Public Health Scotland

Discharges from NHSScotland Hospitals to Care Homes between 1 March and 31 May 2020

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Introduction

On 18 August 2020 the Cabinet Secretary for Health and Sport, commissioned Public Health Scotland (PHS) to carry out work to identify and report on discharges from NHS Hospitals to care homes during the first wave of the COVID-19 Pandemic. Both the University of Edinburgh and the University of Glasgow were partners in the production of this report.

This publication by PHS presents management information statistics on people aged 18 and over who were discharged from an NHSScotland hospital to a care home between 1 March and 31 May 2020. Section one of the report explains the methodology in defining the cohort of patients who were discharged, and describes their demographics and COVID-19 testing status. Section two defines and describes care home outbreaks of COVID-19 with an analysis of the factors associated with those outbreaks, specifically including hospital discharges.

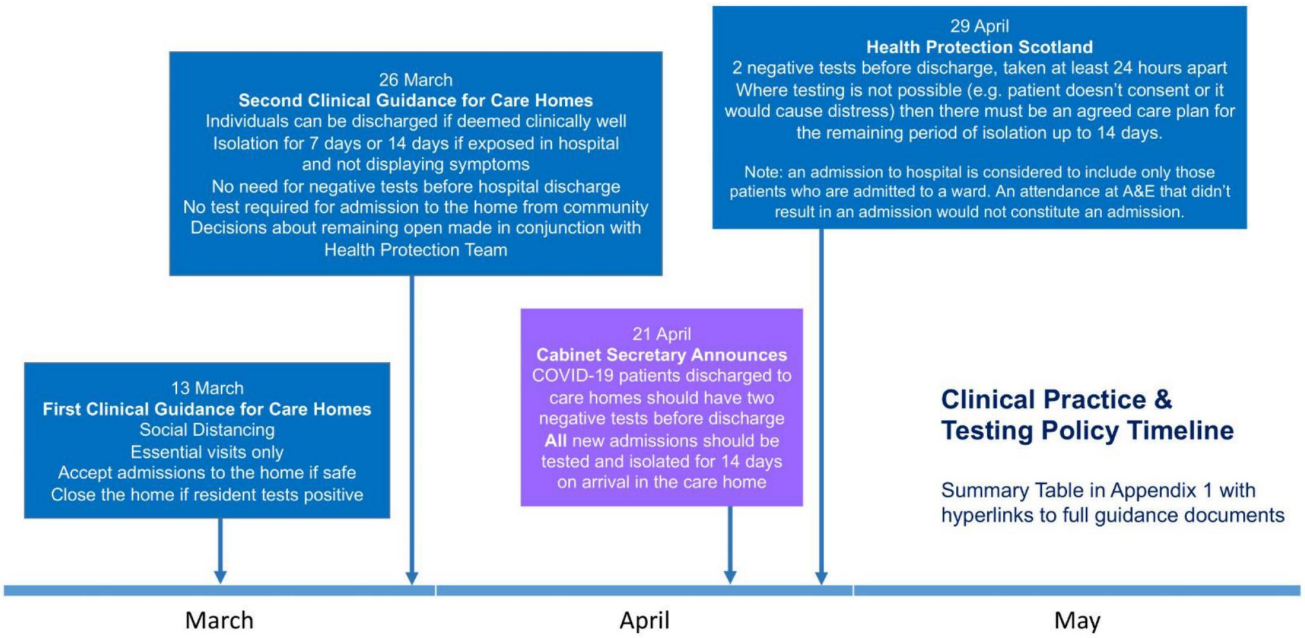
To protect confidentiality, the information presented in this report will not identify either individual people or individual care homes.

Clinical care context

Our understanding of COVID-19 infection was rapidly changing in the period between 1 March and 31 May. This evolving understanding is reflected in updated guidance over the period. To place in context with the guidance, the statistics in this report are presented, where appropriate, in time periods which reflect the key guidance and policy changes over the period.

Key changes in policy and National Guidance are highlighted in figure 1 below, and more detail is provided in Appendix 1.

Figure 1: Clinical Practice and Testing



Section 1 – Discharges from NHSScotland Hospitals to care homes

This section explains the methodology in defining the cohort of patients who were discharged, and describes their demographics and COVID-19 testing status.

Main Points (for Section 1)

Between 1 March and 31 May 2020, there were 5,204 discharges from NHS hospitals to care homes (4,807 individuals), this accounted for 5.3% of all hospital discharges during the same period. Of these discharges to care homes, 49.1% were discharged in the month of March, with a further 26.8% discharged in April, and 24.1% in May.

Demographics of the patient cohort

- The average (mean) age of people discharged from hospital to a care home was 81 years old. Females accounted for 58.5% of discharges.
- Discharges in March and April had slightly longer stays in hospital, on average, compared to those discharged in May.
- Three out of four discharges (75.3%) to care homes after a hospital length of stay of four or more weeks (1,655) were from three specialities: Geriatric Medicine, GP (non-obstetrics) and Psychiatry of Old Age

Testing

- There were 3,599 discharges from hospital to a care home between 1 March and 21 April. The majority (81.9%) in this earlier period were not tested for COVID-19, in-keeping with clinical guidance which restricted testing to those with symptoms of infection. Of the 650 who were tested, 78 received a positive result while in hospital.
- There were 1,605 discharges from hospital to a care home between 22 April and 31 May. The majority (1,493, 93%) in this later period were tested for COVID-19, in line with the changes in clinical guidance. Of these, 1,215 tested negative and 278 tested positive. Of those who tested positive, 233 had a later negative test result before discharge.

It is important to note that there are valid clinical reasons for individuals **not** to be tested before discharge, relating to their capacity to consent to testing and appropriateness of testing, e.g. in end of life care situations.

Discharge planning should involve the person themselves, their families and care homes as partners in care. COVID-19 test results and reasons for not testing before discharge should be clearly documented in clinical case records and discharge communication.

Methodology – creating a register of discharges from hospitals to care homes

This work relied upon the development of a comprehensive register of discharges of people aged 18 and over who were discharged to a care home and were;

- admitted to hospital prior to 1 March 2020 and discharged by 31 May 2020

  or

- admitted and discharged from hospital during 1 March and 31 May 2020.

There is no one source of data which reliably identifies discharges from hospitals to care homes. It is not currently possible to identify all discharges from hospital to care homes from hospital records alone. Identifying the cohort of patients was therefore not straight-forward and required linking together data from a variety of sources to create as accurate a register of discharges from hospital to care homes as possible. The reasons for the challenges in using hospital data alone, and the other data sets we have used to define the full cohort of patients, are described below.

Challenges of using hospital data alone

When a person is either admitted or discharged from hospital, information is recorded on who they are, the date they were admitted and discharged, clinical data about the cause of admission and any procedures done, and their address on admission. Much of the data is recorded using standardised codes which are entered by administrative and clinical staff.

Hospital data is collected through 4 main data sets:

- SMR01 – general inpatient and daycase record (the definitive record of general hospital admission and discharge but not finalised for some weeks after discharge)
- RAPID – daily rapid and preliminary inpatients and daycases (an immediately available but not finalised version of SMR01, and can be used as a source of information if the SMR01 record is not available)
- SMR01E – geriatric long stay records
- SMR04 – inpatient psychiatry records (the definitive record of psychiatric hospital admission and discharge but not finalised for some weeks after discharge).

The RAPID data set was used to try and ensure the full extent of acute discharges were adequately captured, as issues with the level of SMR01 completeness (i.e delays in submission of validated data) for some boards meant that some discharge data for the time period under examination were not yet available via SMR01.

One of the data items collected is “Discharge/Transfer To”. This describes the type of residence a patient is discharged or transferred to and can be used to identify those patients who are discharged to a care home. However, there are recognised data quality issues with the recording of ‘Discharge/Transfer to’ on hospital discharge records. For example, someone discharged to a care home may be incorrectly recorded as being discharged to a private residence; or someone discharged to sheltered housing may be recorded as being

discharged to a care home. Identifying discharges to care homes using this data item alone would have led to an undercount of patients (and some patients who were not discharged to care homes would have been wrongly assigned as a care home discharge), so it was important that other data sets were used to identify further patients discharged to a care home. Of the 5,204 discharges in our final register of discharges to care homes, only 3,639 (69.9%) were correctly identified using the "discharge/transfer to" data item. The other 1,565 (30.1%) were identified through linking of other data, which identifies further potential discharges to care homes in the hospital data. A further 139 discharges identified using "discharge/transfer to" were removed because they had been incorrectly recorded as discharges to care homes.

Linking other data to the hospital data to identify additional patients

To enhance the hospital data, and produce as complete a register of discharges to care homes as possible, further datasets were used to identify additional patients who were discharged to care homes who could not be identified using the "discharge/transfer to" data recorded on the main hospital data described above. These additional data sets were also used to validate those patients already identified on the hospital discharge records, and remove a small number of patients who had been incorrectly recorded in "discharge/transfer to" as having been discharged to a care home.

Some of these data were also used to explicitly identify the care home the patient was discharged to (for use in the more contextualised analysis described in section 2 of this report). This was done by comparing recorded addresses with addresses of care home registered with the **Care Inspectorate.**

The additional data considered were:

- **Delayed discharges** – hospital inpatients who are clinically ready for discharge from inpatient hospital care and who continue to occupy a hospital bed beyond the ready for discharge date.
- **Community Health Index** (CHI) – demographic data for all patients in Scotland, including the GP recorded address and an institution flag which identifies patients who reside in a care home
- **Scottish Ambulance Service Patient Transport Service** (PTS) – people who have been taken to a care home address
- **Temporary Placements** - Health and Social Care Partnerships were asked to supply data on people who moved into care homes from hospital on a temporary basis during this period, as these cases were thought to be less reliably identified using other methods.
- **Deaths data** – National Records Scotland data on registered deaths, where place of death was a care home.
- Discharges identified through **local review in NHS Boards**

These additional data sources enabled the identification of a further 1,565 discharges to care homes, and allowed PHS to verify the 3,639 discharges to care homes identified directly from

the hospital data (because the majority of the patients also appeared in these other data sets, enabling confirmation that they had been transferred to a care home).

Of the 1,565 additional discharges to care homes identified, the vast majority (1,523, 97.3%) had a corresponding hospital discharge record (on the main hospital data sets described on the previous page) but were not originally explicitly identified as discharges to care home because the "discharge/transfer to" data item had not been accurately recorded. There were 42 discharges identified through the delayed discharges data, that did not yet have a corresponding hospital discharge record in the main hospital data sets (which are subject to delay in some cases). These 42 discharges were included in our register for completeness.

Additional validation

To validate the enhanced cohort of discharges to care homes identified through the use of the hospital data and the other data sets, NHS Boards were asked to review the information for their discharges, encompassing intelligence from their own clinical audits and local reviews. PHS then reviewed their feedback and incorporated changes where appropriate.

Detailed information on the creation of the PHS register is described in our methodology paper, which also provides information on the numbers of patients being identified through each of the different data sources.

Actions to address the recording issues on hospital discharge data

As a result of the data issues identified in this report, work is underway to improve recording on hospital discharge records to identify when a person is either admitted from or discharged to a care home.

PHS are working with NHS Boards and IT System suppliers to enable the name of the care home to be recorded on admission and discharge, removing the need to rely solely on the incomplete "Discharge/Transfer to" code. This will then be submitted to PHS as part of the routine datasets.

Alongside this, PHS are planning training materials and reminders about why it is vital and important for all staff to record this information accurately.

Linking our register of patients to testing data

Once all discharges to care homes were identified, these records were then matched to their COVID-19 testing results, identified through the ECOSS system (which collates COVID-19 laboratory test results from NHS laboratories in Scotland and UK laboratories).

Results and Commentary: NHS Discharges to Care Homes

The analysis within this section is based on discharges from hospital between 1 March and 31 May 2020. It includes all inpatients in NHSScotland hospitals (including psychiatry) who stayed overnight, and who were aged 18 years or over at the time of discharge. Discharges to care homes were identified as described in the previous section.

Hospital discharges

This section details the number of discharges to care homes between 1 March and 31 May 2020, and contextualises this in terms of all discharges within the same period.

- There were a total of 97,628 hospital discharges between 1 March and 31 May 2020
- Of these, 5,204 (5.3%) were discharges to a care home
- These 5,204 discharges were for 4,807 patients (i.e. some patients had multiple stays in hospital over the period and were discharged more than once). The majority (92.6%) of patients had a single discharge, 7.4% had more than one discharge in this period
- Nearly half (49.1%) of discharges to care homes occurred in March 2020, with a further 26.8% discharged in April, and the remaining 24.1% in May.
- The majority (94%) of discharges to care homes in the period were admitted into hospital as an emergency, compared to 80.9% of all discharges in the same period
- The highest number of discharges across the three-month period were in March, with fewer discharges in April and May. Capacity was created across the NHS by stopping non urgent elective activity to ensure that urgent and emergency care took priority. Therefore, there was a drop in hospital inpatient activity during the course of the period under review.

Table 1 below details the number of discharges by month to a care home by NHS Board of Treatment, and the percentage of all discharges in the 3 months which were care home discharges. Of the mainland NHS Boards, NHS Dumfries and Galloway and NHS Borders had a slightly higher percentage of discharges to care homes compared with other NHS Boards; this is likely to be due to these areas having a higher proportion of older adults resident there.

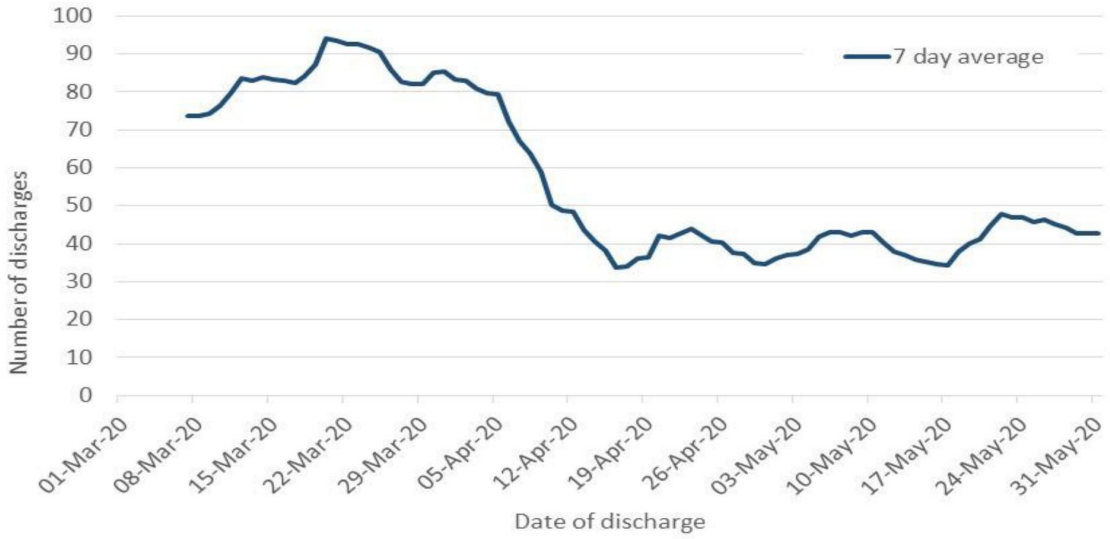
Table 1: Discharges to care homes by board of treatment and month of discharge; Scotland; Discharges between 1 March to 31 May 2020

Board of Treatment	Mar-20	Apr-20	May-20	Total	*% All discharges*
National Boards	1	0	0	1	*0.1%*
NHS Ayrshire & Arran	212	134	110	456	*5.9%*
NHS Borders	50	39	48	137	*7.8%*
NHS Dumfries & Galloway	97	64	60	221	*8.1%*
NHS Fife	188	95	72	355	*6.3%*
NHS Forth Valley	119	60	41	220	*5.4%*
NHS Grampian	241	174	116	531	*6.3%*
NHS Greater Glasgow & Clyde	665	317	352	1,334	*5.4%*
NHS Highland	120	82	70	272	*6.4%*
NHS Lanarkshire	268	107	102	477	*4.4%*
NHS Lothian	379	211	181	771	*4.6%*
NHS Orkney	7	8	7	22	*8.6%*
NHS Shetland	19	3	8	30	*11.4%*
NHS Tayside	168	88	81	337	*4.0%*
NHS Western Isles	21	12	7	40	*9.4%*
Scotland	**2,555**	**1,394**	**1,255**	**5,204**	***5.3%***

Source: Validated register of hospital discharges to care homes

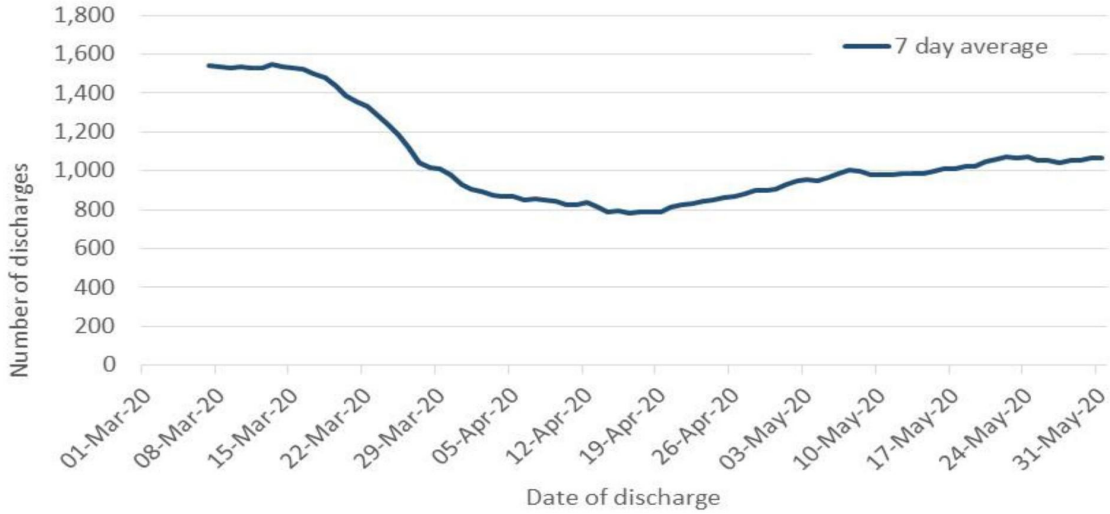
Figures 2a and 2b show the daily number discharges to care homes (figure 2a) and any location (figure 2b). The pattern is similar in both charts, with larger numbers of discharges during March compared to April and May. For discharges to care homes, the larger number of discharges continued into early April. This likely reflects the different profile of patients who are being discharged to care homes (compared to the larger population of hospital discharges). Discharges to care homes will generally be older patients who tend to have more complex physical and mental health needs and dependency than the general population so will require appropriate support to be in place before they are discharged.

Figure 2a Seven-day moving average for daily discharges to care homes; Scotland; Discharges between 1 March to 31 May 2020



Source: Validated register of hospital discharges to care homes

Figure 2b Seven-day moving average of daily discharges to all locations; Scotland; Discharges between 1 March to 31 May 2020



Source: SMR, RAPID & Delayed Discharges

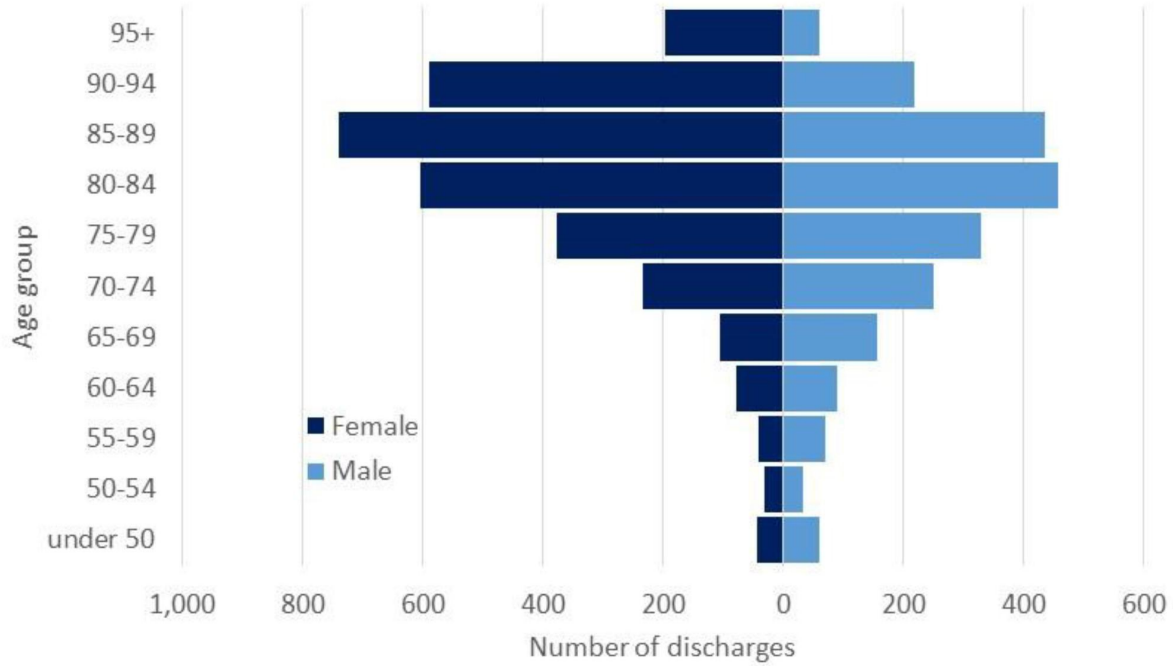
Characteristics of the population discharged to care homes

This section describes the characteristics of patients discharged from hospital into a care home.

Age

The age of those identified as being discharged from hospital to care home between 1 March and 31 May 2020, ranged from 19 to 105 years old, with an average (mean) age of 81 years. In comparison, the average age for all discharges was 61 years. Females accounted for 58.5% of discharges, which is similar to the proportion observed for all discharges during the same time period (54.4%).

Figure 3: Age and sex profile of discharges to care homes; Scotland; Discharges between 1 March to 31 May 2020

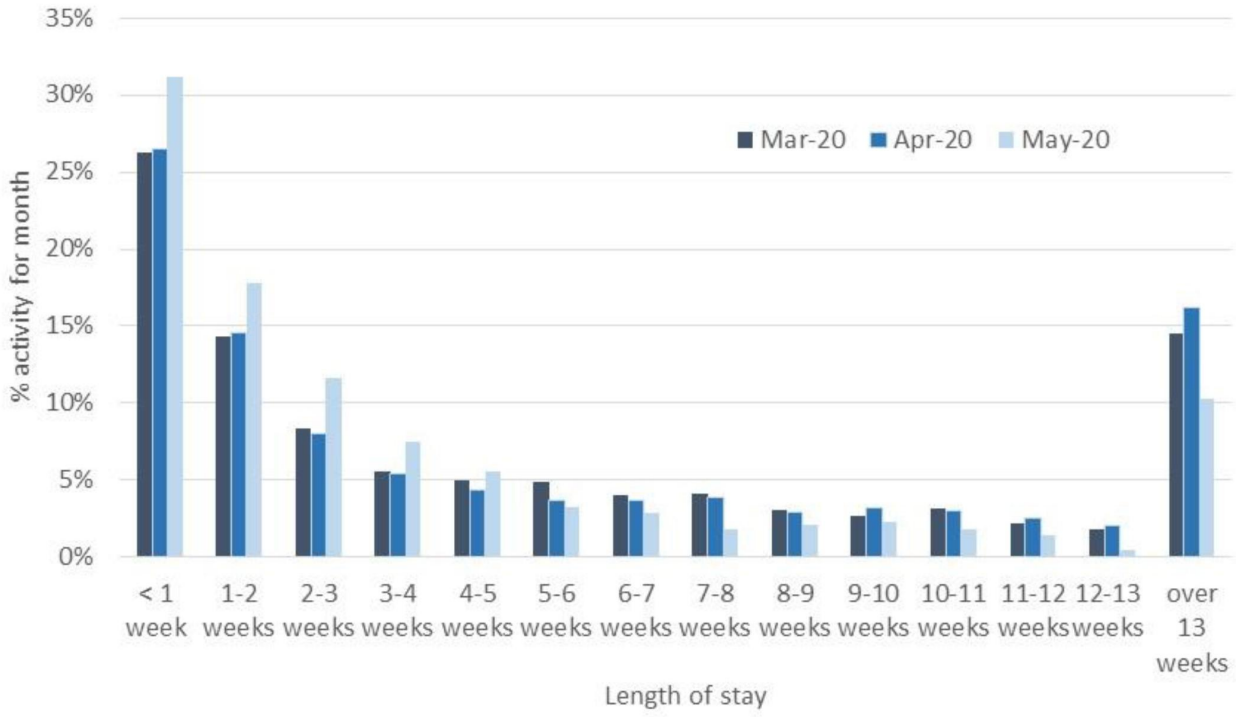


Source: Validated register of hospital discharges to care homes

Length of stay

Figure 4 shows the length of stay, in weeks, for discharges from hospitals to care homes over the three month period, 1 March to 31 May 2020. Although the pattern over the three months is similar, patients discharged in March and April had slightly longer stays in hospital, on average, compared to those discharged in May. In March and April, 50% of patients were discharged within 3 weeks of admission: in May 50% of patients were discharged within 2 weeks (a week shorter, on average).

Figure 4: Length of stay by month of discharge - all discharges to care homes; Scotland; Discharges between 1 March to 31 May 2020



Source: Validated register of hospital discharges to care homes

Older adults living with frailty and complex multimorbidity tend to have longer inpatient stays than younger people, who more often have a specific acute diagnosis. The specialty providing care reflects this complexity.

Three specialties accounted for three quarters (75.3%) of all discharges to care homes with a length of stay of four or more weeks (1,655); Geriatric Medicine, GP Non-obstetrics (generally community hospitals) and Psychiatry of Old Age.

Discharge diagnosis

Table 2 shows the most common main diagnoses for patients discharged from hospital to care homes. The most common diagnoses were grouped under infections (excluding COVID) (20.3%) and falls and fractures (18.5%). In 5.2% of discharges, dementia was recorded as the main diagnosis.

Table 2: Most common main diagnostic groupings – discharges to care homes; Scotland; Discharges between 1 March to 31 May 2020

ICD10[1] Diagnosis	Number of discharges	Percent
Infection (excluding COVID-19)	1,054	20.3%
Falls & fractures	963	18.5%
Dementia	272	5.2%
COVID-19[2]	244	4.7%
Stroke and TIA[3]	231	4.4%
Delirium	145	2.8%
Cardiovascular	99	1.9%

Source: Validated register of hospital discharges to care homes

Notes:

1. Diagnosis is recorded using the International Classification of Diseases Volume 10 (ICD10). Figures presented in this table refer to the main diagnosis recorded on the discharge record.
2. This includes both patients with an ICD10 code of U071 (COVID-19 virus identifed on laboratory test) and ICD10 code of U072 (Clinical COVID-19 diagnosed on other clinical features).
3. Transient Ischaemic Attack

Table 2 shows that COVID-19 was recorded as the main diagnosis in 244 discharges. A further 94 discharges had COVID-19 recorded as a secondary diagnosis. In total, 338 (7%) of all discharges to care homes had COVID-19 as a diagnosis recorded on the discharge record.

The prevalence of COVID-19 recorded on the hospital records of patients discharged to care homes increased over the period from less than 5 (<1%) discharges in March, to 137 (10.8%) in April and 198 (16.6%) in May.

Note these figures are based on the recording of COVID-19 on the case notes for the patient and do not reflect confirmed laboratory tests for COVID-19. They may therefore include suspected cases of COVID-19, or omit some positive cases if they were not recorded on the case notes. An analysis of discharges to care homes based on confirmed test results for patients is shown in the next section. The figures based on confirmed test results are similar and show 4 positive cases recorded in March, 127 in April and 225 in May.

COVID-19 Testing

Testing guidance for COVID-19 evolved during the period of interest (1 March to 31 May 2020), and availability of testing increased within hospital settings and in the community. [See appendix 1]. The Cabinet Secretary announced: "Covid-19 patients discharged from hospital to a care home should have given two negative tests before discharge. I now expect other new admissions to care homes to be tested and isolated for 14 days in addition to the clear social distancing measures the guidance sets out." on 21 April. Thus the data have been split at 22 April. HPS guidance was revised and published on 26 April, see Appendix 1.

Table 3 below gives a summary of the testing status of patients discharged from hospital to care homes. Data are reported by month of discharge, with figures for April split to reflect the changes in testing policy [See appendix 1]. It shows:

- There were 3,599 discharges to a care home between 1 March and 21 April. The majority (81.9%) were not tested for COVID-19, in-keeping with clinical guidance which restricted testing to those with symptoms of infection. Of the 650 discharges tested, 78 had a positive result while in hospital.
- There were 1,605 discharges to a care home between 22 April and 31 May. The majority (1,493, 93%) were tested for COVID-19, in line with the changes in clinical guidance. Of these, 1,215 tested negative and 278 tested positive. Of those who tested positive, 233 had a negative test result prior to discharge.

It is important to note that there are valid clinical reasons for individuals not to be tested prior to discharge, relating to their capacity to consent to testing and appropriateness of testing, e.g. in end of life care situations.

PHS sought clarification from Boards for individuals discharged from 22 April onwards who had tested positive and had either no negative tests or only one. There is recognition that changes in policy and guidance require time for implementation in clinical practice and this was reflected in the feedback from NHS Boards. Feedback received provided several reasons for not being able to complete negative testing prior to discharge, including: unable to swab (clinically inappropriate due to end of life care or distress to person), clinical decision based on symptoms and duration since first swab, and that the individual was returning to a care home with a known outbreak.

Table 3: COVID-19 testing status[1] of those discharged from hospitals to care homes, Scotland; Discharges between 1 March and 31 May 2020

	1-31 March	1-21 April	22-30 April	1-31 May
Number of discharges to care homes	2,555	1,044	350	1,255
Number not tested prior to discharge[2]	2,309	640	73	39
Number tested prior to discharge[2]	246	404	277	1,216
All tests done were negative[3]	242	330	224	991
Positive test then negative test before discharge[4]				
One negative test before discharge	-	4	7	5
At least two negative tests before discharge	-	6	24	197
Positive test without negative test before discharge[5]				
First positive test >14 days before discharge	-	11	4	8
First positive test 8-14 days before discharge	1	24	7	6
First positive test 0-7 days before discharge	3	29	11	9

Source: Validated register of hospital discharges to care homes: ECOSS COVID-19 testing data

Notes:

1 Where an individual had more than one test in a single day, any positive test result was retained over the negative, to retain the more important result
2 Number of discharges tested or not tested for COVID-19 prior to discharge from hospital to a care home. This includes positive tests up to 14 days prior to admission in addition to positive tests during admission
3 Number of discharges with one or more negative tests for COVID-19 prior to discharge and no positive test recorded within 14 days before hospital admission or during admission
4 Number of discharges with one or more positive tests for COVID-19 followed by a negative test prior to discharge from hospital
5 Number of discharges with one or more positive tests for COVID-19 and no subsequent negative test prior to discharge, by duration since first positive test

Delayed discharges

This section of the report is based on the number of delayed discharges from hospital to care homes between 1 March and 31 May 2020. These figures are a subset (30.0%) of the discharges from hospital to care homes (shown in the previous section) and only include discharges for those people who experienced a period of delay between being medically fit for discharge and actual discharge (eg because waiting for suitable accommodation to be available).

Routinely published information on delayed discharges is available on the Public Health Scotland website at: https://beta.isdscotland.org/find-publications-and-data/health-and-social-care/delayed-discharges/delayed-discharges-in-nhsscotland-monthly/.

These routine data provide information on those discharged home or to a placement. The placement category includes discharges to care homes. Figures in this section differ from published figures of delayed discharges to a placement because the published figures include discharges to other placements including Intermediate Care which can take place in other settings (e.g. housing with care, or community hospitals). Delays in hospital where the person died before discharge are not included.

Over the period 1 March to 31 May 2020, there were 1,560 delayed discharges identified as discharged from hospital to a care home following a period of delay, which represents 92.4% of the total number of delayed discharges to a placement (1,688) over the same period.

Table 4 gives a summary of the testing status of patients who were delayed discharges and discharged from hospital to care homes. Data are reported by month of discharge, with figures for April split to reflect the changes in testing policy [See appendix 1]. It shows:

- There were 1,242 delayed discharges to a care home between 1 March and 21 April. The majority (88.7%) of which were not tested for COVID-19, in-keeping with clinical guidance which restricted testing to those with symptoms of infection. Of the 140 delayed discharges which were tested, 11 received a positive result while in hospital.
- There were 318 delayed discharges to a care home between 22 April and 31 May. The majority (293, 92.1%) of which were tested for COVID-19, in line with the changes in clinical guidance. Of these, 237 tested negative and 56 tested positive. Of those who tested positive, all 56 had a negative test result prior to discharge.

Table 4: COVID-19 testing status[1] of delayed discharges from hospital to a care home; Scotland; Discharges between 1 March and 31 May 2020

	1-31 March	1-21 April	22-30 April	1-31 May
Number of delayed discharges to care homes[2]	855	387	83	235
Number not tested prior to discharge[3]	825	277	23	2
Number tested prior to discharge[3]	30	110	60	233
All tests done were negative[4]	30	99	47	190
Positive test then negative test before discharge[5]				
One negative test before discharge	-	1	2	-
At least two negative tests before discharge	-	1	11	43
Positive test without negative test before discharge[6]				
First positive test >14 days before discharge	-	4	-	-
First positive test 8-14 days before discharge	-	5	-	-
First positive test 0-7 days before discharge	-	-	-	-

Source: Validated register of hospital discharges to care homes: ECOSS COVID-19 testing data

Notes:

1 Where an individual had more than one test in a single day, any positive test result was retained over the negative, to retain the more important result

2 Number recorded as delayed prior to discharge from hospital to a care home identified in the validated register of hospital discharges to care homes

3 Number of delayed discharges tested or not tested for COVID-19 prior to discharge from hospital to a care home. This includes positive tests up to 14 days prior to admission in addition to positive tests during admission

4 Number of delayed discharges with one or more negative tests for COVID-19 prior to discharge and no positive test recorded within 14 days before hospital admission or during admission

5 Number of delayed discharges with one or more positive tests for COVID-19 followed by a negative test prior to discharge from hospital

6 Number of delayed discharges with one or more positive tests for COVID-19 and no subsequent negative test prior to discharge, by duration since first positive test

Health and Social Care Partnerships: Temporary Placements to care homes

Data was requested from Health and Social Care Partnerships (HSCPs) on individuals who had moved from inpatient hospital settings into care homes on a temporary basis.

Data were received from 28 of the 31 HSCPs (90% return). All data received were reviewed and checked, removing those who were not in hospital settings at the time of placement to a care home, those who were placed in a care home on a permanent basis and duplicate records. This resulted in information on 832 discharges into temporary placements in a care home, 730 of these individuals could be linked to a valid SMR record and are included in the main analysis already presented.

The data is summarised below by discharges by month (Table 5), the number of care homes receiving temporary admissions and the reasons for temporary placement (Table 6).

Table 5 Discharges[1,2,3] by month and Health and Social Care Partnership; between 1 March to 31 May 2020

HSCP Name	March	April	May	Total
Aberdeen City	20	22	15	57
Aberdeenshire	*	*	*	5
Angus	14	6	8	28
Argyll & Bute	9	*	*	17
Borders	21	19	22	62
Clackmannanshire & Stirling	*	*	*	7
Dumfries & Galloway	7	*	*	14
Dundee	*	5	*	8
East Ayrshire	*	*	*	*
East Dunbartonshire	*	*	*	*
East Lothian	*	6	*	12
East Renfrewshire	*	*	5	9
Edinburgh	25	58	19	102
Falkirk	17	*	*	19
Glasgow City	108	48	48	204
Highland	13	*	*	17
Inverclyde	*	9	*	24
Midlothian	13	*	*	19
Moray	*	11	*	21
North Ayrshire	9	*	*	18
North Lanarkshire	-	-	-	0
Orkney	*	5	*	9
Perth & Kinross	11	*	*	12
Renfrewshire	*	*	*	9
Shetland	7	*	*	12
South Lanarkshire	84	34	10	128
West Dunbartonshire	*	*	6	13
West Lothian	*	*	*	*
Total	398	264	169	831[1]

Source: HSCP submissions

Notes:
1. Missing date of care home admission in one case
2. No data were submitted by Fife, Na h-Eileanan Siar or South Ayrshire
3. * Indicates values that have been suppressed due to the potential risk of disclosure and therefore to maintain patient confidentiality

Care home name was provided to identify which care home individuals were discharged to. In total, 191 care homes received 832 discharges from hospital for temporary residence.

Table 6 Reasons[1,2,] for temporary placement by month of discharge; between 1 March to 31 May 2020

Reason for placement	March	April	May	Total
Assessment	88	40	25	153
Awaiting package of care	66	28	9	103
Interim placement awaiting placement of choice including rehousing	43	28	23	95
Intermediate care	102	44	41	187
Palliative care	4	1	0	5
Rehabilitation	11	18	14	43
Respite	18	14	12	44
Step-down	10	4	3	17
Other reason provided[2]	4	2	5	11
Temporary (no details given)	52	85	37	174
Total	**398**	**264**	**169**	**831[1]**

Source: HSCP submissions
Notes:
1. Missing date of care home admission in one case
2. Includes house cleaning, repairs, symptom control

Section 2 – Impact on care homes

Introduction

The first section of this report described the methods used to identify the 5,204 discharges of 4,807 adults to care homes from NHS Scotland hospitals during March-May 2020 and described their characteristics and COVID-19 testing status during their hospital admission.

This second section focuses on the adult care homes that individuals were discharged to. It describes laboratory-confirmed care home outbreaks of COVID-19 across Scotland where the first positive test occurred between 1 March and 21 June. It then examines associations between care home characteristics and COVID-19 outbreaks, including examining association between hospital discharge to care homes and outbreaks.

To protect confidentiality, the information presented in this report does not identify either individual people or individual care homes.

Main Points (for section 2)

Discharges to Care home

- 843 of the 1084 care homes received 5,191 discharges between 1 March and 31 May (13 of the discharges identified in Section 1 were to English care homes or the care home could not be identified)
- Care homes received between 1 and 46 discharges, with an average of 6 discharges per care home

Care home outbreaks of COVID-19

- Using laboratory confirmed cases, 348 (32%) of care homes in Scotland experienced an outbreak of COVID-19 in the home between 1 March and 21 June
- The percentage of care homes with an outbreak increased progressively with care home size, from 3.7% of care homes with <20 registered places to 90.2% of care homes with 90+ registered places
- Almost all outbreaks (336/348) occurred in care homes for older people. There were 1,915 COVID-related deaths (i.e. with any mention of COVID-19 on the death certificate) in this period, occurring in 321 care homes.
- COVID-19 associated mortality was concentrated in its impact, more than half of COVID-19 deaths were in 64 homes and a quarter of all COVID-19 deaths were in just 25 homes.

- 13.5% of care homes with no discharges from hospital had an outbreak, compared to 38% of care homes with one or more discharges. However, larger care homes were both more likely to have discharges *and* to have an outbreak, so a simple comparison is likely to be misleading
- In the statistical modelling analysis:
    - Care home size has the strongest association with outbreaks of COVID-19, and this association persists after taking account of other care home characteristic including discharge from hospital. Risk of a care home outbreak increases progressively as the size of care home increases.
    - Hospital discharge is associated with an increased risk of an outbreak when considered on its own. However, after accounting for care home size and other care home characteristics, the estimated risk of an outbreak reduces and is not statistically significant.

Data sources

Analysis used the same dataset used in section one of discharges from hospital to care homes between 1 March and 31 May 2020. This file identified individuals using their Community Health Index (CHI) number, with multiple admissions identified using date of admission. Test data for those discharged was defined as described in section one, classifying individuals at the time of discharge as follows:

- Untested during admission
- Last test negative before discharge (either all tests done were negative, or any positive test was followed by a negative test before discharge)
- Last test positive, with no negative tests before discharge
    - 0-7 days since first positive test
    - 8-14 days since first positive test
    - >14 days since first positive test

Allocation of care home of discharge

The actual care home that people were discharged to was assigned using multiple data sources (Figure 5). All care home locations were mapped to their CSNumber (Care Inspectorate identifier) and Unique Property Reference Number (UPRN which is a national building identifier). Where a care home location could not be identified (<5%) from these datasets, PHS contacted NHS Boards for more information.

Figure 5: Data sources used to allocate a specific care home location individuals were discharged to

Footnote: HSCP – Health and Social Care Partnership; PTS – Patient Transport Service; CHI – Community Health Index; NRS – National Records of Scotland; SMR – Scottish Morbidity Record

Following the above process, a Scottish care home location was identified for 5,191 discharges (99.8% of all discharges identified) of 4,796 individuals.

The remaining 13 discharges were excluded. Seven were confirmed by Boards as care home discharges, but no location could be provided, and six were discharged to care homes in England so could not be linked to testing data.

Care home service data

The Care Inspectorate Datastore was used to obtain a list of active care home services during the period of interest. Care homes are identified using a CSNumber, which is based on their service registration.

Other descriptive variables about the care home including: **number of registered places** (the maximum number of residents allowed); **care home subtype** (older people; learning disability; mental health problems; physical and sensory impairment; other services including alcohol & drug misuse, blood borne viruses, respite & short breaks); **sector** (private, voluntary/not for profit, local authority/health board) and **Risk Assessment Document score (RAD score)** were extracted. The RAD score is used by Care Inspectorate inspectors and managers to inform inspection regimen; homes are categorised into low risk, medium risk and high risk, based on inspections, complaints, enforcement cases and updates around service quality. The **Integration Authority** in which the home is located were also extracted (Integration Authorities are joint NHS-local authority bodies responsible for integrated care). The Care Inspectorate supplied an additional variable for use in this work defining whether a service provides registered **nursing care** to service users.

Testing data – care homes

Guidance about testing care home residents, and laboratory capacity to test residents changed over time, which affects detection of cases. Testing practice varied across NHS Boards. Initially, testing in the community was limited, and when done in care homes, only the first few residents with COVID-19 symptoms in each home were tested. If the first few residents were positive, then other residents with symptoms were assumed to have COVID-19 without testing (this is common practice for other infectious disease outbreaks in this context). This means that the early numbers of positive tests will be less than the true number of cases. From 13 April, all residents with COVID-19 symptoms were tested. However, many older people may have atypical symptoms rather than cough or fever, so the number of positive tests is still likely to be less than the true number of cases. After 1 May all residents and staff in homes with outbreaks, irrespective of symptoms were tested.

In hospitals, testing was initially restricted to people admitted with possible symptoms of COVID-19. Testing of people admitted to hospital with other symptoms was therefore very limited. Routine testing before discharge to care homes was introduced from 22 April (although with allowed exceptions relating to capacity, consent and distress), and screening of everyone aged 70 years admitted to hospital was introduced on 28 April.

All positive tests for COVID-19 obtained in NHS Scotland before 30 June were extracted from the Electronic Communication of Surveillance in Scotland (ECOSS) database. This includes tests taken by the NHS and those analysed in the UK Government Lighthouse Laboratories.

Care home resident tests were identified by linking ECOSS data to the CHI register. From the linked dataset, care home tests were allocated to individual services based on specimen address, CHI address, test location, specimen type and clinical details.

Tests were eligible for inclusion in the analysis if they were performed between 1 March and 21 June (i.e to include test results 21 days after the last hospital discharge in the period 1 March to 31 May) and were obtained on a resident while in the care home (tests obtained while a resident was in hospital were excluded).

There were 3,278 care home residents with one or more positive tests recorded where the test had been done in a care home (some residents were tested more than once). These 3,278 residents lived in 348 of the 1084 care homes, which were therefore defined as having a laboratory confirmed outbreak. The date of the first positive test in the care home was used to define the start date of each of these 348 laboratory confirmed outbreaks.

Mortality data

Mortality data was obtained from National Records of Scotland of deaths from 2 March to 21 June 2020. Deaths of those discharged were identified using linkage between NRS deaths and the discharge file using CHI. All deaths in care homes were identified using institution codes and these were then mapped to the CSNumber and UPRN of each care home.

COVID-19 mortality was defined by any mention on the death certificate of ICD-10 codes U071 (COVID-19 virus identified on laboratory test) or U072 (Clinical COVID-19 diagnosed on other clinical features; this may include people in whom COVID-19 has been confirmed in hospital by other tests such as CT scan of the lungs, and people in whom COVID-19 is suspected). Data are reported based on date of death, rather than date of death registration.

Care homes

Using the Care Inspectorate Datastore, Table 7 summarises the characteristics of the 1,084 adult care homes included in the analysis

Table 7: Characteristics of all 1084 adult care homes included in analysis

Care home characteristic	Number of care homes	% of all care homes
Care home size (number of registered places)		
<20	298	27.5%
20-29	161	14.9%
30-39	159	14.7%
40-49	160	14.8%
50-59	77	7.1%
60-69	109	10.1%
70-79	37	3.4%
80-89	32	3.0%
≥90	51	4.7%
Care home subtype		
Older people	817	75.4%
Learning disabilities	156	14.4%
Other adult service[1]	111	10.2%
Sector		
Private	680	62.7%
Voluntary/not for profit	257	23.7%
Local authority/NHS	147	13.6%
Risk Assessment Document score[2]		
Low risk	687	63.4%
Medium risk	223	20.6%
High risk	174	16.0%
Nursing care		
No nursing care	462	42.6%
Nursing care	609	56.2%
Missing	13	1.2%

1. Adult care homes for: Mental Health Problems; Physical and Sensory Impairment; Respite and Short Breaks; Alcohol and Drug Misuse; or Blood Borne Virus
2. Care Inspectorate assessment of service using based on inspections, complaints, enforcement cases and updates around service quality

Table continues on next page

Table 7 cont : Characteristics of all 1,084 adult care homes included in analysis

Care home characteristic	Number of care homes	% of all homes
Integration authority		
Aberdeen City	56	5.2%
Aberdeenshire	69	6.4%
Angus	30	2.8%
Argyll and Bute	18	1.7%
Clackmannanshire and Stirling	34	3.1%
Dumfries and Galloway	34	3.1%
Dundee City	30	2.8%
East Ayrshire	25	2.3%
East Dunbartonshire	19	1.8%
East Lothian	19	1.8%
East Renfrewshire	13	1.2%
Edinburgh	84	7.7%
Falkirk	32	3.0%
Fife	81	7.5%
Glasgow City	104	9.6%
Highland	68	6.3%
Inverclyde	22	2.0%
Midlothian	14	1.3%
Moray	16	1.5%
North Ayrshire	26	2.4%
North Lanarkshire	34	3.1%
Orkney Islands	8	0.7%
Perth and Kinross	43	4.0%
Renfrewshire	26	2.4%
Scottish Borders	26	2.4%
Shetland Islands	10	0.9%
South Ayrshire	31	2.9%
South Lanarkshire	59	5.4%
West Dunbartonshire	12	1.1%
West Lothian	31	2.9%
Western Isles	10	0.9%

Source: Care Inspectorate Datastore

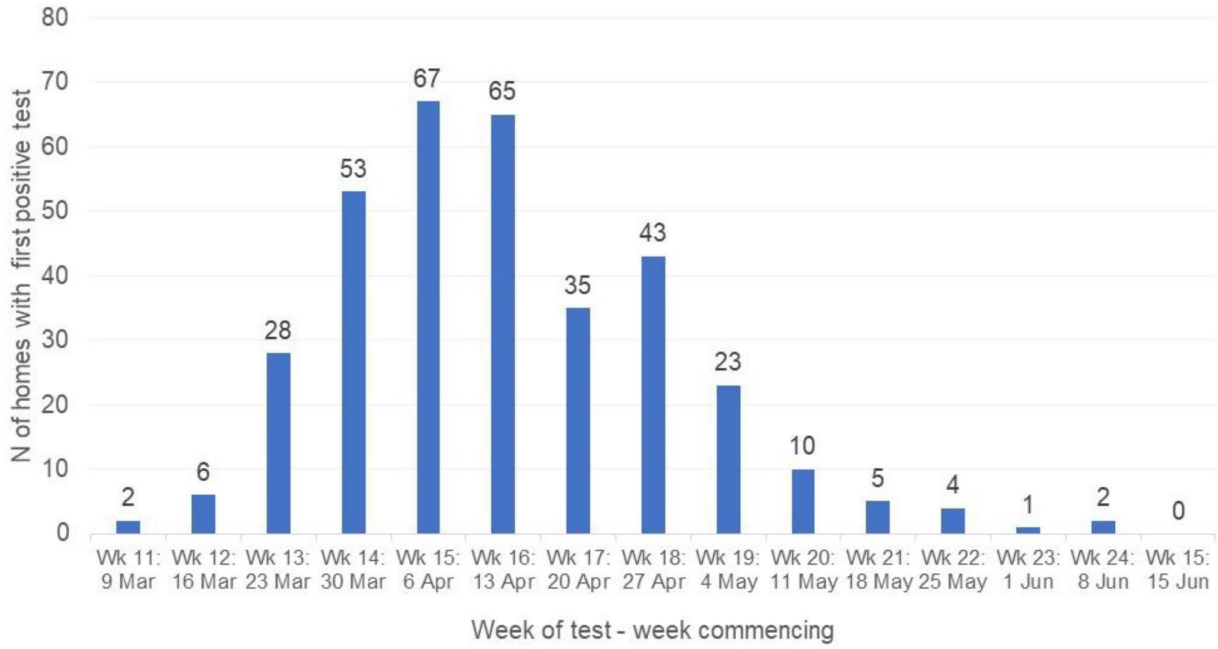
1. Adult care homes for: Mental Health Problems; Physical and Sensory Impairment; Respite and Short Breaks; Alcohol and Drug Misuse; or Blood Borne Virus
2. Care Inspectorate assessment of service using based on inspections, complaints, enforcement cases and updates around service quality

Care home outbreaks of COVID-19

In total, 348 care homes had a **laboratory confirmed outbreak** of COVID-19 infection during the period 1 March to 21 June, defined as a care home where one or more residents had a positive test taken in the care home.

Figure 6 shows the evolution of care home outbreaks, based on date of first positive test. The number of care homes with a new outbreak rose rapidly from the week beginning 23 March, peaking at 67 new care home outbreaks in the week beginning 6 April before declining. From the week beginning 18 May, there were few new outbreaks.

Figure 6: Number of care homes with a new outbreak by week, 9 March to 21 June 2020

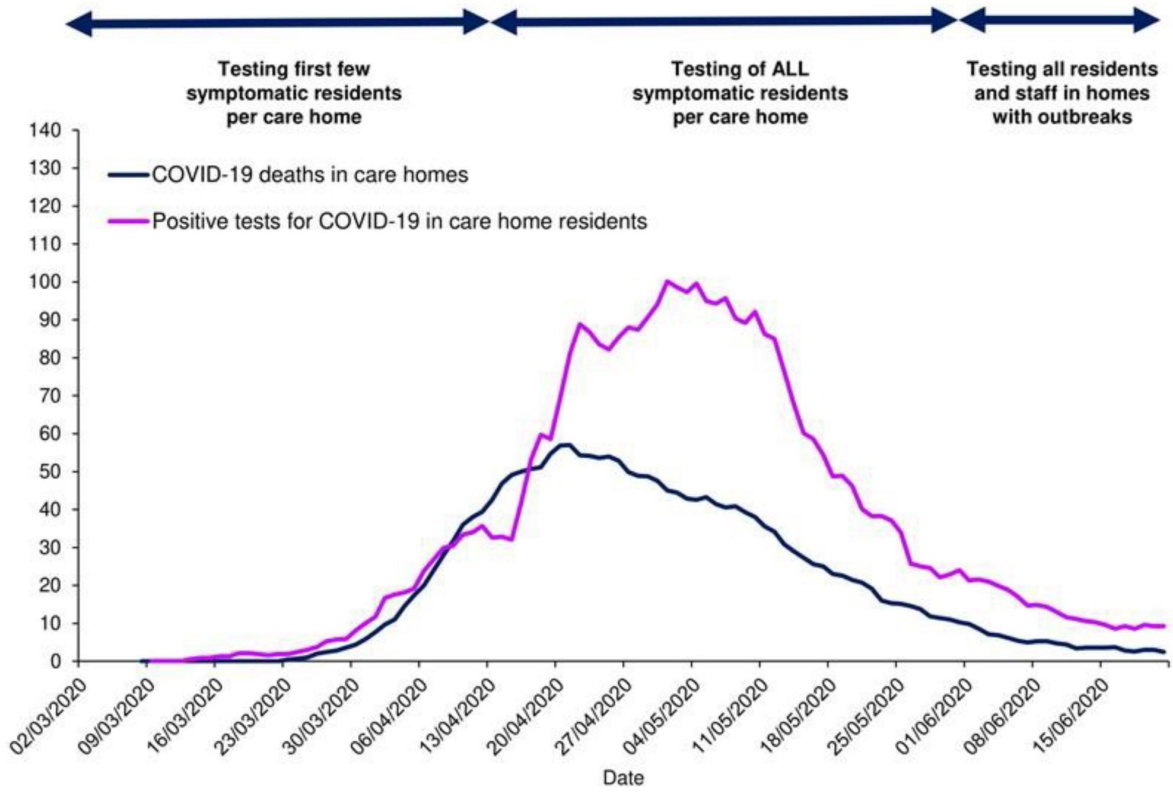


Source: CHI Register & ECOSS COVID-19 testing data

Care home residents testing positive for COVID-19 in the care home

The first positive tests in care home residents were identified on 13 March. Figure 7 shows the 7-day rolling average of the number of positive tests for COVID-19 in care home residents. Figure 7 notes the changes in terms of community testing practice where, at the beginning of the period only the first few symptomatic cases in each home were tested; changing to testing all symptomatic residents and finally all residents and staff in homes with an outbreak. The number of positive cases triples in the two weeks after testing is extended to all symptomatic residents, but this likely represents better ascertainment of cases rather than a true change in numbers. In addition, Figure 7 includes the 7-day rolling average of the number of COVID-19 deaths occurring in care homes. The first care home deaths from COVID-19 occurred on 24 March, rising to a peak in the third week of April before declining continuously.

Figure 7: Seven-day rolling average number of positive tests for COVID-19 in care home residents and COVID-19 deaths in care homes



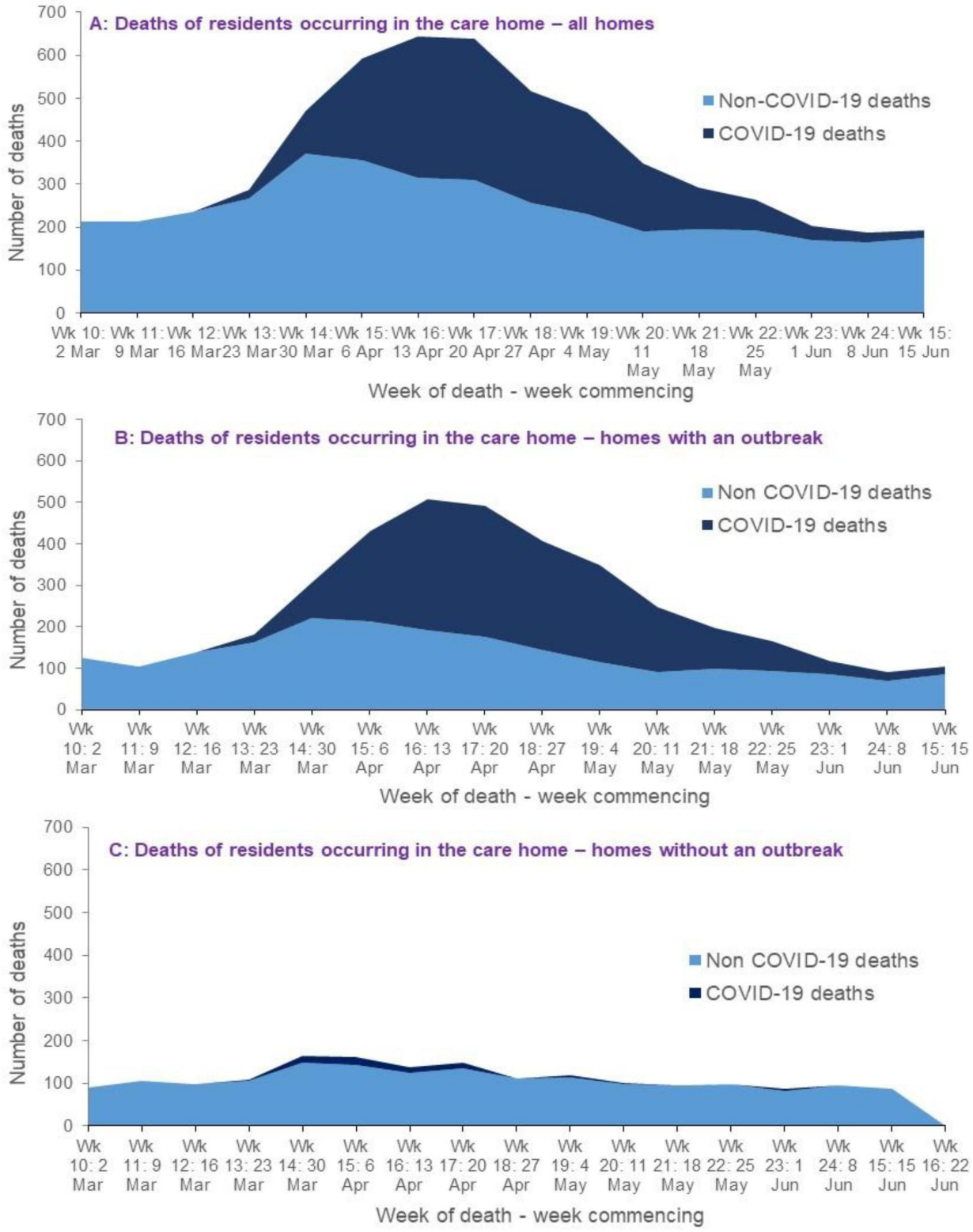
Source: CHI Register, NRS deaths & ECOSS COVID-19 testing data

Care home mortality

Between 2 March and 21 June, there were 5,768 deaths in 774 care homes. Figure 8A shows the distribution of these deaths for all care homes, distinguishing between COVID-19 and Non-COVID-19 deaths. There were 1,915 COVID-related deaths (i.e. with any mention of COVID-19 on the death certificate) in this period, occurring in 321 care homes. 1,838 of these deaths occurred in 276 care homes with a laboratory-confirmed outbreak, compared to 77 COVID-related deaths recorded in 45 care homes without a laboratory confirmed outbreak.

Figure 8B and C show mortality in homes with and without an outbreak of COVID-19. This demonstrates the concentration of COVID-19 mortality in homes which had a laboratory confirmed outbreak. There is much less change in mortality in care homes without a laboratory confirmed outbreak. Because of variable testing early in the epidemic, relying on laboratory confirmed outbreaks may miss some outbreaks (notably, there are fewer laboratory confirmed outbreaks than 'suspected' outbreaks reported to the Care Inspectorate by care homes). However, since 96% of COVID-related deaths were in care homes with laboratory confirmed outbreaks, we are confident our method of identifying care home outbreaks does not miss any large outbreaks.

Figure 8a-c: Care home mortality – COVID-19 and non-COVID-19 deaths; distribution of resident deaths between homes with and without a laboratory confirmed outbreak



Source: CHI Register, NRS deaths & ECOSS COVID-19 testing data

COVID-19 associated mortality was further concentrated in its impact in care homes with an outbreak. More than half of COVID-19 deaths occurred in 64 of the 348 care homes with an outbreak, and a quarter of all COVID-19 deaths in 25 care homes.

Discharges to Care home discharges

There were 5,191 discharges of 4,796 people from hospital to 843 care homes between 1 March and 31 May. Individual care homes received from 1 to 46 discharges, with an average of 6 discharges per care homes which received at least one discharge.

There were 730 (14%) discharges to 187 care homes which were identified by Health and Social Care Partnerships (HSCPs) as being for temporary placement (3 of the 31 HSCPs did not submit data and not all of those identified by HSCPs could be matched to the discharge file [See page 21, section one]). Care homes received between 1 and 31 discharges for temporary placement, with an average of 4 discharges per care home receiving at least one temporary placement.

Table 8 shows the distribution of discharges based on the NHS Board the *care home* is located within. These differ slightly from the distribution of discharges reported in Section one, which were based on the NHS Board the *hospital* is located in. This is because people may live in a care home in one Board, but be discharged from a hospital in another Board.

Table 8: NHS Board location of care homes receiving discharges

NHS Board of Care Home	Number receiving discharges	% of all homes in area
Ayrshire & Arran	70	85.4%
Borders	20	76.9%
Dumfries & Galloway	29	85.3%
Fife	73	90.1%
Forth Valley	48	72.7%
Grampian	91	64.5%
Greater Glasgow & Clyde	155	79.1%
Highland	70	81.4%
Lanarkshire	73	78.5%
Lothian	110	74.3%
Orkney	*	-
Shetland	*	-
Tayside	83	80.6%
Western Isles	10	100.0%

* Numbers <10 omitted to prevent identification of individuals

Of the 5,191 discharges, 2,357 (45%) went to one of the 736 care homes which did *not* experience an outbreak between 1 March and 21 June. Of the 2,834 (55%) discharges which went to the 348 care homes with an outbreak, 1,020 discharges were after or on the day that the care home outbreak started (and so could not have caused the initial outbreak). The remaining 1,814 (35%) were discharged to one of the 348 care homes with an outbreak at various times before the outbreak. Of the 1,814 discharges to a care home before an outbreak, 1,491 had not been tested during the admission period, 302 had tested negative on their last test, and 18 had tested positive.

Characteristics of care homes with and without an outbreak

There were 348 (32%) care homes which experienced a laboratory confirmed COVID-19 outbreak between 1 March and 21 June 2020. The characteristics of these 348 care homes compared to the 736 which did *not* experience an outbreak in this period, are shown in Table 9.

Care home size was very strongly related to outbreaks. Of the care homes with more than 90 registered places, 90.2% had an outbreak, compared to just 3.7% of homes <20 registered places. Outbreaks were more common in older people's care homes (41.1%), private sector care homes (40.4%), care homes defined as high risk on the RAD score (46.6%), and care homes providing nursing care (45.2%). 13.5% of care homes receiving no discharges from hospital had an outbreak, compared to 38% of care homes with one or more discharges.

However, all of the characteristics examined vary with care home size. Larger homes will receive more discharges, and are also more likely to be services for older people, provide nursing care and be privately owned. These relationships between different care home characteristics means that simple comparison by single characteristics may be misleading.

Table 9: Characteristics of care homes with and without an outbreak of COVID-19

Care home characteristic	Care homes with an outbreak (N=348)		Care homes without an outbreak (N=736)	
	Number	%	Number	%
Care home size (number of registered places)				
<20	11	3.7%	287	96.3%
20-29	31	19.3%	130	80.7%
30-39	44	27.7%	115	72.3%
40-49	61	38.1%	99	61.9%
50-59	35	45.5%	42	54.5%
60-69	67	61.5%	42	38.5%
70-79	29	78.4%	8	21.6%
80-89	24	75.0%	8	25.0%
≥90	46	90.2%	5	9.8%
Care home subtype				
Older people	336	41.1%	481	58.9%
Other adult service[1]	6	5.4%	105	94.6%
Learning disabilities	6	3.8%	150	96.2%
Sector				
Private	275	40.4%	405	59.6%
Voluntary/not for profit	32	12.5%	225	87.5%
Local authority/NHS	41	27.9%	106	72.1%
Risk Assessment Document Score (RAD Score)[2]				
Low risk	189	27.5%	498	72.5%
Medium risk	78	35.0%	145	65.0%
High risk	81	46.6%	93	53.4%
Nursing care				
No nursing care	68	14.7%	394	85.3%
Nursing care	275	45.2%	334	54.8%
Missing	5	38.5%	8	61.5%
Discharges from hospital 1 March – 31 May				
No discharge	35	13.5%	225	86.5%
One or more discharges	313	38.0%	511	62.0%

1. Adult care homes for: Mental Health Problems; Physical and Sensory Impairment; Respite and Short Breaks; Alcohol and Drug Misuse; or Blood Borne Virus
2. Care Inspectorate assessment of service using based on inspections, complaints, enforcement cases and updates around service quality

Analysis of risk of care home outbreaks associated with hospital discharge

This analysis was based upon existing methods used by Public Health Wales (PHW) to examine this question. The method used was a statistical technique called Cox proportional hazards regression modelling. This allows an evaluation of the risk of a care home outbreak in periods of time soon after a hospital discharge to a care home (the risk period), compared to periods of time where there had not been a hospital discharge. The risk period following a discharge from hospital was set to be the 7 to 21 days following a discharge, the same as used in the PHW analysis. PHW examined whether varying this time period changed the results of the analysis, and found it did not.

The PHW statistical model was adapted to reflect differences in care home size (Wales has larger numbers of very small care homes with <10 beds) and different ways of classifying the care home subtype and other variables. Statistical models were fitted to:

1. Examine associations between any hospital discharge and outbreaks in all 1084 care homes.
2. Examine associations between different types of hospital discharge and outbreaks in all 1084 care homes. Types of hospital discharge were defined in terms of whether the person discharged had tested negative before discharge, was untested before discharge, or whose last test before discharge was positive.

The results shown are for what are called univariate analysis and adjusted analysis. **Univariate analysis** examines associations between each care home characteristic on *its own* and whether the care home had an outbreak. **Adjusted analysis** means that the association *takes account of all other variables*. For example, larger care homes will on average have more discharges, but also more admissions from the community and more staff working in them. The risk of an outbreak associated with a hospital discharge is therefore adjusted for care home size and other care home characteristics. **We report both univariate and adjusted analysis for completeness, but the adjusted analysis is more appropriate given the relationships between care home size and all other characteristics**.

Associations are expressed as hazard ratios. For most care home characteristics, the hazard ratio is the relative risk of an outbreak compared to a reference category. A hazard ratio of more than one means that the risk is increased compared to the reference category. A hazard ratio of less than one means the risk is decreased.

For example, in table 10, the univariate hazard ratio for care homes that have nursing care compared to those without is 3.72. This means that over the whole period, care homes that provide nursing care are 3.72 times more likely to have a COVID-19 outbreak than those that do not. After adjustment for care home subtype, size and other characteristics, the hazard ratio reduces to 1.44 (this is because care homes providing nursing care are more likely to be care homes for older people and to be larger, both of which are also associated with outbreaks).

For the discharge variable, the hazard ratio is the relative risk of an outbreak in the period soon after a hospital discharge (the 'risk period') compared to a period when there hasn't been a hospital discharge.

The hazard ratios presented in this report should be considered as only an estimate of the true or underlying value. In statistical modelling there is always a degree of uncertainty around a point estimate like a hazard ratio (e.g. because the analysis may be based on a small number of cases). To compensate for this, we calculate what are called "confidence intervals" to quantify the uncertainty around the hazard ratios presented. The wider the confidence interval, the greater the uncertainty in the hazard ratio estimate. Confidence intervals are given with a stated probability level. In this report this is 95%, and so there is a 95% probability (i.e. a 19 in 20 chance) that the confidence interval includes the 'true' value of the hazard ratio. The use of 95% is arbitrary, but is conventional practice in medical and public health statistics.

In this report, the 95% confidence interval for each hazard ratio is used to compare that factor against the reference value, which has a hazard ratio of 1. The reference value is treated as an exact reference value, allowing the confidence interval for an indicator value to be used to test whether the hazard ratio was statistically significantly different to the baseline value. If the interval does not include the 1, the area is assessed as being statistically significantly different from the reference value (if the confidence interval is entirely lower than 1, this shows the hazard ratio is statistically significantly lower; if it is entirely higher than 1, this shows the hazard ratio is statistically significantly higher). If the confidence interval includes 1, the hazard ratio is assessed as being similar to the reference value.

Associations between any hospital discharge and outbreaks

The results from this analysis are shown in Table 10 below.

Table 10: Care home characteristics (including hospital discharges) associated with care home outbreaks of COVID-19

Care home characteristic	Number (%) of homes with outbreaks	Univariate Hazard Ratio 95% Confidence Interval	Adjusted[2] Hazard Ratio 95% Confidence Interval
Care home size			
<20	11 (3.7)	Reference	Reference
20-29	31 (19.3)	**5.75 (2.89 to 11.4)**	**3.58 (1.61 to 8.00)**
30-39	44 (27.7)	**8.81 (4.55 to 17.1)**	**4.52 (2.06 to 9.93)**
40-49	61 (38.1)	**12.3 (6.46 to 23.4)**	**6.61 (3.01 to 14.5)**
50-59	35 (45.5)	**15.9 (8.07 to 31.3)**	**7.64 (3.30 to 17.7)**
60-69	67 (61.5)	**25.4 (13.4 to 48.0)**	**9.69 (4.35 to 21.6)**
70-79	29 (78.4)	**40.4 (20.2 to 81.0)**	**14.4 (6.12 to 33.9)**
80-89	24 (75.0)	**38.0 (18.6 to 77.6)**	**16.4 (6.77 to 39.6)**
≥90	46 (90.2)	**60.3 (31.1 to 116.8)**	**17.3 (7.48 to 40.1)**
Subtype			
Older people	336 (41.1)	Reference	Reference
Other adult service[1]	6 (5.4)	**0.10 (0.05 to 0.23)**	**0.28 (0.12 to 0.67)**
Learning disabilities	6 (3.8)	**0.07 (0.03 to 0.17)**	0.46 (0.17 to 1.22)
Sector			
Private	275 (45.2)	Reference	Reference
Voluntary/not for profit	32 (12.5)	**0.65 (0.47 to 0.91)**	0.99 (0.65 to 1.52)
Local authority/NHS	41 (27.9)	**0.26 (0.18 to 0.37)**	**1.70 (1.12 to 2.58)**
RAD score			
Low risk	189 (27.5)	Reference	Reference
Medium risk	78 (35.0)	**1.35 (1.03 to 1.75)**	0.94 (0.72 to 1.24)
High risk	81 (46.6)	**1.96 (1.51 to 2.54)**	1.00 (0.75 to 1.33)
Nursing care			
No nursing care	68 (14.7)	Reference	Reference
Nursing care	275 (45.2)	**3.72 (2.86 to 4.86)**	**1.44 (1.00 to 2.06)**
Missing	5 (38.5)	**2.79 (1.12 to 6.91)**	1.27 (0.48 to 3.36)
Discharges			
No discharge	35 (13.5)	Reference	Reference
Discharge	313 (38.0)	**2.88 (2.31 to 3.60)**	1.21 (0.94 to 1.54)

1. Adult care homes for: Mental Health Problems; Physical and Sensory Impairment; Respite and Short Breaks; Alcohol and Drug Misuse; or Blood Borne Virus
2. Model additionally adjusted for Integration Authority (hazard ratios not shown)

Statistically significant hazard ratios (ie the confidence interval does not include 1) are shown in **bold**

Interpreting Table 10

In the **univariate analysis** (associations with each care home characteristic on its own), there was a very strong association with care home size. Compared to care homes with <20 beds, the risk of an outbreak progressively increased as care homes got bigger. Care homes with ≥90 registered places had sixty times the risk of an outbreak compared to care homes with <20 beds (univariate hazard ratio (HR) 60.3 ie 60 times the risk). In contrast, the risk of outbreaks was much lower in care homes providing 'other adult' services (univariate HR 0.1 ie tenth the risk) and care for people with learning disabilities (univariate HR 0.07) compared to care homes for older adults. Voluntary/not for profit care homes (univariate HR 0.26) and Local Authority/NHS care homes (univariate HR 0.65) were at lower risk of outbreak than private sector care homes. Homes with medium risk assessment document (RAD) score and high RAD score were at higher risk of outbreaks than those with a low RAD score (univariate HR 1.35 and 1.96, respectively). For hospital discharge, there was an increased risk of an outbreak observed in periods immediately after hospital discharge compared to periods without a hospital discharge (univariate HR 2.88). However, as discussed above, these single characteristic comparisons can be misleading because care home characteristics are systematically related.

In the **adjusted analysis**, the care home characteristic most strongly associated with care home outbreaks was care home size. Risk of an outbreak increased progressively with care home size. After adjustment for all other care home characteristics, care homes with ≥90 registered places had seventeen times the risk of an outbreak compared to care homes with <20 beds (adjusted hazard ratio HR 17.3). Local Authority/NHS care homes were at increased risk of an outbreak compared to privately provided homes (adjusted HR 1.70) (note that this adjusted estimate is the reverse of the univariate analysis, reflecting systematic differences in other characteristics between care homes in different sectors). After accounting for other characteristics in adjusted analysis, there were no statistically significant associations between RAD Score or provision of nursing care and the risk of an outbreak.

In the adjusted analysis, **hospital discharge was not statistically significantly associated with care home outbreaks (adjusted HR 1.21)**.

Conclusion

In the statistical modelling, hospital discharge is associated with an increased risk of an outbreak when considered on its own. However, care home size is much more strongly associated with risk of an outbreak than hospital discharge. After accounting for care home size and other care home characteristics, the estimated risk of hospital discharge reduces and is not statistically significant. The best estimate of the risk of a care home outbreak in the period soon after a hospital discharge is that risk was 21% higher than it was in a period without a recent hospital discharge. 21% is a relative increase (ie risk is about one fifth higher than it otherwise would be). The 95% confidence interval for this estimate ranges from 6% lower after hospital discharge to 54% higher (not statistically significantly different from no risk).

This finding is very similar to the Public Health Wales (PHW) analysis using similar methodology. In adjusted analysis, they observed a 15% higher risk in periods soon after a hospital discharge compared to periods without a hospital discharge. The 95% confidence interval for the PHW estimate ranged from 11% lower to 47% higher (not statistically significantly different from no risk). The PHW analysis also found the same strong association between care home size and risk of an outbreak.

Overall, the analysis does not find statistical evidence that hospital discharges were associated with care home outbreaks. However, the best estimate of the hazard ratio for hospital discharge is >1 and the confidence interval in the adjusted analysis is relatively wide. We therefore cannot statistically exclude the presence of a small risk from hospital discharge. By comparison though, the risk of an outbreak associated with care home size is much larger than any plausible risk from hospital discharge.

Associations between different types of hospital discharge and outbreaks

This analysis (shown in table 11) is identical to that shown in table 10, but distinguishes different types of hospital discharge in terms of whether the person discharged was known to have a negative COVID-19 test before discharge, was untested before discharge, or whose last test before discharge was positive.

Table 11: Care home characteristics (including different types of hospital discharge) associated with care home outbreaks of COVID-19

Care home characteristic	Number (%) of homes with outbreaks	Univariate Hazard Ratio 95% Confidence Interval	Adjusted** Hazard Ratio 95% Confidence Interval
Care home size			
<20	11 (3.7)	Reference	Reference
20-29	31 (19.3)	**5.75 (2.89 to 11.4)**	**3.59 (1.61 to 8.00)**
30-39	44 (27.7)	**8.81 (4.55 to 17.1)**	**4.54 (2.07 to 9.98)**
40-49	61 (38.1)	**12.3 (6.46 to 23.4)**	**6.64 (3.02 to 14.6)**
50-59	35 (45.5)	**15.9 (8.07 to 31.3)**	**7.68 (3.32 to 17.8)**
60-69	67 (61.5)	**25.4 (13.4 to 48.0)**	**9.79 (4.39 to 21.8)**
70-79	29 (78.4)	**40.4 (20.2 to 81.0)**	**14.4 (6.13 to 33.9)**
80-89	24 (75.0)	**38.0 (18.6 to 77.6)**	**16.3 (6.75 to 39.3)**
≥90	46 (90.2)	**60.3 (31.1 to 116.8)**	**17.3 (7.46 to 40.2)**
Care home subtype			
Older people	336 (41.1)	Reference	Reference
Other adult service*	6 (5.4)	**0.10 (0.05 to 0.23)**	**0.29 (0.12 to 0.68)**
Learning disabilities	6 (3.8)	**0.07 (0.03 to 0.17)**	0.46 (0.18 to 1.22)
Sector			
Private	275 (45.2)	Reference	Reference
Voluntary/not for profit	32 (12.5)	**0.65 (0.47 to 0.91)**	0.99 (0.65 to 1.52)
Local authority/NHS	41 (27.9)	**0.26 (0.18 to 0.37)**	**1.68 (1.11 to 2.56)**
RAD score			
Low risk	189 (27.5)	Reference	Reference
Medium risk	78 (35.0)	**1.35 (1.03 to 1.75)**	0.94 (0.71 to 1.24)
High risk	81 (46.6)	**1.96 (1.51 to 2.54)**	1.00 (0.75 to 1.32)
Nursing care			
No nursing care	68 (14.7)	Reference	Reference
Nursing care	275 (45.2)	**3.72 (2.86 to 4.86)**	1.43 (0.99 to 2.05)
Missing	5 (38.5)	**2.79 (1.12 to 6.91)**	1.27 (0.48 to 3.35)
Discharges			
No discharge	35	Reference	Reference
Discharge Negative	#	**2.23 (1.50 to 3.29)**	1.00 (0.67 to 1.50)
Discharged Untested	#	**3.05 (2.40 to 3.88)**	1.27 (0.97 to 1.67)
Discharged Positive	#	**5.57 (2.26 to 13.7)**	1.45 (0.56 to 3.74)

1. Adult care homes for: Mental Health Problems; Physical and Sensory Impairment; Respite and Short Breaks; Alcohol and Drug Misuse; or Blood Borne Virus
2. Model additionally adjusted for Integration Authority (hazard ratios not shown)

it is not possible to report the number of homes in each category as the analysis is based on defining periods of risk, for all discharges between 1 March and 31 May. Each care home will have varying proportions of time with no discharge, or with a recent discharge of each of the three types.

Statistically significant hazard ratios (ie the confidence interval does not include 1) are shown in **bold**

Interpreting Table 11

The results for care home characteristics apart from discharge are the same (univariate) or very similar (adjusted) to the analysis in table 10, so the focus is on the modified discharge variable.

In univariate analysis, there was an increased risk of an outbreak observed in periods immediately after hospital discharge compared to periods without a hospital discharge for all three types of hospital discharge: discharges with a negative test (univariate HR 2.23 compared to no discharge), those who were untested (univariate HR 3.05), and those whose last test was positive (HR 5.57). The pattern of increasing univariate HRs is consistent with what we would expect (increasing risk from negative to untested to positive).

After accounting for other care home characteristics in the adjusted analysis, the same pattern of increasing HRs is seen from those who were negative at discharge (adjusted HR 1.00 compared to no discharge), untested (adjusted HR 1.27) and discharged positive (adjusted HR 1.45). However, none of these differences were statistically significant.

Conclusion

The overall interpretation is similar to the previous analysis. The analysis does not find statistical evidence that hospital discharges of any kind were associated with care home outbreaks. However, our certainty about the three types of hospital discharge defined by testing status varies.

There was good evidence that there was no risk associated with discharges where the person had tested negative before discharge. The estimated risk compared to periods without a discharge was zero. The 95% confidence interval for this estimate ranges from 33% lower to 50% higher.

In contrast, although the estimated risk for discharges where the person was untested was not statistically significantly different from zero effect, the confidence interval is wide and the association is only just not statistically significant. The best estimate of this risk is a 27% increase in the period soon after an untested discharge compared to a period without a discharge. The 95% confidence interval for the estimate ranges from 3% lower to 67% higher. We therefore cannot exclude a small excess risk from a care home receiving a discharge where the person was untested.

Similarly, the estimated risk for discharges where the person's last test was positive was not statistically significantly different from zero effect. However, such discharges were rare before outbreak onset and the confidence interval is very wide. The best estimate of this risk is an 45% increase. The 95% confidence interval for the estimate ranges from 44% lower to 374% higher. We therefore cannot exclude a moderate to large excess risk from a care home receiving a discharge where the last test was positive.

Again, **in this analysis the risk of an outbreak associated with care home size is much larger than any plausible risk from hospital discharge**.

Strengths & limitations

Strengths of the analysis include the use of data from across Scotland to describe discharges from hospitals to care homes in the first phase of the COVID-19 pandemic. Using national data linked together and working with NHS Boards and Health and Social Care Partnerships to triangulate information was required to ensure a comprehensive analysis. The statistical method is based on a similar analysis done in Public Health Wales, and allows the analysis to account for multiple care home characteristics. This is important because different care home characteristics are related both to each other, and to the risk of an outbreak. Examining the risk of an outbreak for individual care home characteristics on their own may therefore be misleading.

However, there are some important limitations.

1. The work has not included data submitted by care homes themselves. It was not possible to organise a completely new national data collection within the timeframe for analysis given the additional burden this would place on the sector at a time of ongoing high care needs and other new data collection in the Daily Safety Huddle Tool. We attended a surgery with Scottish Care to engage with the sector around the methodology and planned analysis and plan to present the findings in this report to them and discuss future further analyses.

We therefore do not have any data on people admitted to care homes from their own homes or transferred from other care homes. Our focus was on examining hospital discharge, but we recognise that care homes may have received other new residents during the period examined.

2. We lack consistent data on positive tests from staff working in care homes. This is primarily a result of changing practice in terms of testing. In March and early April, tests were only performed on those being admitted to hospital and testing of care home staff in the community was rare. We therefore have minimal staff data in the period when most outbreaks started, and therefore did not include staff testing in the analysis.

3. These data are observational, meaning they can tell us what appeared to happen, but do not tell us what the direct cause was. We cannot model or predict what would have happened if everyone discharged to care homes had remained in hospital. Even if an outbreak starts shortly after a hospital discharge, we also cannot be certain that the hospital discharge *caused* an outbreak. Finally, the analysis only examines whether hospital discharge is associated with the first ever case in a care home. It is possible that hospital discharge after the care home has had some cases causes additional infection, but the analysis method used cannot examine this. Additional insights from examining which strains (lineages) of virus infected residents at different times using viral genetic epidemiology would be valuable to further examine the complexity of care home outbreaks. For example, this type of analysis can examine whether the strains in care homes are more similar to the strains in hospitals that residents are discharged from or the strains in the communities near the care home).

Furthermore, although care home size is the strongest predictor of care home outbreaks, we do not have data to explore why this is so. Care home size is a marker for the number of

non-residents coming into the care home. During COVID-19, this includes staff and professional visitors coming into care homes (and in normal times, also family and friends, although care homes were largely closed to family and friends during the period examined). Additionally, the layout and design of individual care homes is very varied, as is how staff rotas are organised. These kinds of factor are likely to be important influences on whether care home outbreaks develop and grow, but cannot be easily examined with the current data.

Recommendations

Data management & infrastructure

This report has highlighted major issues surrounding the availability of data about people in care homes.

- Work is progressing, and should be prioritised, to improve the systematic recording of information on hospital records to identify when a person is either admitted from or discharged to a care home. PHS are working with NHS Boards and IT System suppliers to enable the name of the care home to be recorded on admission and discharge. This will then be submitted to PHS as part of the routine datasets. Alongside this PHS are planning training materials and reminders about why it is vital for all staff to record this information accurately.
- Priority should be given to the development of a national dataset collected by care homes themselves which records information on all people resident in a care home including temporary stays. This would allow a better understanding of the capacity and use of the sector, and allow linkage to other data sources to better understand resident needs and patterns of care.
- Seeding the CHI register with the Unique Property Reference Number would allow better analysis of location including care home residence. Current work to explore the accuracy of this should be prioritised.
- Standardisation of look-ups used to define addresses in NHS Scotland would be helpful to ensure full and accurate address data are recorded in all NHS data that includes an address.

Further research

- Additional statistical modelling to also take account of rates of COVID-19 infection in the area that care homes are located in, and to examine care home characteristics associated with the size of an outbreak rather than just the presence of an outbreak.
- Linkage of epidemiological data with genomic epidemiology data to define whether or not infections in care homes are the same viral strain as each other, and/or the same viral strain as in hospitals.
- Work involving care homes to understand their experiences of managing COVID-19 to learn from and share best practice in the sector.

Glossary

Care Home	A Care Home as defined by the Care Inspectorate list of Adult Care Home services, available from: https://www.careinspectorate.com/index.php/statistics-and-analysis/data-and-analysis
Delayed Discharge	A delayed discharge is a hospital inpatient (aged 18 and over) who has been judged clinically ready for discharge by the responsible clinician in consultation with all agencies involved in planning that person's discharge, and who continues to occupy a bed beyond the ready for discharge date, which is the date on which a hospital inpatient is clinically ready to move on to a more appropriate care setting.
Discharge	A hospital discharge marks the end of an episode of care. Discharges include deaths, transfers to other specialties/significant facilities and hospitals, and discharges home or to other regular place of residence. For this analysis, those with discharge of death were excluded.
ECOSS	Electronic Communication of Surveillance in Scotland. The ECOSS system captures lab results from diagnostic and reference laboratories for analysis by Health Protection surveillance teams. It's a national tool for monitoring organisms, infections and microbial intoxications that are of clinical or public health importance.
Emergency Admission	An emergency admission occurs when, for clinical reasons, a patient is admitted unexpectedly at the earliest possible time. This might be after a visit to a doctor, emergency department or calling an ambulance.
Episode	An SMR episode is generated when a patient is discharged from hospital but also when a patient is transferred between hospitals, significant facilities, specialties or to the care of a different consultant.
Geriatric Long Stay	Inpatients admitted to and discharged from facilities for Long Term Care of the Elderly.
Inpatient	A patient is termed an inpatient when they occupy a staffed bed in a hospital and either remains overnight (whether intended or not), or is expected to remain overnight but is discharged earlier. An inpatient's admission can be an emergency, elective or a transfer.

Length of Stay	This is the total number of days that a patient spends in hospital during a continuous period of time in hospital.
Mean Age	The mean age is calculated by summing the ages of all discharges from hospital to care homes and dividing by the number of discharges to care homes.
SMR	Healthcare data for individual patients is collected as a series of Scottish Morbidity Records (SMR). The record type denotes the general type of healthcare received during an episode and/or the nature or status of the patient. e.g SMR01 – General/Acute, SMR04 – Mental Health.
Specialty	A specialty is defined as a division of medicine or dentistry covering a specific area of clinical activity.

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Further Information

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Appendices

Appendix 1 – Timeline of Clinical Guidance

Full copies of guidance quoted are available from:
Archived Guidance from Health Protection Scotland: https://www.hps.scot.nhs.uk/covid-19-guidance-archive/home/
Current Guidance from Health Protection Scotland: https://www.hps.scot.nhs.uk/a-to-z-of-topics/covid-19/
Scottish Government Clinical and Practice Guidance for Adult Care Homes:
https://www.gov.scot/publications/coronavirus-covid-19-clinical-and-practice-guidance-for-adult-care-homes/
Scottish Government, Coronavirus (COVID-19) update: Health Secretary's statement 21 April 2020:
https://www.gov.scot/publications/coronavirus-covid-19-update-health-secretarys-update-tuesday-21-april-2020/

Date	Summary of Guidance
13/03/2020	**Clinical Guidance for Nursing Home and Residential Care Residents and COVID-19 issued, with the following relevant recommendations** **Measures to prevent and prepare for infection in residents** It is recommended that long term care facilities be subject to 'social distancing' to reduce the risk of infecting residents and their carers and most significantly aims to reduce the mortality in this group. This should operate at 2 levels: (1) reducing visits to care homes to essential visits; and (2) social isolation in rooms. **Transitions from hospital** There are situations where long term care facilities have expressed concern about the risk of admissions from a hospital setting. In the early stages where the priority is maximising hospital capacity, steps should be taken to ensure that patients are screened clinically to ensure that people at risk are not transferred inappropriately but also that flows out from acute hospital are not hindered and where appropriate are expedited. **Managing COVID-19 cases in long term care settings.** Patients suspected of having symptoms of COVID-19 should be managed in line with other HPS guidance and specifically should be isolated in their own room. PPE equipment should be used as in line with other guidance for droplet spread precautions. Handwashing should continue rigorously in line with guidance elsewhere. It is not advised that residents in long term care are admitted to hospital for ongoing management but are managed within their current setting. Where a long term care facility is affected we should aim to deploy in-reach to bring care to residents. That may mean members of the community such as district nursing AHPs, GPs or where appropriate hospital at home. This will be considered in the context of business continuity planning of NHS Board's and Health and Social Care Partnerships where staff may be deployed to support care homes. Where a long term care facility has a resident who has tested positive for coronavirus, further admissions should be halted.
26/03/2020	**Second Clinical Guidance for Nursing Home & Residential Care Residents and COVID-19**

As stated above the care home sector is a vital part of the health and social care system. It is imperative that the care homes continue to take admissions if it is clinically safe to do so in order to prevent flows out from acute hospital being hindered and where appropriate expedited.

4.1 Admissions from the community to care home facilities
HPS guidance states, prior to admissions the care home facility should:

- source information on NHS Inform for current symptom and isolation advice, using the symptom and isolation checker
- discuss with local senior facility healthcare staff and or a designated senior decision maker in the community prior to planned admission, including consideration of current isolation advice for that individual or the household from which they are being admitted.

HPS guidance also states that people being admitted from home / the community do not need to be tested for COVID-19 and should be managed based on symptoms.

4.2 Admissions/transfer from hospital to care home facilities
HPS updated guidance states that if the individual is deemed clinically well and suitable for discharge from hospital, they can be admitted to the facility after:

- appropriate clinical plan.
- risk assessment of their facility environment and provision of advice about self-isolation as appropriate (See NHS Inform for details).
- there are arrangements in place to get return them to the facility

Decisions about any follow-up will be on a case by case basis.

If a patient being discharged from hospital is known to have had contact with other COVID-19 cases and is not displaying symptoms, secondary care staff must inform the receiving facility of the exposure and the receiving facility should ensure the exposed individual is isolated for 14 days following exposure to minimise the risk of a subsequent outbreak within the receiving facility.

Individuals being discharged from hospital do not routinely need confirmation of a negative COVID test. Facilities will be advised of recommended infection prevention and control measures on discharge. It is recommended that this includes a documented clinical risk assessment for COVID-19. Annex A contains a new admissions/ transfer form to provide a means for safely admitting a new resident and identifying that where possible they have been deemed clinically safe for transfer.

4.3 Advice on care home admissions where there are COVID-19 cases in homes
The updated advice from HPS states that social or community care and residential settings may remain open to admissions in the following situations:

- Where a single case of laboratory confirmed COVD-19 has been identified and all appropriate infection prevention and control procedures are in place.
- Where more than 1 laboratory confirmed case has been identified and following risk assessment and discussion with the local Health Protection Team (HPT), it is possible to manage cases and ensure all appropriate infection prevention and control measures are in place.

Where there is evidence of a cluster or outbreak of COVID-19, senior facility staff should discuss this with the local HPT. An outbreak is defined as two or more clinical or laboratory confirmed cases of COVID-19 in a 24 hr period which have occurred as a result of cross transmission. In this situation the facility should close to admissions day care facilities and visitors. Any derivation from this should be done following a risk

	assessment with HPT as there may be exceptional circumstance where for example the schematic layout of the facility may allow for partial closure.
11/04/2020	**Health Protection Scotland Guidance for stepdown of infection control precautions and discharging COVID-19 patients from hospital to residential settings (Version 1.0)** Discharge to a single occupancy room in care facility, including nursing homes and residential homes This can be done when the patient's clinical status is appropriate for discharge, e.g. once assessed to have stable or recovering respiratory function, and any ongoing care needs can be met in their care facility. A risk assessment of the discharge location should be made. For example, if a patient is being discharged to a residential care setting where strict isolation is expected to be challenging, then confirmation of viral clearance may be sought. Patients should continue to be isolated for a minimum of 14 days from symptom onset (or first positive tests if symptom onset undetermined) and absence of fever for 48 hours (without use of anti-pyretics)
21/04/2020	Jeane Freeman, Cabinet Secretary for Health and Sport announces to the Scottish Parliament: Covid-19 patients discharged from hospital to a care home should have given two negative tests before discharge. I now expect other new admissions to care homes to be tested and isolated for 14 days in addition to the clear social distancing measures the guidance sets out.
26/04/2020	**Guidance for stepdown of infection control precautions and discharging COVID-19 patients from hospital to residential settings (Version 1.1)** Patients being discharged into a care facility (residential or care home) must have 2 negative samples, prior to discharge. Discharge to a single occupancy room in care facility, including nursing homes and residential homes. This can be done when the patient has completed their 14 day isolation period and had two negative COVID-19 tests and the patient's clinical status is appropriate for discharge, e.g. once assessed to have stable or recovering respiratory function, and any ongoing care needs can be met in their care facility. A risk assessment of the discharge location should be made.
29/04/2020	**Guidance for stepdown of infection control precautions and discharging COVID-19 patients from hospital to residential settings (Version 1.2)** Patients should always be isolated for a minimum of 14 days from symptom onset (or first positive test if symptoms onset undetermined) and absence of fever for 48 hours (without use of antipyretics). They should have 2 negative tests before discharge (testing can be commenced on day 8). Tests should be taken at least 24 hours apart. Where testing is not possible (e.g. patient doesn't consent or it would cause distress) and if discharged to care home within the 14-day isolation period then there must be an agreed care plan for the remaining period of isolation up to 14 days. They can be discharged once the patient's clinical status is appropriate for discharge, e.g. once assessed to have stable or recovering respiratory function, and any ongoing care needs can be met in their care facility. A risk assessment of the discharge location

	should be made. The patient may complete the remaining 14-day isolation in the care home or in hospital depending upon clinical suitability for discharge. HPS updated guidance: 2 negative tests before discharge (testing can be commenced on day 8). Tests should be taken at least 24 hours apart. Where testing is not possible (e.g. patient doesn't consent or it would cause distress) and if discharged to care home within the 14 day isolation period, then there must be an agreed care plan for the remaining period of isolation up to 14 days. And completion of the remaining 14-day isolation in the care home or in hospital depending upon clinical suitability for discharge Note: an admission to hospital is considered to include only those patients who are admitted to a ward. An attendance at A&E that didn't result in an admission would not constitute an admission.
15/05/2020	**Third National Clinical and Practice Guidance for Adult Care Homes in Scotland during the COVID-19 Pandemic** **10. Admissions, discharges and transfers for care home during this pandemic** The care home sector is a vital part of the health and social care system. It is imperative that the care homes put in place clear processes to facilitate the return of their residents from an acute setting and to accommodate the admission of new residents where it is clinically safe to do so. Residents can be safely cared for in a care home. The HPS guidance on care home settings can help support care homes to do this. All transfers from acute hospital or new admissions should have a risk assessment to ensure sufficient resources are available within the care home to support social distancing and isolation. The Health Secretary's statement on 21 April stated that the following groups should be tested: - All COVID-19 patients in hospital who are to be admitted to a care home - All other admissions to care homes The presumption should be that all residents being admitted to a care home should have a negative test before admission unless it is in the clinical interests of the person to be moved and then only after a full risk assessment. **Admission of COVID-19 recovered patients from hospital** Patients should always be isolated for a minimum of 14 days from symptom onset (or first positive test if symptoms onset undetermined) and absence of fever for 48 hours (without use of antipyretics). They do not require to spend the 14 days in hospital but should ideally have 2 negative tests before discharge from hospital (testing can be commenced on day 8). Tests should have been taken at least 24 hours apart and preferably within 48 hours of discharge. Where testing is not possible (e.g. patient doesn't consent or it would cause distress) and following risk assessment for discharge to care home within the 14 day isolation period, then there must be an agreed care plan for the remaining period of isolation up to 14 days in the home. For an adult without the capacity to consent to this test, the responsible clinician will have to consult the patient's welfare attorney and crucially decide if the test is the best interest of the patient - this would be an individual clinical decision. Where a test would be too painful or distressing and not in the interest of a patient it would be reasonable to return to the care home after discussion with the Home manager/senior staff. The individual would have to continue the 14 days of isolation in the care home.

In all instances, the discharging hospital should provide the care home with the following information on arrival of the individual:

- Where a COVID test has been taken, the date and results of the test. (Dates of a negative test in a non-COVID-19 infected individual, or the dates of two negative tests in a previously infected individual)
- The date of the onset of any symptoms.
- A care plan for completion of the isolation period and any follow-up treatment and care required.
- Prior to discharge the hospital must ensure that the care home is able to provide the care required e.g. if the individual requires to be isolated, that there is a suitable physical space and staff available for the delivery of care and support to an isolated resident.

Admission of non-COVID-19 patients from hospital
Testing should be done within 48 hours prior to discharge from hospital. A single test is sufficient. The patient may be discharged to the care home prior to the test result being available on condition that the care home is able to support all required care needs during this isolation period following discharge. Risk assessment prior to discharge from hospital should be undertaken in conjunction with care home staff to ensure that appropriate isolation facilities are available in the care home, taking into account requirements for the individual's care. See Guidance for Sampling and Laboratory Investigations for information.

Admissions from the community
All other admissions from the community should have at least one test performed before or on admission, and be isolated on admission for 14 days. Risk assessment prior to admission should be undertaken to ensure that appropriate isolation facilities are available in the care home, taking into account requirements for the individual's care.

New admissions should be considered for retesting if they become symptomatic including changes in the residents condition if indicated following a clinical assessment, after admission. The 14 day isolation period commenced on admission must be completed, even if a COVID-19 test result comes back negative. Staff should be alert to COVID-19 infection in older people in particular as it may be harder to detect (see earlier section on presentation). Where concerns exist that a resident may have COVID-19, they should be escalated and advice sought from the GP or other healthcare staff.

Transfer from the care home to hospital
If a transfer from the care home to hospital is required, the ambulance service must be informed if the individual is a suspected or confirmed COVID-19. Staff in the receiving ward/department should also be notified of this in advance of any transfer.

Hospital assessment of care home residents
Patients from a care home setting being assessed in an Acute Medical Unit (or other assessment unit) not requiring hospital admission only require COVID testing prior to discharge if they are clinically suspected of having COVID If they are admitted for another reason (e.g. a blocked catheter or a suspected DVT) with no clinical suspicion of COVID infection, then routine testing is not mandated. Clinicians should clearly stay alert to the fact that COVID frequently presents with atypical symptoms in the elderly.

	Testing does not preclude the patient being discharged back to their care home, but they should isolate until the result is known (and the ability of the care home to undertake this should be confirmed prior to discharge). If the patient is still felt, clinically, to have COVID despite a negative test then they should be retested and continue isolation for 14 days as a subsequent test may be the confirmatory trigger for outbreak management. The need for isolation must be communicated to the care home in this circumstance. There may be circumstances where the risk assessment following discussion with the resident and/ or their family, that it is in the best interests of the resident to be transferred before the test is available. Wherever possible patients from care homes should be assessed in side rooms or individual assessment bays. If a patient from a care home has been assessed in a multi-person bay in hospital then they should be isolated on return to the care home for fourteen days. The ability of the care home to undertake this should be confirmed prior to discharge. Residents who leave the facility to attend an essential non-hospital or hospital day visit, e.g. attending a funeral or hospital appointment, do not require the same measures as a new admission. The guidance outlined on NHS Inform on physical distancing, shielding and household isolation must be followed during day visits. Any concerns about potential exposure to COVID-19 during a day visit may require a local risk assessment to determine whether additional measures are needed.

Appendix 2 – Publication Metadata

Metadata Indicator	Description
Publication title	Discharges from NHSScotland Hospitals to Care Homes between 1 March and 31 May 2020
Description	This publication has two sections: Section 1 reports on the number of patients discharged from NHS hospitals to care homes between 1 March and 31 May 2020, and their COVID-19 test status. Section 2 reports on the impact of these hospital discharges on care homes, and any subsequent COVID-19 outbreaks.
Theme	Health and Social Care
Topic	Hospital Discharges and Care Homes
Format	PDF, Excel
Data source(s)	SMR01,01E (acute and geriatric longstay), SMR04 (psychiatry), RAPID (preliminary inpatient records), Delayed Discharges, Patient Transport Service (PTS), CHI (institution flag), National Records of Scotland (deaths), Care Inspectorate list of care homes, HSCP list of temporary placements
Date that data are acquired	September 2020
Release date	28 October 2020
Frequency	One off report
Timeframe of data and timeliness	Discharges between 1 March and 31 May 2020, as at September 2020
Continuity of data	N/A
Revisions statement	N/A
Revisions relevant to this publication	N/A
Concepts and definitions	Please see the Glossary section within this report and the excel data tables which accompany this publication. There is also a detailed methodology document to accompany this publication.
Relevance and key uses of the statistics	To report on the number of discharges to care homes during the first wave of the COVID-19 pandemic in Scotland, and the response to changing COVID-19 testing practices and policy around discharges to care homes. To examine whether discharges from hospital to care homes had any impact on COVID-19 outbreaks in care homes
Accuracy	Please refer to the data validation section of the methodology report
Completeness	Please refer to the data validation section of the methodology report
Comparability	This is a one off publication using unique linkage of multiple datasets, so is not comparable with other published data section 2 statistical methodology similar to Public Health Wales report
Accessibility	It is the policy of Public Health Scotland to make its web sites and products accessible according to published guidelines.
Coherence and clarity	Measures to enhance coherence & clarity within this report include: explanatory table/chart notes, minimal use of abbreviations/abbreviations explained in text and notes on background and methodology.
Value type and unit of measurement	Figures are shown as numbers or percentages
Disclosure	Disclosure control methods have been applied to the data in order to protect patient confidentiality, therefore some figures may not be additive. The PHS protocol on Statistical Disclosure Protocol is followed.

Official Statistics designation	Management statistics
UK Statistics Authority Assessment	Not been put forward for assessment
Last published	not applicable
Next published	not applicable
Date of first publication	28 October 2020
Help email	
Date form completed	22/10/2020

Appendix 3 – Early access details

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", PHS is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

Scottish Government Mental Health and Social Care Directorate

NHS Board Chief Executives

NHS Board Communication leads

Chief Officers of Integrated Joint Boards formed under the Public Bodies (Joint Working) (Scotland) Act 2014

Early Access for Management Information

These statistics will also have been made available to those who needed access to 'management information', ie as part of the delivery of health and care:

Care Inspectorate

Early Access for Quality Assurance

These statistics will also have been made available to those who needed access to help quality assure the publication:

NHS Boards

Scottish Government Mental Health & Social Care Directorate

Appendix 4 – PHS and Official Statistics

About Public Health Scotland (PHS)

PHS is a knowledge-based and intelligence driven organisation with a critical reliance on data and information to enable it to be an independent voice for the public's health, leading collaboratively and effectively across the Scottish public health system, accountable at local and national levels, and providing leadership and focus for achieving better health and wellbeing outcomes for the population. Our statistics comply with the Code of Practice for Statistics in terms of trustworthiness, high quality and public value. This also means that we

keep data secure at all stages, through collection, processing, analysis and output production, and adhere to the ‘five safes’.