Isle of Man Government

Reiltys Ellan Vannin



COVID-19 Weekly Surveillance Report

7 July 2022

Public Health Directorate

Introduction

This report is a summary of indicators which are used to understand the dynamics of the spread of COVID-19 on the Isle of Man.

From Thursday 7 July 2022, the Public Health Weekly Surveillance Report will move to a Friday publication. The last Thursday publication of this report will be Thursday 7 July 2022. The period of data reported within each report will remain the same (i.e. report published 15 July 2022 is for data up to and including 10 July 2022).

The COVID-19 results are a combination of positive PCR and LFD tests.

The report has been compiled by the Public Health Intelligence Team using data from Manx Care, the Civil Registry and the Lateral Flow Device (LFD) test system.

Wave Surveillance

- This week saw a decrease in case numbers across all age groups. The effective reproduction number (R_t) was 0.4 this week, a further decrease from last week's value of 0.7. It is worth noting that R_t values, as seen in the daily R_t table (Appendix 1), are sensitive to large fluctuations when daily case numbers are small. Therefore, consideration should be taken of other epidemiological data to gain a true understanding of patterns of spread.

- Case ascertainment and calculation of the reproduction number is, of course, dependent on patterns of testing and reporting so it is likely that there are more cases than are currently notified. This caveat has applied throughout the pandemic when COVID-19 has been transmitting on Island, although the change to LFD self testing and self reporting may have impacted on that to an unknown extent. Further changes to testing guidance published on 1 April 2022 are likely having an additional impact. This week we have seen a decrease in seven day average daily reporting from 144 to 73.

- Over the TT period the Island saw a large influx of people, as well as a number of Bank Holidays and events that likely had an effect on patterns of spread. Over the last weeks we have seen the effects of this in the form of increased positive cases reported and increases in the R_t number. However, we are now seeing a fall in positive case numbers and the R_t number.

- It should be noted that due to the differences in testing strategies on the Isle of Man compared to the UK, comparisons are shown for guidance only.

Waste Water Surveillance

- This week we have included the latest update from the Waste Water Surveillance pilot project. This project is a partnership between the Isle of Man government and the London School of Hygiene and Tropical Medicine. The project aims to investigate the usefulness of waste water testing to monitor levels of infectious disease on Island, including SARS-CoV-2 (the virus that causes COVID-19), enterovirus (a family of viruses which includes the 'winter vomiting bug' norovirus) and influenza. The latest report from the project is included in full in Appendix 2.

- Testing people for COVID-19 (as we have been doing using the LFD tests) is expensive and intrusive for individuals. At best, only a proportion of the population will be tested. This means that levels of infection seen from testing are always likely to be an underestimate of the true level. Waste water testing for SARS-CoV-2 RNA offers a way of sampling across the population.

- Results from the latest update show no statistically significant change in SARS-CoV-2 RNA from week ending 26 June 2022 to week ending 3 July 2022.

United Kingdom COVID-19 Infection Survey[1]

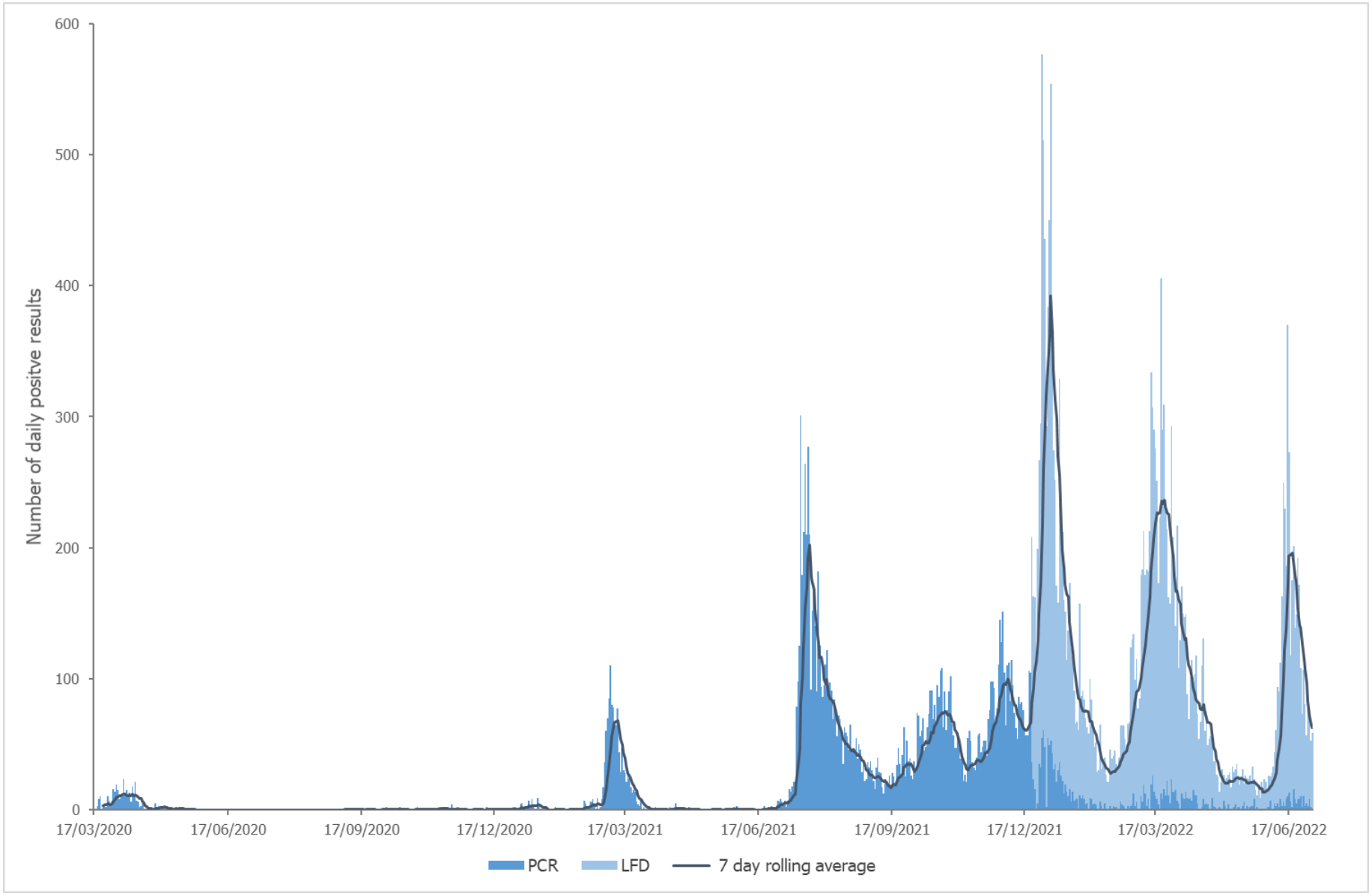
In the most recent week (week ending 24 June 2022):

- The percentage of people testing positive for coronavirus (COVID-19) continued to increase across the UK, likely caused by increases in infections compatible with Omicron variants BA.4 and BA.5.
- In England, the estimated number of people testing positive for COVID-19 was 1,829,100 (95% credible interval: 1,745,900 to 1,914,300), equating to 3.35% of the population or around 1 in 30 people.
- In Wales, the estimated number of people testing positive for COVID-19 was 106,000 (95% credible interval: 86,400 to 127,100), equating to 3.49% of the population or around 1 in 30 people.
- In Northern Ireland, the estimated number of people testing positive for COVID-19 was 71,000 (95% credible interval: 58,000 to 85,700), equating to 3.87% of the population or around 1 in 25 people.
- In Scotland, the estimated number of people testing positive for COVID-19 was 288,200 (95% credible interval: 250,100 to 327,200), equating to 5.47% of the population or around 1 in 18 people.

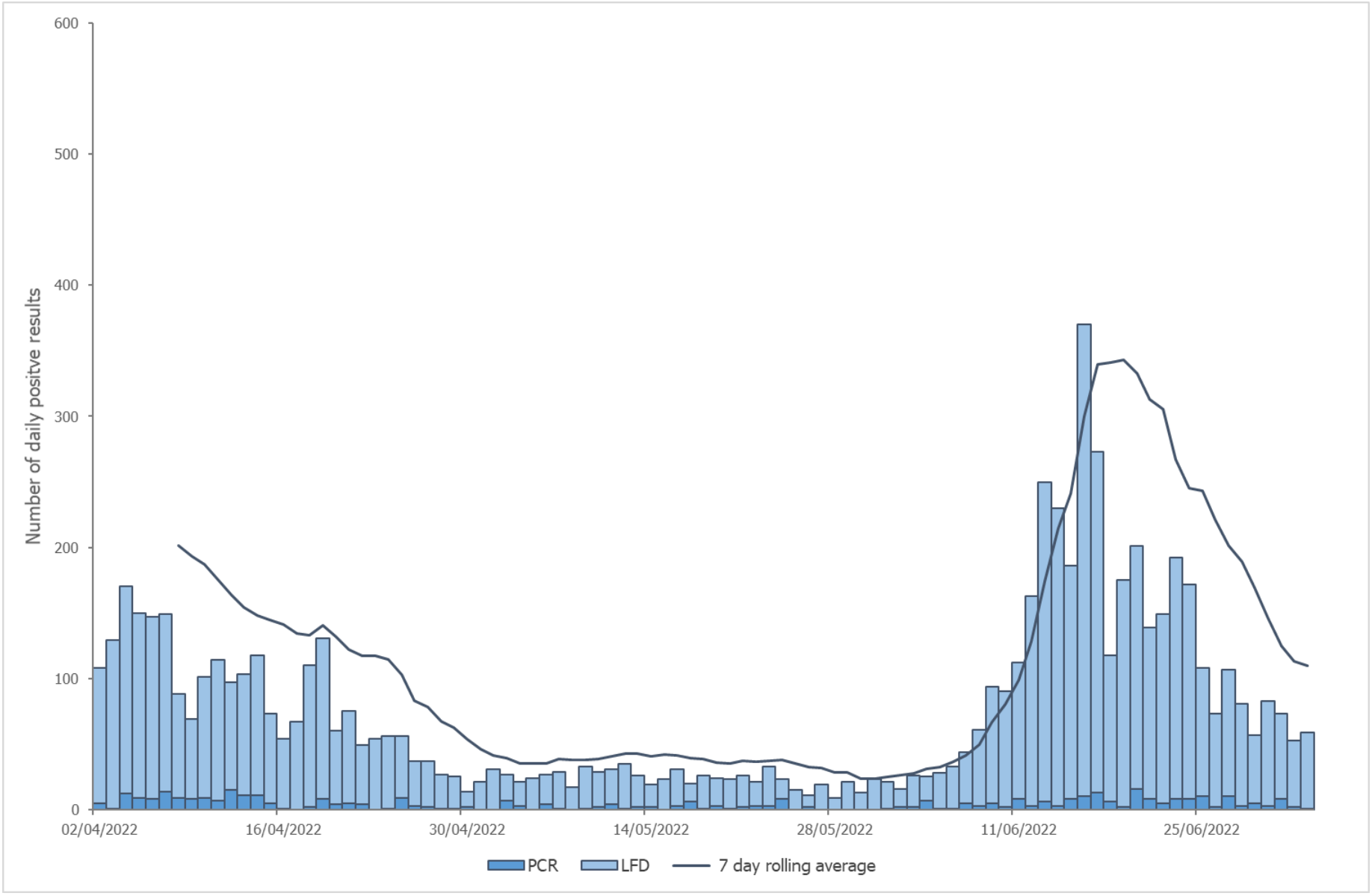
Key Points

- The current 7-day average for reported positive results is 73.
- The trend of case numbers reported from testing shows a further decrease this week.
- The effective reproduction number (R_t) was 0.4 this week.
- The snapshot of the Hospital shows 12 patients currently admitted with a COVID-19 positive status.

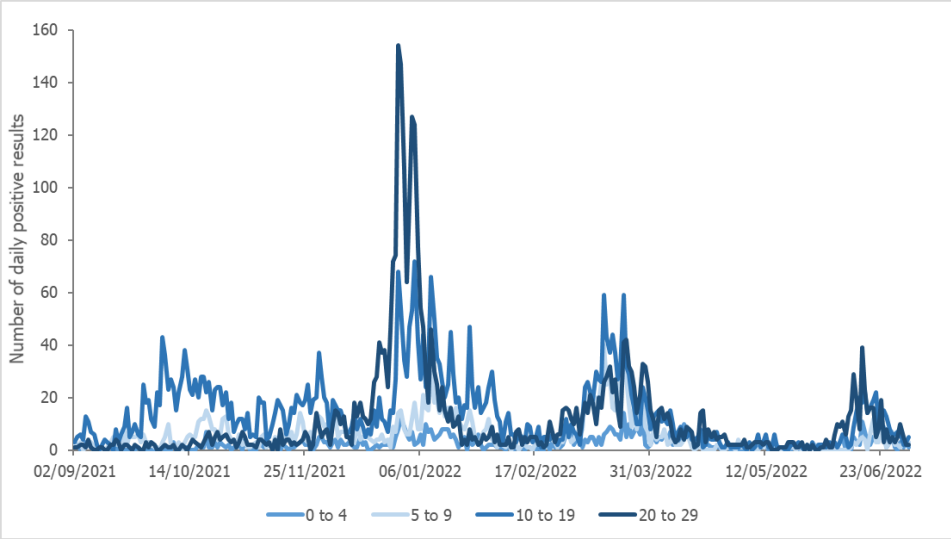
Positive COVID-19 Tests – Whole Pandemic

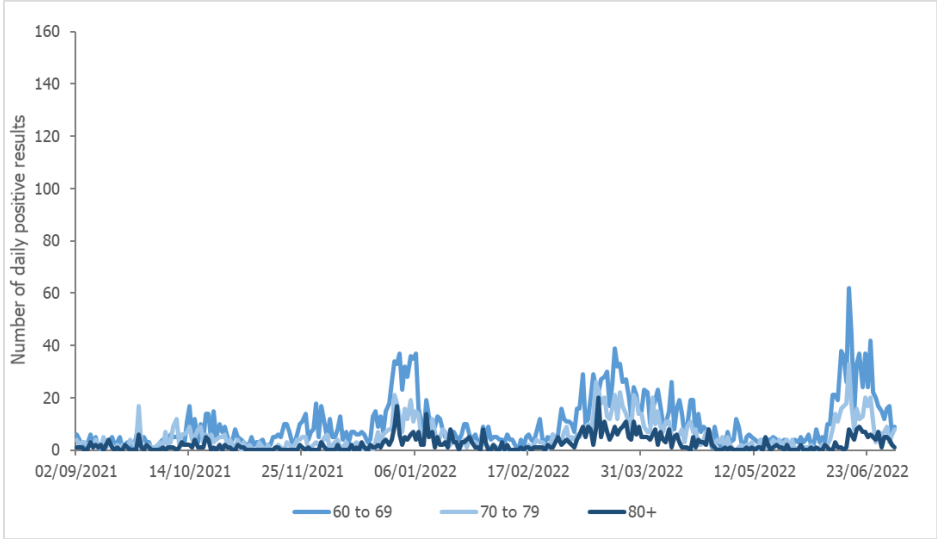


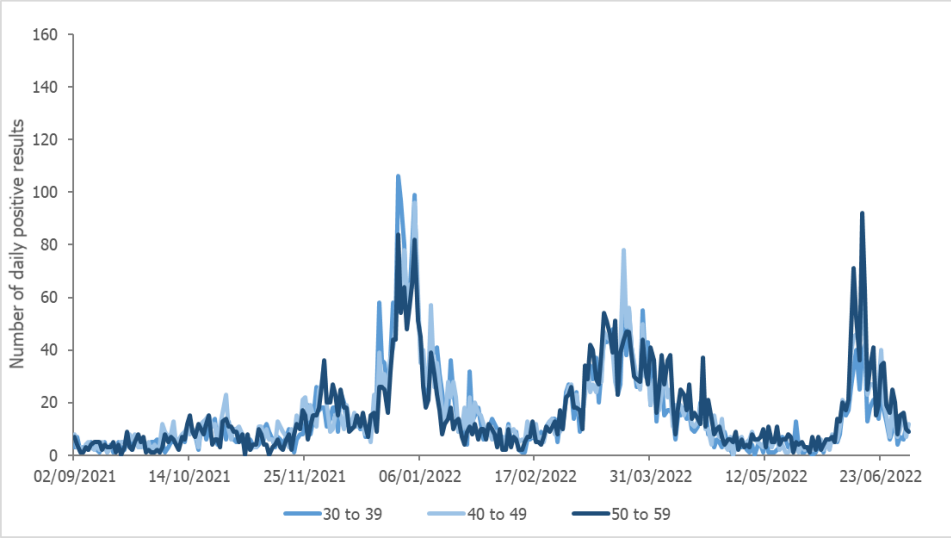
Daily Positive Results – Latest 3-months

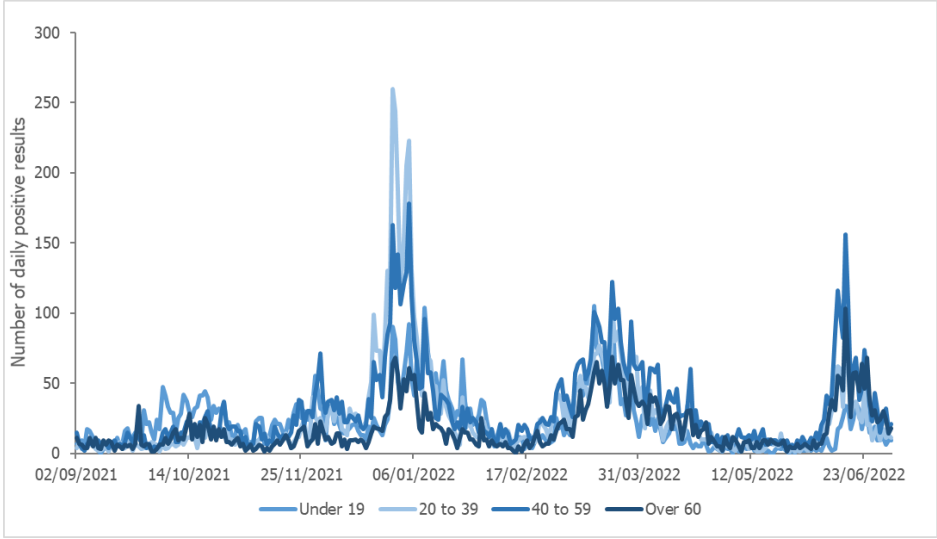


Age Group Analysis

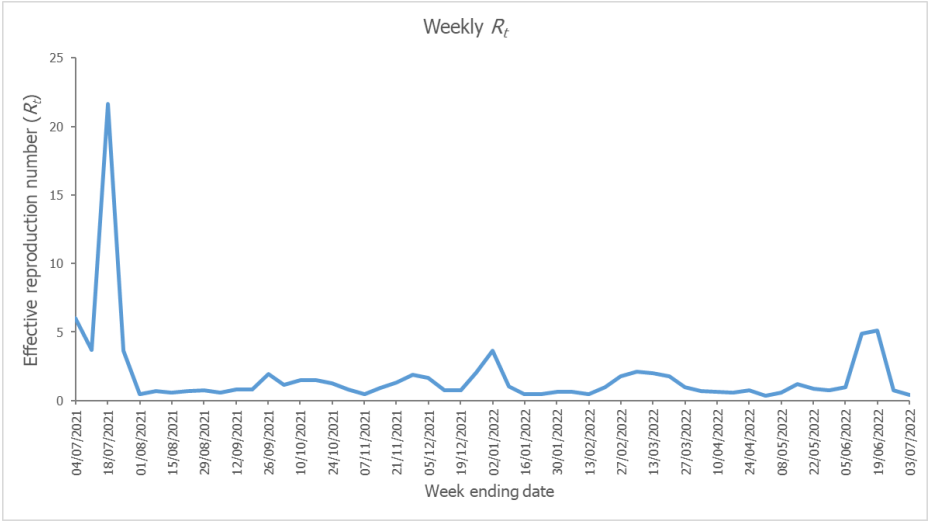








Effective Reproduction Number (R_t)



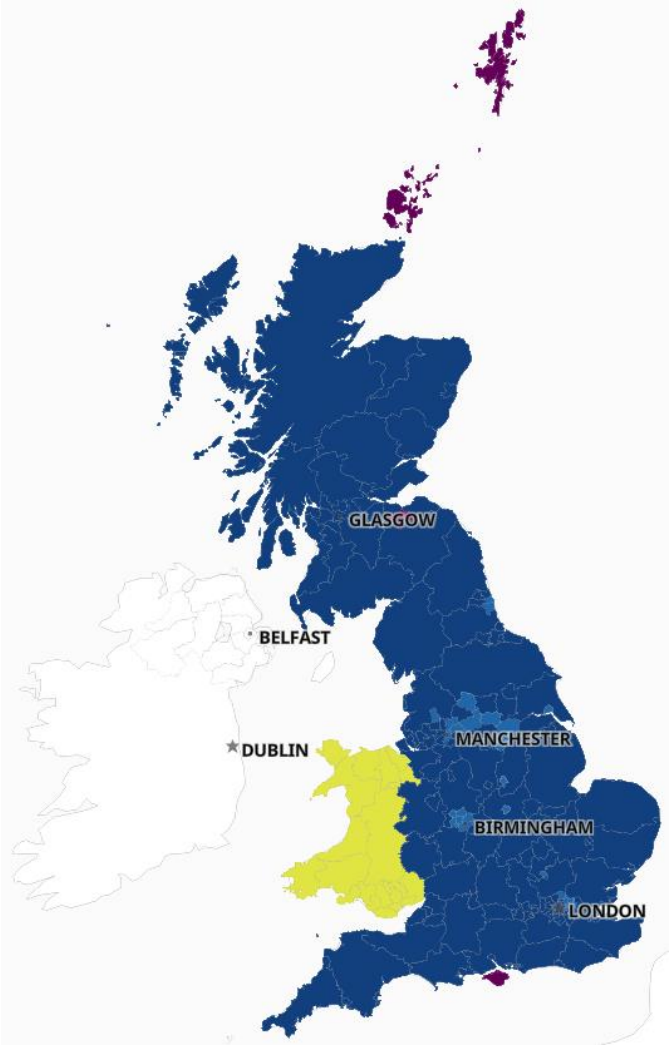
Latest 7 day R_t = 0.4

- The Effective Reproduction Number (R_t) represents the number of secondary infections generated by each case over time 't' (over a week as presented here) and can be dramatically modified by applying effective interventions.
- When $R_t > 1$ there are more new infections than recoveries, thus the number of infected individuals in the population is increasing, while for $R_t < 1$ the number of infected individuals must be decreasing for the opposite reason.
- The calculation of R_t is as follows[2]:

$$R_t\,(t_i) = \frac{\text{New Infections}}{\text{New Recoveries} + \text{New Deaths}}$$

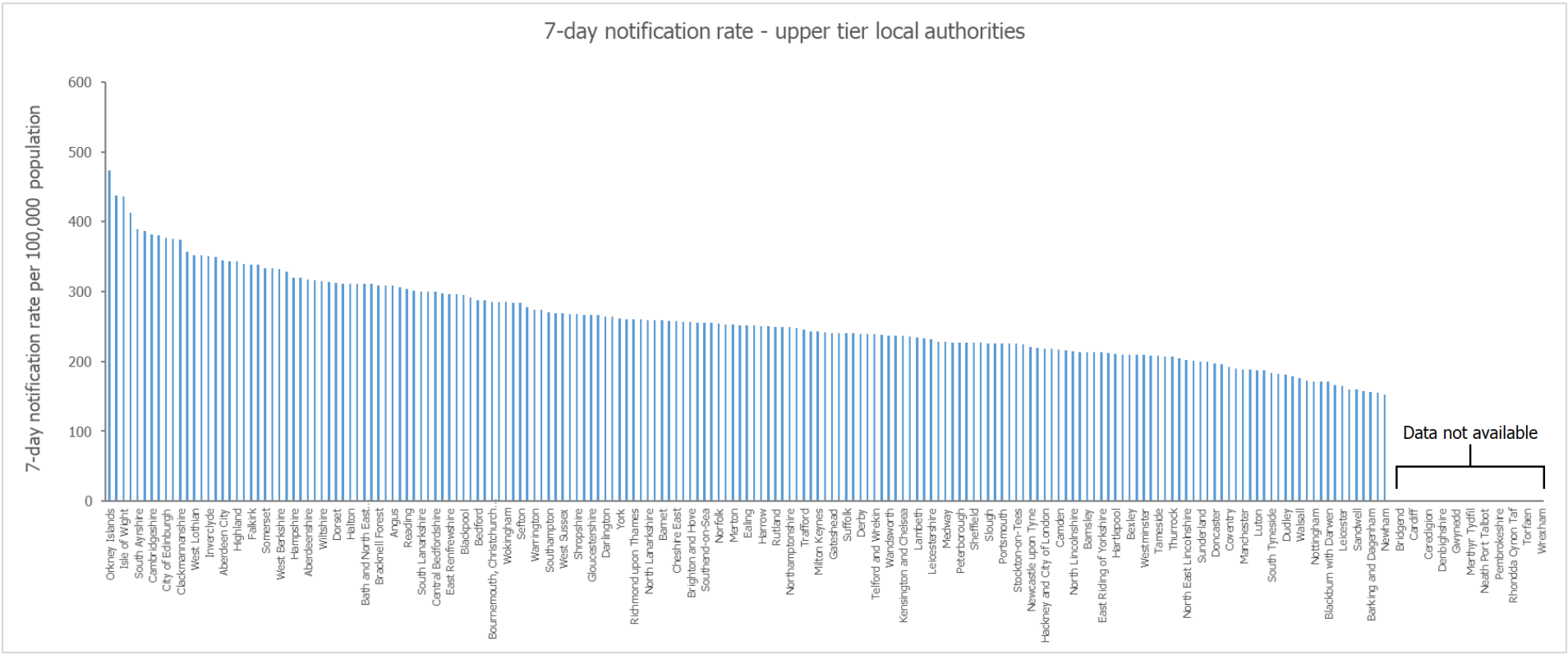
- The UK uses a more complex method of estimating R_t which we are not able to replicate here. The use of this simplified methodology limits the robustness of comparing our R_t value with UK estimates, however it provides a useful comparison between different time periods on Island. New Recoveries is calculated using the presumed 10 day recovery period from positive test result.
- A full table of daily R_t values for the current wave is available in Appendix 1.
- It is worth noting that R_t values, as seen in the daily R_t table (Appendix 1), are sensitive to large fluctuations when daily case numbers are small. Therefore, consideration should be taken of other epidemiological data to gain a true understanding of patterns of spread.

7-day Notification Rate Area Comparison



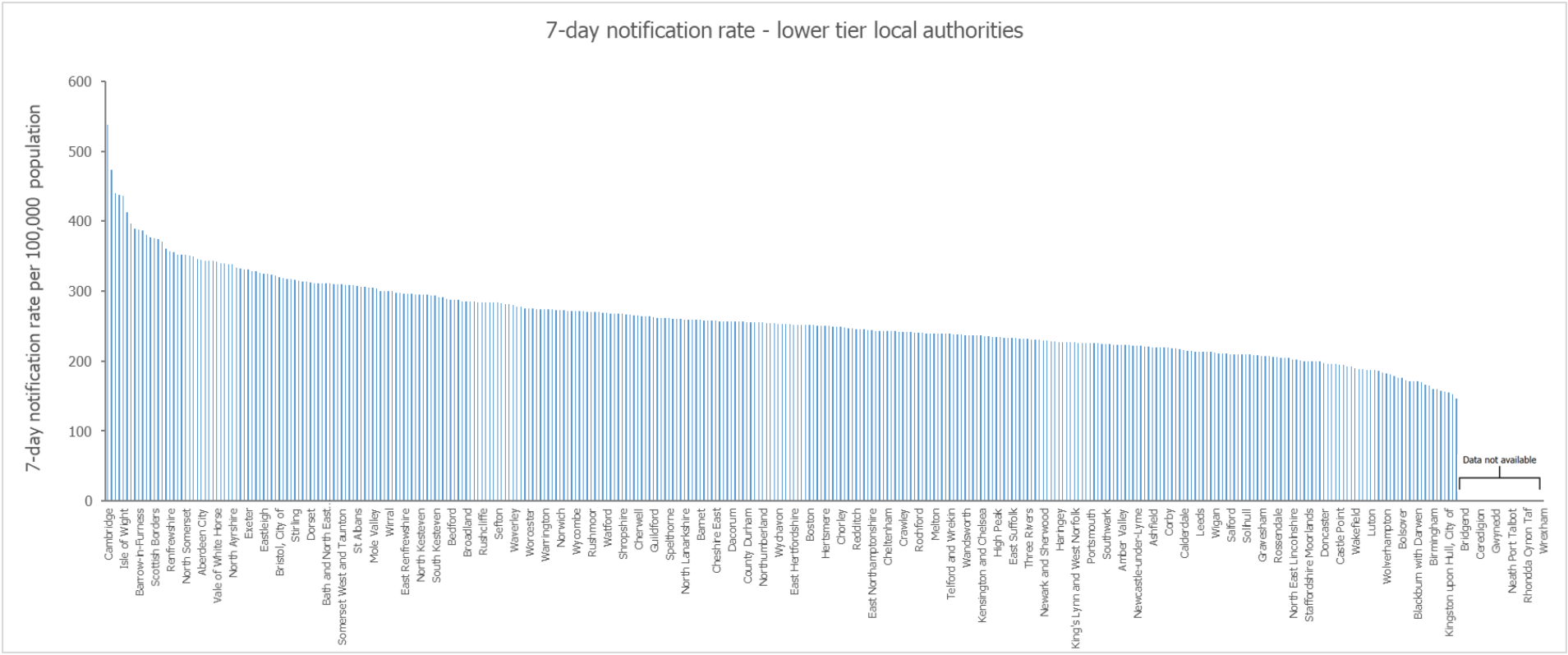
It should be noted that there are two reasons why data may not be shown. Firstly, data is not shown for areas with fewer than 3 cases at middle layer super output area (MSOA) level, to protect individuals' identity. Secondly, data may not be shown if the data is delayed or unavailable. It should also be noted that Isle of Man data is not shown here due to the lack of comparability of data resulting from the differences in testing availability and strategy on the Isle of Man compared to the UK.

7-day Notification Rate – UK Upper Tier Local Authorities



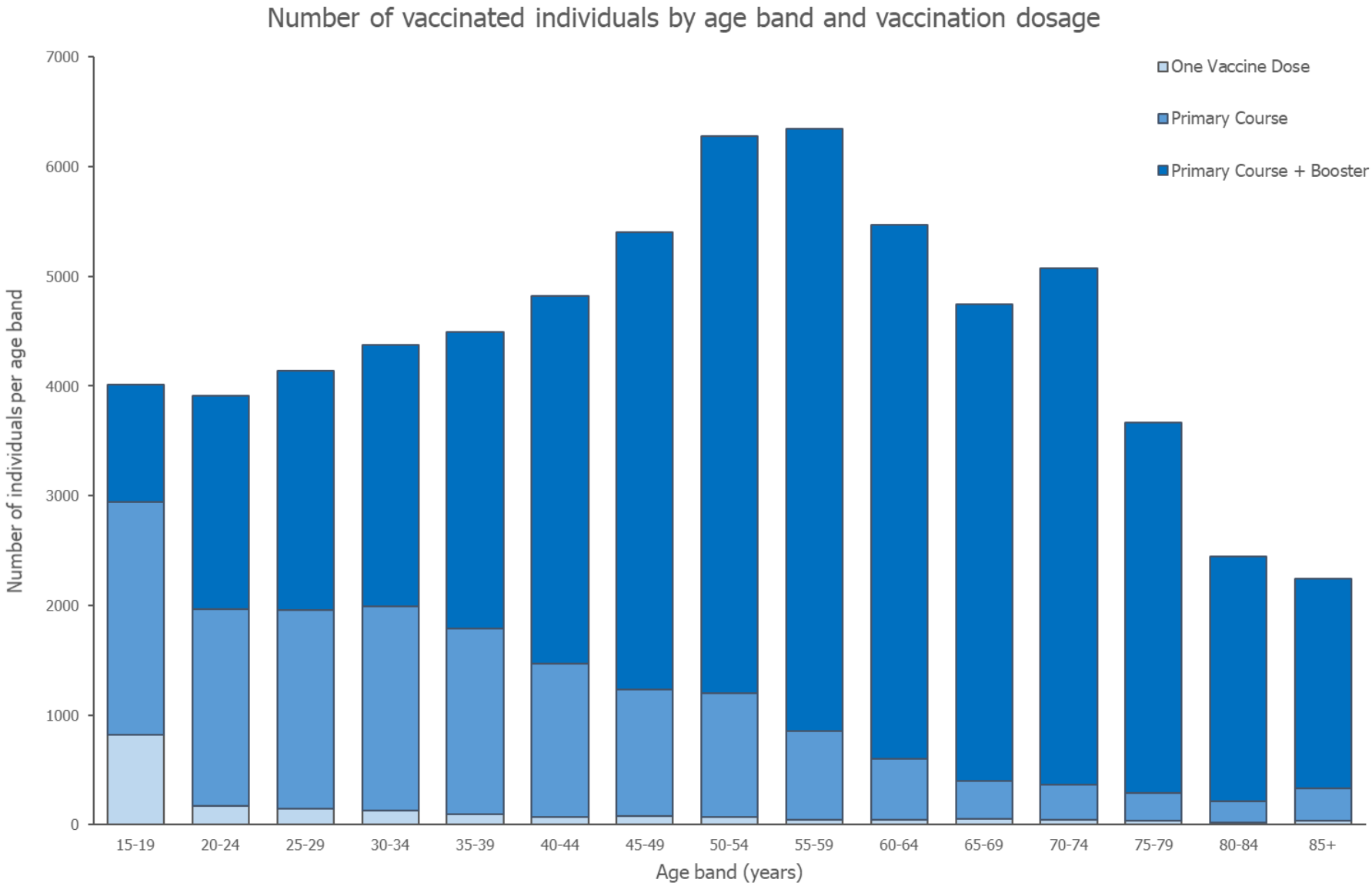
The data shown here is 7-day notification rate per 100,000 population for Upper Tier Local Authorities in the United Kingdom. It should be noted that Isle of Man data is not shown here due to the lack of comparability of data resulting from the differences in testing availability and strategy on the Isle of Man compared to the UK.

7-day Notification Rate – UK Lower Tier Local Authorities

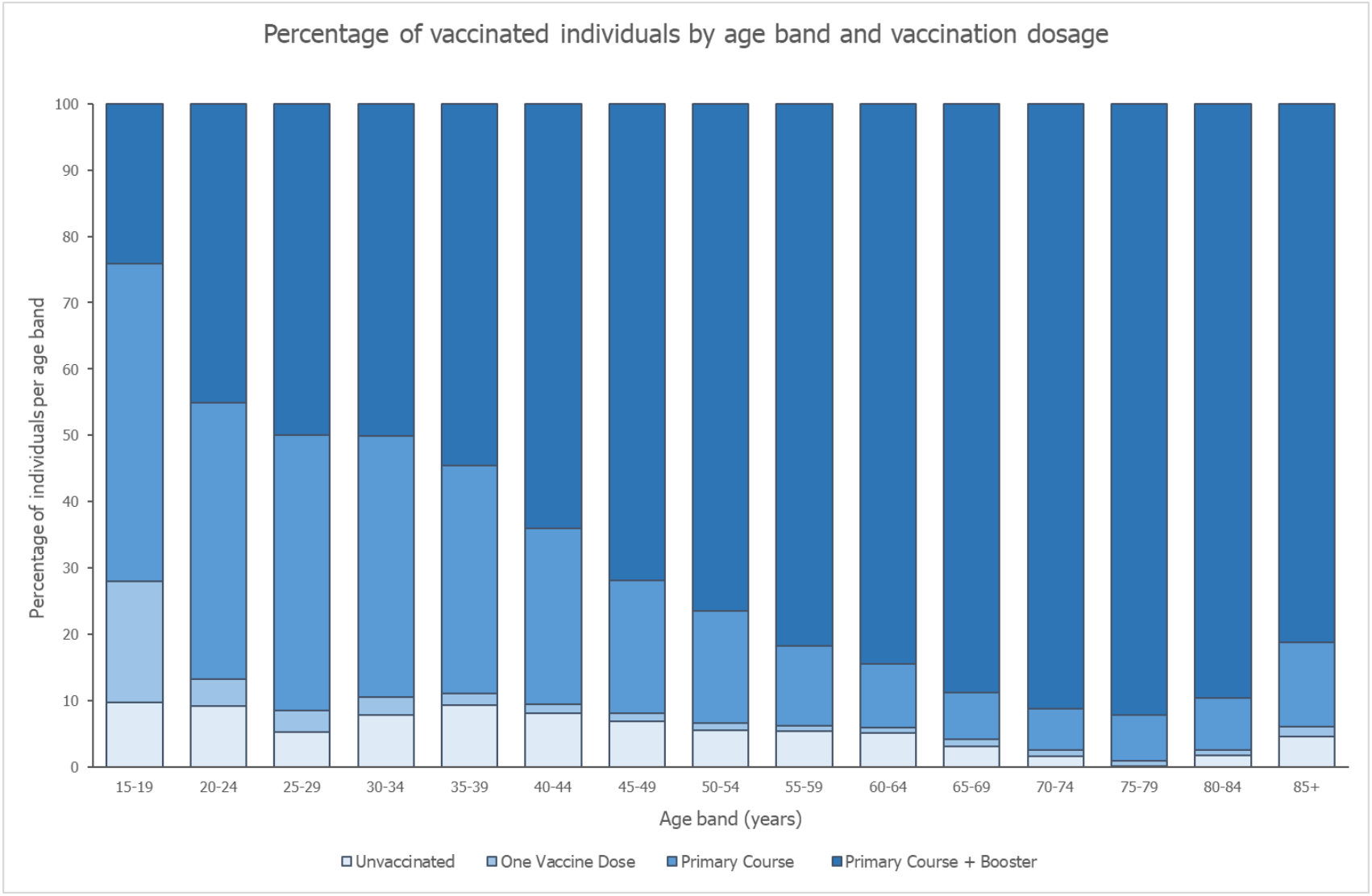


The data shown here is 7-day notification rate per 100,000 population for Lower Tier Local Authorities in the United Kingdom. It should be noted that Isle of Man data is not shown here due to the lack of comparability of data resulting from the differences in testing availability and strategy on the Isle of Man compared to the UK.

Vaccine Uptake and Coverage



Vaccine Uptake and Coverage



This data uses the 2021 Census populations as reference for eligible population[3].

Hospitalised Patients

SUMMARY

Total Patients	**12**

Vaccination Status of Hospital Admissions	
Primary Course + Booster(s)	83%
Primary Course	8%
One Vaccine Dose	0%
Unvaccinated	8%

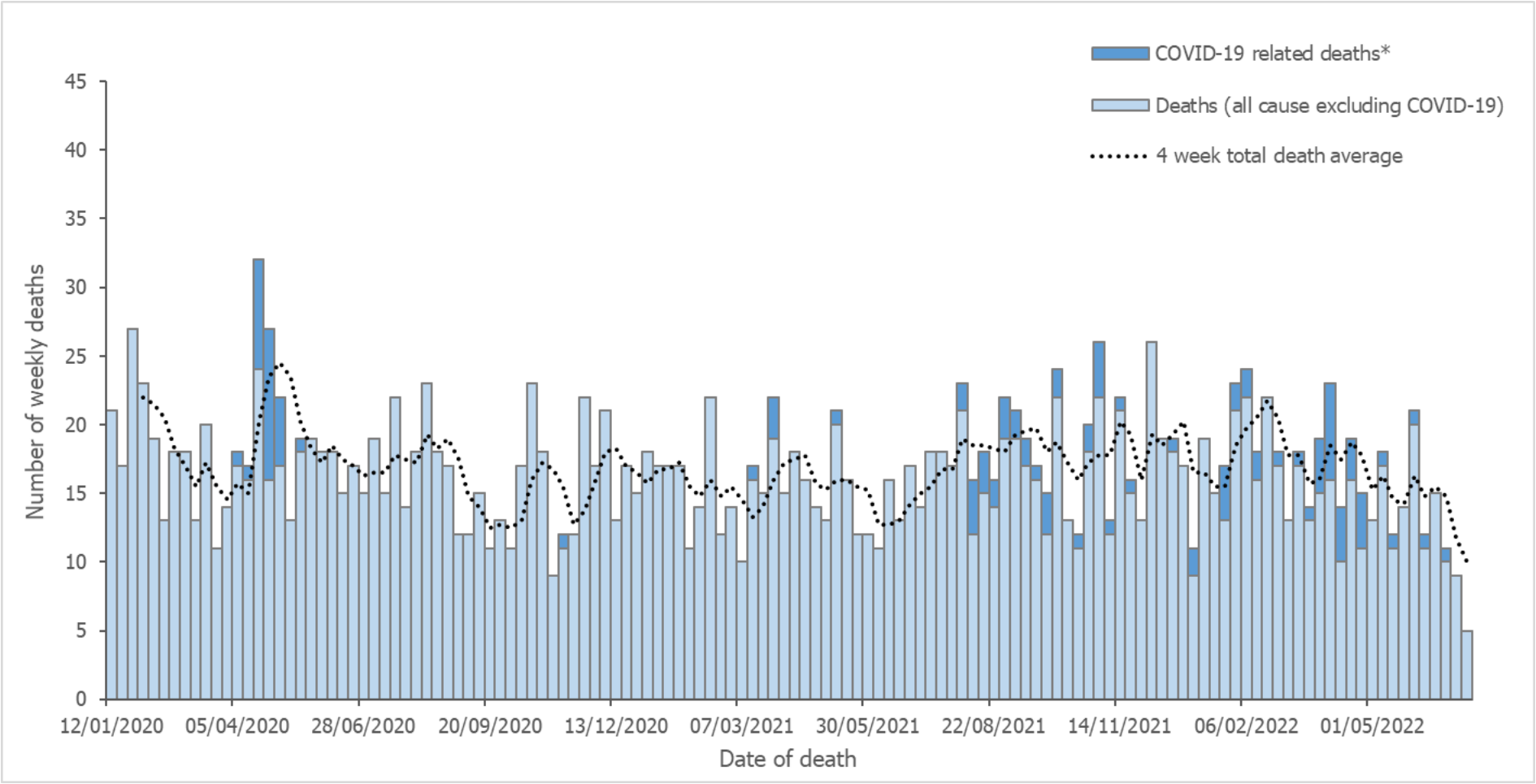
Snapshot – 5 July 2022

Hospitalised Patients

The following information has been supplied by Manx Care:

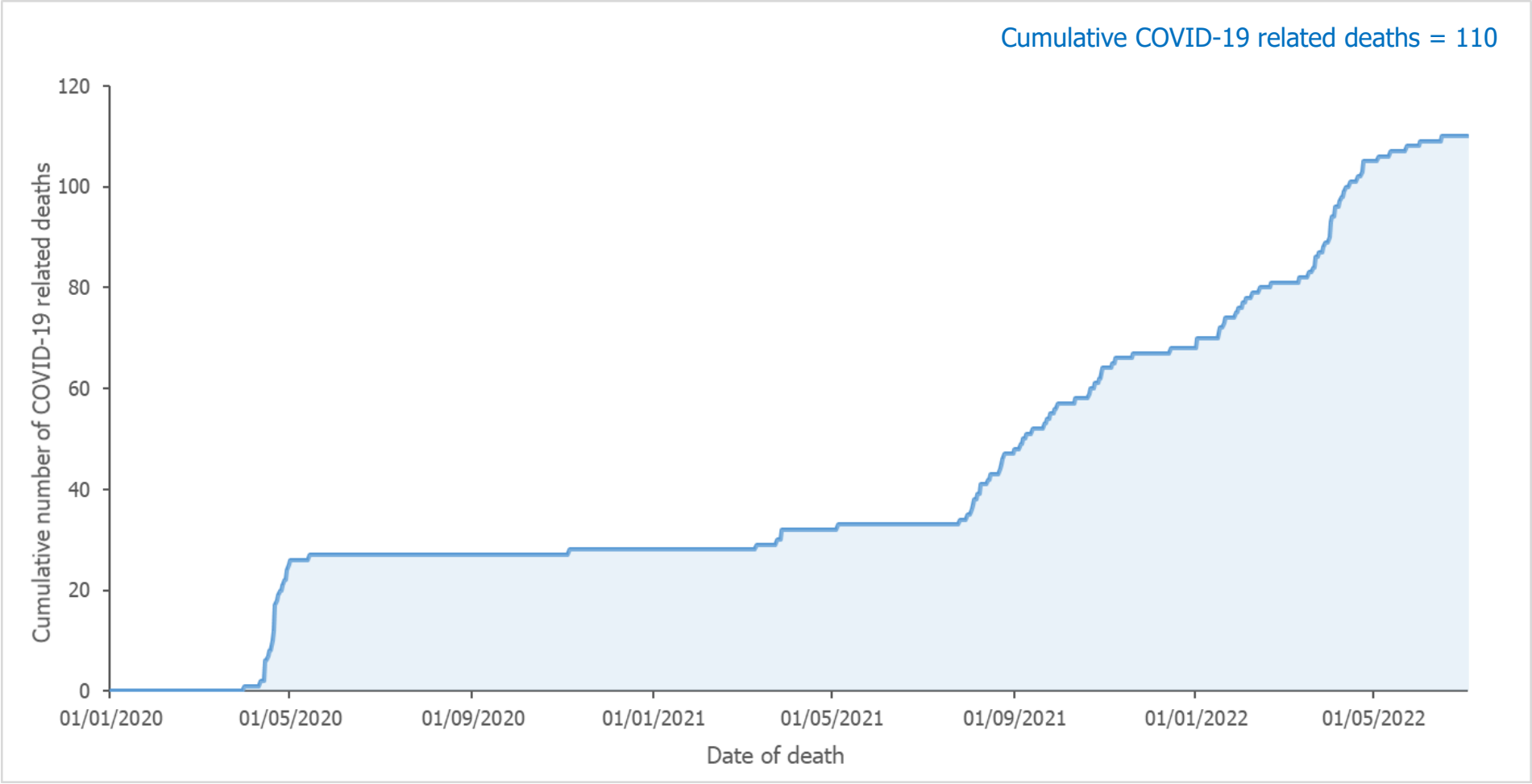
- At the time of information provision (5 July 2022), there are 12 patients currently in Nobles Hospital who have tested positive for COVID-19.
- 2 were admitted for treatment of their COVID-19 infection and 10 were admitted for other reasons.

Weekly Deaths – Whole Pandemic

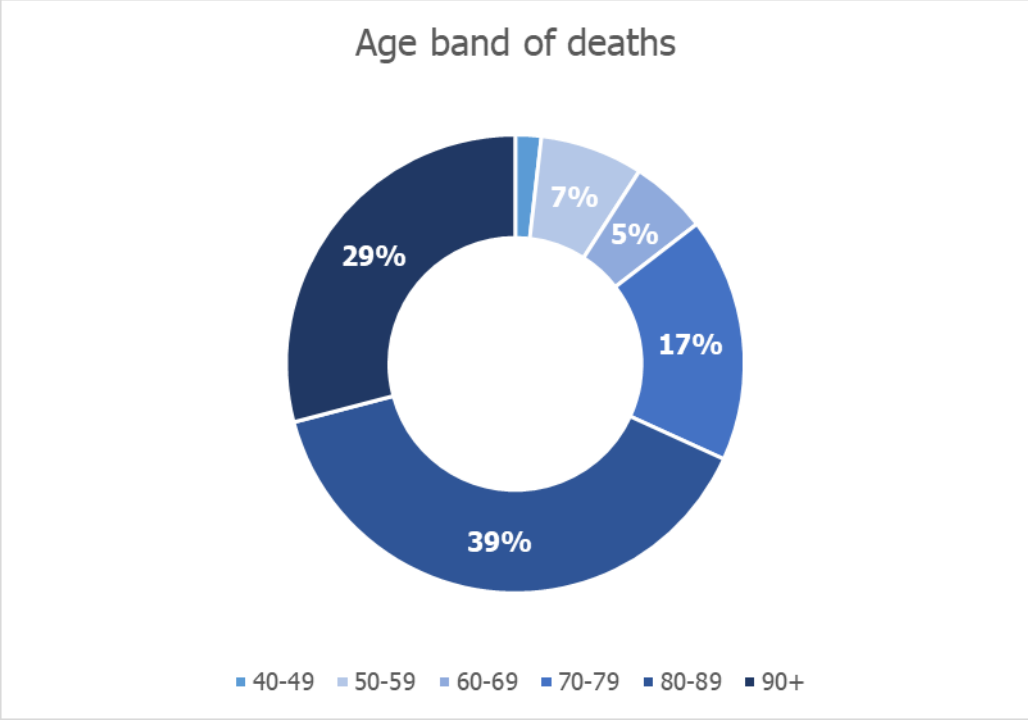


- *COVID-19 related deaths are those where COVID-19 is mentioned anywhere on the death certificate.
- Death registrations are often delayed and therefore deaths occurring in a given week may not be input into the week of which death occurred until a later date, meaning figures are likely to change retrospectively as data is updated. This also means that the most recent numbers will be incomplete at the time of release, and will update in subsequent reports.

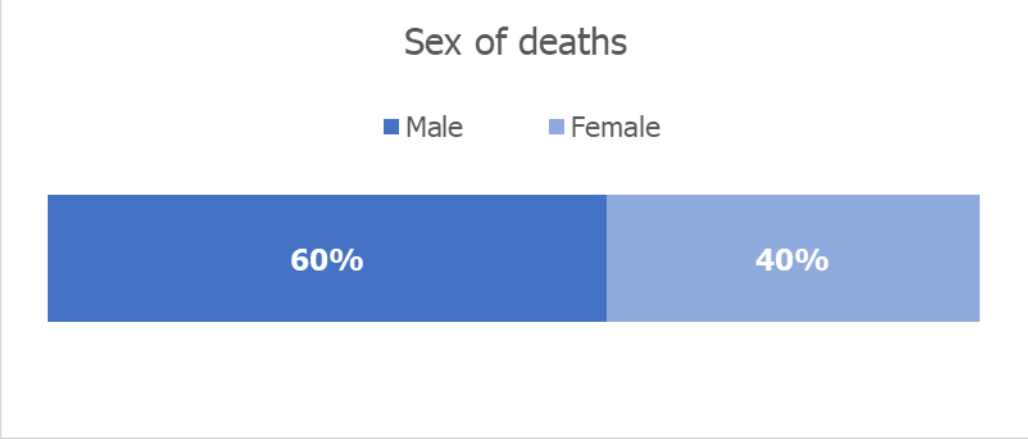
Cumulative COVID-19 Related Deaths



COVID-Related Deaths Overview



Age band of deaths	No. of deaths	% of total deaths
40-49	2	1.8%
50-59	8	7.3%
60-69	6	5.5%
70-79	19	17.3%
80-89	43	39.1%
90+	32	29.1%



Place of death	No. of deaths
Hospital	52
Hospice	4
Nursing/Residential Home	42
Domestic Property	12

Definitions

Vaccination Status

- One dose = those who have received only one dose
- Primary Course = those who have received a full course (two or three dose). Third dose, those with immunosuppression only.
- Primary Course + Booster = a full course plus a booster

Appendix 1

Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t	Date	Daily R_t
01-Jul	6.00	20-Jul	11.67	08-Aug	0.67	27-Aug	0.54	15-Sep	1.63	04-Oct	1.76	23-Oct	0.99	11-Nov	0.61	30-Nov	2.74	19-Dec	0.60	07-Jan	0.86	26-Jan	0.67	14-Feb	0.92	05-Mar	1.20	24-Mar	0.71	12-Apr	0.90	01-May	0.28	20-May	0.79	08-Jun	2.76
02-Jul	2.67	21-Jul	13.14	09-Aug	0.73	28-Aug	0.79	16-Sep	0.59	05-Oct	1.14	24-Oct	0.67	12-Nov	0.67	01-Dec	3.12	20-Dec	1.43	08-Jan	0.30	27-Jan	0.46	15-Feb	1.34	06-Mar	1.57	25-Mar	0.70	13-Apr	0.79	02-May	0.63	21-May	0.90	09-Jun	6.85
03-Jul	6.00	22-Jul	9.55	10-Aug	0.64	29-Aug	0.34	17-Sep	0.70	06-Oct	2.24	25-Oct	1.09	13-Nov	0.77	02-Dec	2.19	21-Dec	1.69	09-Jan	0.31	28-Jan	0.56	16-Feb	1.37	07-Mar	3.96	26-Mar	0.56	14-Apr	0.69	03-May	0.50	22-May	0.60	10-Jun	3.83
04-Jul	5.00	23-Jul	1.13	11-Aug	0.76	30-Aug	0.51	18-Sep	0.86	07-Oct	1.13	26-Oct	1.13	14-Nov	1.05	03-Dec	1.38	22-Dec	3.85	10-Jan	0.77	29-Jan	0.53	17-Feb	0.70	08-Mar	2.77	27-Mar	0.57	15-Apr	0.49	04-May	0.38	23-May	1.22	11-Jun	4.95
05-Jul	7.00	24-Jul	1.56	12-Aug	0.63	31-Aug	0.78	19-Sep	0.64	08-Oct	1.89	27-Oct	1.59	15-Nov	2.59	04-Dec	0.65	23-Dec	1.88	11-Jan	0.76	30-Jan	0.63	18-Feb	1.16	09-Mar	3.18	28-Mar	1.17	16-Apr	0.37	05-May	0.44	24-May	1.21	12-Jun	10.00
06-Jul	0.67	25-Jul	1.35	13-Aug	0.48	01-Sep	0.68	20-Sep	2.00	09-Oct	1.15	28-Oct	0.71	16-Nov	2.15	05-Dec	1.11	24-Dec	2.00	12-Jan	0.55	31-Jan	1.48	19-Feb	0.87	10-Mar	1.44	29-Mar	1.20	17-Apr	0.45	06-May	0.73	25-May	0.65	13-Jun	9.62
07-Jul	7.00	26-Jul	0.47	14-Aug	0.40	02-Sep	0.66	21-Sep	3.62	10-Oct	1.85	29-Oct	0.66	17-Nov	2.10	06-Dec	1.20	25-Dec	1.43	13-Jan	0.35	01-Feb	1.22	20-Feb	1.03	11-Mar	1.41	30-Mar	0.83	18-Apr	1.25	07-May	0.78	26-May	0.35	14-Jun	9.20
08-Jul	6.00	27-Jul	0.52	15-Aug	0.65	03-Sep	0.77	22-Sep	1.52	11-Oct	2.74	30-Oct	0.44	18-Nov	0.87	07-Dec	1.24	26-Dec	2.62	14-Jan	0.27	02-Feb	1.03	21-Feb	2.37	12-Mar	1.35	31-Mar	0.34	19-Apr	1.90	08-May	0.63	27-May	0.95	15-Jun	6.61
09-Jul	7.00	28-Jul	0.86	16-Aug	0.63	04-Sep	0.44	23-Sep	1.09	12-Oct	1.97	31-Oct	0.43	19-Nov	0.88	08-Dec	1.48	27-Dec	4.38	15-Jan	0.33	03-Feb	0.31	22-Feb	3.05	13-Mar	2.15	01-Apr	0.75	20-Apr	0.59	09-May	1.32	28-May	0.35	16-Jun	11.21
10-Jul	2.57	29-Jul	0.48	17-Aug	0.81	05-Sep	0.33	24-Sep	2.33	13-Oct	3.03	01-Nov	0.94	20-Nov	1.00	09-Dec	0.86	28-Dec	5.16	16-Jan	0.50	04-Feb	0.57	23-Feb	3.05	14-Mar	2.90	02-Apr	0.35	21-Apr	0.66	10-May	2.07	29-May	0.88	17-Jun	6.20
11-Jul	3.50	30-Jul	0.45	18-Aug	0.56	06-Sep	1.07	25-Sep	2.33	14-Oct	1.23	02-Nov	0.53	21-Nov	1.14	10-Dec	0.51	29-Dec	10.12	17-Jan	0.71	05-Feb	0.32	24-Feb	1.17	15-Mar	3.99	03-Apr	0.54	22-Apr	0.51	11-May	1.38	30-May	0.57	18-Jun	1.93
12-Jul	2.75	31-Jul	0.31	19-Aug	0.92	07-Sep	1.05	26-Sep	1.32	15-Oct	0.96	03-Nov	0.64	22-Nov	2.16	11-Dec	0.48	30-Dec	4.82	18-Jan	0.73	06-Feb	0.36	25-Feb	1.15	16-Mar	3.41	04-Apr	0.79	23-Apr	0.53	12-May	1.13	31-May	0.88	19-Jun	1.86
13-Jul	13.33	01-Aug	0.45	20-Aug	0.80	08-Sep	1.32	27-Sep	1.89	16-Oct	1.43	04-Nov	0.50	23-Nov	2.53	12-Dec	0.36	31-Dec	4.15	19-Jan	0.76	07-Feb	0.91	26-Feb	1.61	17-Mar	1.55	05-Apr	0.93	24-Apr	0.47	13-May	0.96	01-Jun	1.00	20-Jun	2.23
14-Jul	19.60	02-Aug	1.22	21-Aug	0.64	09-Sep	1.17	28-Sep	1.42	17-Oct	1.07	05-Nov	0.24	24-Nov	2.45	13-Dec	0.82	01-Jan	1.41	20-Jan	0.28	08-Feb	0.48	27-Feb	1.49	18-Mar	1.37	06-Apr	0.92	25-Apr	0.75	14-May	0.90	02-Jun	0.48	21-Jun	1.24
15-Jul	17.86	03-Aug	0.80	22-Aug	0.66	10-Sep	0.47	29-Sep	2.17	18-Oct	1.36	06-Nov	0.26	25-Nov	1.74	14-Dec	1.27	02-Jan	2.38	21-Jan	0.30	09-Feb	0.66	28-Feb	3.44	19-Mar	0.81	07-Apr	0.51	26-Apr	0.69	15-May	0.96	03-Jun	1.13	22-Jun	0.91
16-Jul	150.50	04-Aug	0.51	23-Aug	0.93	11-Sep	0.38	30-Sep	0.74	19-Oct	1.91	07-Nov	0.31	26-Nov	1.60	15-Dec	0.74	03-Jan	2.80	22-Jan	0.32	10-Feb	0.41	01-Mar	3.82	20-Mar	1.25	08-Apr	0.43	27-Apr	0.55	16-May	1.15	04-Jun	1.67	23-Jun	0.77
17-Jul	25.57	05-Aug	0.68	24-Aug	1.08	12-Sep	0.62	01-Oct	0.49	20-Oct	2.21	08-Nov	0.95	27-Nov	1.52	16-Dec	0.68	04-Jan	4.74	23-Jan	0.38	11-Feb	0.32	02-Mar	3.27	21-Mar	2.22	09Apr	0.37	28-Apr	0.25	17-May	0.69	05-Jun	2.55	24-Jun	0.71
18-Jul	17.67	06-Aug	0.99	25-Aug	0.78	13-Sep	0.71	02-Oct	1.06	21-Oct	1.73	09-Nov	1.28	28-Nov	1.60	17-Dec	0.73	05-Jan	1.74	24-Jan	1.05	12-Feb	0.33	03-Mar	1.55	22-Mar	1.60	10-Apr	0.73	29-Apr	0.19	18-May	1.53	06-Jun	1.68	25-Jun	0.53
19-Jul	18.57	07-Aug	0.38	26-Aug	0.80	14-Sep	0.82	03-Oct	1.20	22-Oct	0.86	10-Nov	1.13	29-Nov	2.09	18-Dec	0.50	06-Jan	1.03	25-Jan	0.77	13-Feb	0.44	04-Mar	1.80	23-Mar	1.44	11-Apr	0.52	30-Apr	0.23	19-May	0.73	07-Jun	4.33	26-Jun	0.19

Appendix 1

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27-Jun	0.39																																								
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30-Jun	0.41																																								
01-Jul	0.53																																								
02-Jul	0.36																																								
03-Jul	0.31																																								

Appendix 2 - Environmental surveillance

Environmental surveillance – or wastewater-based epidemiology (WBE) – has been a widely used tool as part of a range of surveillance systems during the COVID-19 pandemic.

Studies of some of the first COVID-19 cases found the presence of SARS-CoV-2 RNA in the faeces of patients, and studies have found SARS-CoV-2 in the faeces of both symptomatic and asymptomatic individuals.

WBE has the potential to detect changes in the circulation of a pathogen in a population before syndromic-based surveillance systems identify cases.

The use of WBE in surveillance of viral pathogens is an emerging science, and in this pilot study between the Government of The Isle of Man and the London School of Hygiene and Tropical Medicine (LSHTM), we are exploring how WBE could be used to monitor levels of viruses which can have significant public health impact, in a proof-of-principle study.

Appendix 2 - WBE for viral pathogens pilot study

Wastewater samples are collected four days per week at a collection site on Isle of Man and transported to LSHTM for testing.

Samples are concentrated by filtration and then assayed using reverse-transcription polymerase chain reaction (RT-PCR)-based methods for the presence of viral genomic material (RNA) of a panel of pathogens (SARS-CoV-2, enteroviruses, influenza virus and norovirus).

The amount of viral RNA for each pathogen in the sample tested is estimated by comparison with a quantitative standard, and from this virus genome copies per litre of wastewater is estimated mathematically.

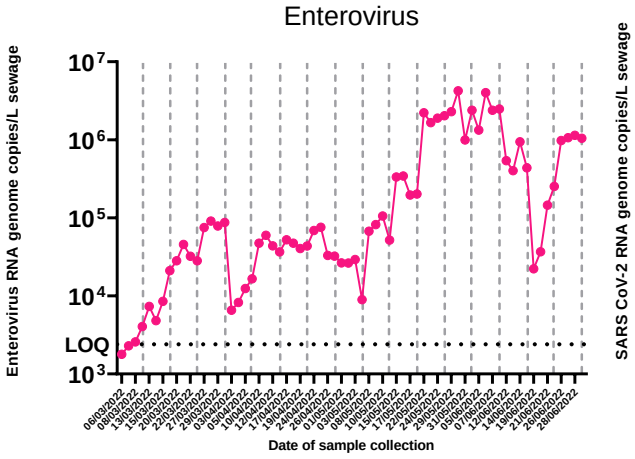
Appendix 2 - Data update

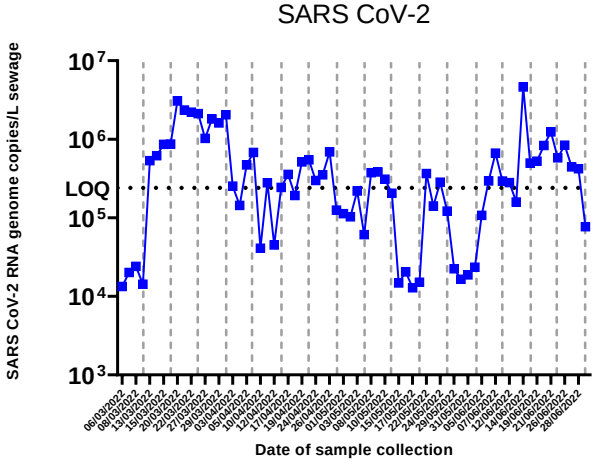
Data presented for samples collected over seventeen weeks, between 06/03/2022 – 29/06/2022.

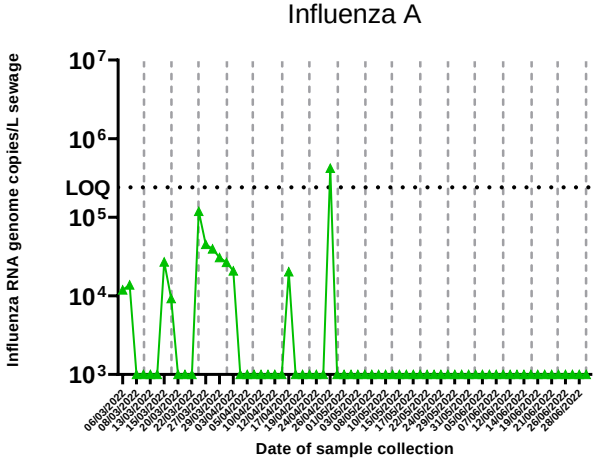
SARS-CoV-2 RNA remains detectable in Week 17 (w/c 26/06/2022) at levels around the limit of quantitation (LOQ) of the assay.

Enterovirus RNA remains detectable in Week 17 (w/c 26/06/2022) at levels above the LOQ of the assay.

Influenza virus RNA remains below the LOQ in Week 17 (w/c 26/06/2022).





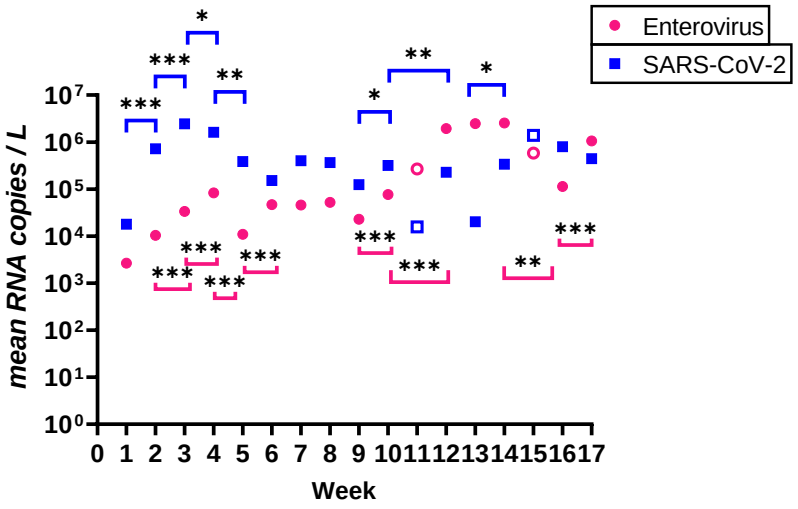


Appendix 2 - Data update

Monitoring RNA levels in wastewater is inherently stochastic and dependent on multiple factors. To gauge the trend in the changes observed, the weekly mean levels have been compared.

There has been no statistically significant change in in SARS-CoV-2 RNA in Week 17 compared to Week 16.

There has been a statistically significant increase ($p<0.001$) in enterovirus RNA in Week 17 compared to Week 16.



Appendix 2 - WBE for viral pathogens pilot study

The data and analysis presented here is preliminary, and based on techniques that are in-development. This data has not been peer-reviewed. As such the final data may change following further analyses.

Through this pilot study, we aim to understand more about how WBE is used in monitoring viral pathogens, validating the methods used, and understand for which pathogens the technology is most valid.

Alongside continuing to monitor levels of viral RNA in wastewater samples and provide technical validation of these methods in an applied context, this study will determine the usefulness of sequencing-based methods to characterise virus types detected in the samples, and working with specialists in modelling, how this data can be used to infer relationships between cases and genome detection in wastewater.

Appendix 2 - References

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[2] Fitzgerald SF, Rossi G, Low AS, et al. Site Specific Relationships between COVID-19 Cases and SARS-CoV-2 Viral Load in Wastewater Treatment Plant Influent. Environ Sci Technol. 2021;55(22):15276-15286. doi:10.1021/acs.est.1c05029

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[1] Coronavirus (COVID-19) Infection Survey, UK: 01 July 2022
https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/coronaviruscovid19infectionsurveypilot/1july2022

[2] Contreras, S., Villavicencio, H. A., Medina-Ortiz, D., Saavedra, C. P., & Olivera-Nappa, Á. (2020). Real-Time Estimation of R_t for Supporting Public-Health Policies Against COVID-19. *Frontiers in public health*, *8*, 556689. https://doi.org/10.3389/fpubh.2020.556689

[3] https://www.gov.im/media/1375604/2021-01-27-census-report-part-i-final-2.pdf

Data Disclaimer

While we have used reasonable efforts to ensure the accuracy of the data used within this report, data may be subject to change and historical amendment as new systems become established.

The quality of data provided to Public Health by other organisations is the responsibility of the originating organisation.

Produced on behalf of Professor Hugo van Woerden, Interim Director of Public Health.