively reported 2,656,422 cases and 75,934 deaths<sup>2</sup>. The differing responses of the four UK nations highlighted the devolution of powers.

### Risk communication

The communication response was led by the four governments and the public health authorities in each nation, with the governments being the main focal point for information, with health professionals also appearing as spokespersons or leading press/media briefings as well as featuring in information campaigns. All four nations used a range of communication channels to disseminate information and created different information campaigns. There was no single online source for all information in any nation, with information located on several websites. Health and government authorities used press/media briefings throughout 2020; although the frequency of their use differed between the nations.

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<sup>2</sup> Data source: <https://coronavirus.data.gov.uk/> (accessed 13/01/2021). Note: the methodologies used by each of the four nations differ.

Contents

- Executive Summary ..... 2
  - Pandemic Preparedness ..... 2
  - Response measures ..... 3
  - Risk communication ..... 3
- 1 Introduction ..... 5
- 2 UK: Pre-COVID-19 ..... 5
  - 2.1 Country Overview: Population, Governance & Health ..... 5
  - 2.2 Organisation of Health System ..... 6
  - 2.3 Pandemic Preparedness for the UK Prior to COVID-19 ..... 10
    - 2.3.1 Pandemic Plans ..... 10
    - 2.3.2 Past Experiences with Communicable Diseases ..... 12
    - 2.3.3 Legislation ..... 13
- 3 UK’s Response to COVID-19 ..... 13
  - 3.1 The First (Known) Case and Progression of COVID-19 in the UK ..... 13
  - 3.2 Emergency COVID-19 Related Legislation ..... 17
  - 3.3 Coordination of Response within the UK ..... 17
    - 3.3.1 Role of Expert Advice ..... 19
  - 3.4 Timeline of Mitigation Measures ..... 19
  - 3.5 Governmental Support to Enable the Population to Adopt Best Measures ..... 22
  - 3.6 Enforcement of Mitigation Measures ..... 23
- 4 Risk Communication (Governments and Public Health Authorities) ..... 24
  - 4.1 Official Communication Sources ..... 24
  - 4.2 Communication Channels ..... 27
    - 4.2.1 Press/media Briefings ..... 27
    - 4.2.2 Websites ..... 29
    - 4.2.3 Social Media ..... 29
  - 4.3 Key Messages Adopted at UK-Wide Level ..... 29
- 5 Summary ..... 31
- References ..... 32
- Appendix A Health care in the four nations ..... 44
- Appendix B Pandemic documents ..... 45
- Appendix C Summary of previous pandemics ..... 47
- Appendix D Timeline of (some) restrictions ..... 48
- Appendix E Examples of Fixed Penalty Notices ..... 54
- Appendix F Twitter and YouTube Accounts Government and Public Health Authorities ..... 57

## 1 Introduction

In this report certain aspects of the preparedness for and the response to the COVID-19 pandemic during 2020 by the four governments and main health authorities in the United Kingdom of Great Britain and Northern Ireland (UK) are documented.

This individual country report is structured as follows. First, an overview of the UK prior to the COVID-19 pandemic is detailed. This includes population statistics, government structure, economic factors, organisation of health care and pandemic experience and preparedness plans. Second, the report documents some of the response measures of the UK during the COVID-19 pandemic, during 2020 only, including mitigation measures, emergency legislation, support to adopt recommended measures, and risk communication.

The UK is one of five countries examined in the PAN-FIGHT project; the four other countries are Germany, Norway, Sweden and Switzerland. Individual country reports and a comparative report are also available.

## 2 UK: Pre-COVID-19

In this section an overview of the UK prior to COVID-19 is presented, this includes: (1) a high-level country overview, including population characteristics, government, and social security; (2) a high-level explanation of the organisation of the health systems in the UK; and (3) a summary of the pandemic preparedness of the UK.

### 2.1 Country Overview: Population, Governance & Health

The UK, located in the north-west of Europe, is formed of four countries (also known as nations): England, Scotland and Wales (which together form Great Britain) and Northern Ireland. The capital cities are London, Edinburgh, Cardiff and Belfast, with London the capital of the UK. Great Britain is an island and Northern Ireland, located on the island of Ireland, shares a land border with the Republic of Ireland. In 2019, the UK had an estimated population of 66.8 million, comprising England – 56.3 million; Northern Ireland – 1.9 million; Scotland – 5.5 million; and Wales – 3.2 million (Office for National Statistics, 2021a) and a population density of 275 per km<sup>2</sup>, with England - 432 per km<sup>2</sup>; Northern Ireland 137 per km<sup>2</sup>; Scotland 70 per km<sup>2</sup>; and Wales 152 per km<sup>2</sup> (Office for National Statistics, 2020a), which highlights the significant variation between the four nations in both population size and density. England is the largest (by population and area) and most densely populated nation. The geography and spread of the population across the UK is varied with highly densely populated areas (with up to 5700 per km<sup>2</sup>) as well remote, rural and island communities (with less than 50 per km<sup>2</sup>) (Office for National Statistics, 2020d), but the majority of the population, 84%, reside in an urban population (World Bank, n.d.-g). The main language in the UK is English, with Welsh (recognised as an official language), Scottish Gaelic, Irish Gaelic, British Sign Language and other minority languages also spoken throughout the UK.

The UK is a constitutional monarchy and through the devolution process<sup>3</sup>, Northern Ireland, Scotland and Wales have three devolved governments. These devolved governments have both the responsibility and the power regarding certain devolved matters. Devolved matters are not the same in each nation, but health is devolved to all three nations. For matters not devolved, these are the

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<sup>3</sup> Devolution is the process of moving certain powers from the UK Government to the devolved UK nations to allow for decision making to be made at a local level. Matters which are not devolved are known as reserved matters and these are the responsibility of the UK Government. England is the only nation without a devolved government.

responsibility of the UK Government and with no devolved government for England, all matters related to England are the responsibility of the UK Government. There are many differences between the four nations. For example, in addition to the different governments, there are differences in the National Health Service (NHS); legal systems and legislation; policing systems; forensic services; education systems; access to paid/free higher education; and national statistics bodies.

Life expectancy in the UK for females is 83 years and for males 80 years and 81 for both sexes (World Bank, n.d.-c, n.d.-d, n.d.-e) though this varies between and within the UK nations. The percentage of people 65 and over was estimated as 18.5% in 2019 (Office for National Statistics, 2020c). The UK has a high percentage of the population overweight (66.7%); obese (29.8%), living with diabetes (7.7%) or classed as physically inactive (40%) (World Health Organization, 2016). It is estimated 7.6m (approx. 11.4%) have cardiovascular disease (British Heart Foundation, 2021); 12.7m (approx. 19%) with a respiratory illness (British Lung Foundation, n.d.); and an estimated prevalent cancer cases (5-year) of 2230.7 per 100,000 (approx. 2.2%) (International Agency for Research on Cancer & World Health Organization, n.d.).

While the UK has a health service that is free to use, the statutory financial support for those who become sick and meet the criteria to be entitled to statutory sick pay is £95.85 paid for 28 weeks (in 2020). Statutory sick pay is limited to those who meet a defined set of criteria and is paid by an employer. As it is paid by the employer, self-employed individuals have no entitlement to statutory sick pay.

A summary of statistics related to the UK is provided in Table 1 **Error! Reference source not found.**

## 2.2 Organisation of Health System

Collectively, the publicly funded healthcare systems in the UK are known as the NHS, which was established in 1948. The NHS is funded through taxes and (mostly) free at the point of use to those who are residents of the UK. The NHS consists of four health systems, one in each UK nation: NHS England (England), Health and Social Care (Northern Ireland), NHS Scotland (Scotland) and NHS Wales (Wales). As health is a devolved matter, each of these four organisations is accountable to its respective government. In addition to the NHS, all four nations have public health authorities: Public Health England, Public Health Agency, Public Health Scotland and Public Health Wales. The role of these organisations is to support the improvement of the health and wellbeing of the population residing in their nation.

Funding for health care in England is decided by the UK Government, whereas funding is allocated to the three Devolved Administrations and the government of each nation decides how that money is to be spent, including on health care (Cylus et al., 2015). The UK spent 10.0% of GDP on health care expenditure in 2018, with the equivalent of £3,227 per person spent on health care expenditure (Office for National Statistics, 2020b); there were 278 physicians per 100,000 (2013) (Cylus et al., 2015); and 228 (2014) acute care beds per 100,000 (WHO Regional Office for Europe, n.d.).



Table 1: Country characteristics.

| Themes & Indicators        |                                                            | UK                                                                                                                                                                                                                                |
|----------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Population characteristics | Population size (millions)                                 | 66.8 (all UK)<br><br>(Office for National Statistics, 2021a)                                                                                                                                                                      |
|                            | Life expectancy (at birth)                                 | Both sexes: 81<br>Female: 83<br>Male: 80<br><br>(World Bank, n.d.-c, n.d.-d, n.d.-e)                                                                                                                                              |
|                            | Population 65 and over (%)                                 | 18.5% in 2019<br><br>(Office for National Statistics, 2020c)                                                                                                                                                                      |
|                            | Population density per km <sup>2</sup>                     | UK: 275 per km <sup>2</sup><br>England: 432 per km <sup>2</sup><br>Northern Ireland: 137 per km <sup>2</sup><br>Scotland: 70 per km <sup>2</sup><br>Wales: 152 per km <sup>2</sup><br><br>(Office for National Statistics, 2020a) |
|                            | Official language(s)                                       | English, Welsh                                                                                                                                                                                                                    |
|                            | Percentage of people who cannot speak an official language | 1.6% (2011) of the population in England and Wales reported they could not speak English (English or Welsh in Wales) well or not at all.<br><br>(Office for National Statistics, 2013)                                            |
|                            | Average household size (number of persons)                 | 2.4 (2017)<br><br>(Office for National Statistics, 2017)                                                                                                                                                                          |

|                                                    |                                                                                                         |                                                                                                              |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|                                                    | Single person household (%)                                                                             | 29.5 (2019)<br>(Office for National Statistics, 2019)                                                        |
|                                                    | Living in care home                                                                                     | 410,000<br>(Competition & Markets Authority, 2017)                                                           |
|                                                    | Urban population (%)                                                                                    | 84%<br>(World Bank, n.d.-g)                                                                                  |
| COVID-19 risk factors in population/health profile | Prevalence of Cardiovascular disease (%)                                                                | 7.6m (approx. 11.4%)<br>(British Heart Foundation, 2021)                                                     |
|                                                    | Respiratory illness (%)                                                                                 | 12.7m (approx. 19%)<br>(British Lung Foundation, n.d.)                                                       |
|                                                    | Estimated number of prevalent cases (5-year) as a proportion in 2020, all cancers, both sexes, all ages | 2230.7 per 100,000 (2020)<br>(International Agency for Research on Cancer & World Health Organization, n.d.) |
|                                                    | Prevalence of diabetes (%)                                                                              | 7.7% (World Health Organization, 2016)                                                                       |
|                                                    | Prevalence of Obesity (%)                                                                               | 29.8% (World Health Organization, 2016)                                                                      |
| Government/Economy                                 | Inequality (Gini index)                                                                                 | 35.1 (2017)<br>(World Bank, n.d.-b)                                                                          |
|                                                    | Poverty headcount ratio at national poverty lines (% of population)                                     | 18.6 (2017)<br>(World Bank, n.d.-f)                                                                          |
|                                                    | Member of World Health Organization                                                                     | Yes                                                                                                          |
|                                                    | European Union membership (in 2020)                                                                     | In an exit process from European Union (2020)                                                                |
|                                                    | Number of states/regions                                                                                | Four nations (England, Northern Ireland, Scotland, Wales)                                                    |

|                       |                                                  |                                                                                                                                                                                                        |
|-----------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Autonomy of nations                              | Certain matters are devolved to the Devolved Administrations, health is one area. The remaining matters are held by the UK Government.                                                                 |
|                       | GDP per capita (USD)                             | 48,698.1 (2019)<br>(World Bank, n.d.-a)                                                                                                                                                                |
|                       | Unemployment level (%)                           | 3.8 (2019)<br>(Office for National Statistics, 2021b)                                                                                                                                                  |
|                       | Governments                                      | UK Government (England)<br><br>Welsh Government & UK Government (Wales)<br><br>Scottish Government and UK Government (Scotland)<br><br>Northern Ireland Executive and UK Government (Northern Ireland) |
| Social security       | Sick pay (weekly pay and length)                 | £95.85 for 28 weeks (in 2020)<br>(GOV.UK, n.d.-c)                                                                                                                                                      |
|                       | Sick pay (self-employed) (weekly pay and length) | No sick pay                                                                                                                                                                                            |
| Health infrastructure | Acute care beds per 100,000                      | 228 per 100,000 (2014)<br>(WHO Regional Office for Europe, n.d.)                                                                                                                                       |

A high-level overview of the structure and organisation of health is shown in Figure 1, illustrating differences and similarities in the organisation of health in each nation. More information about the structure of health can be found in Appendix A.

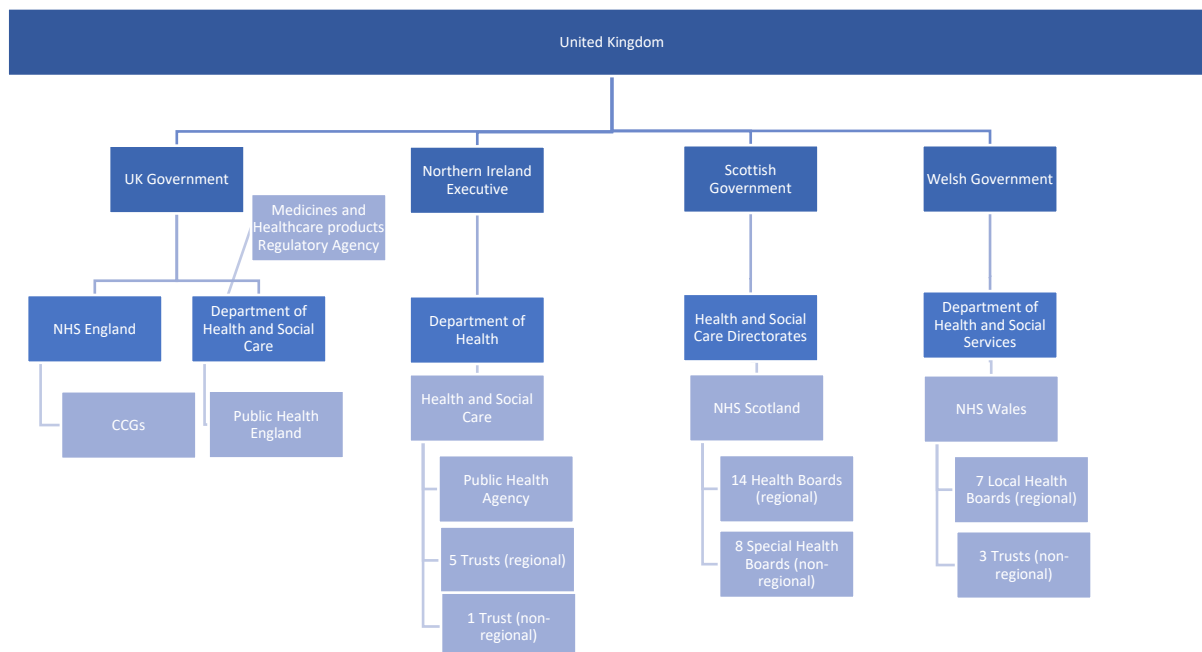


Figure 1: High-level overview of health structure in the UK.

## 2.3 Pandemic Preparedness for the UK Prior to COVID-19

### 2.3.1 Pandemic Plans

Pandemics have been identified as a top risk in the UK's National Risk Register<sup>4</sup> and pandemic preparedness plans and strategies were developed and tested prior to the COVID-19 pandemic. A significant point in their development was the revision of the plans following the 2009/10 H1N1 pandemic. The main preparedness strategy in place prior to COVID-19 was the "UK Influenza Pandemic Preparedness Strategy 2011" which was published in 2011<sup>5</sup>. However, there are many further supporting documents, also published by the Department of Health, that were published alongside this plan (see Appendix B).

The threat of a pandemic was well established and at least four exercises were conducted to test the preparedness and response in the event of a pandemic since 2016. The first conducted was a smaller table top exercise named "Exercise Cygnet" and was carried out as a prequel to a second command post exercise named "Exercise Cygnus". An additional prequel event was held in Wales in preparation for Exercise Cygnus. All three were performed in the UK in 2016<sup>6</sup>. Exercise Cygnus involved more than 950 participants, located across the UK, and through this the preparedness and response of the UK to a pandemic was tested (Public Health England, 2017). The 2017 report on Exercise Cygnus was made publicly available in 2020 and highlighted the need to update pandemic plans, identifying: "the UK's

<sup>4</sup> See:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/644968/UK\\_National\\_Risk\\_Register\\_2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/644968/UK_National_Risk_Register_2017.pdf)

<sup>5</sup> Available from:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/213717/dh\\_131040.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213717/dh_131040.pdf)

<sup>6</sup> More about these operations is available: <https://www.gov.uk/government/publications/uk-pandemic-preparedness/annex-a-about-exercise-cygnus>

preparedness and response, in terms of its plans, policies and capabilities, is currently not sufficient to cope with the extreme demands of a severe pandemic that will have a nation-wide impact across all sectors” (Public Health England, 2017, p. 6). No publicly available updated plans following the exercise could be found, with the 2011 plan remaining the most recent document. A fourth exercise was conducted in 2018 by the Scottish Government: a table top exercise named “Exercise Iris”<sup>7</sup>. The aim of this exercise was to assess how ready various aspects of NHS Scotland was for a MERS-CoV outbreak and the findings of this report concludes that there are gaps in preparedness for such an outbreak (Gov.scot, 2018). While the exercises allowed a degree of testing, it is unclear what changes were made to the documented plans, though it is noted that some planning documents are not publicly available.

The UK Influenza Pandemic Preparedness Strategy 2011 was produced by the Pandemic Influenza Preparedness Team in the Department of Health<sup>8</sup>. The strategy suggests that, in the main, a coordinated response by the four UK nations was planned, as had been the case in the H1N1 2009/10 pandemic:

“there should be a consistent, UK-wide approach to the response to a new pandemic but with local flexibility and agility in the timing of transition from one phase of response to another to take account of local patterns of spread of infection and the different healthcare systems in the four countries.” (DH Pandemic Influenza Preparedness Team, 2011, p. 20).

The lead UK Government department in the response to a pandemic was planned to be the Department of Health (now the Department of Health and Social Care) and high-level decision making in pandemics by the Cabinet of the UK Government and equivalents in the Devolved Administrations, with expert advice provided by expert groups, including the Scientific Advisory Group for Emergencies (SAGE) (DH Pandemic Influenza Preparedness Team, 2011), which exists independent of the pandemic. At a local level, Local Resilience Forums, which are multi-agency partnerships formed in geographical areas bring together relevant organisations are responsible for preparing for emergencies in their area (DH Pandemic Influenza Preparedness Team, 2011).

Related to communication, Section 5 of the pandemic strategy focusses on communication and engagement, though there are also, at least, two additional documents, specifically addressing communication: Principles of effective communication (Pandemic Influenza Preparedness Team, 2011) and the UK Pandemic Influenza Communications Strategy 2012 (Department of Health, 2012). In the main pandemic strategy, it is stated communications to the public should have three key aims: (1) to explain the pandemic outbreak; (2) to develop confidence; and (3) to educate the population on measures they can take to minimise catching and spreading the virus, what to do if they become infected and about vaccines and medicines (DH Pandemic Influenza Preparedness Team, 2011). The challenges of risk communication are noted in the plan, acknowledging ongoing work to address the best ways of communicating risk during a pandemic (DH Pandemic Influenza Preparedness Team, 2011). The document identifies that the Government will be responsible for providing information about the pandemic. In the documents it is acknowledged the need for open and transparent communications and that communications should be tailored to different groups of the population. Communications are to be two way, both providing information and identifying information through the use of communication channels. The main communication channels to be used included press briefings, websites and social media channels, but these are part of a wider dissemination strategy.

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<sup>7</sup> More about Exercise Iris can be found here: <https://www.gov.scot/publications/exercise-iris-report/>

<sup>8</sup> Now known as the Department of Health and Social Care.

In the UK Pandemic Influenza Communications Strategy 2012, for which communications leads are the target audience, again the need for a centralised approach is suggested but awareness of the potential need for different approaches is also recognised. In the document, the planned flow of communications to the public; to health and social care organisations; and to health and social care professionals is outlined; alongside the communication channels to be used; and key spokespersons, with the Department of Health identified as the lead Government department for this and to be the main source of health-related information. In the case of a severe emergency, the Government News Coordinating Centre (NCC) will be activated, supporting the Department of Health with indication of the need to work with the Devolved Administrations due to the differences in the planned emergency responses of the four nations (Department of Health, 2012). For public facing communications, it is indicated that the Chief Medical Officers and trusted health professionals will hold press briefings and be key information sources along with government officials and other organisations such as the NHS will provide information to the public via their websites. Publication of weekly statistics is the responsibility of the relevant health authority in each nation. Overall, the strategy is a high-level one, developed to allow a flexible response to the intensity of a future pandemic. It mainly focuses on the role of the UK Government without explaining in detail the processes in place in the Devolved Administrations. The plan highlights the possibility of adapting pre-existing seasonal flu messages to the pandemic as many of the mitigation actions will be similar as well as actions to be taken when ill and provides suggestions for messages to be used before and during a pandemic.

The second document, “Principles of effective communication”, which is a review of scientific evidence related to effective communication and risk communication, is provided for information purposes. The review sets out general principles for effective communication and communication of risk information.

In addition to the main document and the communications documents, there are many further supporting documents,<sup>9</sup> but there is no overarching document outlining how the documents are related.

### 2.3.2 Past Experiences with Communicable Diseases

Even since 2000, the UK has dealt with pandemics<sup>10</sup> and outbreaks of several communicable diseases, providing experience of managing infectious diseases. Some of the past, recurring and ongoing communicable diseases since 2000 are described below. Note that this does not include all communicable diseases.

Measles is a highly contagious disease which can lead to serious health complications and even death if contracted. Measles is preventable through vaccination and it is recommended that children in the UK receive two doses of the measles mumps and rubella (MMR) as part of their childhood immunisation programme to protect them against measles. Due to the highly infectious nature of the virus, a high uptake of the vaccine of 95% is required to achieve herd immunity (Saliba, 2018). The now refuted study which linked the MMR vaccine and autism led to a lower uptake in the vaccine and this resulted in increased measles cases and in 2006 the return of endemic transmission (Saliba, 2018). Campaigns were launched to immunise those who had not received two doses of the vaccine, and the UK achieved elimination status in 2017 (Saliba, 2018). However, in 2019 the UK lost this status (Roberts, 2019) after a rising number of cases.

In 2009/10, the UK dealt with the H1N1 pandemic, also known as ‘Swine Flu’. This pandemic was, in general, considered a mild pandemic. One factor contributing towards this was that many older people

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<sup>9</sup> See: <https://www.gov.uk/government/publications/review-of-the-evidence-base-underpinning-the-uk-influenza-pandemic-preparedness-strategy> to access some of the supporting documents.

<sup>10</sup> Some pandemics prior to 2000 are listed in Appendix C.

were immune to the virus (NHS, n.d.-b). While the majority of cases were mild, serious cases were predominantly in children, young adults and pregnant women (NHS, n.d.-b). A vaccine for H1N1 was developed during the pandemic. The uptake of the H1N1 vaccine of persons in clinical risk groups in England, until 31<sup>st</sup> March 2010, was 37.6% (Department of Health & Health Protection Agency, 2010). The strain of virus is still in circulation and is now covered by the annual seasonal flu vaccine (NHS, n.d.-b).

Every year, in winter, seasonal influenza (flu) poses an unpredictable risk to the UK population. For some, seasonal flu can be serious, although for most it causes a mild illness. A seasonal influenza vaccination programme is offered annually by the NHS to the members of the population classified as high risk of developing severe illness from flu. Those eligible for vaccination through the NHS are vaccinated for free. For those who are not eligible to receive the vaccine from the NHS, it is, typically, possible to pay to receive the vaccine from a local pharmacy.

### 2.3.3 Legislation

The UK has several legal systems, and several pieces of legislation related to public health were in place prior to COVID-19 in the four nations. The legislation provides details about circumstances allowing emergency legislation to be used and responsibilities for preparing for crisis events. Such legislation includes: The Public Health (Control of Diseases) Act 1984; Public Health etc. (Scotland) Act 2008; Public Health Act (Northern Ireland) 1967; Civil Contingencies Act 2004; and Civil Contingencies Act 2004 (Commencement) (Scotland) Order 2005. The Civil Contingencies Act 2004 has three parts. The Civil Contingencies Act 2004 sets out the legal responsibilities and roles of local persons and bodies in relation to the planning and risk assessments for and of potential emergencies and the additional emergency powers that can be used to respond to emergency events.

## 3 UK's Response to COVID-19

In this section, the UK's response to the pandemic during 2020 is presented. This section begins with a high-level overview of the first known cases and progression of COVID-19 during 2020. Second, a summary of the emergency legislation introduced is provided. Third, the overall coordination of the response is outlined. Fourth, a high-level timeline of the main mitigation measures used are presented. Fifth, governmental support to adopt these measures is summarised.

### 3.1 The First (Known) Case and Progression of COVID-19 in the UK

The first confirmed cases of COVID-19 in the UK was announced by the Chief Medical Officer for England on the 31<sup>st</sup> of January 2020 when two members of the same family tested positive for COVID-19 (Department of Health and Social Care, 2020a). The first known death of a person in the UK who had tested positive for COVID-19 was announced by the Chief Medical Officer for England on the 5<sup>th</sup> of March 2020 (Department of Health and Social Care, 2020b). By the end of 2020, the total cumulative recorded cases<sup>11</sup> and deaths in the UK was 2,656,422 and 75,934, respectively<sup>12</sup>, and the UK was in the middle of a second, more serious wave of infections. A new, more virulent strain of COVID-19 (VOC-202012/01) had been identified as in circulation in the UK (Public Health England, 2020a) at the end of 2020, contributing to a surge in case numbers.

In 2020, two waves of infections and deaths were recorded in the UK (see Figure 2, Figure 3, Figure 4 and Figure 5Figure 2). Note that the availability of testing was highly limited in the beginning of the pandemic. Wave 1 began in winter, with daily cases rising rapidly in March 2020 reaching their highest

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<sup>11</sup> By specimen date.

<sup>12</sup> Data source: <https://coronavirus.data.gov.uk/> (accessed 13/01/2021). Note: the methodologies used by each of the four nation differ.

levels in April 2020, and daily case numbers falling during summer to their lowest levels in July 2020. Cases began rising rapidly from September 2020 until November 2020 forming the beginning of a second wave. Daily case numbers began to fall briefly but at the beginning of December daily case numbers began to rise and did so more rapidly than anytime during 2020. By the end of December 2020, reported cases in the UK was continuing to rise. A summary of cases and deaths in the UK is provided in Table 1.

Table 2: Summary of cases in UK, showing the dates on which selected cumulative reported deaths and reported cases were surpassed<sup>13</sup>.

| <b>Event</b>                                        | <b>Date</b>                    |
|-----------------------------------------------------|--------------------------------|
| First known case                                    | 30 <sup>th</sup> January 2020  |
| First known death                                   | 2 <sup>nd</sup> March 2020     |
| Peak of wave 1 (cases) 7-day average                | 19 <sup>th</sup> April 2020    |
| Peak of wave 1 (deaths) 7-day average               | 10 <sup>th</sup> April 2020    |
| Peak of wave 2 (cases) 7-day average                | -                              |
| Peak of wave 2 (deaths) 7-day average               | -                              |
| <b>Cumulative Recorded Cases (by specimen date)</b> | <b>Date surpassed</b>          |
| 100                                                 | 2 <sup>nd</sup> March 2020     |
| 1,000                                               | 11 <sup>th</sup> March 2020    |
| 5,000                                               | 18 <sup>th</sup> March 2020    |
| 10,000                                              | 22 <sup>nd</sup> March 2020    |
| 25,000                                              | 28 <sup>th</sup> March 2020    |
| 50,000                                              | 3 <sup>rd</sup> April 2020     |
| 100,000                                             | 14 <sup>th</sup> April 2020    |
| 250,000                                             | 27 <sup>th</sup> May 2020      |
| 500,000                                             | 1 <sup>st</sup> October 2020   |
| 1,000,000                                           | 27 <sup>th</sup> October 2020  |
| 2,000,000                                           | 16 <sup>th</sup> December 2020 |
| <b>Cumulative Recorded Deaths</b>                   | <b>Date surpassed</b>          |
| 100                                                 | 15 <sup>th</sup> March 2020    |
| 1,000                                               | 24 <sup>th</sup> March 2020    |
| 10,000                                              | 7 <sup>th</sup> April 2020     |
| 20,000                                              | 18 <sup>th</sup> April 2020    |
| 30,000                                              | 4 <sup>th</sup> May 2020       |
| 50,000                                              | 7 <sup>th</sup> November 2020  |
| 70,000                                              | 22 <sup>nd</sup> December 2020 |

<sup>13</sup> Data source: <https://coronavirus.data.gov.uk/>. Note: the methodologies used by each of the four nations differ.



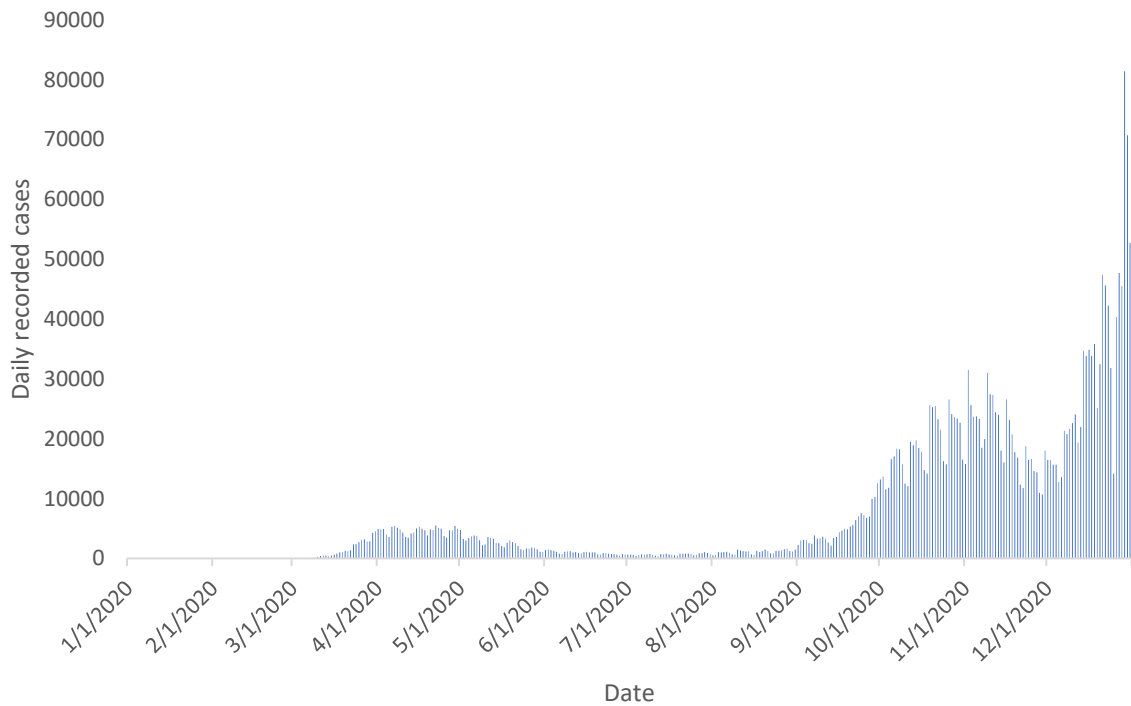


Figure 2: Daily recorded cases showing a first wave in spring, followed by low levels of daily recorded cases until end of August. From the end of August onwards, daily cases began to rise with a slight decline in cases in late November until early December, and then continuing to rise. Wave 2 is more severe than wave 1, in duration and number of cases, though it should be recognized that testing was initially highly limited. Data source: <https://coronavirus.data.gov.uk/>.

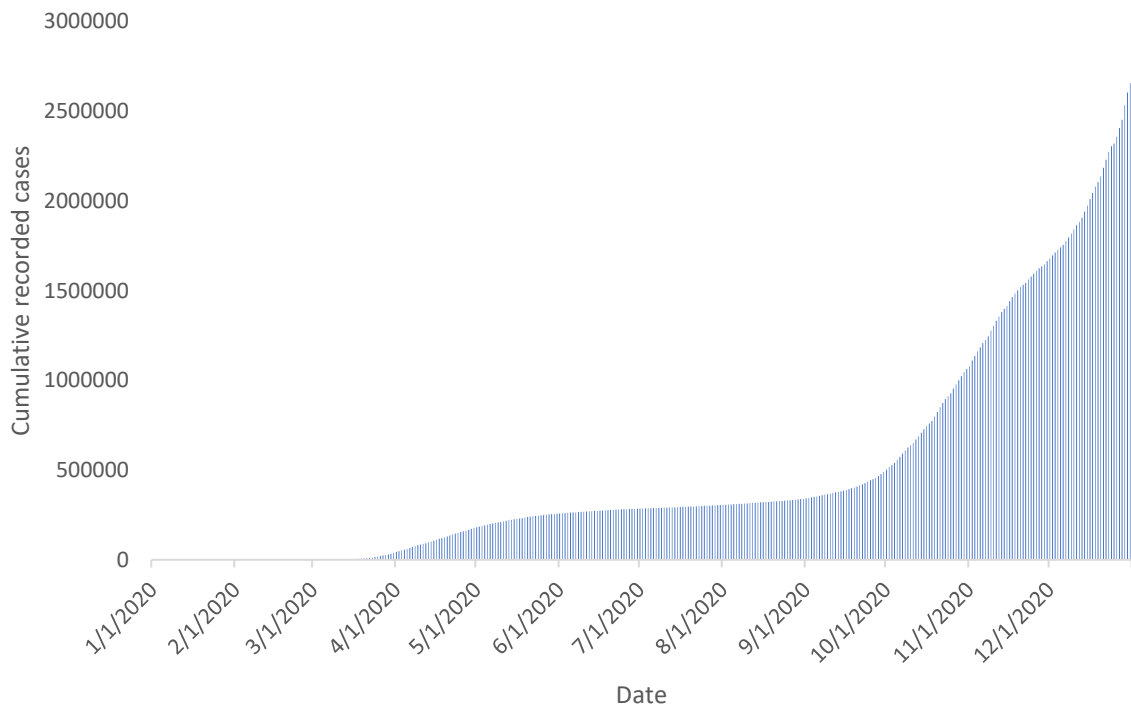


Figure 3: Cumulative recorded cases in the UK (by specimen date); showing a rise in cases between the end of March until mid-May, with a second sharp rise in cases from the end of September. Note: testing was initially highly limited. Data source: <https://coronavirus.data.gov.uk/>

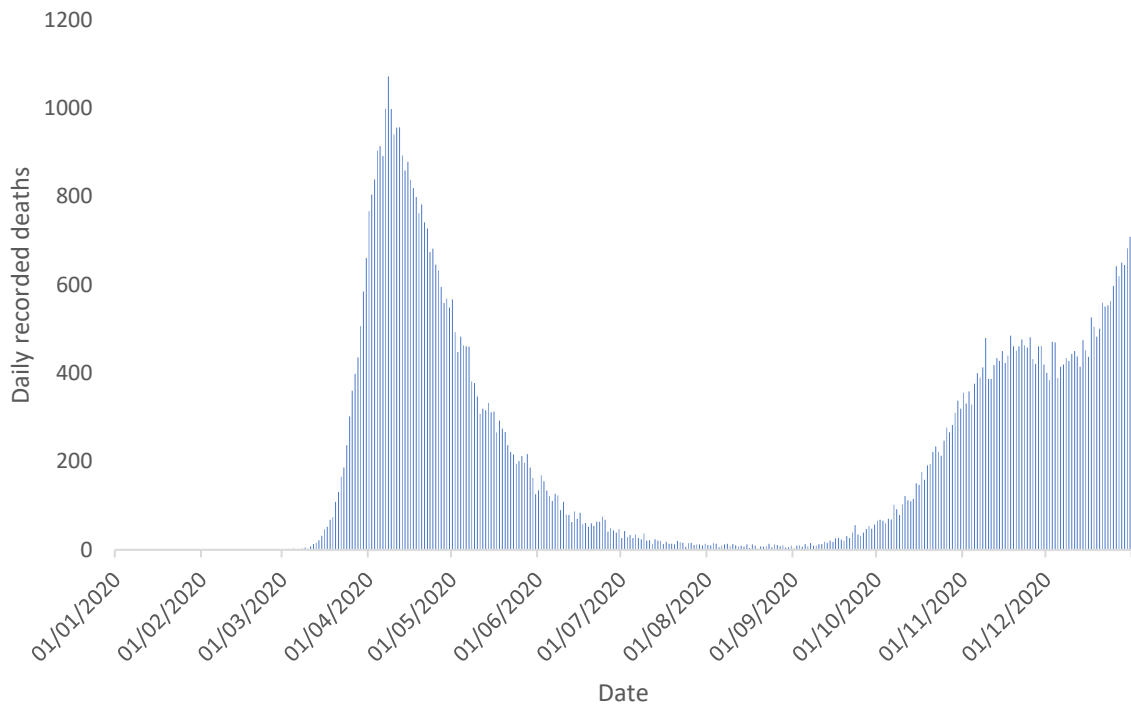


Figure 4: Daily recorded deaths, showing a first wave of deaths in spring, peaking at a maximum of 1072 deaths, followed by low levels of daily recorded deaths during summer, with daily deaths rising again from late summer until the end of the year. The first wave rose rapidly to its first peak in contrast to the second wave, where increases in daily deaths rose more slowly. Data source: <https://coronavirus.data.gov.uk/>

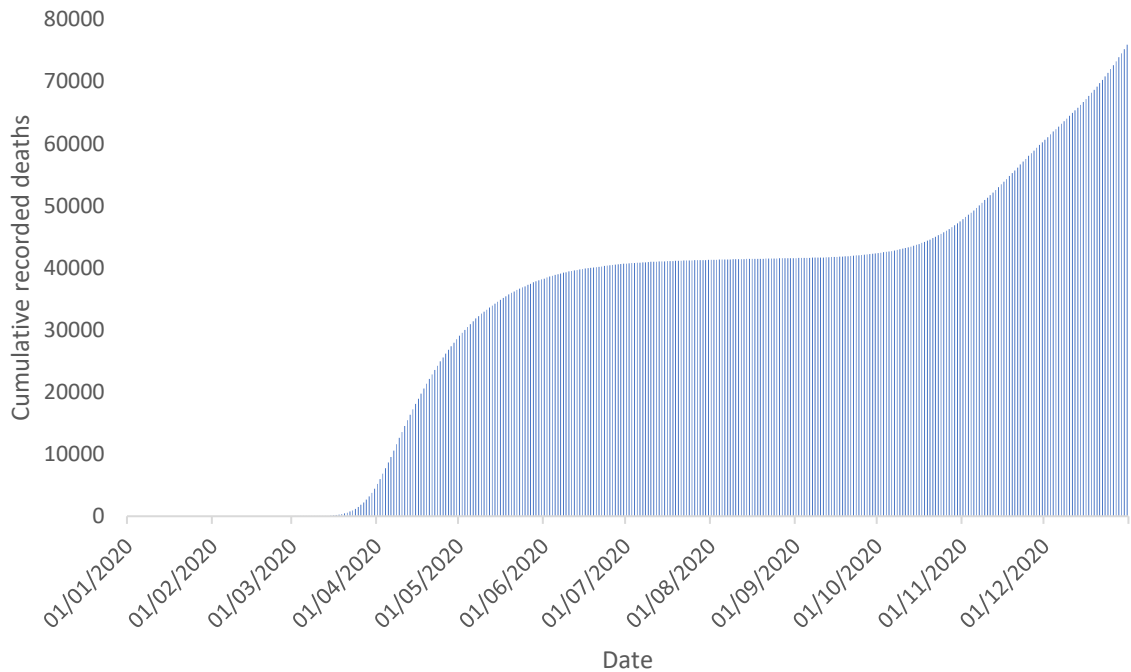


Figure 5: Cumulative recorded deaths during 2020 in the UK; showing a rise from mid-March until mid-April and a second rise from mid-October until the end of 2020. Counts on each of the dates represent the date of death (not reported date) and methodologies differ between the four UK nations on the counting of cases and should be consulted. Data source: <https://coronavirus.data.gov.uk/>

### 3.2 Emergency COVID-19 Related Legislation

In addition to existing legislation related to public health and pandemic plans in place prior to COVID-19 (see Section 2.3), emergency legislation was approved and introduced during the pandemic. The main legislation introduced in the UK was the Coronavirus Act (2020)<sup>14</sup>, which covers a range of COVID-19 related measures. This legislation became law on the 25th of March 2020 (Department of Health and Social Care, 2020c). Due to the structure of the UK, certain legislation can apply to the whole of the UK, while other legislation can be applied at a nation level<sup>15</sup>. A time limit was imposed on the duration and requirements to review the ongoing need for the legislation. A summary of the act is provided below.

“The act enables action in 5 key areas:

- increasing the available health and social care workforce – for example, by removing barriers to allow suitably experienced people, such as recently retired NHS staff and social workers to return to work (and in Scotland, in addition to retired people, allowing those who are on a career break or who are social worker students to become temporary social workers)
- easing and reacting to the burden on frontline staff – by reducing the number of administrative tasks they have to perform, enabling local authorities to prioritise care for people with the most pressing needs, allowing key workers to perform more tasks remotely and with less paperwork, and introducing a power to suspend individual port operations if necessary for the security of the border
- containing and slowing the virus – to manage the spread of coronavirus, the Coronavirus Act 2020 ("the act") provides public health officers (PHO) with powers to control the spread of coronavirus in the UK
- managing the deceased with respect and dignity – by enabling the death management system to deal with increased demand for its services
- supporting people – by allowing individuals to receive Statutory Sick Pay from day one, and supporting businesses, for example by providing powers that will ensure the governments of the UK are able to support the food industry to maintain supplies

The act significantly enhanced the ability of public bodies across the UK to provide an effective response to tackle this pandemic” (Department of Health and Social Care, 2020c).

### 3.3 Coordination of Response within the UK

On the 3<sup>rd</sup> of March 2020, prior to COVID-19 being announced as a pandemic, a joint action plan<sup>16</sup> was published by the four UK nations. On the 12<sup>th</sup> March 2020, the UK announced moving from the containment phase to delay phase (Department of Health and Social Care, 2020e), where the containment phase focused on finding cases, tracing close contacts and trying to prevent the initial spread of COVID-19, whereas the delay phase focused on measures to reduce the spread of the virus and reducing the peak of the wave. To clarify whether the UK would be adopting a herd immunity approach, the Health Secretary stated on 15<sup>th</sup> March 2020 that herd immunity was not part of the plan

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<sup>14</sup> The Coronavirus Act (2020): <https://www.legislation.gov.uk/ukpga/2020/7/contents/enacted> and a review of the act, by the UK Government, is available: <https://www.gov.uk/government/publications/coronavirus-act-analysis/coronavirus-act-analysis>.

<sup>15</sup> A full list of legislation changes: <https://www.legislation.gov.uk>

<sup>16</sup> Plan is available from: <https://gov.wales/sites/default/files/publications/2020-03/coronavirus-action-plan.pdf>

(Department of Health and Social Care & Hancock, 2020). At the end of March 2020, all four nations imposed what were known as “lockdowns”. These lockdowns included the closure of schools, nurseries, non-essential shops, as well as restaurants, pubs and cafes. Working from home was required when possible, and if it was not possible, some organisations were forced to close. Leaving one’s home was only permitted under certain circumstances. The UK borders remained open during this time and UK nationals abroad were supported to return home. No quarantine was required on entry to the UK until the 8<sup>th</sup> of June 2020 nor proof of a negative test on entry to the UK throughout 2020. Initially, active contact tracing occurred in the UK but stopped on the 12<sup>th</sup> of March 2020 as the UK moved from the containment phase to the delay phase. On the test, trace and protect strategy in Northern Ireland, the following was stated: “In line with the rest of the UK, the PHA were conducting rigorous contact tracing for all cases of COVID-19 until the 12th March 2020. On the 12th March, the UK moved from the containment phase to the delay phase. The focus of our efforts then shifted from individual contact tracing to wider measures, including advising all of the public to immediately self-isolate if they had even mild symptoms, prevention of spread, and social distancing.” (Department of Health, 2020b, p. 4). Northern Ireland was the first nation to relaunch contact tracing through the campaign ‘Test, Trace, Protect’ on 27<sup>th</sup> April 2020, fully expanding to all cases by the 18<sup>th</sup> May 2020 (McCormack, 2020a). England launched ‘Test and trace’ and Scotland launched ‘Test and protect’ on 28<sup>th</sup> May 2020 (Department of Health and Social Care, 2020g; Gov.scot, 2020i). Wales launched ‘Test, trace, protect’ on 1<sup>st</sup> June 2020 (BBC, 2020f). Later in 2020, contact tracing apps for mobile phones were introduced.

While an initial coordinated approach was taken early in 2020, from May 2020 onwards, the nations diverged in their approaches to mitigate the spread of COVID-19 and ease lockdown measures.

In the UK, decisions related to the COVID-19 pandemic concerning mitigation measures applied in one of the four UK nations were not required to be centralised at the UK level. Each nation had the autonomy to make decisions for its population. To manage the spread of COVID-19, primarily a range of non-pharmaceutical interventions were used, and a vaccination programme began in December 2020. The same mitigation measures were used in different ways in each of the four UK nations. For example, face coverings were introduced in all four UK nations, however the guidance of in which public places these required to be worn differed, as did the dates on which they became mandatory and any penalties for those not wearing a face covering.

Some actions were centralised, for example, the approval of the vaccine was carried out by Medicines & Healthcare products Regulatory Agency (MHRA); the procurement of vaccines was done by the UK Government; decisions on furlough were made by the UK Government. It is important to note that while health is a devolved power, the Devolved Administrations have limited powers over some measures to support their citizens to do what is asked of them<sup>17</sup>.

Decision making concerning recommending and mandating certain personal protective actions such as wearing a face covering; self-isolating; quarantining on return from overseas was made by the four nations individually. Decision making related to pandemic measures were, at a high level, made by in England by the UK Government; in Scotland by the Scottish Government; in Northern Ireland by the Northern Ireland Executive; and in Wales by the Welsh Government.

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<sup>17</sup> See for example regarding wage payments in Wales: <https://www.bbc.co.uk/news/uk-wales-54766012>

### 3.3.1 Role of Expert Advice

The Scientific Advisory Group for Emergencies<sup>18</sup> (SAGE), which existed prior to COVID-19 and is a group advising the UK Government and the Devolved Administrations on emergencies, was convened during COVID-19. The Scientific Advisory Group for Emergencies provided advice to all four nations in 2020 related to COVID-19. SAGE supports decision makers in government through the provision of scientific and technical advice (Scientific Advisory Group for Emergencies, n.d.). SAGE consists of a group of experts and chaired by the UK Government's Chief Scientific Adviser and the co-chaired by the Chief Medical Officer for England (Scientific Advisory Group for Emergencies, n.d.). The role of SAGE during COVID-19 was to provide advice to the UK Government to be reviewed in the Cabinet Office Briefing Room (COBR) (Scientific Advisory Group for Emergencies, n.d.). How that advice was weighted and combined with other information is not reviewed here. In addition to SAGE, several other groups provided expert advice including the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG); the Scientific Pandemic Influenza Group on Modelling (SPI-M); the Scientific Pandemic Insights Group on Behaviours (SPI-B); and finally the COVID-19 Genomics UK and Health Data Research UK.

The Scottish Government received advice from SAGE, but during the COVID-19 pandemic, the need for an additional advisory group was identified and the Scottish Government COVID-19 Advisory Group was established (Gov.scot, n.d.-b). This group is one of several advisory groups related to COVID-19 in Scotland<sup>19</sup>. The Welsh Government also received advice through SAGE but also established two expert groups: Technical Advisory Cell (TAC) and Advisory Group (TAG) (Welsh Government, 2020d).

### 3.4 Timeline of Mitigation Measures

In this section, an overview of the implementation of mitigation measures is presented. As the individual nations adopted different approaches, which changed incrementally, only a high-level summary of the measures is provided. A timeline of when the measures were introduced and withdrawn was (partially) available for Northern Ireland but a timeline for the remaining three nations could not be found by the research team in 2020. The information provided in Appendix D is not a complete overview but summaries some of the changes during 2020. Below, the mitigation measures are addressed individually.

- **Contact tracing:** Initially, active contact tracing occurred in the UK but stopped on the 12<sup>th</sup> of March 2020 as the UK moved from the containment phase to the delay phase. Northern Ireland was the first nation to relaunch contact tracing through the campaign 'Test, Trace, Protect' on 27<sup>th</sup> April 2020, fully expanding to all cases by the 18<sup>th</sup> May 2020 (McCormack, 2020a). England launched 'Test and trace' and Scotland launched 'Test and protect' on 28<sup>th</sup> May 2020 (Department of Health and Social Care, 2020g; Gov.scot, 2020i). Wales launched 'Test, trace, protect' on 1<sup>st</sup> June 2020 (BBC, 2020f).
- **Testing:** Community testing was used up until 12<sup>th</sup> March 2020, after which testing was limited to hospitals (BBC, 2020l) for a period while testing capacity was increased. Community testing was reintroduced later in 2020. Tests by the NHS were free.
- **Handwashing:** Handwashing was a mitigation measure used by all four nations and a key part of all strategies preventing the spread of COVID-19 from an early stage of the pandemic (pre-pandemic). Individuals were recommended to wash their hands (for 20 seconds) or use hand sanitiser. Handwashing was also used in combination with recommendations for persons not to touch their face.

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<sup>18</sup> Website: <https://www.gov.uk/government/organisations/scientific-advisory-group-for-emergencies>

<sup>19</sup> The other groups are listed here: <https://www.gov.scot/collections/coronavirus-covid-19-advisory-groups/>

- **Physical distancing:** Rules on physical distancing or social distancing as they were known in different parts of the UK were different and changed during 2020 but physical distancing was a key measure adopted by all four nations from the beginning of the pandemic. Throughout 2020 it was not possible for persons to be in close contact, in a personal setting, if they did not belong to the same household, extended household or bubble. Initially, all four nations recommended a 2m distance, but England moved to a 1m plus rule. Furthermore, on some premises, such as restaurants and bars, the need to stay 2m apart from those not in the same household were reduced to, for example, 1m (as opposed to 2m in private dwellings and outdoor settings).
- **School closures:** All schools were closed in the UK from 20<sup>th</sup> March 2020 (children of key workers and vulnerable children were still able to attend school) (BBC, 2020q). The reopening of schools differed in each of the four nations. England began a phased reopening of schools from 1<sup>st</sup> June 2020, with only certain primary school years returning (Coughlan, 2020) followed by some secondary school pupils from 15<sup>th</sup> June 2020 (BBC, 2020ab). The schools in England reopened following the summer holidays in September 2020. In Scotland schools reopened on 11<sup>th</sup> August 2020 (BBC, 2020o). In Wales, schools reopened 29<sup>th</sup> June 2020 (with only one third of pupils allowed in the school at once) until the 27<sup>th</sup> July 2020 (BBC, 2020n). Welsh schools reopened in 1<sup>st</sup> September 2020 (BBC, 2020m). In Northern Ireland schools were reopened from the 24<sup>th</sup> August 2020 (Meredith, 2020).
- **Work from home:** For those for whom it was possible to work from home, this was encouraged. One exception to this is England, who encouraged the return to the office in July and a campaign was launched to get people back to the office, even for those for whom it was not necessary in August/September but the messaging was reversed to work from home if you can at the end of September 2020 (BBC, 2020r). In other nations, work from home continued to be encouraged until the end of the year.
- **Face coverings:** Initially, the use of face coverings was not recommended by governments and health authorities in the UK, however this guidance was reversed with face coverings first being recommended and then made mandatory in certain public settings. The first nation to make face coverings mandatory on public transport was England, when it was introduced on 15<sup>th</sup> June 2020 and was mandatory in all four nations by 27<sup>th</sup> July 2020. Scotland was the first nation to introduce mandatory face coverings in shops from 10<sup>th</sup> July 2020 and it was mandatory in all four nations by 14<sup>th</sup> September 2020.
- **Quarantine of arrivals from overseas:** Arrivals from abroad (regardless of transport means) were required to quarantine from the 8<sup>th</sup> of June 2020, with a 14-day quarantine period for arrivals (BBC, 2020p). The need to quarantine subsequently changed with travellers from certain countries exempt from quarantine requirements, known as “Travel Corridors”. Whether a traveller must quarantine from a specific country varied over time and by nation, as each UK nation had the autonomy to decide quarantine measures. The length of self-isolation for travellers was reduced from 14 days to 10 days from the 10<sup>th</sup> of December 2020 in Wales (Welsh Government, 2020c) and from the 14<sup>th</sup> of December 2020 in England, Northern Ireland and Scotland (Department of Health and Social Care, 2020h).
- **Tracing apps:** Three tracing apps were developed and used in the UK, each serving a different geographical area. Northern Ireland launched its “StopCOVID NI” app on 30<sup>th</sup> July 2020, followed by Scotland’s “Protect Scotland” app, which launched on 10<sup>th</sup> September 2020, and, finally, for England and Wales the “NHS Covid-19” app was launched on 24<sup>th</sup> September 2020. Northern Ireland shares a land border with the Republic of Ireland and during the development stage of the apps in Northern Ireland and the Republic of Ireland an agreement was made that the apps should work seamlessly with one another. The three UK apps were developed using

a decentralised model despite an initial centralised model being developed in England but discontinued, with it being replaced by a decentralised app. Initially the three apps did not work with one another, but subsequent developments allowed the apps to work together<sup>20</sup>.

- **Use of tiers and levels.** England and Scotland introduced the use of tiers and levels. In England, tiers known as Local COVID Alert Levels were used from 14<sup>th</sup> October 2020 onwards but were changed several times. Initially, England used a three-tier system with Tier 3 being the most stringent (Tier 1 medium alert, Tier 2 high alert, Tier 3 very high alert) (Cabinet Office, 2020). Regions in England were assigned to a tier and everyone living in that area had to abide by the rules. An additional tier was added, Tier 4, where people were to stay at home and was more like the first lockdown in the Spring. The Tier system was stopped when England moved to a four-week national lockdown to limit the spread of the disease and returned to the tier system 2<sup>nd</sup> December 2020. In Scotland, from 2<sup>nd</sup> November 2020 onwards Covid Protection Levels were used (Gov.scot, 2021b)<sup>21</sup>. This consisted of five levels, zero (lowest level of restrictions) through to four (highest level of restrictions) and each level had an associated set of rules. Geographical areas within Scotland, known as local authorities<sup>22</sup> or councils, were assigned to one of the five levels and those residing in that region had to abide by the measures set out. The measures included guidelines on socialising indoors, socialising outdoors, travel within Scotland, exercising, shop closures, eating and drinking premises and more. The allocation of a council to a certain level was reviewed every two weeks and supported by a document explaining how the decision was made<sup>23</sup>. In Wales, Alert levels<sup>24</sup> were adopted, with an all-Wales approach: Alert level one (low risk), Alert level 2 (medium risk), Alert level 3 (high risk) and Alert level 4 (very high risk) (Welsh Government, 2020m). In Northern Ireland, tiers or levels were not adopted, with the regulations adjusted as required.
- **Use of a nationwide lockdown (excluding the first lockdown):** England, Northern Ireland and Wales all used a second lockdown in 2020, Scotland did not. A second lockdown in England, with the guidance being for people to stay at home unless there was an acceptable reason why they should leave, occurred from 5<sup>th</sup> November 2020 for four weeks until 2<sup>nd</sup> December 2020 (BBC, 2020w). Northern Ireland used what was termed a “Circuit breaker”, from 27<sup>th</sup> November 2020 until 10<sup>th</sup> December 2020 (Department of Health, 2020c). Wales used a “Fire break” for 17 days between 23<sup>rd</sup> 2020 October and 9<sup>th</sup> November 2020 (Welsh Government, 2020n). While Scotland did not have a second national lockdown, the Scottish mainland moved to the highest protection level following Christmas.
- **Testing overseas arrivals:** Arrivals from abroad were not required to show a negative test result prior to arriving in the United Kingdom during 2020. England introduced on the 15<sup>th</sup> December 2020 a “Test to Release” system, which allowed arrivals to pay for a private test, taken 5 days after arriving in the UK if the test was negative the person could leave the quarantine period early (BBC, 2020u).
- **Vaccinations:** The Medicines & Healthcare products Regulatory Agency (MHRA), which is an executive agency of the Department of Health and Social Care (UK Government), approved the use of the Pfizer/BioNTech vaccine on 2<sup>nd</sup> of December 2020 (Roberts, 2020) and the first

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<sup>20</sup> Northern Ireland and Scotland’s app worked together from 28<sup>th</sup> October 2020; England and Wales and Scotland’s app worked together from 5<sup>th</sup> November 2020. Unable to find the date when England and Wales and Northern Ireland’s app worked together.

<sup>21</sup> Except on Christmas day, when Christmas bubbles were permitted to be formed.

<sup>22</sup> More information on councils can be found: <https://www.gov.scot/publications/local-authorities-factsheet/>

<sup>23</sup> See: <https://www.gov.scot/collections/coronavirus-covid-19-protection-levels-reviews-and-evidence/>

<sup>24</sup> Each Alert Level had an associated set of regulations: <https://gov.wales/written-statement-coronavirus-control-plan-alert-levels-wales>.

vaccinations began on 8<sup>th</sup> of December 2020 in all four nations (BBC, 2020s). A second vaccine, the Oxford/AstraZeneca vaccine, was approved by the MHRA on the 30<sup>th</sup> of December (Gallagher & Triggler, 2020) but was not used in 2020. In 2020, these vaccines were only available through the NHS; they could not be purchased privately. The UK was the first of the five countries in the study to administer the vaccine.

- **Border closure:** The UK border was not closed during 2020, with the exception of a ban on those who had travelled from or transited through South Africa imposed in December (exceptions for British and Irish nationals) (BBC, 2020x).

### 3.5 Governmental Support to Enable the Population to Adopt Best Measures

In this section some of the governmental support to enable the population to adopt best measures to mitigate the spread of COVID-19 is outlined. Some of these measures relate to sick pay and furlough which is decided at the UK Government level. Measures specific to each of nations are also detailed. As some measures can only be introduced by the UK Government for the entire UK, this means the Devolved Administrations were not able to make these decisions.

- When a person is asked by the NHS or public health authority to self-isolate due to a contact with a known positive case:
  - If the person is eligible for statutory sick pay (there are restrictions) they could claim £95.85 per week (available from 28<sup>th</sup> of May 2020) (GOV.UK, n.d.-c).
- When a person or a member of a person's household has symptoms or has tested positive for COVID-19:
  - A person who is eligible for statutory sick pay (there are restrictions) is eligible to be paid £95.85 per week (available from 13<sup>th</sup> of March 2020) (GOV.UK, n.d.-c).
- When a child is asked to self-isolate and a parent is unable to work<sup>25</sup>:
  - In Wales, it was possible to receive a grant of £500 but only to persons who met a specific set of criteria (payments were backdated to children asked to self-isolate on or after the 23<sup>rd</sup> of October 2020) (Welsh Government, 2020a).
  - In Scotland, it was possible to claim a support grant of £500 but only to persons who met a specific set of criteria (available from 7<sup>th</sup> of December) (Gov.scot, 2020k).
- Support (food, medicines and other necessary non-financial provisions) to allow individuals to self-isolate:
  - England: Support finder tool<sup>26</sup>
  - Northern Ireland: COVID-19 Community Helpline (and email, text, online webform)
  - Scotland: National Assistance Helpline
  - Wales: Support finder tool<sup>27</sup>
- Provision of free face coverings:
  - Unable to find information on this for any of the four nations.
- Additional cycle lanes/pedestrianisation:
  - In some areas, some roads were closed to cars for the use of pedestrians and cyclists only. In part to allow physical distancing, in part to encourage active travel. This was done at a local level.
- Support to avoid public transport (and avoiding peak travel times):
  - Encouragement for employers to allow staff to work from home and flexible working hours.

<sup>25</sup> Unable to find information specifically related to this for England and Northern Ireland.

<sup>26</sup> Tool available at: <https://www.gov.uk/find-coronavirus-support>

<sup>27</sup> Tool available at: <https://gov.wales/find-support-affected-coronavirus/need-help-with>



- Support to pay wages
  - The UK Government developed the Coronavirus Job Retention Scheme (also known as Furlough) to support employers, following mandatory closures of many businesses, to pay (some of) their staffs' wages. The scheme ran from March 2020 and was due to close at the end of October 2020 (Gov.scot, 2020a) but the scheme was extended several times. On 31<sup>st</sup> October 2020 (the day the scheme was due to close), it was announced the scheme would be extended until December<sup>28</sup> (HM Treasury & Sunak, 2020); and then on 17<sup>th</sup> December 2020 it was announced that it would be extended until the 30<sup>th</sup> April 2021 (HM Treasury, 2020). The scheme initially paid 80% of the wages of employees (up to a maximum of £2,500) by the government, with employers able (but not required) to pay the final portion of the wage until the end of July (Gov.scot, 2020a). Thereafter the contributions of the employer increased, with the employers responsible for paying National Insurance contributions and pension contributions in August; paying 10% of the employees' wages in September; and 20% of the employees' wages in October (Gov.scot, 2020a). From November 2020, employers were required to pay National Insurance Contributions and pension contributions but were not responsible to pay part of the wages (HM Revenue & Customs, 2021) as was required in September and October. This scheme did not support those who are self-employed.
- Self-employed support
  - The Self-Employment Income Support Scheme provided support to those self-employed.

### 3.6 Enforcement of Mitigation Measures

The organisation of policing differed in each of the four nations. The respective policing bodies in each of the nations were able to issue fixed penalty notices of differing values (as well as increasing values for repeat offenders) to those breaching regulations. These measures were introduced during 2020 as part of the COVID-19 legislation in each of the four nations. A fixed penalty notice is a monetary fine that must be paid within a set period. If not paid, or for serious breaches or repeated breaches, the individual can be taken to court. The value of fixed penalty notices differed between the nations and examples of the differences are shown in [Table 3.6](#). The value of the fixed penalty notices, in some cases, changed throughout the year.

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<sup>28</sup> A specific date in December was not specified.

that could be issues by the 43 police forces in England and Wales, Police Service of Northern Ireland in Northern Ireland and Police Scotland in Scotland. The value of the fixed penalty notices, in some cases, changed throughout the year.

## 4 Risk Communication (Governments and Public Health Authorities)

In this section, an overview of the main sources of communication (both organisations and key persons); channels used for communication; and key messages used throughout 2020 at the UK-wide level are provided.

### 4.1 Official Communication Sources

In the UK, it is best to address the communication sources, the who, at an individual UK nation level as no organisation and no spokesperson communicated to the whole of the UK, except in rare circumstances. In all four nations, there were multiple sources communicating, with a mix of government and health authorities as the main focal points information sources as summarised in **Error! Reference source not found.** and **Error! Reference source not found.**. The primary information sources in all nations were the governments.

Table 3: Summary of health-related organisations, roles and the COVID-19 pandemic

|                                                                  | England                                                                                                                                                                           | Northern Ireland                                                                                                                                     | Scotland                                                                                                                                                                                             | Wales                                                                                                                                                                                         |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Head of government                                               | Prime Minister                                                                                                                                                                    | First Minister                                                                                                                                       | First Minister                                                                                                                                                                                       | First Minister                                                                                                                                                                                |
| Focal government for pandemic                                    | UK Government                                                                                                                                                                     | Northern Ireland Executive                                                                                                                           | Scottish Government                                                                                                                                                                                  | Welsh Government                                                                                                                                                                              |
| Government level health departments or equivalent                | Department of Health and Social Care                                                                                                                                              | Department of Health                                                                                                                                 | Several Directorates                                                                                                                                                                                 | Department of Health and Social Services                                                                                                                                                      |
| Public health organisation                                       | Public Health England                                                                                                                                                             | Public Health Agency                                                                                                                                 | Public Health Scotland                                                                                                                                                                               | Public Health Wales                                                                                                                                                                           |
| NHS                                                              | NHS England                                                                                                                                                                       | Health and Social Care                                                                                                                               | NHS Scotland                                                                                                                                                                                         | NHS Wales                                                                                                                                                                                     |
| Role of publicly visible persons related to COVID-19 and health  | Prime Minister<br><br>Secretary of State for Health and Social Care<br><br>Chief Medical Officer<br><br>Chief Scientific Officer<br><br>Deputy Chief Medical Officers for England | First Minister<br><br>Deputy First Minister<br><br>Health Minister<br><br>Chief Medical Officer for Northern Ireland<br><br>Chief Scientific Adviser | First Minister<br><br>Chief Medical Officer for Scotland<br><br>Deputy Chief Medical Officer<br><br>Clinical Director, Healthcare Quality and Strategy<br><br>Cabinet Secretary for Health and Sport | First Minister<br><br>Minister for Health and Social Services<br><br>Chief Medical Officer for Wales<br><br>Chief Scientific Advisor for Health<br><br>Deputy Chief Medical Officer for Wales |
| Collection and presentation of COVID-19 statistics <sup>29</sup> | UK Government<br><br>Public Health England                                                                                                                                        | Department of Health                                                                                                                                 | Scottish Government<br><br>Public Health Scotland                                                                                                                                                    | Public Health Wales<br><br>Office for National Statistics                                                                                                                                     |

<sup>29</sup> UK Government: <https://coronavirus.data.gov.uk> Office for National Statistics: <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases> Department of Health: <https://app.powerbi.com/view?r=eyJrjoiZGYxNjYzNmUtOTlmZS00ODAxLWE1YTEtMjA0NjZhMzlmN2JmliwidCI6IjJOWEzMGRLWQ4ZDctNGFhNC05NjAwLTRiZTc2MjVmZjZiNSlslmMiOjh9&pageName=ReportSection6b2d9e1a6390b690b8eb> Northern Ireland Statistics and Research Agency: <https://www.nisra.gov.uk/statistics/ni-summary-statistics/coronavirus-covid-19-statistics> Scottish Government: <https://www.gov.scot/publications/coronavirus-covid-19-daily-data-for-scotland/#preamble> Public Health Scotland: [https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard\\_15960160643010/Overview](https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview) National Records of Scotland: <https://www.nrscotland.gov.uk/about-us/service-status> Public Health Wales: <https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/RapidCOVID-19virology-Public/Headlinesummary>

|                                                              |                                                          |                                                 |                              |                                       |
|--------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------|------------------------------|---------------------------------------|
|                                                              | Office for National Statistics                           | Northern Ireland Statistics and Research Agency | National Records of Scotland |                                       |
| Main online COVID-19 website (all aspects) <sup>30</sup>     | UK Government                                            | nidirect                                        | Scottish Government          | Welsh Government                      |
| Main online COVID-19 health information source <sup>31</sup> | NHS                                                      | NHS                                             | NHS Inform                   | NHS 111 Wales                         |
| Out-of-hours non-emergency health assistance (telephone)     | NHS 111                                                  | NHS 111                                         | NHS 24                       | NHS 111 Wales                         |
| Policing                                                     | 43 police forces in England and Wales                    | Police Service of Northern Ireland (PSNI)       | Police Scotland              | 43 police forces in England and Wales |
| Vaccine procurement                                          | UK Government                                            |                                                 |                              |                                       |
| Vaccine regulation                                           | Medicines & Healthcare products Regulatory Agency (MHRA) |                                                 |                              |                                       |

<sup>30</sup> UK Government <https://www.gov.uk/coronavirus> nidirect <https://www.nidirect.gov.uk/campaigns/coronavirus-covid-19>

Scottish Government <https://www.gov.scot/coronavirus-covid-19/> Welsh Government <https://gov.wales/coronavirus>

<sup>31</sup> NHS: <https://www.nhs.uk/conditions/> NHS Inform <https://www.nhsinform.scot> NHS 111 Wales <https://111.wales.nhs.uk/Default.aspx>

## 4.2 Communication Channels

A wide range of communication channels were used by official health/government organisations in each of the four nations, including websites, some with interactive dashboards to present COVID-19 statistics; press/media briefings; YouTube channels; TV, radio and YouTube advertising campaigns; social media/social networking (including Facebook and Twitter); email (if individuals signed up for email alerts); interviews and TV appearances; text messages; chat bots; helplines; letters (posted to houses); invited responses by citizens; and WhatsApp information service.

### 4.2.1 Press/media Briefings

Press/media briefings were used by all four nations. The press briefings were conducted with physical distancing in place, with journalists joining by video link, some briefings also had sign language interpreters as standard in the room (Scotland and Wales with physical distancing)<sup>32</sup> or shown on a small screen (as in Northern Ireland).

The UK Government held daily briefings until 23<sup>rd</sup> June 2020, with the UK Government stating that briefings thereafter would only be held as required (BBC, 2020g). In Wales, daily briefings continued until 17<sup>th</sup> of July 2020 and then replaced by weekly briefings (BBC, 2020b). Press briefings were increased to three times per week from 14th September 2020 (Welsh Government / Llywodraeth Cymru, 2020). The Scottish Government held (almost) daily briefings throughout the pandemic in 2020. Initially these were broadcast live by the BBC on TV but the BBC opted to end live coverage of the briefings in September and to only broadcast live some (BBC, 2020aa). The frequency of press briefings by month is shown in Figure 6 and the distribution of press conferences throughout the year is shown in Figure 7. The briefings were also made available in different ways. Some uploaded the briefing videos to their YouTube channels; some were available to watch on the government website (e.g. Scottish Government via YouTube); some were streamed live on Twitter and Facebook (e.g. Welsh Government); some transcripts and slides were made available on government websites.

The composition of spokespersons at press briefings differed by nation. In England, press briefings were usually held with multiple spokespersons, typically with a member of the government, accompanied by a person with a medical or scientific background. On occasions, the press briefing would involve just one person from government. In Northern Ireland the press conferences were either led by the Northern Ireland Executive or by the Department of Health. In Scotland, the First Minister led the majority of media briefings, accompanied by one or multiple of the Chief Medical Officer, National Clinical Director of Healthcare Quality and Strategy, Cabinet Secretary for Health and Sport as well as others. Press briefings were not typically led by health professional alone. In contrast, in Wales, press briefings were more commonly held with just one person, either with the First Minister, Minister for Health, Chief Medical Officer, NHS Wales Chief Executive, as well as others also hosting press briefings alone.

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<sup>32</sup> The lack of sign language interpreters at the UK Government press briefings led to the Twitter hashtag: #WhereIsTheInterpreter.

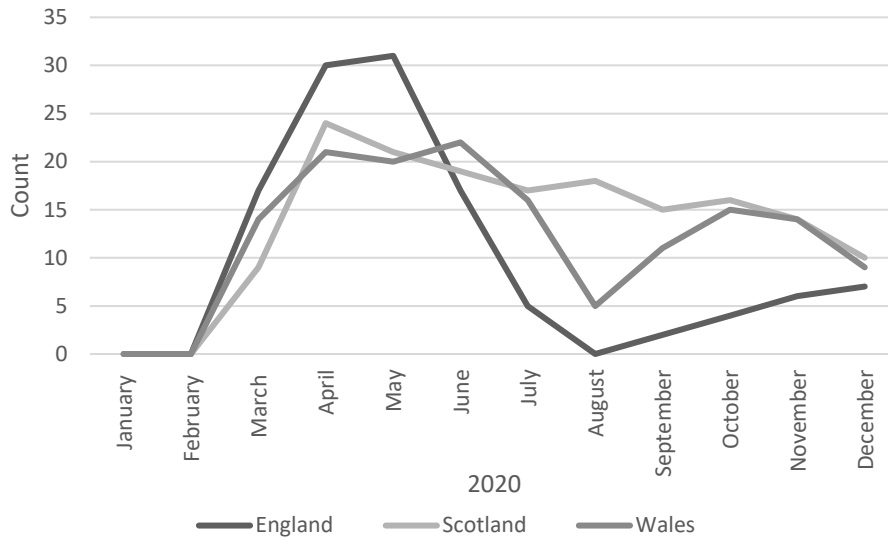


Figure 6: Monthly number of press briefings in England, Scotland and Wales, showing different uses of press conferences throughout 2020. Note that the number of press conferences may not be complete as no single source listing all press conferences existed for all three nations. Data sources: <https://www.gov.uk/>; <https://www.gov.scot/>; <https://twitter.com/WelshGovernment>.

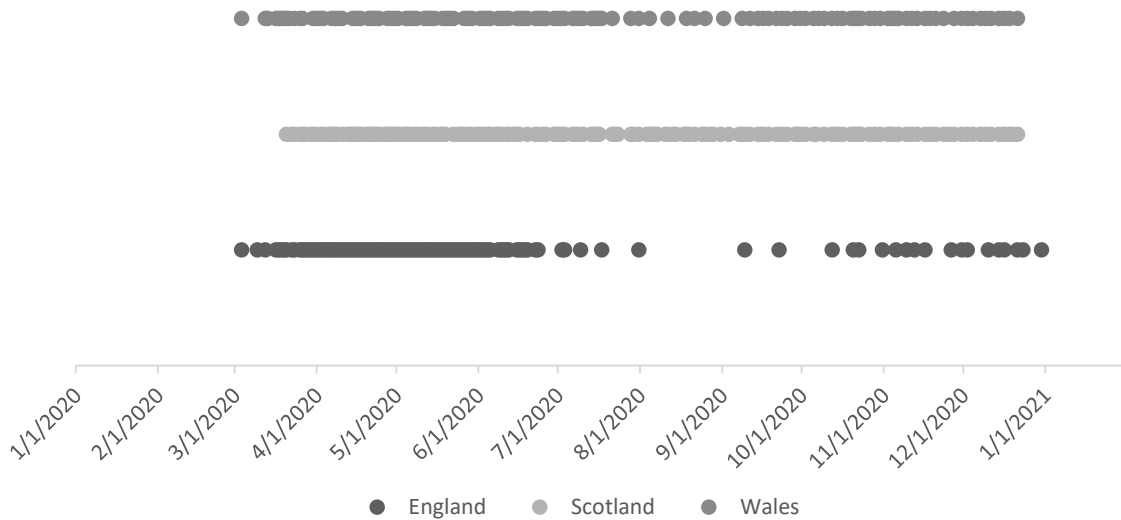


Figure 7: Note: as no single source listing all press conferences existed for all three nation, some press conference dates may be missing from the figure. Every dot represents a press briefing, with the dot positioned at the corresponding date. Figure shows data for England, Scotland and Wales, showing that Scotland and Wales used press briefings more consistently through 2020 when compared to England. The use of press conferences in England was less consistent, there was a frequent use of press briefings between March 2020 and June 2020, with the numbers dropping dramatically over summer and beginning to rise from mid-October onwards. Data sources: <https://www.gov.uk/>; <https://www.gov.scot/>; <https://twitter.com/WelshGovernment>.

#### 4.2.2 Websites

Websites<sup>33</sup> were also used by all four nations to provide information about COVID-19. There was no single website used for all COVID-19 related information and instead different website specialised in providing different aspects of information related to COVID-19. Interactive tools, such as data dashboards, chat bots, decision support systems were also integrated within the websites. Dashboards were used to display statistical information about COVID-19<sup>34</sup>, with the information provided in an interactive format where users could make selections and the dashboard would automatically update based on these selections. These dashboards enabled members of the public to look in more detail at the case numbers without the requirement to have specialised software or access to a computer to analyse the data (though analyses are limited through the dashboards). The raw data were also made available to download to allow further analysis, if required. The organisations also made use of chat bots for questions related to COVID-19. In addition, decision support systems were also available with a set of codified rules underpinning the system, where the respondent answers a series of pre-defined questions and based on the answers, guidance was provided. These systems were used to guide individuals to sources of information and help; understand what to do based on their symptoms and so on.

#### 4.2.3 Social Media

Social media was used by all four nations to communicate about COVID-19, both at the organisational level and by some key visible persons. The main Twitter and YouTube channels are listed in Appendix F. All the identified Twitter accounts were verified with a blue tick shown next to the account name. The use of Twitter differed between accounts, with some replying to questions, and others not. There is a variety of the frequency of posting, branding of posts (particularly in the images). The YouTube channels, with the exception of one channel, were not verified. There is a significant variation in the number of videos, style of video, total views, and subscribers across the channels (which are expected to differ based on the population in each nation). In addition, there is an immediate difference in the presentation of the accounts. In some accounts, videos were organised into defined sections, which likely makes it easier to navigate through the videos by topic, although even when there were sections not all videos had been placed into a relevant section. For example, the YouTube account of the Scottish Government, videos were classified into four sections: Coronavirus: What the levels mean for you; Coronavirus: Support and guidance; Coronavirus: First Minister's updates; Coronavirus: Self-isolation and testing; and Programme for Government. These appear to have been created to support citizens to be able to identify relevant COVID-19 videos quickly.

### 4.3 Key Messages Adopted at UK-Wide Level

Messaging was predominantly used at the level of the four UK nations and examples of messaging adopted by the four nations as opposed to campaigns launched at the UK level. This is likely due to the different approaches adopted by the four nations. The UK encouraged the public to stay home at various points of the pandemic but the nations did not use a unified slogan.

<sup>33</sup> Note there is legislation related to accessibility of public sector bodies: The Public Sector Bodies (Websites and Mobile Applications) (No. 2) Accessibility Regulations 2018.

<sup>34</sup> England/UK: <https://coronavirus.data.gov.uk/> Northern Ireland: <https://app.powerbi.com/view?r=eyJrIjoiaZGYxNjYzNmUtOTlmZS00ODAxLWE1YTEtMjA0NjZhMzlmN2JmliwidCl6IjIjOWEzMGRLWQ4ZDctNGFhNC05NjAwLTRiZTc2MjVmZjZiNSIsImMiOjh9> Scotland: [https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard\\_15960160643010/Overview](https://public.tableau.com/profile/phs.covid.19#!/vizhome/COVID-19DailyDashboard_15960160643010/Overview) Wales: <https://public.tableau.com/profile/public.health.wales.health.protection#!/vizhome/RapidCOVID-19virology-Public/Headlinesummary>



One of the first campaign messages launched by the UK Government was “Stay home. Protect the NHS. Save Lives” and was widely viewed as a clear message showing both the action to be taken as well as the consequences of staying home.

In May 2020, the “Stay home. Protect the NHS. Save Lives” message was replaced in England (not Scotland and Wales) by “Stay alert, control the virus, save lives” as England began to ease lockdown measures. In comparison, this new message was considered ambiguous, with a lack of clarity of the meaning of “stay alert” being noted in the press<sup>35</sup>. In September 2020, England launched the “Hands. Face. Space” campaign, highlighting the key behaviours to be adopted as well as the “Rule of six”, which related to the number of persons who were allowed to meet as restrictions on social meetings were increased. Both messages launched in September were simple and clear.

In Northern Ireland, one campaign message was used extensively throughout the pandemic in 2020: “We all must do it to get through it”. This message has a clear focus on the collective responsibility of the population to adopt the suggested behaviours, along with the ‘why’: to get through the pandemic. This slogan was typically accompanied by several small pictograms (which varied) of what actions should be taken, for example a house accompanied by the message “Stay home”, two people distanced by 2m accompanied by the message “Keep distance”, or pictogram of hands being washed and a heart with the respective accompanying texts “Stay safe”, “Save lives”. This message was consistently used across all mediums (websites, posters, social media) throughout 2020 and had the flexibility to use different pictograms as messaging and mitigation measures changed.

In Scotland, alongside the initial stay at home message, messaging to the population also included encouraging people to seek medical help if required, with messaging stating the NHS is still open. In June/July 2020, as lockdown restrictions were eased in Scotland, a new campaign “FACTS”, standing for F – Face covering, A – Avoid crowds, C – Cleaning hands, T – Two metre distance, S – Self-isolate was launched. These summarised the key behaviours individuals were to continue to do, despite the reduction in cases and easing of measures. The campaign was accompanied by messages including “Living with FACTS helps keep us safe”; “Remember FACTS”; and “Remember FACTS for a safer Scotland”. In addition, the message “Stay safe. Protect others. Save lives” was also introduced in June 2020 and was visible as a background to the media briefings as well as in other communication materials. A new message “Stick with it Scotland, for yourselves and each other” was used from September 2020 as the backdrop to the media briefings as well as used elsewhere, this coincided with an increasing number of cases. In November 2020, alongside the introduction of COVID Protection Levels, the message “Stopping the spread starts with all of us.” began to be used and it was used as a backdrop to the media briefings. Finally, the hashtag #WeAreScotland also sometimes accompanied COVID-19 messaging.

In Wales, in addition to the stay home message, three messages were also used: “Keep Wales safe”, “Together we’ll keep Wales safe” and “Three rules to keep Wales safe”, these focus on the joint effort of the citizens to keep Wales safe and how to keep Wales safe, the three rules refer to washing hands, wearing a face covering and keeping 2 metres apart. Wales also used a #StayHome hashtag on Twitter and used variants of stay at home messaging throughout 2020.

A previous slogan “catch it, bin it, kill it” which relates to good hygiene and sneezing and coughing etiquette was used in the UK. This slogan had also been used in campaigns prior to COVID-19, including the H1N1 pandemic. It was used from an early point in the COVID-19 pandemic.

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<sup>35</sup> For more, see: <https://www.bbc.co.uk/news/uk-52605819>

## 5 Summary

### Preparedness:

- Pandemics were identified as a key threat to the UK prior to 2020 (recognised within the National Risk Register).
- A complex collection of documents (including strategies and scientific reviews) was available prior to 2020 but, through exercises to test the pandemic planning and response, gaps in the preparedness were identified, particularly in the event of a serious pandemic. Following these exercises, no updated publicly available plans could be found.
- A general plan for the coordination of communication was outlined. Few messages had been developed in advance of the pandemic, though it was noted that messaging could be adapted from influenza communications.
- Varied levels of establishment and use of social media channels prior to 2020, some very well established, some not posting regular content.
- Differences in the organisation of the health and government systems in the four nations due to the devolution of power.
- Scientific Advisory Group for Emergencies (SAGE) had been used in previous emergencies.
- Health issues in the population, particularly high percentage obese or overweight, living with respiratory diseases, cardiovascular disease and diabetes, in conjunction with a high level of physical inactivity.
- Statutory sick pay was limited to only specific groups of the population.

### Response:

- Two waves of infections and deaths, with more than 2,000,000 recorded cases and more than 70,000 deaths by the end of 2020, with the second wave more severe than the first. The number of daily cases was still growing at the end of 2020.
- No border closures during 2020, only a ban on travellers from South Africa at the end of December 2020.
- Community testing stopped in March 2020 and contact tracing was stopped in March 2020. The nations reintroduced different tracing strategies as well as different tracing apps.
- Lack of testing available early in the pandemic
- After an initial lockdown in March 2020, the four UK nations took differing approaches in easing restrictions from May 2020 onwards.
- Quarantine of arrivals implemented from June 2020 but no need to show proof of a negative test before entering the UK. Travellers arriving from some countries were exempt from quarantine requirements but this varied between the nations.
- Job retention scheme to support wages. Low levels of statutory sick pay for those who had to self-isolate. Only the UK Government could make decisions about wage replacement schemes and sick pay.
- Many changes to restrictions in the UK in 2020.
- Devolved Administrations were not able to make decisions on aspects such as wage replacement schemes as these decisions were made by the UK Government for the whole of the UK. This meant that the governments could ask the population to take a measure but could not always provide the support for them to do so.

### Risk communication

- Focal organisation for the provision of COVID-19 information was the four governments and leading health bodies.
- Risk communication was done using a range of communication channels.

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## Appendix A Heath care in the four nations

In the following, the four UK nations' government structures are summarised briefly, specifically focussing on the organisation and delivery of health care to residents in the nation<sup>36</sup>.

In England, the UK Government<sup>37</sup> is responsible for health care, with the head of the UK Government, the Prime Minister, ultimately responsible for the decisions and policy of the UK Government (GOV.UK). The Cabinet, which consists of senior members of government (GOV.UK), decides on the funding to be allocated to health and social care in England (Cylus et al., 2015). The UK Government is structured into ministerial departments, non-ministerial departments, public agencies and public bodies. The Department of Health and Social Care<sup>38</sup>, a ministerial department of the UK Government, supports ministers on health and social care matters in England (Department of Health and Social Care, n.d.), with the Secretary of State for Health and Social Care responsible for the work of this department. The Department of Health and Social Care works with 29 agencies and public bodies (some of which provide services to the whole of the UK) including Public Health England<sup>39</sup> (an executive agency, which "exist to protect and improve the nation's health and wellbeing, and reduce health inequalities", including preparedness and response to public health emergencies (Public Health England, n.d.)); the Medicines and Healthcare products Regulatory Agency<sup>40</sup> (MHRA) (an executive agency, with the responsibility for the regulation of "medicines, medical devices and blood components for transfusion in the UK"(Medicines and Healthcare products Regulatory Agency, n.d.)); and NHS England<sup>41</sup> (an executive non-departmental public body). Note: in 2020, during the COVID-19 pandemic, it was announced that Public Health England was to be replaced by the National Institute for Health Protection (Department of Health and Social Care, 2020f). The structure of NHS England is complex: several hundred clinical commissioning groups<sup>42</sup> buy services for their area, with the intention that it allows services to be tailored to the needs of the population living there (NHS, n.d.-a).

In Northern Ireland, health is the responsibility of the Northern Ireland Executive<sup>43</sup>, which is led by the First Minister. Decisions which impact on two or more departments are made by the Executive Committee, consisting of the First Minister, Deputy First Minister and eight departmental Ministers (Northern Ireland Executive, n.d.). The Department of Health<sup>44</sup> is accountable to the Northern Ireland Executive through the Minister for Health. The department is responsible for the NHS equivalent in Northern Ireland: Health and Social Care in Northern Ireland (HSC)<sup>45</sup>. HSC is structured into six Health and Social Care Trusts, five are regional and one provides services to the whole of Northern Ireland (HSCNI Online, n.d.). In addition, there is the Public Health Agency<sup>46</sup>, a public body, which focuses on

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<sup>36</sup> A more detailed overview of the organisation of health care in each of the individual nations are available from: <https://www.euro.who.int/en/about-us/partners/observatory/publications/health-system-reviews-hits/full-list-of-country-hits>.

<sup>37</sup> Website: <https://www.gov.uk/>

<sup>38</sup> Website: <https://www.gov.uk/government/organisations/department-of-health-and-social-care>

<sup>39</sup> Website: <https://www.gov.uk/government/organisations/public-health-england>

<sup>40</sup> Website: <https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency>

<sup>41</sup> Website: <https://www.england.nhs.uk/>

<sup>42</sup> A clinical commissioning group is a group general practices.

<sup>43</sup> Websites: <https://www.northernireland.gov.uk/> and <https://www.nidirect.gov.uk/>

<sup>44</sup> Website: <https://www.health-ni.gov.uk/>

<sup>45</sup> Website: <http://online.hscni.net/>

<sup>46</sup> Website: <https://www.publichealth.hscni.net>

the improvement and protection of health and wellbeing, and works to reduce health inequalities (Public Health Agency, n.d.). This organisation works with the Department of Health, who also has a responsibility for public health.

In Scotland, health is the responsibility of the Scottish Government<sup>47</sup>. The Scottish Government is led by the First Minister who has the ultimate responsibility for all decisions of the Scottish Government. Decisions are made by the Scottish Cabinet (consisting of the First Minister, Cabinet Secretaries, Minister for Parliamentary Business and Permanent Secretary). The Scottish Government is structured into Directorates, with several of these overseeing different aspects of the provision of health care in Scotland. Key figures related to health include the Cabinet Secretary for Health and Sport (responsible for the NHS in Scotland), the Minister for Public Health, Sport and Wellbeing, the Minister for Mental Health, and the Director General Health and Social Care. NHS Scotland<sup>48</sup> is a public health body of the Scottish Government. It is structured into 14 regional health boards that cover different geographical regions in Scotland and eight special health boards that provide services to all of Scotland (Gov.scot, n.d.-a). The special health boards include Public Health Scotland<sup>49</sup> which became fully functional on 1<sup>st</sup> April 2020 and was established “to improve the nation’s health and reduce health inequalities”, with a focus on COVID-19 during 2020 (Gov.scot, 2020m) and NHS 24 (a trusted source of online information about health (NHS Inform) and an out-of-hours phonenumber that can be used for non-emergency, urgent health enquiries).

Finally, in Wales health is the responsibility of the Welsh Government<sup>50</sup>. The Welsh Government is led by the First Minister, who has responsibility for all decisions made by the Welsh Government. The Department of Health and Social Services advises the Welsh Government on matters related to both health and social care in Wales (NHS Wales, n.d.-a). The Chief Executive of NHS Wales is accountable to the Minister for Health and Social Care (NHS Wales, n.d.-a). The provision of health care in Wales is delivered through NHS Wales, which is structured into seven Local Health Boards, each covering a different geographical region in Wales, a further three Trusts that provide services to all of Wales, including Public Health Wales, and finally, National Delivery Group (NHS Wales, n.d.-b).

## Appendix B Pandemic documents

Some of the supporting pandemic documents are provided in Table 4.

Table 4: Pandemic preparedness documents UK.

| Document title                                                                 | Link                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UK Influenza Pandemic Preparedness Strategy 2011                               | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213717/dh_131040.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213717/dh_131040.pdf</a> |
| Scientific Summary of Pandemic Influenza and its Mitigation                    | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215666/dh_125333.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215666/dh_125333.pdf</a> |
| Routes of Transmission of the Influenza Virus: Scientific Evidence Base Review | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215667/dh_125332.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215667/dh_125332.pdf</a> |

<sup>47</sup> Website: <https://www.gov.scot/>

<sup>48</sup> Website of NHS Scotland’s NHS Inform (a Special Health Board): <https://www.nhsinform.scot/>

<sup>49</sup> Website: <https://publichealthscotland.scot/>

<sup>50</sup> Website: <https://gov.wales/>



|                                                                                                           |                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Use of antivirals in an influenza pandemic: Scientific Evidence Base Review                           | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316206/Use_of_antivirals_Evidence_Review.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316206/Use_of_antivirals_Evidence_Review.pdf</a>       |
| Use of Antibiotics in an Influenza Pandemic: Scientific Evidence Base Review                              | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215669/dh_125424.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215669/dh_125424.pdf</a>                                                       |
| Use of Vaccines against Pandemic Influenza: Scientific Evidence Base Review                               | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215670/dh_125331.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215670/dh_125331.pdf</a>                                                       |
| The Use of Facemasks and Respirators during an Influenza Pandemic: Scientific Evidence Base Review        | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316198/Masks_and_Respirators_Science_Review.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316198/Masks_and_Respirators_Science_Review.pdf</a> |
| Impact of School Closures on an Influenza Pandemic Scientific Evidence Base Review                        | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316203/School_Closures_Evidence_review.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316203/School_Closures_Evidence_review.pdf</a>           |
| Impact of Mass Gatherings on an Influenza Pandemic: Scientific Evidence Base Review                       | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316200/Mass_Gatherings_evidence_Review.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/316200/Mass_Gatherings_evidence_Review.pdf</a>           |
| Demographic and attitudinal determinants of protective behaviours during a pandemic                       | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215674/dh_125324.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215674/dh_125324.pdf</a>                                                       |
| Healthcare worker willingness to work during a pandemic                                                   | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215675/dh_125428.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215675/dh_125428.pdf</a>                                                       |
| Factors associated with uptake of vaccination against pandemic influenza: scientific evidence base review | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215676/dh_125429.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215676/dh_125429.pdf</a>                                                       |
| Respiratory and Hand Hygiene in an Influenza Pandemic: Scientific Evidence base Review                    | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215677/dh_125430.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215677/dh_125430.pdf</a>                                                       |
| Principles of effective communication                                                                     | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215678/dh_125431.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215678/dh_125431.pdf</a>                                                       |
| National Pandemic Flu Service: An Evaluation                                                              | <a href="https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215679/dh_125338.pdf">https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215679/dh_125338.pdf</a>                                                       |

## Appendix C Summary of previous pandemics

The pandemics, which are likely the most notable for the UK include the 2009/10 pandemic caused by the A(H1N1) virus known as “Swine Flu”; the 1968 pandemic caused by the A(H3N2) virus known as the “Hong Kong Flu”; the 1957/58 pandemic caused by the A(H2N2) virus known as “Asian Flu”; and the 1918/19 pandemic caused by the A(H1N1) virus known as the “Spanish Flu”. The estimate of the excess mortality caused by each of these in the UK are: 200,000 (Spanish Flu), 33,000 (Asian Flu), 80,000 (Hong Kong Flu), 457 (Swine Flu) (Department of Health and Social Care, 2020d).

## Appendix D Timeline of (some) restrictions

*Table 5: Some of the mitigation measures in each of the four UK nations. Note: due to the large number of changes as well as exceptions, this table does not present all of the mitigation measures in each of the nations, identifications of where missing changes are highlighted in the table but there are likely more missing.*

| Measure                                               | England                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Northern Ireland                               | Scotland                                                                                       | Wales                                                  |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| First COVID-19 lockdown introduced                    | 23 <sup>rd</sup> March 2020 (Prime Minister's Office et al., 2020).                                                                                                                                                                                                                                                                                                                                                                                             | 28th March 2020 (Department of Health, 2020a). | 23 <sup>rd</sup> March 2020 (Gov.scot, 2020g).                                                 | 23 <sup>rd</sup> March 2020 (Welsh Government, 2020g). |
| Quarantine of arrivals from abroad (first introduced) | 14 days' quarantine introduced from 8 <sup>th</sup> June 2020 (BBC, 2020p). The decision of which countries must quarantine when arriving in to each of the four UK nations differed by nation, meaning it was possible to enter one nation and not be required to quarantine and enter another and be required to quarantine. The length of the quarantine period was reduced to 10 days, with Wales changing this first, followed by the other three nations. |                                                |                                                                                                |                                                        |
| Border closure                                        | A travel ban on travellers from South Africa was imposed in December 2020, otherwise the UK did not close its borders.                                                                                                                                                                                                                                                                                                                                          |                                                |                                                                                                |                                                        |
| Tiers/levels (regional restrictions within nation).   | <p>3 Local COVID Alert Levels introduced on 14<sup>th</sup> October 2020 (BBC, 2020v).</p> <p>National lockdown replaces the Alert Levels for four weeks between 5<sup>th</sup> November 2020 and 2<sup>nd</sup> December 2020 (BBC, 2020w).</p> <p>Revised, tougher, tier system Local COVID Alert Levels implemented on 2<sup>nd</sup> December 2020 (BBC, 2020y).</p> <p>Local COVID Alert Levels revised to include a fourth tier,</p>                      | Not applicable in 2020.                        | Protection Levels (five levels) introduced on 2 <sup>nd</sup> November 2020 (Gov.scot, 2021b). | Not applicable in 2020.                                |

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | implemented on 21 <sup>st</sup> of December 2020 (BBC, 2020t).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Socialising outdoors | <p><b>[Possible change here]</b></p> <p>Maximum of 6 persons can meet outdoors from 1<sup>st</sup> June 2020 with 2m distancing in place (McCormack, 2020b).</p> <p><b>[Possible change here]</b></p> <p>Maximum of 6 persons from multiple households can meet outdoors from 14<sup>th</sup> September with a 1m plus distancing in place (BBC, 2020e).</p> <p>Local COVID Alert Levels introduced on 14<sup>th</sup> October 2020 (BBC, 2020v).</p> <p>National lockdown replaces the Alert Levels for four weeks between 5<sup>th</sup> November 2020 and 2<sup>nd</sup> December 2020 (BBC, 2020w).</p> | <p><b>[Possible change here]</b></p> <p>Max 6 people meeting outdoors 19<sup>th</sup> May (Department of Health, 2020a).</p> <p>People living alone can form support bubbles with one other family where physical contact is allowed 13<sup>th</sup> June 2020 (McCormack, 2020c).</p> <p><b>[Possible change here]</b></p> <p>Max 15 people meeting outdoors 21<sup>st</sup> August (Department of Health, 2020a).</p> | <p>Cannot meet any person outside of household outdoors 24<sup>th</sup> March 2020 (Gov.scot, 2020e).</p> <p>Max 8 persons meeting outdoors from no more than two households with 2m physical distancing in place 29<sup>th</sup> May 2020, meeting no more than one other household a day (Gov.scot, 2020f).</p> <p>Children 11 years and younger no longer have to physically distance with those not in their household when outdoors 3<sup>rd</sup> July 2020 (Gov.scot, 2020b).</p> <p>People living alone, or a single adult living with children under the age of 18 can form an extended household with one other household 10<sup>th</sup></p> | <p><b>[Possible change here]</b></p> <p>Max two households meeting outdoors (no restriction on number of people) (1<sup>st</sup> June 2020) with 2m physical distancing in place (Welsh Government, 2020l).</p> <p>Extended households introduced, where two households can join together as a single household. Distancing between the households is not required from 6<sup>th</sup> July 2020 (BBC, 2020a).</p> <p>Max 30 people can meet outdoors with social distancing in place (no limit on number of households) from 3<sup>rd</sup> August (BBC, 2020c).</p> <p>The 2m distancing rule no longer applies for children under</p> |

|  |                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                   |
|--|-------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Return to the revised tier system.</p> |  | <p>July 2020 (Gov.scot, 2020c).</p> <p>Non co-habiting couples no longer need to stay physically distant from one another indoors 10<sup>th</sup> July 2020 (Gov.scot, 2020c).</p> <p>Max 15 persons from no more than five households with physical distancing in place 10<sup>th</sup> July 2020 (Gov.scot, 2020c). A household should meet a maximum of four other households a day.</p> <p>Max 6 people from a maximum of two households September (children 11 and under do not count towards the 6) with physical distancing 14<sup>th</sup> September 2020 (Gov.scot, 2020j).</p> <p>Covid Protection Levels introduced from 2<sup>nd</sup> November 2020 (Gov.scot, 2021b).</p> | <p>11 from 3<sup>rd</sup> August (BBC, 2020c).</p> <p>Four households can join to form a single extended household 22<sup>nd</sup> August 2020 (Welsh Government, 2020b).</p> <p>A firebreak is introduced in Wales and indoor meetings are not permitted from 23<sup>rd</sup> October (Welsh Government, 2020n).</p> <p><b>[Change here]</b></p> |
|--|-------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Socialising in private dwellings | <p><b>[Possible change here]</b></p> <p>Maximum of two households can meet indoors with overnight stays permitted with social distancing of 1m plus in place 4<sup>th</sup> July 2020 (BBC, 2020k).</p> <p><b>[Possible change here]</b></p> <p>Maximum of 6 persons from multiple households can meet indoors from 14<sup>th</sup> September with a 1m plus distancing in place (BBC, 2020e).</p> <p>Local COVID Alert Levels introduced on 14<sup>th</sup> October 2020 (BBC, 2020v).</p> <p>National lockdown replaces the Alert Levels for four weeks between 5<sup>th</sup> November 2020 and 2<sup>nd</sup> December 2020 (BBC, 2020w).</p> <p>Return to the revised tier system.</p> | <p>People living alone can form support bubbles with one other family where physical contact is allowed 13<sup>th</sup> June 2020 (McCormack, 2020c).</p> <p>Max 6 people can meet indoors with social distancing in place 23<sup>rd</sup> June 2020 (BBC, 2020d).</p> <p><b>[Possible change here]</b></p> <p>Maximum of 10 people from four households 24<sup>th</sup> July 2020 (Department of Health, 2020a).</p> <p>Max 6 people from two households 21<sup>st</sup> August 2020 (Department of Health, 2020a).</p> <p>Not allowed to visit other households 22<sup>nd</sup> September 2020 (Department of Health, 2020a).</p> | <p>Max 8 adults from three households with 2m physical distancing between members of different households. A household can meet up to four other households in a day 10<sup>th</sup> July 2020 (Gov.scot, 2020l).</p> <p>People living alone, or a single adult living with children under the age of 18 can form an extended household with one other household 10<sup>th</sup> July 2020 (Gov.scot, 2020c).</p> <p>Non co-habiting couples no longer need to stay physically distant from one another indoors 10<sup>th</sup> July 2020 (Gov.scot, 2020c).</p> <p>Maximum of 8 adults from three households with 2m physical distancing in place (and overnight stays permitted) 10<sup>th</sup> July 2020</p> | <p>Extended households introduced, where two households can join together as a single household. Distancing between the households is not required from 6<sup>th</sup> July 2020 (BBC, 2020a).</p> <p>The 2m distancing rule no longer applies for children under 11 from 3<sup>rd</sup> August (BBC, 2020c).</p> <p>Four households can join to form a single extended household 22<sup>nd</sup> August 2020 (Welsh Government, 2020b).</p> <p>Max of 6 persons from an extended household meeting indoors from 14<sup>th</sup> September 2020 (BBC, 2020i).</p> <p>Persons living alone in areas with localised lockdowns can meet one other household indoors 3<sup>rd</sup> October 2020</p> |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                |                                                                                                                                                      |                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        |                                                                                                                                |                                                                                                                                                      | <p>(Gov.scot, 2020c).</p> <p>Maximum of 6 persons from two households (children 11 and under do not count towards the 6) 14<sup>th</sup> September 2020 (Gov.scot, 2020j).</p> <p>Covid Protection Levels introduced from 2<sup>nd</sup> November (Gov.scot, 2021b).</p> | <p>(Welsh Government, 2020j).</p> <p>A firebreak is introduced in Wales and outdoor meetings are not permitted from 23<sup>rd</sup> October (Welsh Government, 2020n).</p> <p>Two households can form a bubble and only members of a bubble are allowed into a person's house 9<sup>th</sup> November 2020 (Welsh Government, 2020f).</p> <p>Only a person living alone can join with another household, otherwise not allowed into another person's home 19<sup>th</sup> December 2020 (Welsh Government, 2020h).</p> |
| Mandatory use of face coverings in enclosed public spaces: public transport and shops. | <p>15<sup>th</sup> June 2020 (on public transport) (BBC, 2020z).</p> <p>24<sup>th</sup> July 2020 (in shops) (BBC, 2020h).</p> | <p>10<sup>th</sup> July 2020 (on public transport) (nidirect, n.d.-a).</p> <p>10<sup>th</sup> August 2020 (Shops) (Department of Health, 2020a).</p> | <p>22<sup>nd</sup> June 2020 (on public transport) (Gov.scot, 2020h).</p> <p>10<sup>th</sup> July 2020 (in shops) (Gov.scot, 2020d).</p>                                                                                                                                 | <p>27<sup>th</sup> July 2020 (on public transport) (Welsh Government, 2020k).</p> <p>14<sup>th</sup> September 2020 (in shops) (Welsh</p>                                                                                                                                                                                                                                                                                                                                                                              |

|                                              |                                                 |                                         |                                                  |                                              |
|----------------------------------------------|-------------------------------------------------|-----------------------------------------|--------------------------------------------------|----------------------------------------------|
|                                              |                                                 |                                         |                                                  | Government, 2020e).                          |
| Contact tracing app (name and date launched) | NHS Covid-19 24 <sup>th</sup> September 2020    | StopCOVID NI 30 <sup>th</sup> July 2020 | Protect Scotland 10 <sup>th</sup> September 2020 | NHS Covid-19 24 <sup>th</sup> September 2020 |
| Vaccination of population begins             | 8 <sup>th</sup> December 2020 (Pfizer/BioNTech) |                                         |                                                  |                                              |



## Appendix E Examples of Fixed Penalty Notices

Table 6: Summary of selected fixed penalty notices in each of the four UK nations<sup>51</sup>.

|                                                                      | England                                                                                                                                                                                                                                                                | Northern Ireland                                                                                                  | Scotland                                                                 | Wales                                                                                                                                                                                                         |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Failure to self-isolate for possible or confirmed COVID-19           | Starting at a £1,000 fine (Public Health England, 2020b) up to a maximum fine of £10,000 for repeat offenders or for serious breaches (BBC, 2020j).                                                                                                                    |                                                                                                                   |                                                                          |                                                                                                                                                                                                               |
| Not wearing a face covering in indoor public spaces (unless exempt). | £200 fixed penalty notice (first offence and £100 if paid within 14 days); £400 (second offence); £800 (third offence); value doubling for each subsequent offence thereafter up to a maximum of £6,400 (Cabinet Office & Department of Health and Social Care, 2020). | £200 fixed penalty notice (£100 if paid within 14 days) or up to £5,000 on summary conviction (nidirect, n.d.-b). | £60 fixed penalty notice (£30 if paid within 28 days) (Gov.scot, 2021c). | £60 penalty for a first offence, doubling on each subsequent offence to a maximum of £1920. A repeat offender might also face prosecution in court, where there is no maximum fine (Welsh Government, 2020e). |
| Not wearing a face covering on public transport (unless exempt)      | £200 fixed penalty notice (first offence and £100 if paid within 14 days); £400 (second offence); £800 (third offence); value                                                                                                                                          | £200 fixed penalty notice (£100 if paid within 14 days) or up to £5,000 on summary conviction (nidirect, n.d.-b). | £60 fixed penalty notice (£30 if paid within 28 days) (Gov.scot, 2021c). | £60 penalty for a first offence, doubling on each subsequent offence to a maximum of £1920. A repeat offender might also                                                                                      |

<sup>51</sup> Note: the fixed penalties presented in this table are a selection of those issued by the relevant policing bodies in each of the four UK nations. For example, in England, the value of fixed penalty notices changed throughout 2020, with higher value penalties introduced later in the year. Not all penalties could be found for all nations, thus blank cells do not mean there was no penalty for this.

|                                                                 |                                                                                                                                                                                                                           |                                                                                                              |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                   |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                 | doubling for each subsequent offence thereafter up to a maximum of £6,400 (Cabinet Office & Department of Health and Social Care, 2020).                                                                                  |                                                                                                              |                                                                                                                                                                                                                                                                                      | face prosecution in court, where there is no maximum fine (Welsh Government, 2020k).                                                                              |
| Failure for traveller to self-isolate on return to the UK       | £1,000 fixed penalty notice (first offence); £2,000 fixed penalty notice any second offence; £4,000 fixed penalty notice for subsequent offence and up to a £10,000 maximum (Department of Health and Social Care, 2021). | £1,000 fixed penalty notice or up to £5,000 on summary conviction (nidirect, n.d.-b).                        | £480 fixed penalty notice (Gov.scot, 2021a). Maximum fine upon conviction of £5,000 (Gov.scot, 2021a).                                                                                                                                                                               | £500 fixed penalty notice (first offence); £1000 (second offence); £2,000 (third offence); £4,000 maximum penalty for further offences (Welsh Government, 2020i). |
| Inaccuracies in or a failure to update a passenger locator form | Fined up to £3,200 (Department of Health and Social Care, 2021).                                                                                                                                                          |                                                                                                              |                                                                                                                                                                                                                                                                                      | £500 fixed penalty notice (first offence); £1000 (second offence); £2,000 (third offence); £4,000 maximum penalty for further offences (Welsh Government, 2020i). |
| Failure to provide information after international travel       | Form must be filled prior to reaching the UK border. A person might be fined if they have not done this and could be denied entry to UK (only for those who are not British citizens or UK residents) (GOV.UK, n.d.-a).   | £60 fixed penalty notice (£30 if paid within 14 days) up to £5,000 on summary conviction (nidirect, n.d.-b). | £60 fixed penalty notice for first offence (doubling for each subsequent offence to a maximum of £480). A person could be denied entry to UK (only for those who are not British citizens or UK residents) (Gov.scot, 2021a). Note: it is also stated up to £5,000 maximum fine upon |                                                                                                                                                                   |

|                                                              |  |                                                                                                                            |                                            |  |
|--------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--|
|                                                              |  |                                                                                                                            | conviction of £5,000<br>(Gov.scot, 2021a). |  |
| Gathering in a public place<br>(breaching guidelines)        |  | £200 fixed penalty notice<br>(£100 if paid within 14 days)<br>or up to £5,000 on summary<br>conviction (nidirect, n.d.-b). |                                            |  |
| Gathering in a private<br>dwelling (breaching<br>guidelines) |  | £200 fixed penalty notice<br>(£100 if paid within 14 days)<br>or up to £5,000 on summary<br>conviction (nidirect, n.d.-b). |                                            |  |

## Appendix F Twitter and YouTube Accounts Government and Public Health Authorities

Table 7: Main official Twitter and YouTube accounts of governments and public health authorities<sup>52</sup>.

| Nation | Twitter                                                                | YouTube                                                                                                                                                                                                                                                                                                                                                          |
|--------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UK     | @10DowningStreet<br>Account verified<br>5.8M followers<br>16.2K tweets | 10 Downing Street <sup>53</sup><br>Account verified<br>44.9K subscribers<br>7,414,723 views<br>738 videos<br><br><b>Sections (in order):</b><br>Uploads<br>Coronavirus updates<br>Ask The Experts<br>NHS visits<br>Police visits<br>Education visits<br>People's PMQs / Live statements<br>Armed Forces visits<br>Events in Downing Street                       |
|        | @GOVUK<br>Account verified<br>1.8M followers<br>18.3K tweets           | No equivalent YouTube channel identified.                                                                                                                                                                                                                                                                                                                        |
|        | @PHE_uk<br>Account verified<br>458.9K followers<br>19.9K tweets        | Public Health England<br>Account not verified<br>10.1K subscribers<br>4,104,023 views<br>449 videos<br><br><b>Sections (in order):</b><br>COVID-19: Vaccination programme FAQ explainer videos<br>COVID-19: PPE Guides<br>Health Matters September 2020: Flu Immunisation Programme and COVID-19<br>Health campaigns<br>Research<br>Uploads<br>Created playlists |
|        | @DHSCgovuk<br>Account verified<br>709.3K followers<br>18.2K tweets     | Department of Health and Social Care <sup>54</sup><br>Account not verified<br>10.9K subscribers<br>8,485,048 views                                                                                                                                                                                                                                               |

<sup>52</sup> Data collected 05/02/2021 from <https://twitter.com/> and <https://www.youtube.com/>.

<sup>53</sup> <https://www.youtube.com/user/Number10gov/featured>

<sup>54</sup> <https://www.youtube.com/c/DepartmentofHealthandSocialCare/featured>

|                  |                                                                                   |                                                                                                                                                                                                                                                                            |
|------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |                                                                                   | <p>643 videos</p> <p><b>Sections (in order):</b><br/> Coronavirus<br/> Vaccines<br/> NHS COVID-19 APP<br/> Test &amp; Trace<br/> Faces of Test &amp; Trace<br/> Coronavirus Q&amp;A<br/> Shielding Q&amp;A with Deputy Chief Medical Officer Jenny Harris<br/> Uploads</p> |
| Northern Ireland | <p>@niexecutive<br/> Account verified<br/> 48.5K followers<br/> 14.6K tweets</p>  | <p>Northern Ireland Executive<sup>55</sup><br/> Account not verified<br/> 284 subscribers<br/> 25,523 views<br/> 46 videos</p> <p><b>Sections (in order):</b><br/> Uploads<br/> Popular uploads</p>                                                                        |
|                  | <p>@nidirect<br/> Account verified<br/> 25K followers<br/> 32.6K tweets</p>       | <p>nidirect<sup>56</sup><br/> Account not verified<br/> 917 subscribers<br/> 650,505 views<br/> 187 videos</p> <p><b>Sections (in order):</b><br/> <b>N/A</b></p>                                                                                                          |
|                  | <p>@healthdpt<br/> Account verified<br/> 33.4K followers<br/> 6,993 tweets</p>    | <p>Department of Health NI<sup>57</sup><br/> Account not verified<br/> 30 subscribers<br/> 7,725 views<br/> 36 videos</p> <p><b>Sections (in order):</b><br/> <b>N/A</b></p>                                                                                               |
|                  | <p>@publichealthni<br/> Account verified<br/> 28K followers<br/> 6,180 tweets</p> | <p>Public Health Agency<sup>58</sup><br/> Account not verified<br/> 762 subscribers<br/> 1,509,086 views<br/> 121 videos</p> <p><b>Sections (in orders):</b><br/> Uploads<br/> Created playlists</p>                                                                       |

<sup>55</sup> <https://www.youtube.com/c/niexecutive/featured>

<sup>56</sup> <https://www.youtube.com/user/nidirect>

<sup>57</sup> <https://www.youtube.com/channel/UCeX54izYX1N9YhpHlo8HHYw>

<sup>58</sup> <https://www.youtube.com/user/PublicHealthAgency>

|          |                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scotland | @scotgov<br>Account verified<br>356.8K followers<br>16.3K tweets         | Scottish Government <sup>59</sup><br>Account not verified<br>32.8K subscribers<br>42,667,721 views<br>2,439 videos<br><br><b>Sections (in order):</b><br>Coronavirus: What the levels mean for you<br>Coronavirus: Support and guidance<br>Coronavirus: First Minister's updates<br>Coronavirus: Self-isolation and testing<br>Programme for Government                                                                                               |
|          | @scotgovhealth<br>Account verified<br>54.4K followers<br>10.4K tweets    | <b>No equivalent YouTube channel identified.</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
|          | @P_H_S_Official<br>Account verified<br>39.4K followers<br>7,629 tweets   | Public Health Scotland <sup>60</sup><br>Account not verified<br>1.36K subscribers<br>671,287 views<br>388 videos<br><br><b>Sections (in order):</b><br>Health Risks at Work<br>Childsmile films<br>Uploads                                                                                                                                                                                                                                            |
| Wales    | @WelshGovernment<br>Account verified<br>153.4K followers<br>20.3K tweets | Welsh Government / Llywodraeth Cymru <sup>61</sup><br>Account not verified<br>5.97K subscribers<br>1,654 videos<br><br><b>Sections (in order):</b><br>Press Conferences / Cynhadleddau i'r Wasg<br>Covid-19<br>Diogelu Cymru / Keep Wales Safe<br>First Minister Mark Drakeford / Prif Weinidog Mark Drakeford<br>Newyddion / News<br>Uploads<br>Apprenticeships / Prentisiaethau<br>Student Finance / Cyllid Myfyrwyr<br>International / Rhyngwladol |
|          | @WGHealthandCare<br>Account verified<br>28.3K followers<br>10K tweets    | <b>No equivalent YouTube channel identified.</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
|          | @PublicHealthW                                                           | Public Health Wales - Iechyd Cyhoeddus Cymru <sup>62</sup>                                                                                                                                                                                                                                                                                                                                                                                            |

<sup>59</sup> <https://www.youtube.com/user/scottishgovernment>

<sup>60</sup> <https://www.youtube.com/user/NHSHealthScotland>

<sup>61</sup> <https://www.youtube.com/c/WelshGovernmentOfficial/featured>

<sup>62</sup> <https://www.youtube.com/user/PublicHealthWales>

|  |                                                     |                                                                                                                                                |
|--|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Account verified<br>60.3K followers<br>13.1K tweets | Account not verified<br>465 subscribers<br>13,275 views<br>21 videos<br><br><b>Sections (in order):</b><br>Uploads<br>Beat Flu<br>Curwch Ffliw |
|--|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|