Isle of Man Government

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COVID-19 Weekly Surveillance Report

21st April 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.

This report will be published each Thursday for data up to and including the previous Sunday e.g. 12th August is for data up to 8th August.

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

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

Wave Surveillance

- This week saw a further fall in case numbers across all age groups. This is reflected by a further fall in the reproduction number to 0.58 from last week's 0.64, indicating continued slowing in transmission.

- 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 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 may have an additional impact. This week we have seen a fall in seven day average daily reporting from 124 to 89 which may reflect a fall off in testing and reporting and/or continued fall in new case numbers. However, as the majority of omicron infections are mild, case numbers per se are now a less important measure than pressure on health and care services.

- As expected, our level and pattern of transmission is very similar to that across the UK. This is likely to result from increased travel, changes in patterns of behaviour and mixing following reduction of restrictions here and elsewhere and the increased transmissibility of the BA.2 variant of omicron which is now widespread here and across the British Isles. How long this persists will depend on levels of immunity, patterns of mixing in our communities and travel, all of which have an impact on transmission. However, in the absence of new variants of concern, we would expect a plateauing and subsequent fall in cases as the current BA.2 omicron wave passes through the susceptible population and we move into Spring and Summer. Our current continuing trend towards plateauing/falling case numbers supports this.

Waste Water Surveillance

- This week we have included the first set of results 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 first report from the project is included in full in Appendix 2.

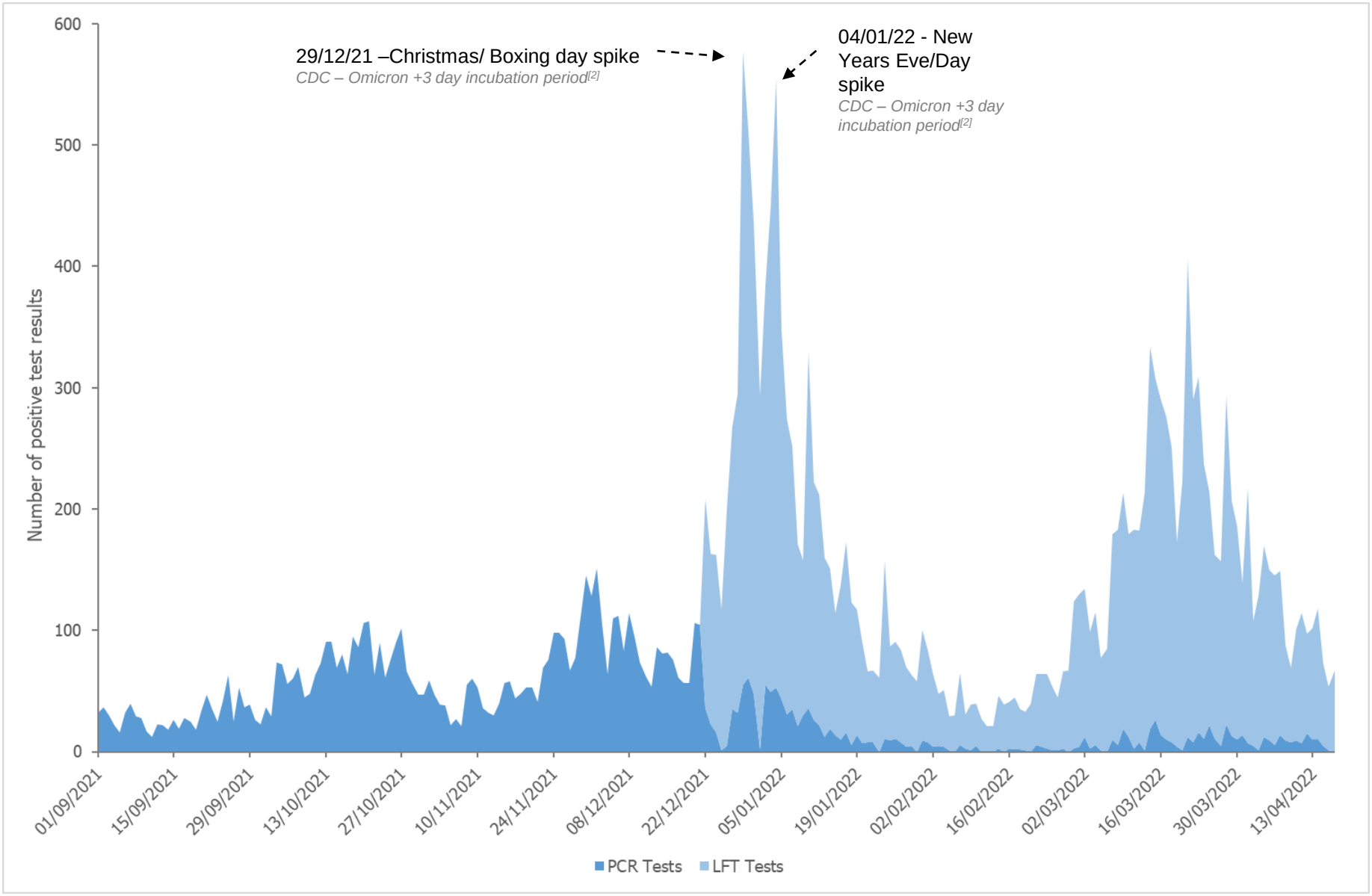
- Testing people for COVID-19 (as we have been doing using the LFD tests) is expensive and intrusive for individuals. At best, only a proportion of the population will be tested. This means that levels of infection seen from testing are always likely to be an underestimate of the true level. Waste water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

- Results from the first weeks of the project show a rise in SARS-CoV-2 RNA in the first weeks of testing (up until 23 March 2022) followed by a fall in the most recent data up until the week ending 6 April 2022.

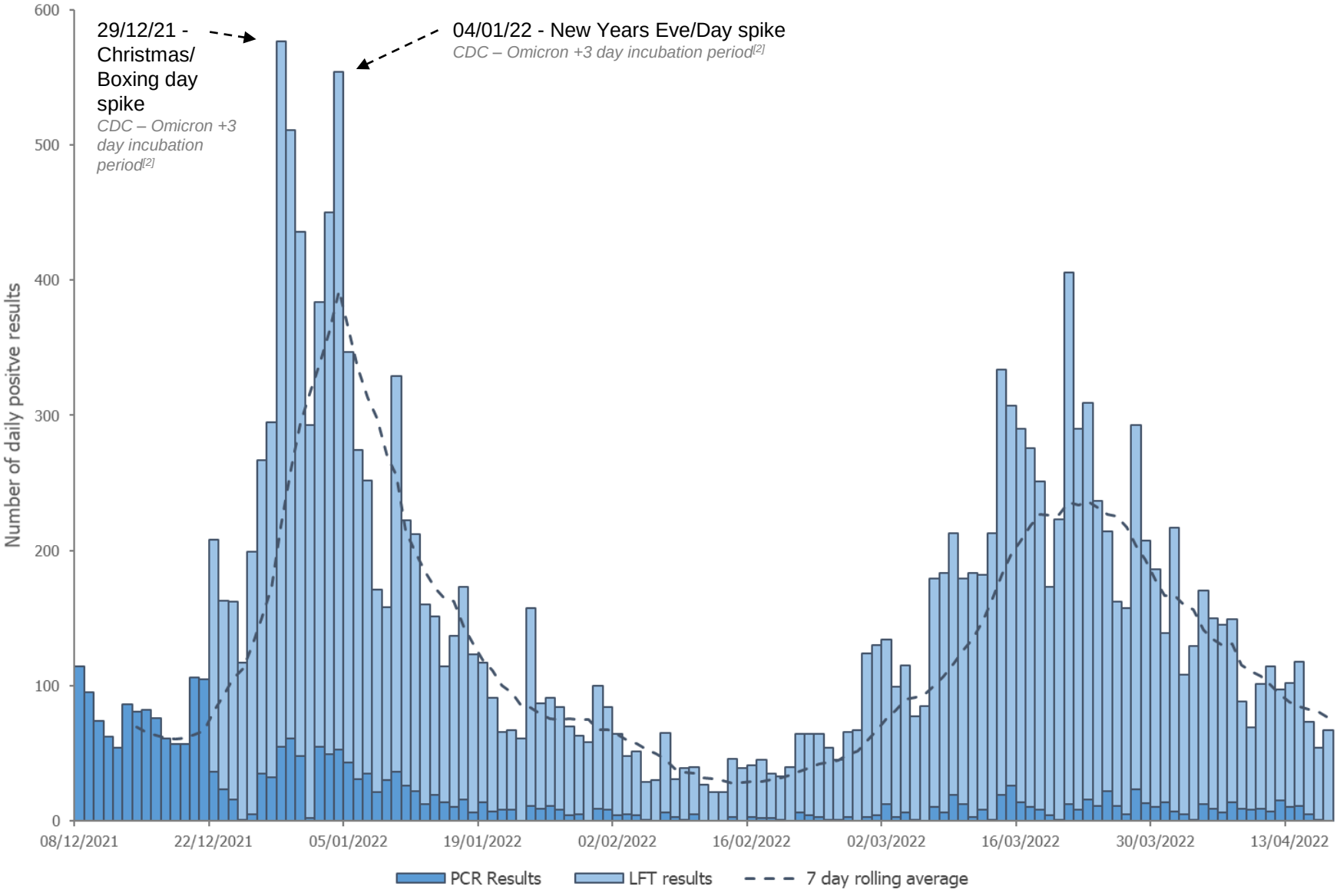
Key Points

- The current 7-day average for reported positive results is 89.
- The trend of falling case numbers reported from testing has continued this week.
- The effective reproduction number (R_t) was 0.58 this week, indicating a further slowing in transmission.
- The trend of falling case numbers reported from testing is in line with the falling levels of SARS-CoV-2 RNA reported from waste water testing.
- The snapshot of the Hospital shows 17 patients currently admitted with a COVID positive status.

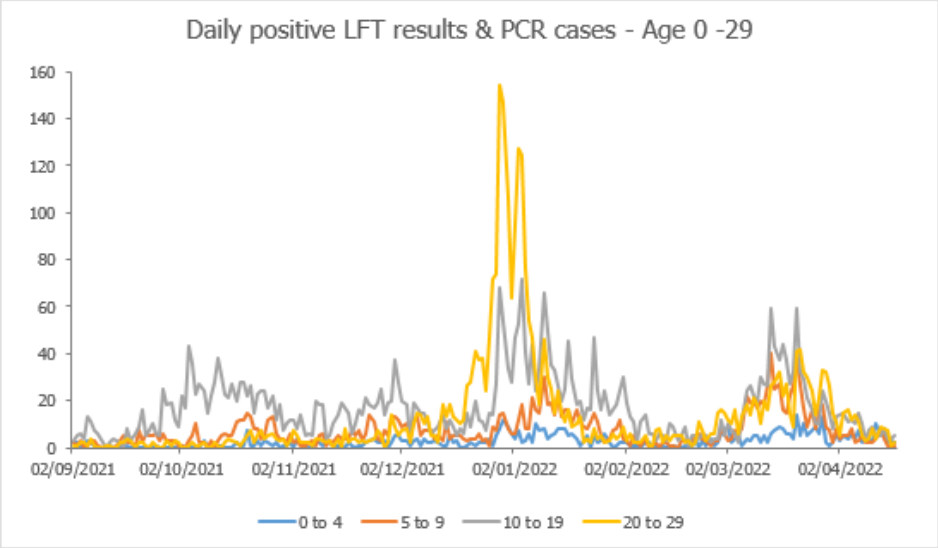
Positive COVID-19 Tests

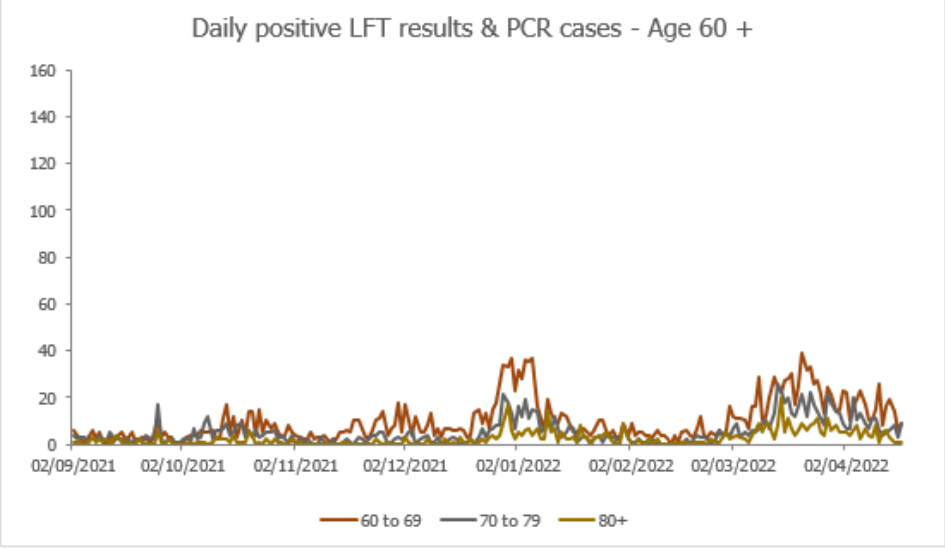


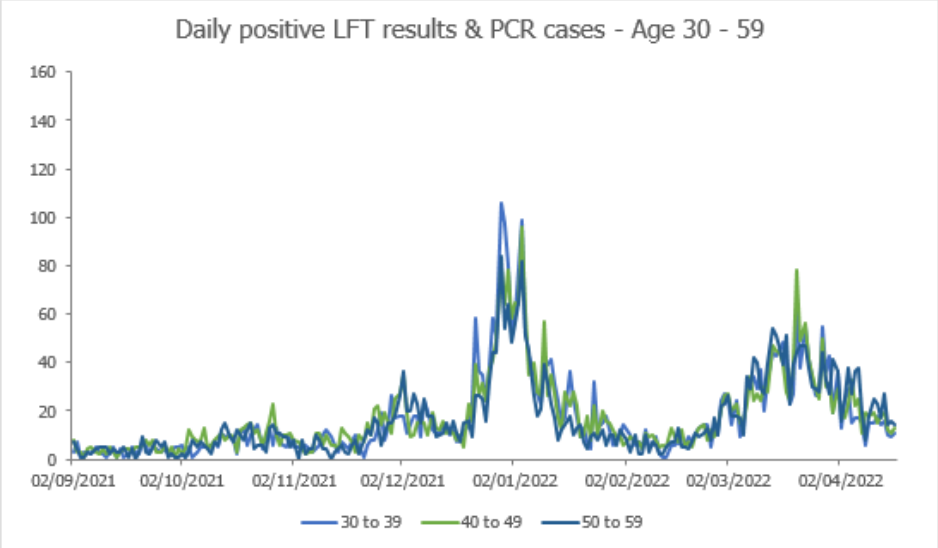
Daily Positive Results – 4th Wave

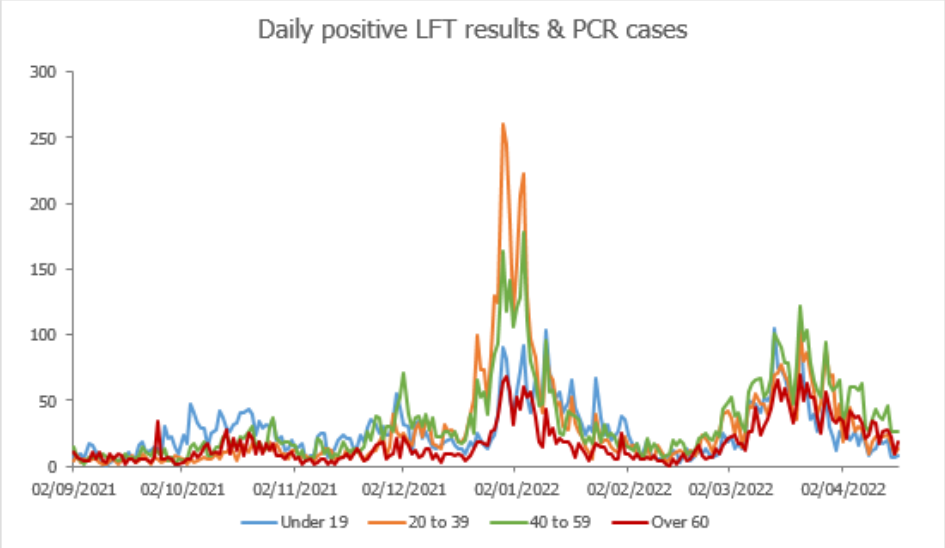


Age Group Analysis

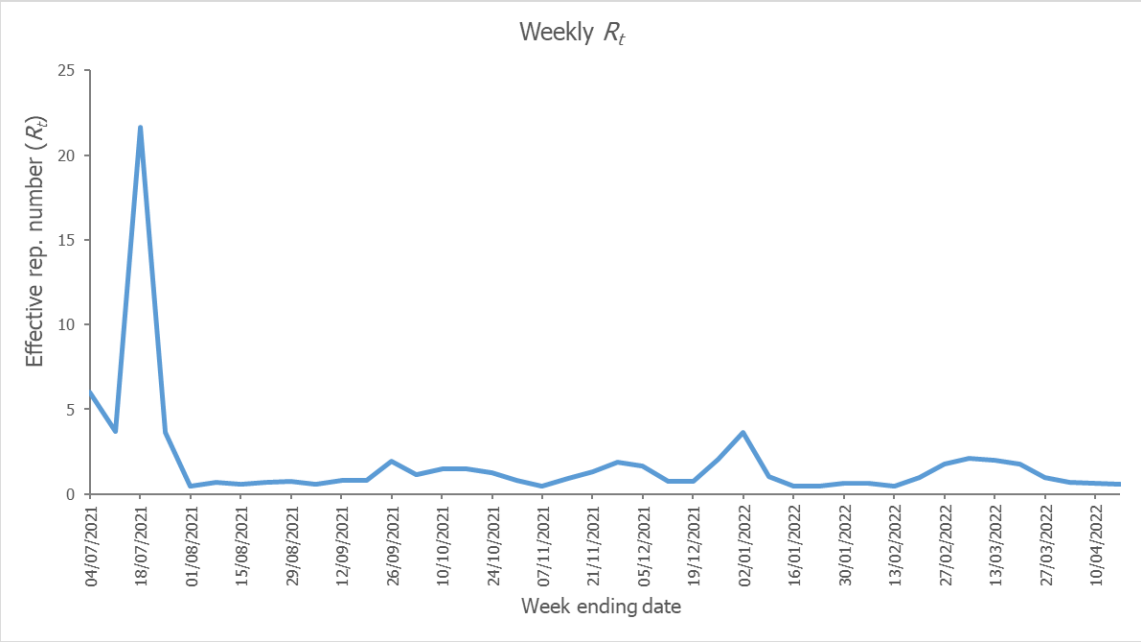








Effective Reproduction Number (R_t)



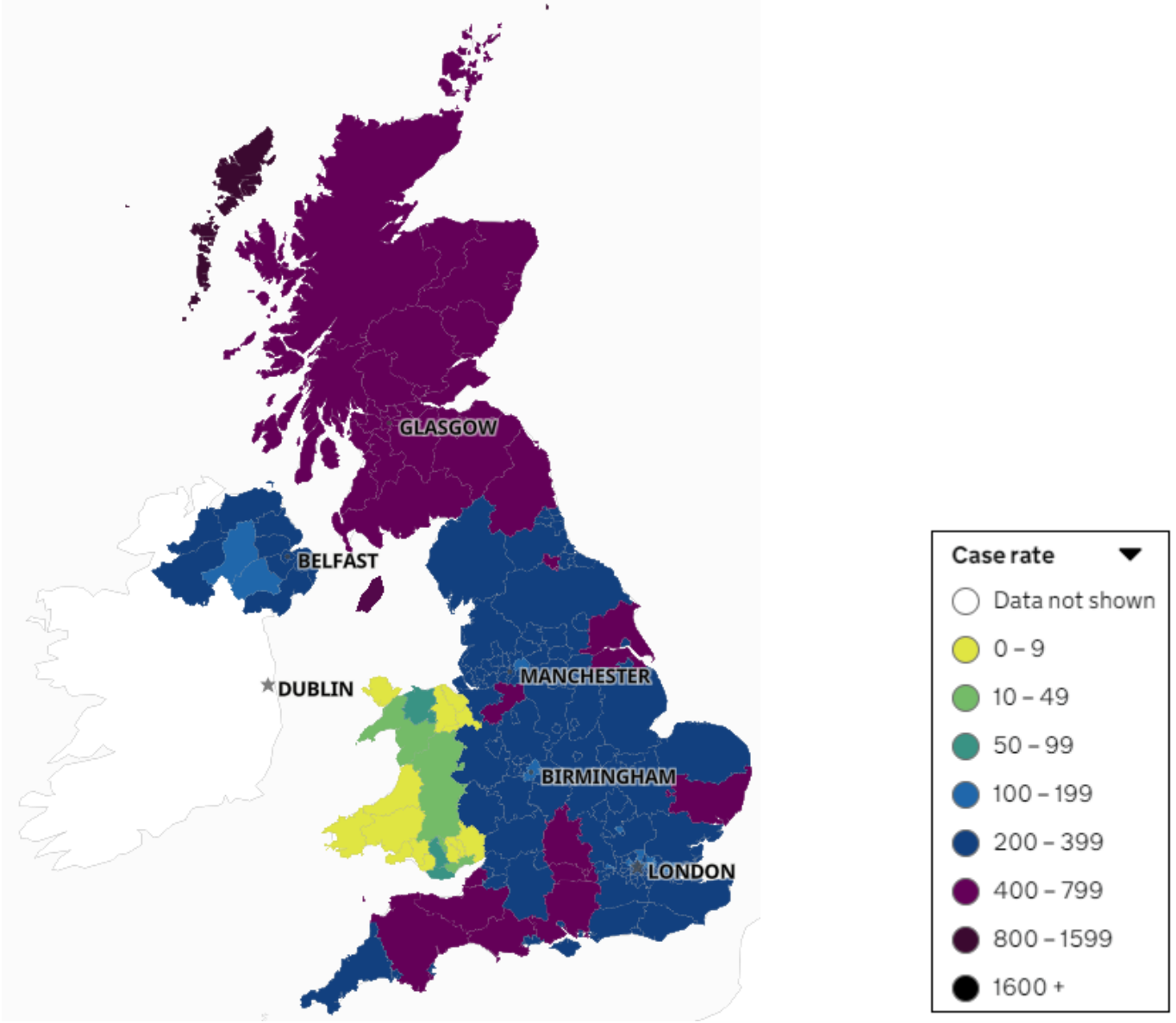
Latest 7 day
R_t = 0.58

- 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[1]:

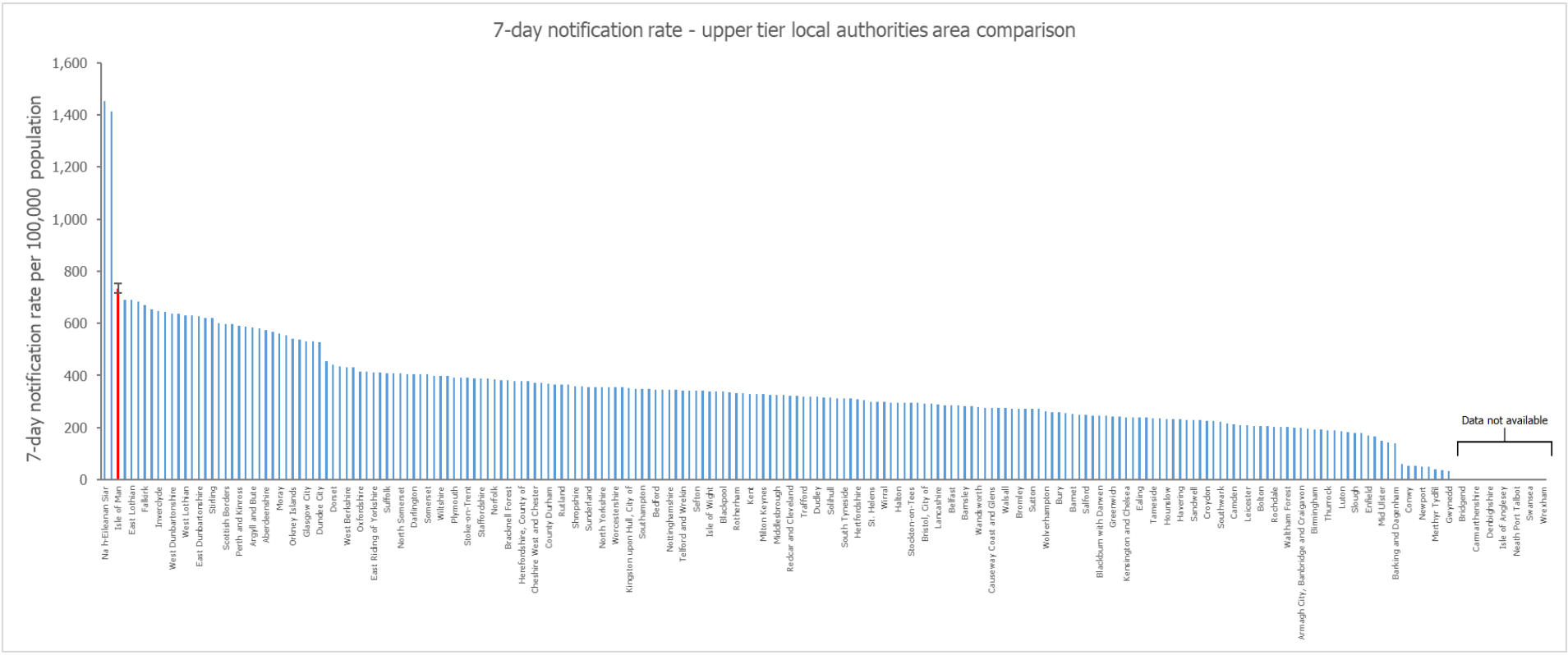
$$R_t\,(t_i) = \frac{\text{New Infections}}{\text{New Recoveries} + \text{New Deaths}}$$

- 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.

7-day Notification Rate Area Comparison

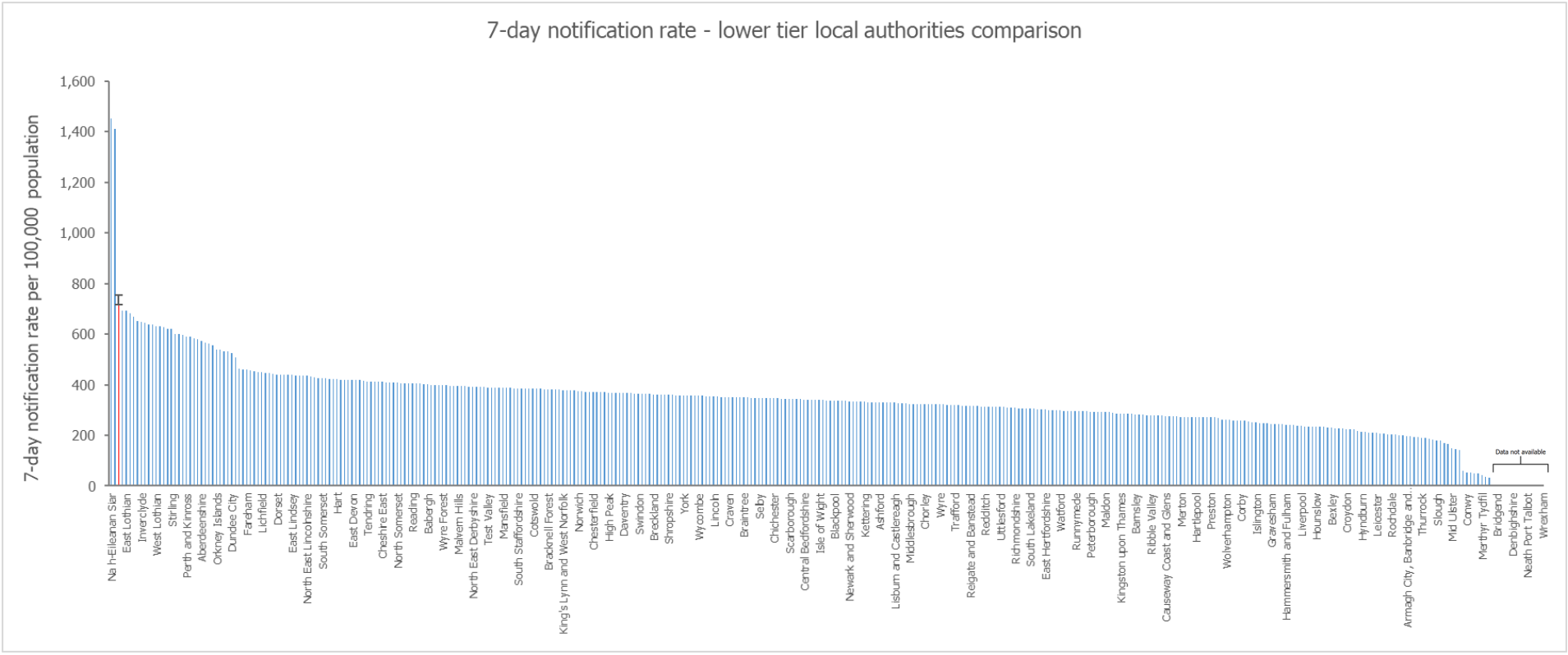


7-day Notification Rate – Upper Tier LA Comparison



The Isle of Man (shown in red), has the 3rd highest 7-day notification rate per 100,000 population when included in the upper tier local authorities of the UK.

7-day Notification Rate – Lower Tier LA Comparison



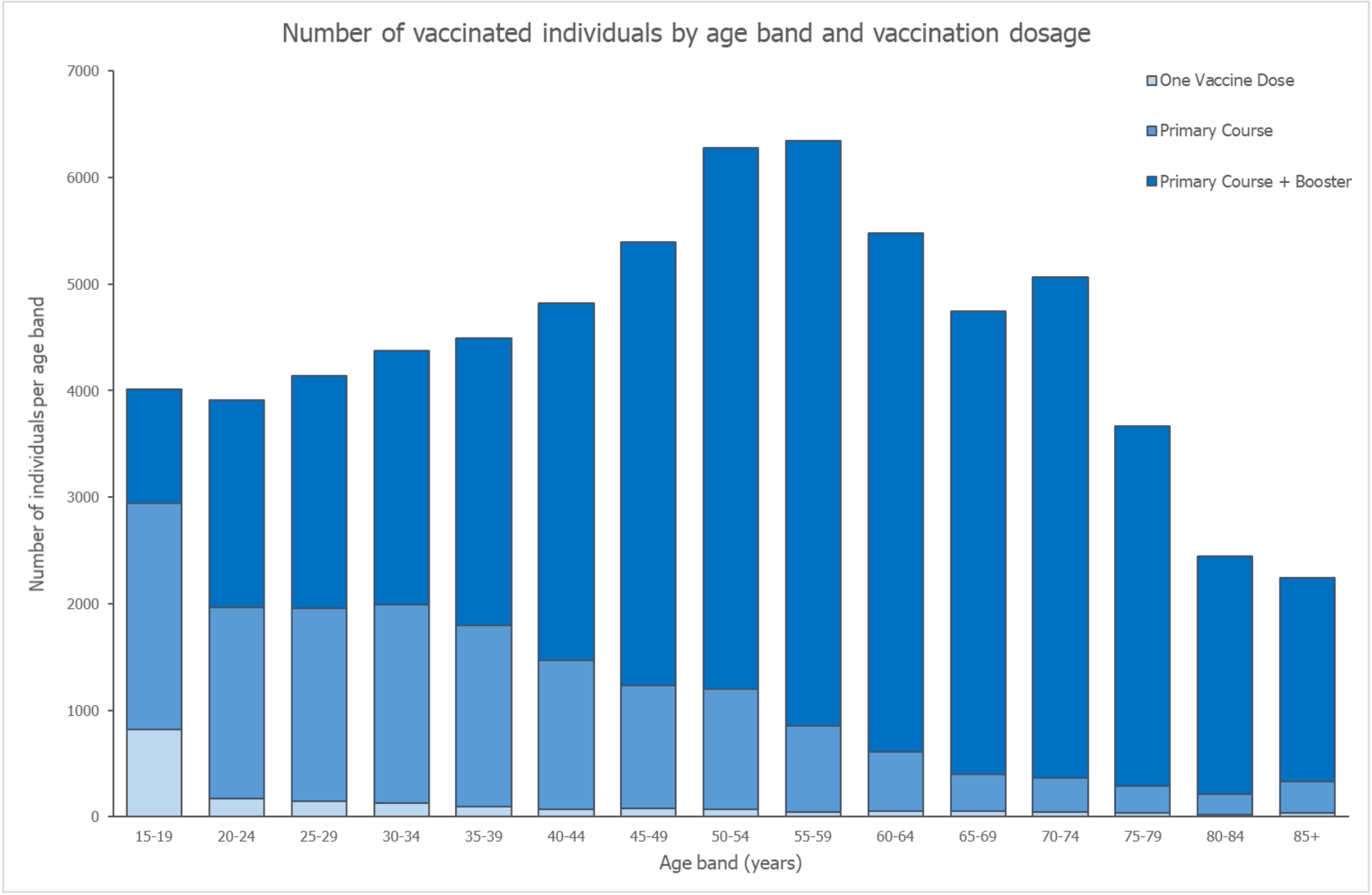
The Isle of Man (shown in red), has the 3rd highest 7-day notification rate per 100,000 population when included in the lower tier local authorities of the UK.

14-day Notification Rate Comparison

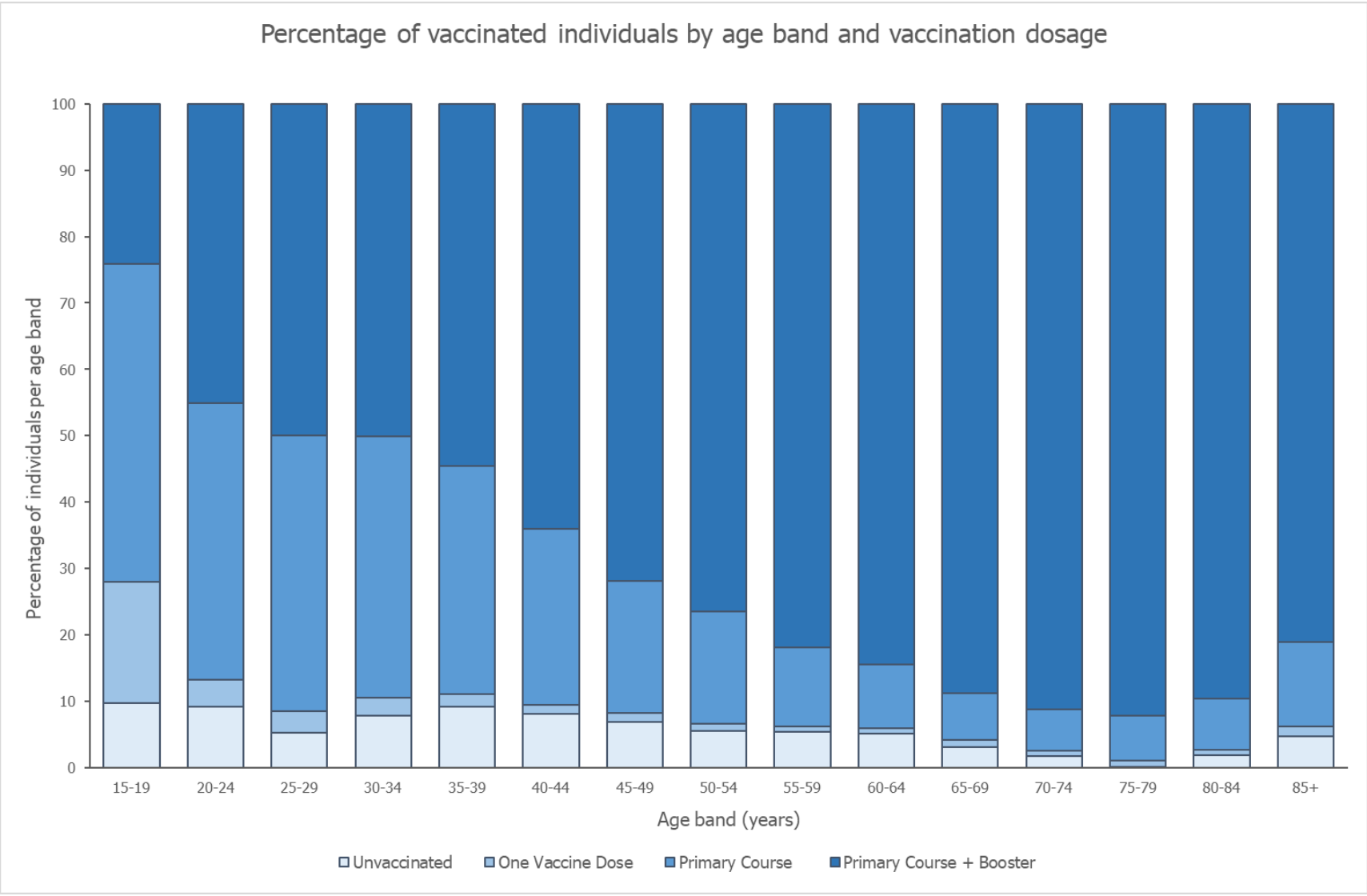
		Isle of Man			United Kingdom
Year	Week number	14 day rate	Lower CI	Upper CI	14 day rate
2021	36	617 . 41	612 . 23	622 . 60	727 . 08
	37	565 . 67	561 . 04	570 . 30	663 . 56
	38	660 . 93	654 . 07	667 . 78	643 . 48
	39	766 . 77	760 . 65	772 . 89	691 . 94
	40	874 . 96	867 . 84	882 . 08	778 . 05
	41	1136 . 04	1128 . 80	1143 . 29	805 . 89
	42	1357 . 14	1348 . 52	1365 . 75	852 . 05
	43	1303 . 04	1291 . 68	1314 . 39	936 . 14
	44	878 . 49	865 . 69	891 . 29	776 . 13
	45	666 . 81	660 . 02	673 . 60	697 . 62
	46	785 . 59	780 . 35	790 . 83	798 . 68
	47	1110 . 17	1099 . 81	1120 . 53	860 . 74
	48	1660 . 55	1645 . 83	1675 . 27	909 . 34
	49	1680 . 54	1664 . 71	1696 . 38	988 . 25
	50	1299 . 51	1289 . 26	1309 . 77	1317 . 95
	51	1834 . 60	1807 . 69	1861 . 52	-
	52	4497 . 13	4417 . 01	4577 . 25	2753 . 48
2022	1	5851 . 91	5781 . 44	5922 . 39	-
	2	4170 . 19	4102 . 45	4236 . 94	2911 . 96
	3	2412 . 03	2372 . 78	2451 . 28	1824 . 83
	4	1561 . 76	1542 . 00	1581 . 53	2008 . 64
	5	1193 . 67	1176 . 69	1210 . 65	1594 . 05
	6	759 . 71	747 . 32	772 . 11	1429 . 55
	7	617 . 41	611 . 64	623 . 19	1179 . 00
	8	830 . 28	823 . 86	836 . 69	791 . 47
	9	1397 . 12	1381 . 42	1412 . 82	939 . 69
	10	2461 . 43	2437 . 40	2485 . 45	1293 . 95
	11	3743 . 30	3714 . 64	3771 . 95	1415 . 20
	12	4267 . 81	4230 . 67	4304 . 94	1357 . 28
	13	3951 . 91	3548 . 23	3634 . 95	1691 . 45
	14	2529 . 64	2498 . 87	2560 . 41	1329 . 78
	15	1760 . 51	1741 . 72	1779 . 30	-

The 14-day rate is calculated by totalling new confirmed cases over the past 14-day period, dividing this number by the total population, and then multiplying by 100,000 to enable area comparisons.

Vaccine Uptake and Coverage

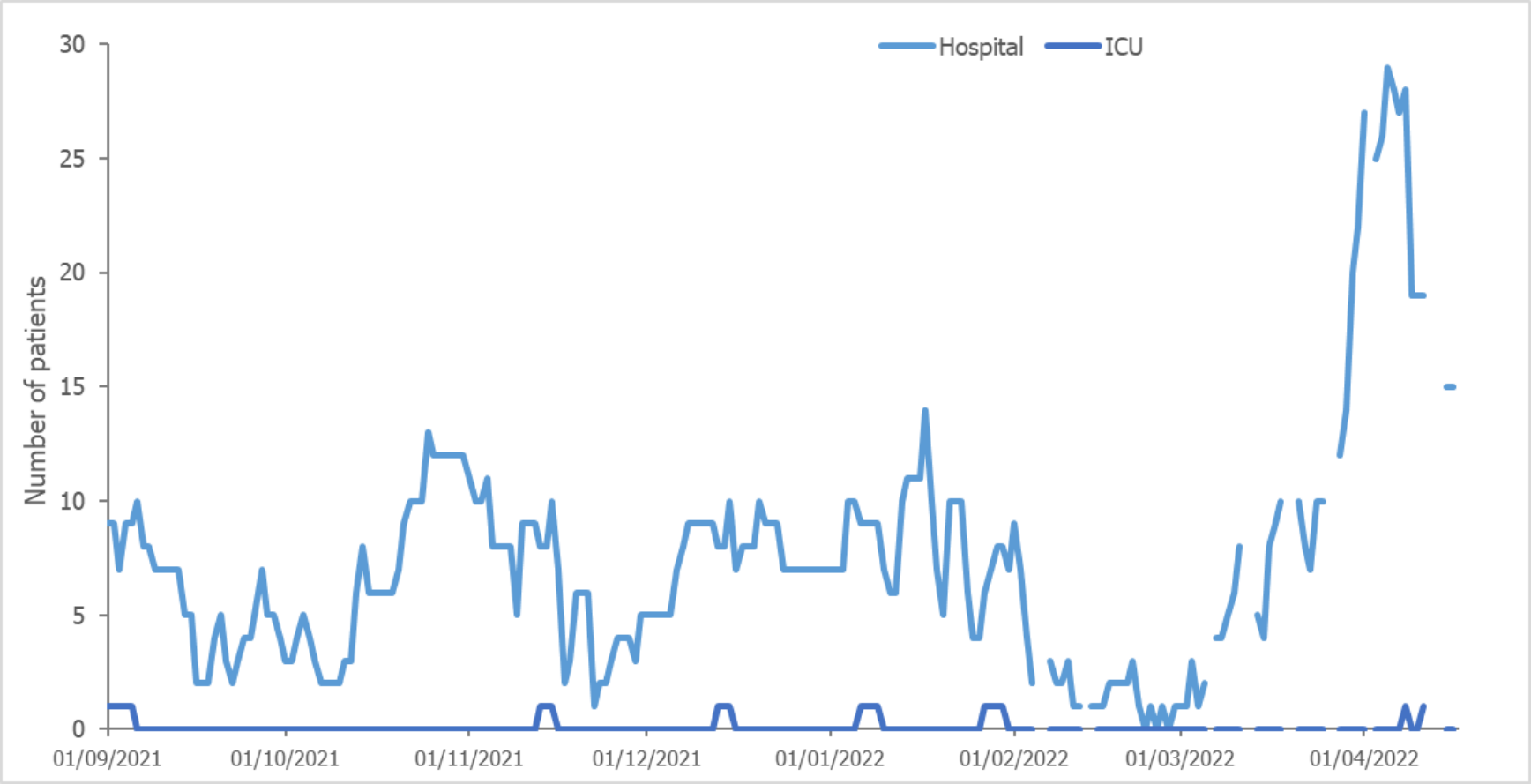


Vaccine Uptake and Coverage



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

Hospitalised Patients



Patients in hospital with a confirmed COVID-positive status at the time of the daily snapshot, taken at 12pm.

Hospitalised Patients

SUMMARY

Total Patients	**17**

Vaccination Status of Hospital Admissions	
Primary Course + Booster	65%
Primary Course	6%
One Vaccine Dose	12%
Unvaccinated	18%

Snapshot – 12:00 19/04/22

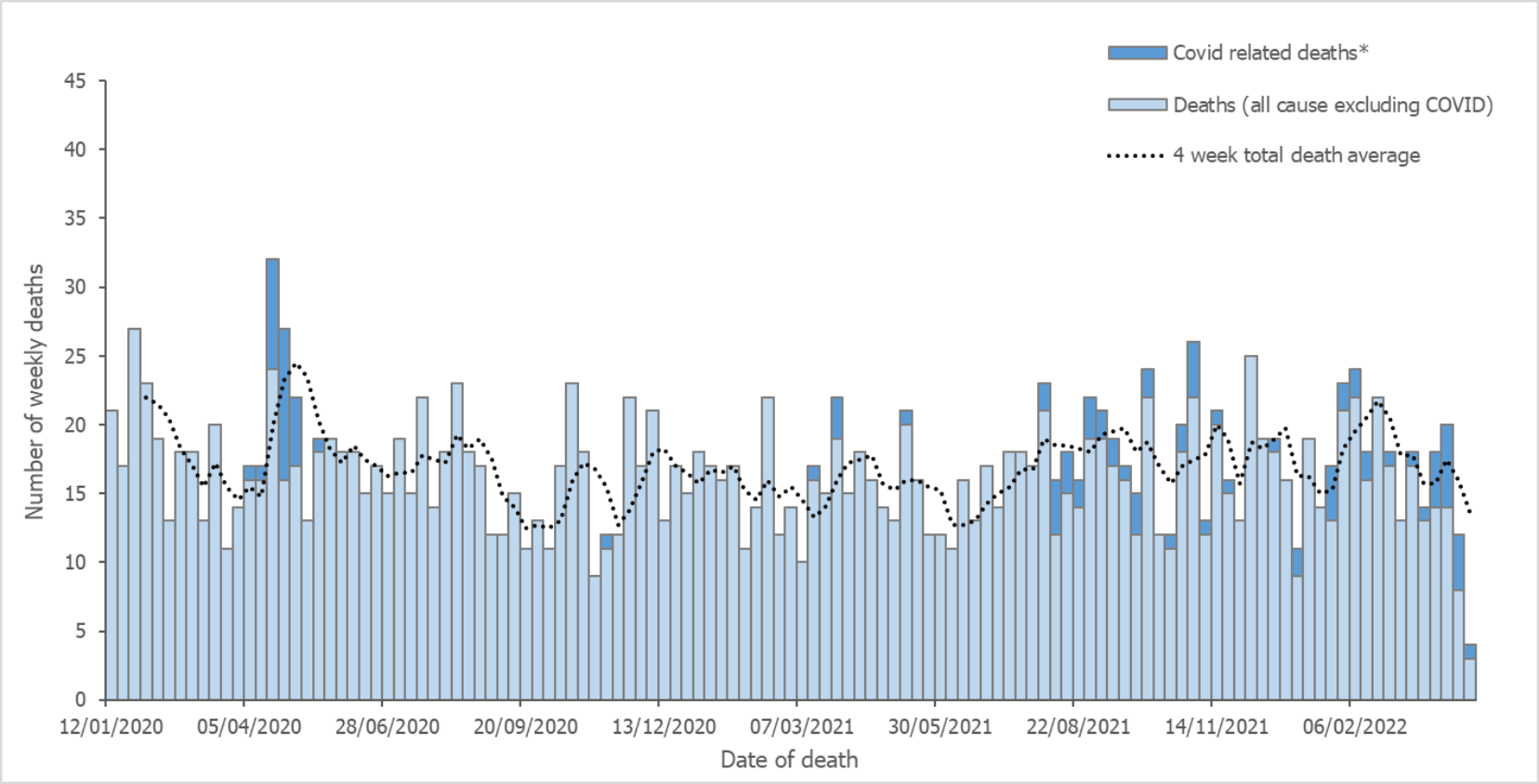
Hospitalised Patients

The following information has been supplied by Manx Care:

- At the time of information provision (15:15 19/04/22), there are 16 patients currently in Nobles Hospital who have tested positive for COVID-19.
- Of these, 16 have community acquired infection: 9 were admitted for treatment of their COVID-19 infection and 7 were admitted for other reasons and tested positive on admission.
- There were no patients with hospital acquired infection.

Please note, patient numbers may be differ to the daily snapshot totals due to changes in hospital numbers between the snapshot time (12:00) and time of information provision.

Weekly Deaths – Whole Pandemic

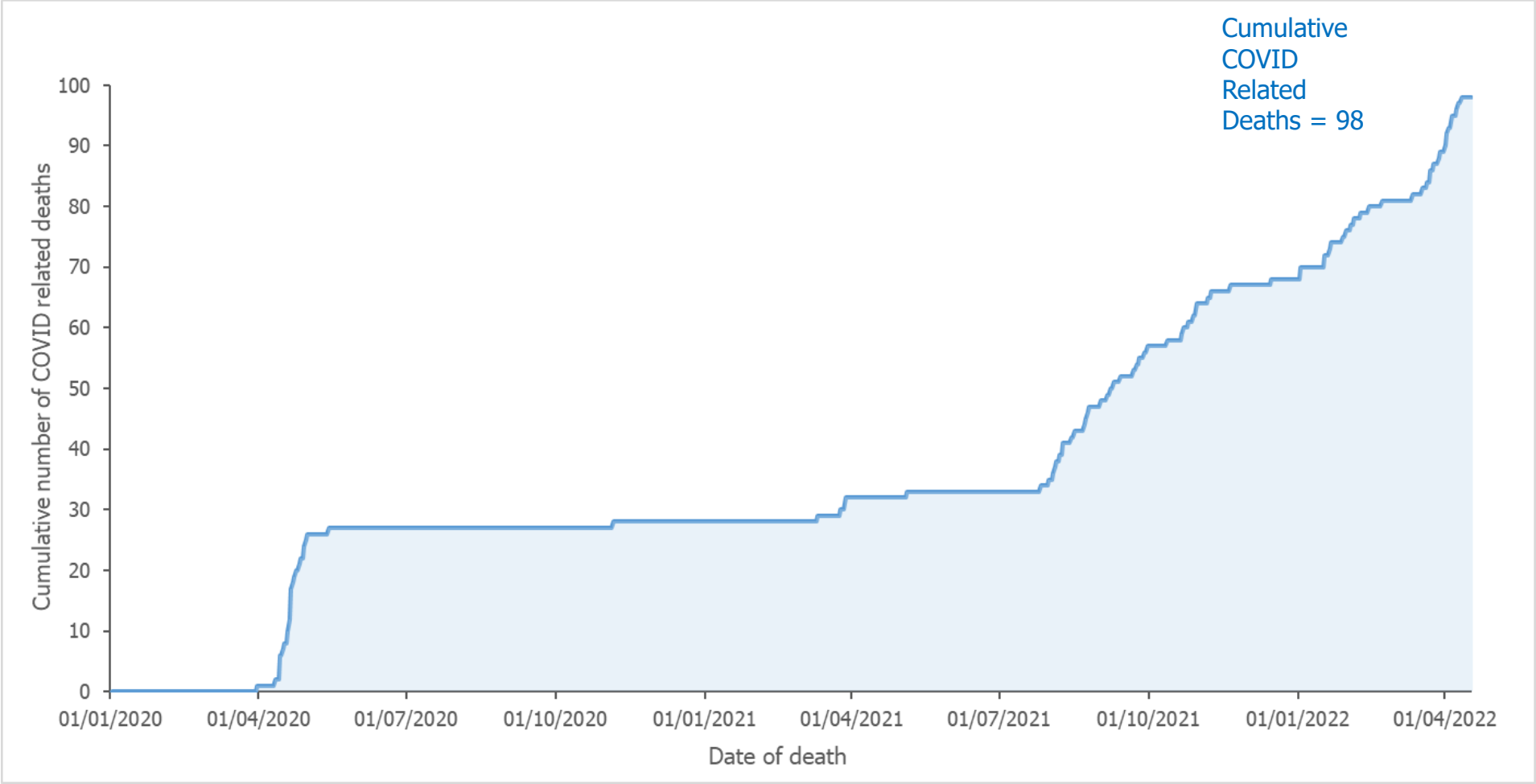


- *COVID related deaths are those where COVID-19 is mentioned **anywhere** within the death certificate. This differs from the definition used by Public Health England, who classify a COVID death as "people who had had a positive test result for COVID-19 and dies within 28 days of the first positive test result."

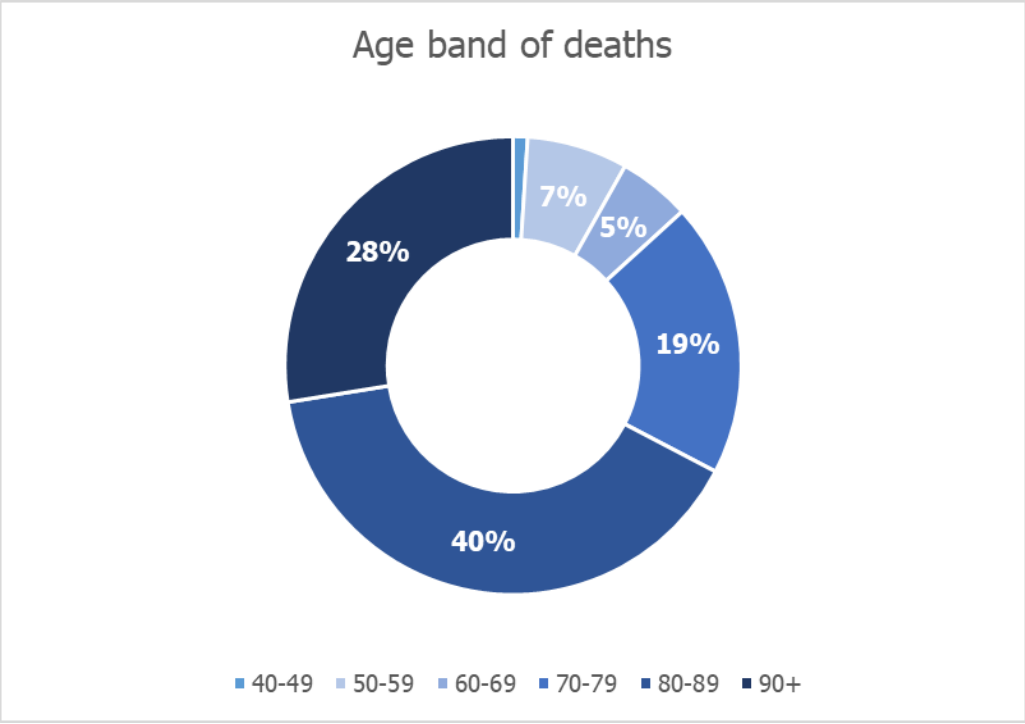
- **Death registrations are often delayed** and therefore deaths occurring in a given week may not be input into the week of which death occurred until a later date, meaning figures are likely to change retrospectively as data is updated. This also means that the most recent numbers will be incomplete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

- Cumulative COVID-19 related deaths stands at 98.

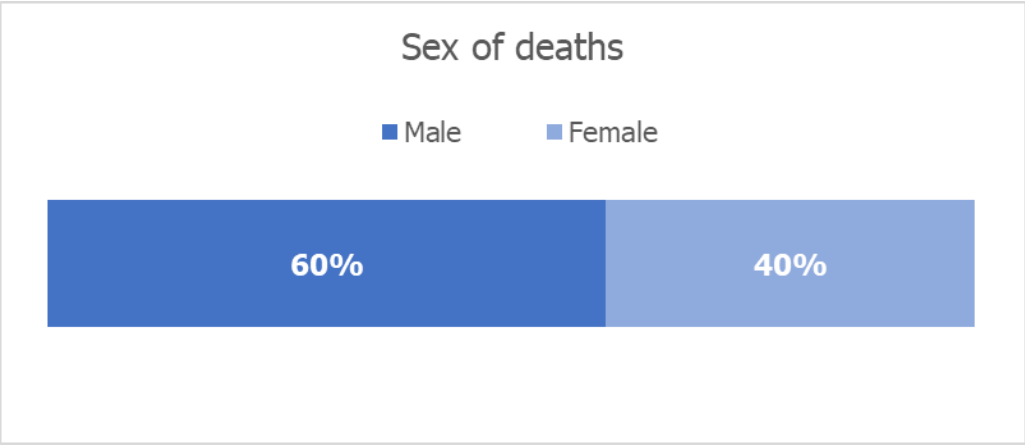
Cumulative COVID-Related Deaths



COVID-Related Deaths Overview



Age band of deaths	No. of deaths	% of total deaths
40-49	1	1.1%
50-59	7	7.1%
60-69	5	5.1%
70-79	19	19.4%
80-89	39	39.8%
90+	27	27.6%



Place of death	No. of deaths
Hospital	49
Hospice	3
Nursing/Residential Home	37
Domestic Property	9

Arrivals Testing

From the 1st April, arrivals testing requirements are as follows:

As of 1 April 2022 there are no travel related restrictions on the Isle of Man.

You **do not** need to:

- complete a travel declaration form before you travel to the Isle of Man from abroad
- take any COVID-19 tests before you travel or after you arrive
- isolate when you arrive

This applies whether you are vaccinated or not.

Other countries may have rules about what you need to do to leave the country to travel to UK/ Isle of Man. You should check travel advice for the country you are travelling from.

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
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
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
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
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
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
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
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		
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		
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		
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		
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		
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		
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		
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		
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		
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		
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		
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		
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		

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.

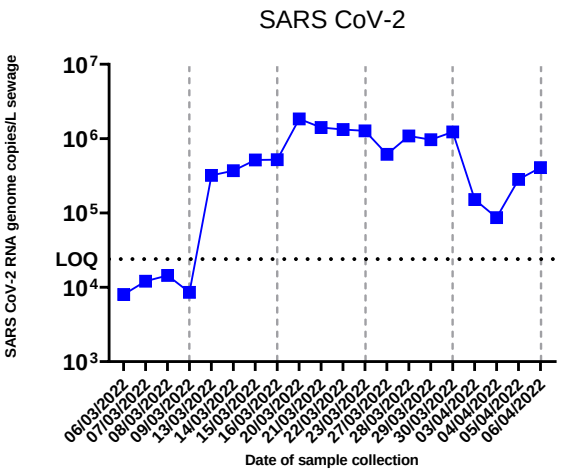
Appendix 2 - Data update

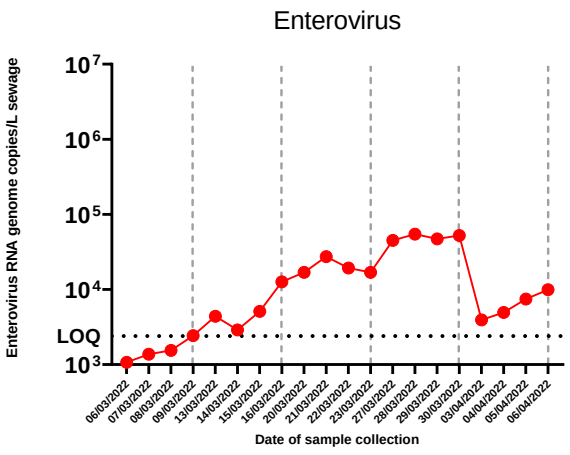
Data presented for samples collected over five weeks, between 06/03/2022 – 06/04/2022.

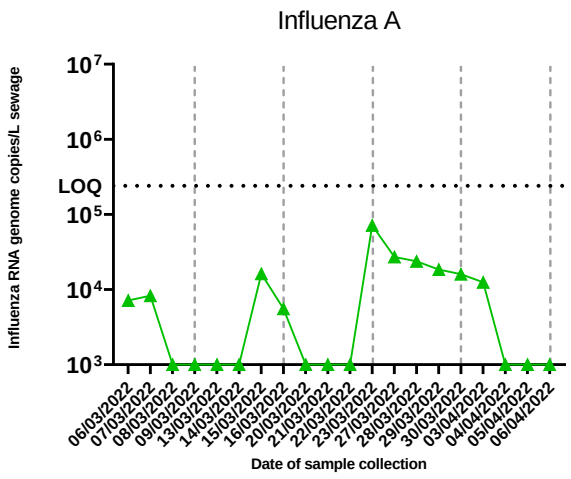
In this period, changing levels of SARS-CoV-2 and enterovirus RNA have been observed.

In Week 1 (w/c 06/03/2022), the presence of SARS-CoV-2, enterovirus and influenza virus RNA was below the assay limit of quantitation (LOQ).

From Week 2 (w/c 13/03/2022), the level of SARS-CoV-2 and enterovirus RNA has been consistently above the LOQ. The level of influenza virus RNA remains below the LOQ.





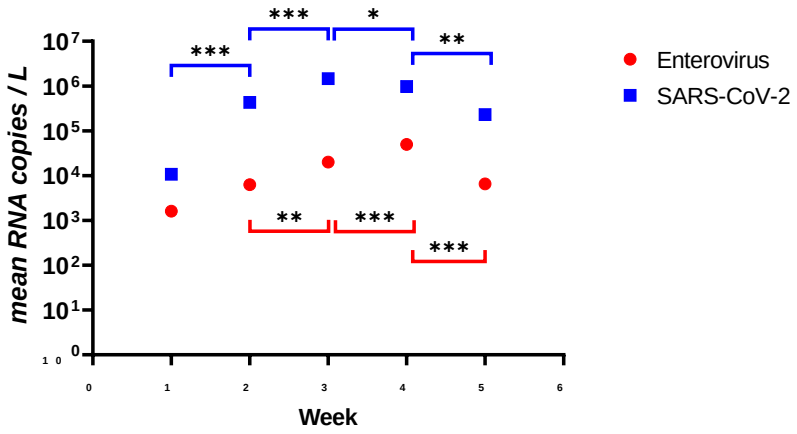


Appendix 2 - Data update

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.

A statistically significant increase in SARS-CoV-2 RNA was observed week-on-week in the first three weeks of testing (06/03/2022-23/03/2022), which plateaued between Week 3 and Week 4, followed by a significant decrease in viral load between Week 4 and Week 5.

No change in enterovirus RNA levels was observed between Week 1 and Week 2, but a statistically significant increase week-on-week between Weeks 2-4 was observed, which, followed by a significant decrease in viral load between Week 4 and Week 5.



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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[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.