

# **Impact of COVID-19 Care Home testing and vaccination policy on Care Home outbreaks in Northern Ireland**

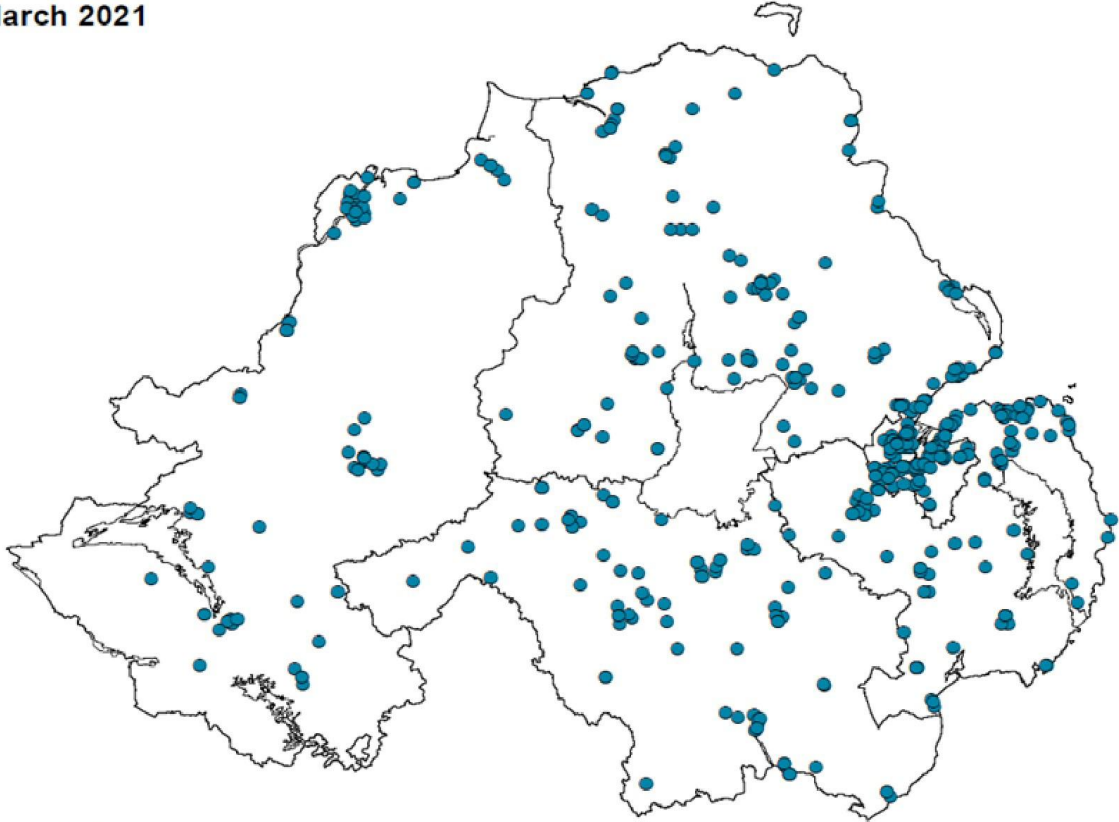
# Background



# Registered care home facilities in N. Ireland

Public Health Agency  
Registered Care Facilities in N.Ireland

Position at 11 March 2021



Legend

- N.Ireland Registered Care Facilities
- Trust Area Boundary
- N.Ireland

Source: Health Protection PHA  
Produced by Health Protection Surveillance (11/03/2021)

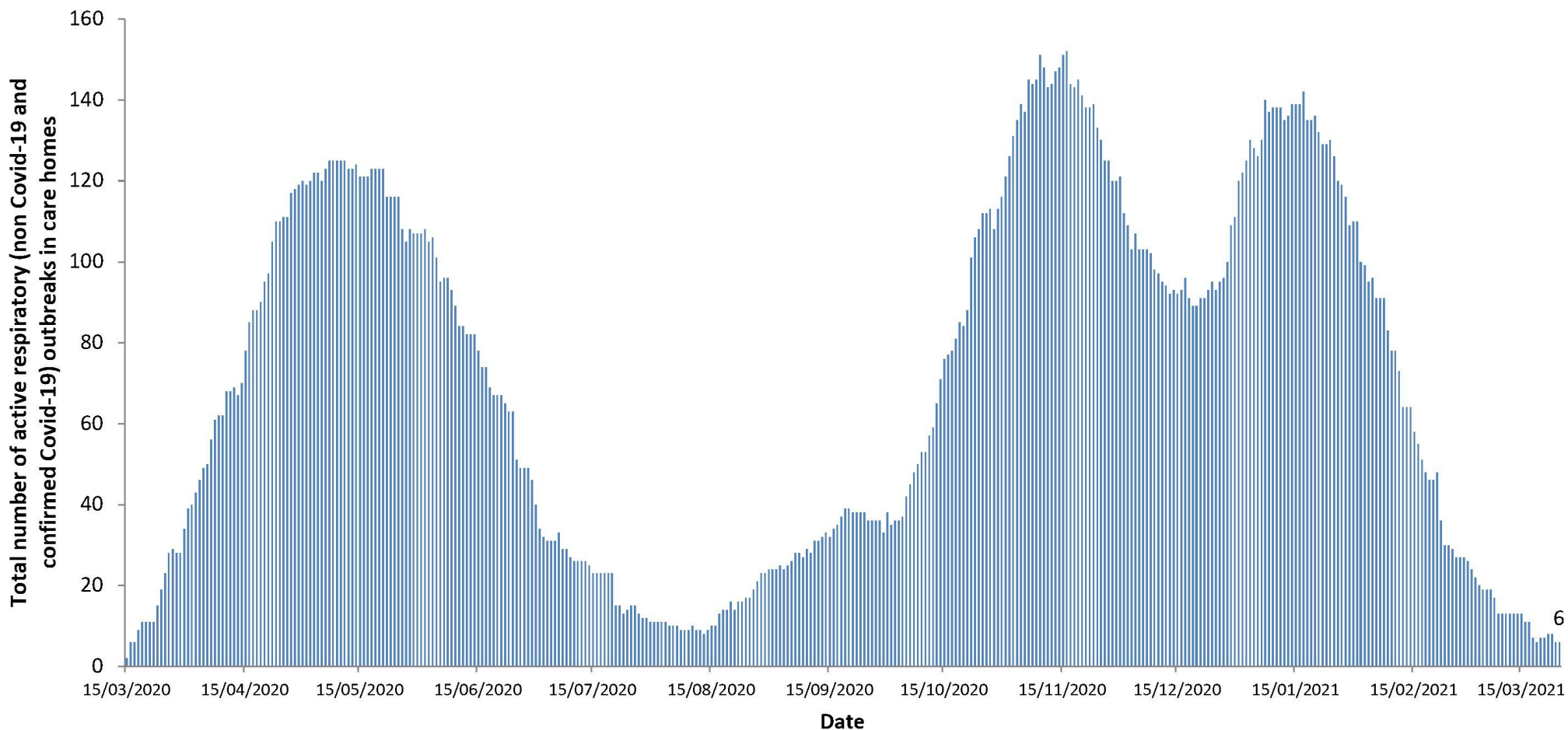
# Care Home sector - NI

	Operational	Non operational	Total
Care Homes	471	10	481
Nursing	243	5	248
Statutory nursing	3	2	5
Independent nursing	240	3	243
Residential	228	5	233
Statutory residential	41	2	43
Independent residential	187	3	190

Care Home beds	
1-30	226
31-50	175
51+	80
Total	481

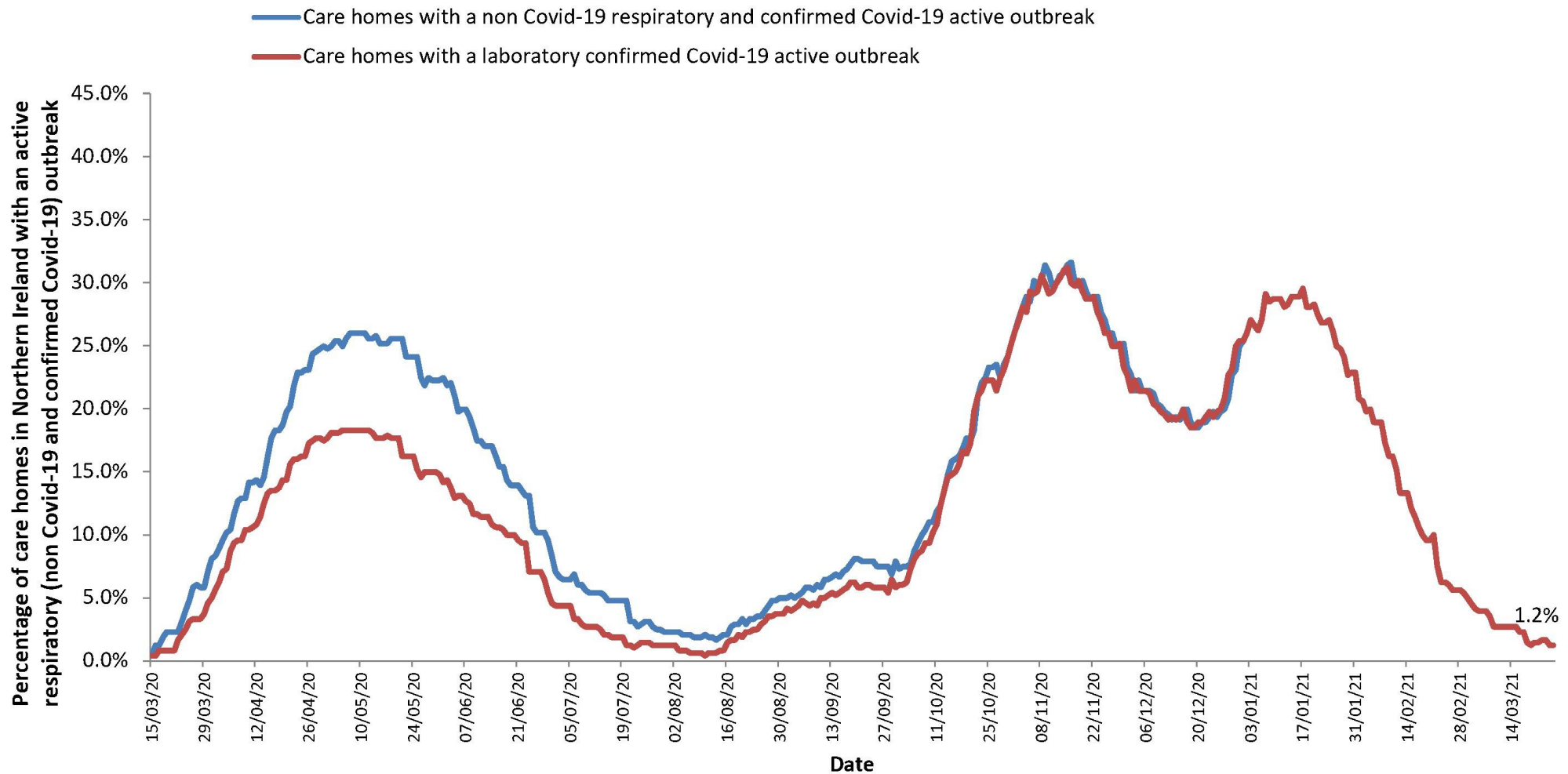


# Active respiratory (non Covid-19 and confirmed Covid-19) outbreaks in care homes by day

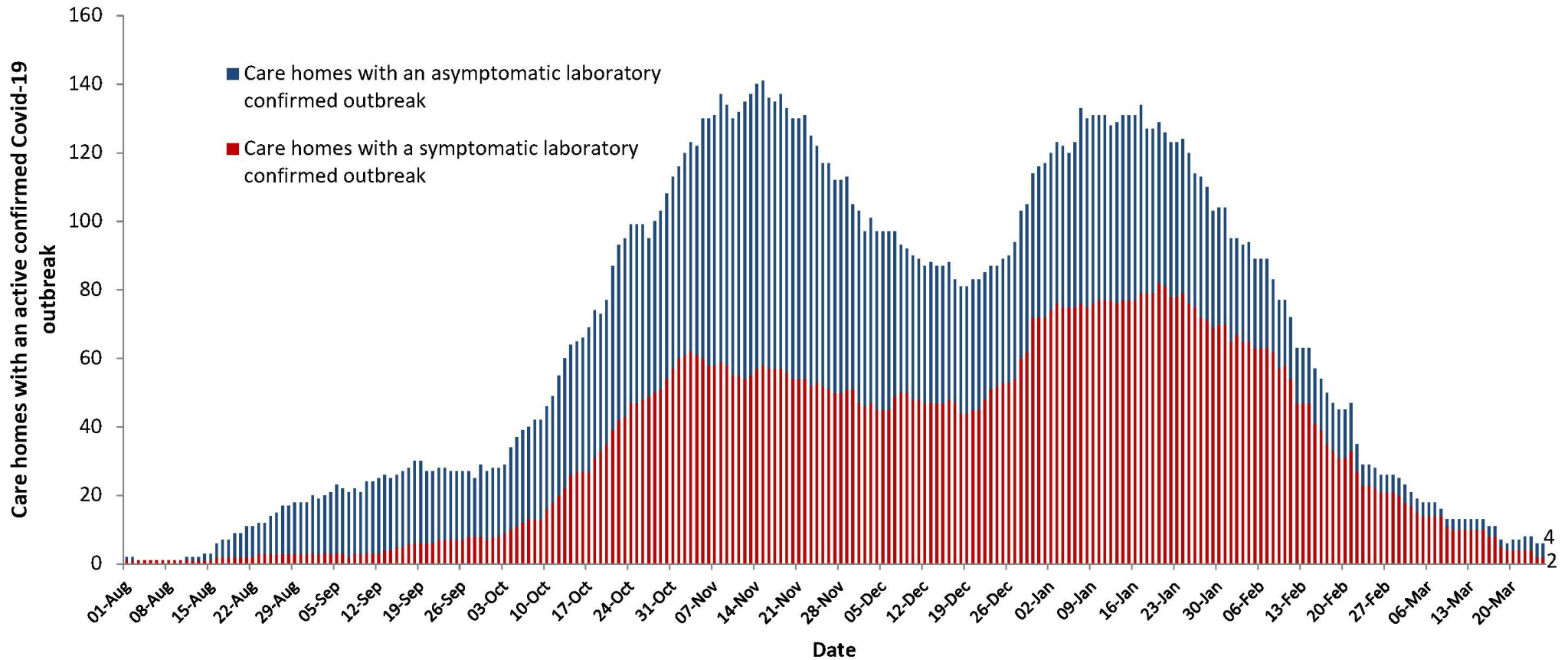


The number of active outbreaks peaked during the first two weeks of May and November. A third peak has occurred in January.

# Percentage of care homes in Northern Ireland with an active respiratory (non Covid-19 and confirmed Covid-19) outbreak



# Confirmed Covid-19: Symptomatic or asymptomatic care home outbreaks

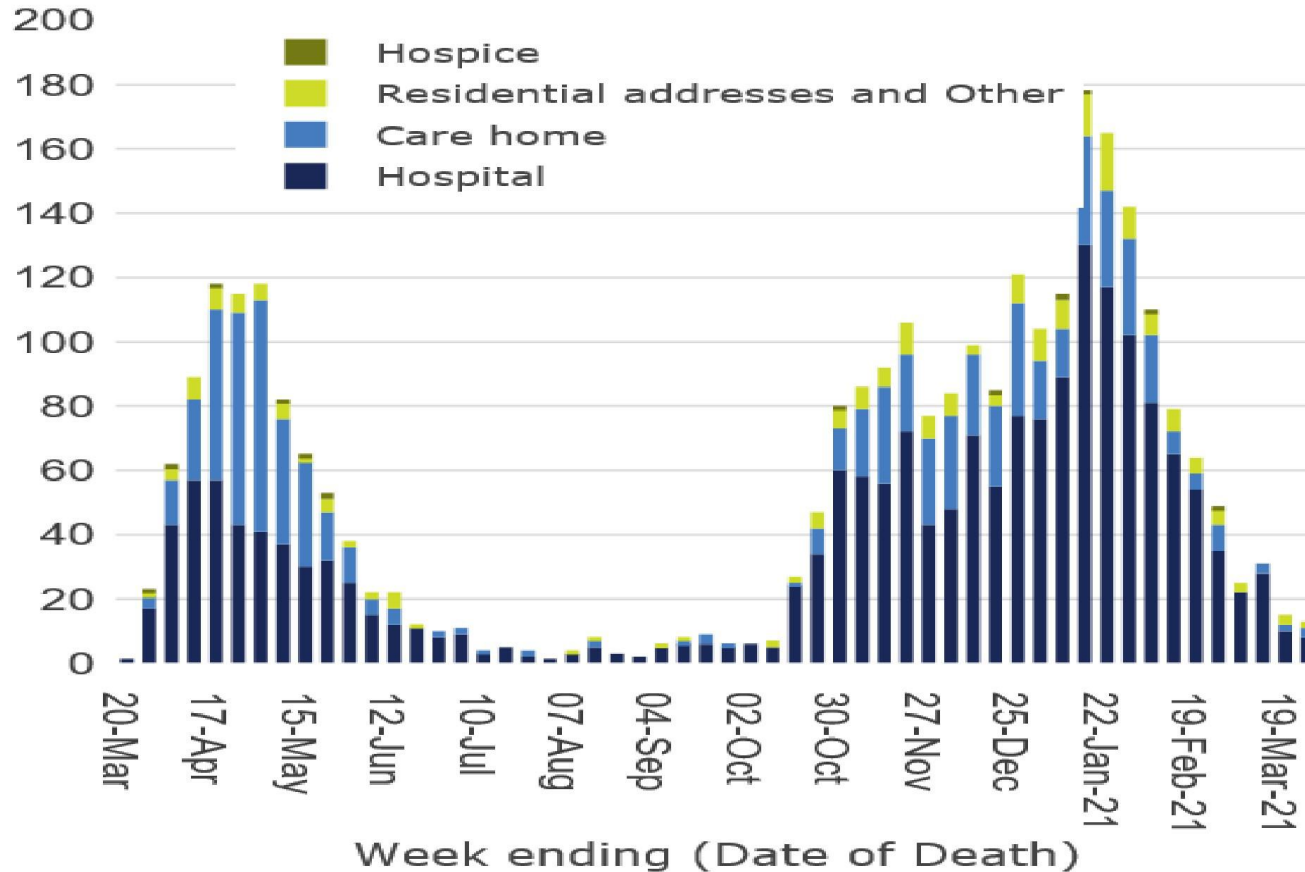


Note: PHA began recording confirmed Covid-19 outbreaks as either symptomatic or asymptomatic on 1 August 2020. This means the numbers represented on the graph may not equal the total active confirmed Covid-19 outbreaks. Also, active respiratory outbreaks not related to Covid-19 are not included here.



# COVID-19 deaths

**Deaths Occurring by Week and Place of Death**



26.5% of all COVID-19 deaths occurred in a care home environment. (770deaths in total) Between 18th March 2020 up to the week ending 19<sup>th</sup> March 2021 770 care home residents had COVID-19 recorded on their death certificate. Source: Vital Statistics, NISRA

# Impact of COVID-19 Care Home testing and vaccination policy on Care Home outbreaks in Northern Ireland

# Impact of COVID-19 testing and vaccination policy in care homes in N. Ireland

## Testing policy

- Comparison of the first two phases in the Covid-19 pandemic

## Vaccination policy

- Vaccine uptake in residents and staff in care homes
- The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)
- Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff
- Qualitative study – Care home experience of vaccination



# 1: Testing policy

## Comparison of phase 1 and phase 2 care home outbreaks



# Methodology

- Observational, ecological study of care home outbreaks in Northern Ireland.
- Analysis groups - people living and working in care homes.
- Variables chosen to reflect markers of outbreak severity.
- Variables are limited to routinely available data and include the following:
  - Markers of outbreak severity: mortality, duration of outbreak
  - Potential explanatory variables: symptomatology at outbreak notification, outbreak by setting, region and care home size
- **Confirmed outbreaks only were used**

Comparative analysis of confirmed versus suspected outbreaks showed a P-value of  $<0.001$  which is a strong indicator that suspected outbreaks were another respiratory condition and not Covid-19 – hence suspected outbreaks were removed from analyses

# Methods con'd

For the purpose of this report

- First phase was determined as 1st March – 31st July 2020 (153 days). Monday 3<sup>rd</sup> August marked a policy change to undertake regular asymptomatic testing in care homes for staff and residents.
- The second phase was regarded as occurring from 1st August to 24th December 2020 (146 days). Care home vaccination commenced on December 8<sup>th</sup> . No impact of vaccine expected in first couple of weeks so 24<sup>th</sup> Dec chosen as cut off for phase 2.

# Testing for COVID-19 in care homes

- Testing for COVID-19 was initially facilitated only by the Regional Virology Laboratory (RVL) before transitioning to local testing in all HSC Trusts
- Case definition was then expanded to reflect older and more vulnerable cases with atypical presentation managed as probable COVID-19 (esp relevant to care homes)
- April 2020 – PHA study highlighted that testing only symptomatic residents and staff may not identify all individuals with SARS-COV2.
- 24<sup>th</sup> April - Whole home testing introduced for new care home outbreaks
- On 13th June 2020 the Minister advised that all staff and residents in Care homes should be tested before end of June 2020.
- 28th July 2020 a letter was issued to announce the implementation of **a planned programme of regular COVID-19 testing for all residents and staff in care homes**, with staff being tested every 14 days and residents every 28 days. This programme came into effect on Monday 3rd August.
- 3 November 2020 the Health Minister announced that regular testing of staff was to increase from once every two weeks to once a week

# Supporting policy

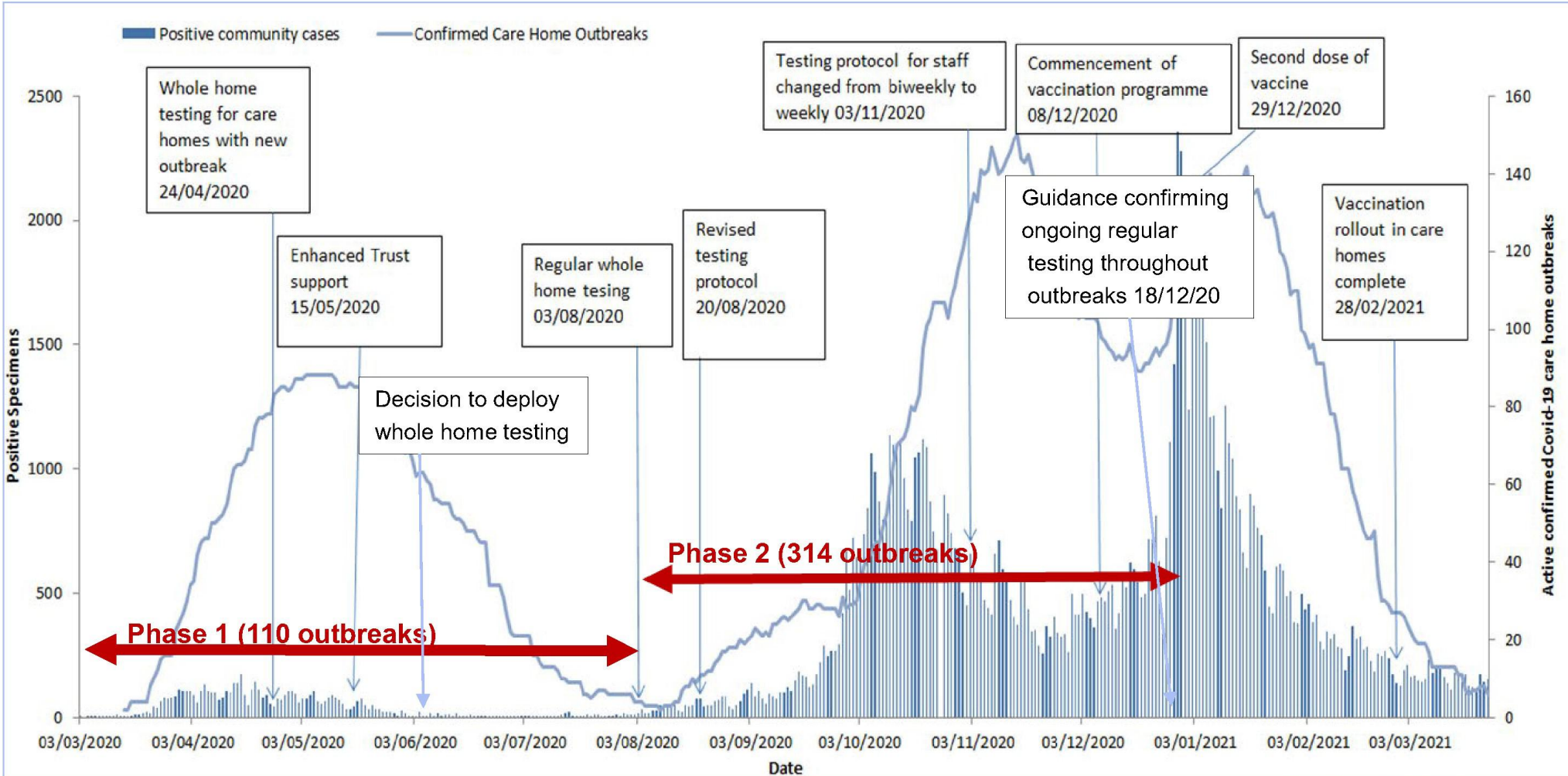
In addition to regular testing a continued focus was maintained on:

- Enhanced IPC measures
  - PPE
  - Isolation
  - Training
  - Restricted visiting
  - Enhanced cleaning
- Trust support to manage outbreaks

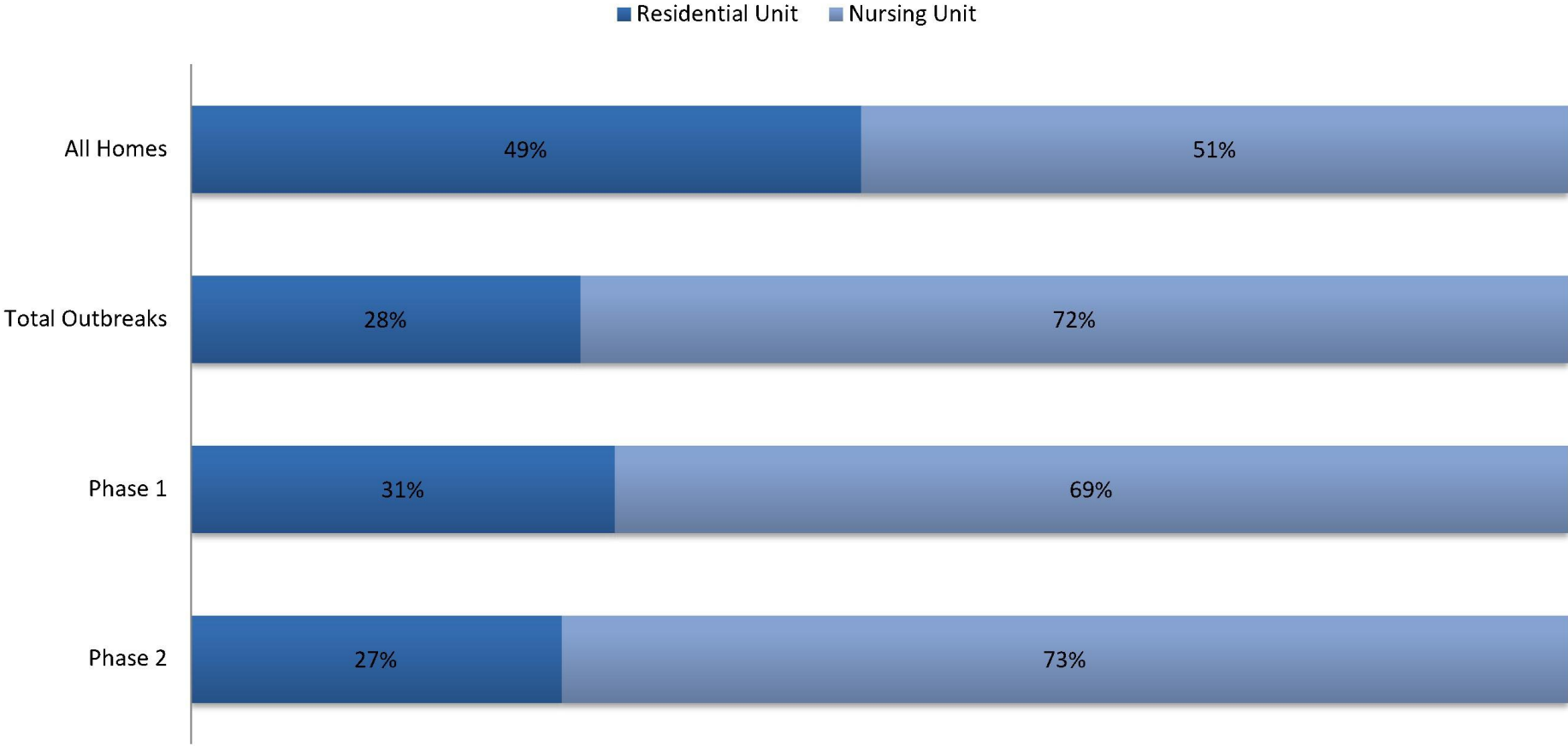




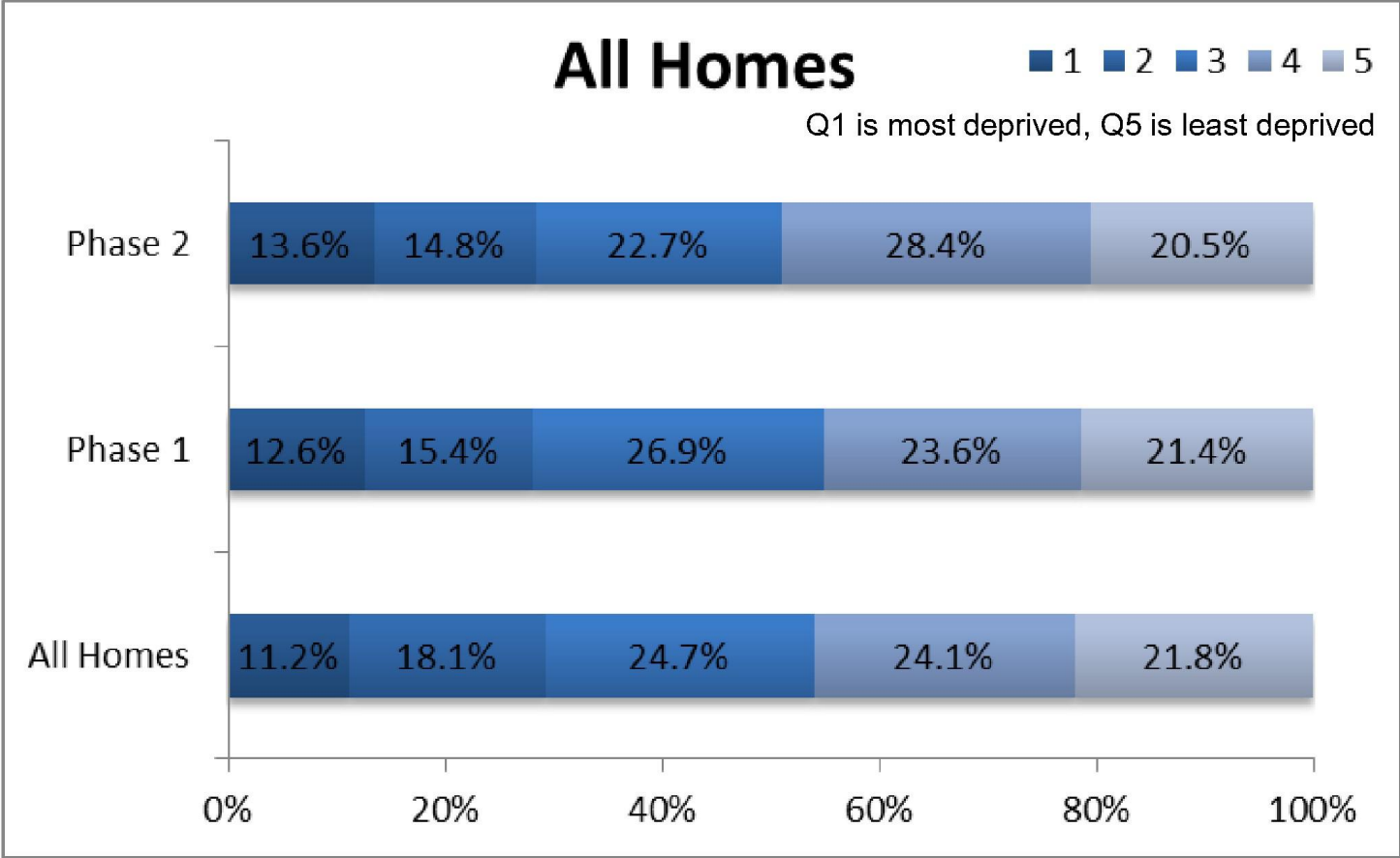
# Care home outbreaks and positive test results



# Outbreaks in nursing/residential settings



# Covid-19 care home outbreaks by deprivation quintile





# Comparison of phase 1 & 2: Covid-19 care home outbreaks by LGD

LGD Name	Phase 1		Phase 2		Number of care homes in each LGD
	n	%	n	%	n
Antrim and Newtownabbey	*	*	30	75.0%	40
Ards and North Down	*	*	26	48.1%	54
Armagh City, Banbridge and Craigavon	13	31.7%	33	80.5%	41
Belfast	31	37.3%	57	68.7%	81
Causeway Coast and Glens	11	30.6%	25	69.4%	36
Derry City and Strabane	*	*	23	82.1%	28
Fermanagh and Omagh	*	*	17	44.7%	38
Lisburn and Castlereagh	11	31.4%	29	82.9%	35
Mid and East Antrim	*	*	26	65.0%	39
Mid Ulster	*	*	25	61.0%	40
Newry, Mourne and Down	*	*	23	44.9%	49
<b>Total</b>	<b>110</b>		<b>314</b>		<b>481</b>

\*Numbers <10 suppressed

# Comparison of phase 1 & 2: Covid-19 care home outbreaks, by Trust area (as % of baseline number of care homes per Trust)

Trust Area	Phase 1		Phase 2		Number of care homes in each Trust
	n	%	n	%	n
BHSCT	27	29.7	66	72.5	92
NHSCT	26	19.7	92	69.7	132
SEHSCT	25	22.5	58	52.3	110
SHSCT	20	25.6	54	66.7	77
WHSCT	12	16.9	44	62.0	71
<b>Total</b>	<b>110</b>		<b>314</b>		<b>481</b>

# Comparison of phase 1 & 2: Covid-19 care home outbreaks, by Trust area (as proportion of total number of outbreaks occurring during each surge)

Trust Area	Phase 1		Phase 2		Number of care homes in each Trust	
	n	%	n	%	n	%
BHSCT	27	25%	66	21%	91	19%
NHSCT	26	24%	92	29%	132	27%
SEHSCT	25	23%	58	18%	110	23%
SHSCT	20	18%	54	17%	77	16%
WHSCT	12	11%	44	14%	71	15%
<b>Total</b>	<b>110</b>	<b>100%</b>	<b>314</b>	<b>100%</b>	<b>481</b>	<b>100%</b>

# Comparison of phase 1 & 2: Care home outbreaks, by size of care home

Home Size	Outbreaks not recorded- Phase 1		Outbreaks not recorded- Phase 2		Outbreaks not recorded- Phase- 1/2		Total Homes
	n	%	n	%	n	%	
1-30	207	91.6%	145	64.2%	135	59.7%	226
31-50	130	74.3%	72	41.1%	52	29.7%	175
51+	42	52.5%	12	15.0%	5	6.3%	80
<b>Total</b>	<b>379</b>	<b>78.8%</b>	<b>229</b>	<b>47.6%</b>	<b>192</b>	<b>39.9%</b>	<b>481</b>

# Comparison of phase 1 & 2: Care homes with multiple outbreaks

Number of outbreaks per home	Phase 1		Phase 2	
	n	%	n	%
0	371	77.1%	167	34.7%
1	104	21.6%	252	52.4%
2	5	1.0%	56	11.6%
3	1	0.2%	5	1.0%
4	0	0.0%	1	0.2%
<b>Total</b>	<b>481</b>		<b>481</b>	



# Comparison of phase 1 & 2: Asymptomatic outbreaks

- No routine testing of asymptomatic persons in Phase 1  
i.e. no asymptomatic outbreaks
- Phase 2: 170 outbreaks asymptomatic at notification
  - 79 became symptomatic
  - 91 remained asymptomatic

# Comparison of phase 1 & 2: Persons meeting case definition at notification date

- Only staff meeting case definition at declaration of outbreak
  - Phase 1: 6 (5.5%)
  - Phase 2: 142 (45.4%)
- Proactive asymptomatic testing provided opportunity to intervene earlier to prevent spread

# Comparison of phase 1 & phase 2: Mortality

	Phase 1	Phase 2
Total deaths	349	224*
Days in surge	153	146
<b>Average number of deaths per day</b>	<b>2.28</b>	<b>1.53</b>

Source: NISRA

\*Phase 2 deaths calculated to 25 December 2020





# Comparison of phase 1 & phase 2: Mortality

	Phase 1		Phase 2	
	n	%	n	%
<b>Covid-19 deaths in care homes</b>	<b>349</b>	40.2	<b>245</b>	25.5
<b>All Covid-19 deaths</b>	855	-	962	-

Source: NISRA

\*Phase 2 deaths calculated to 25 December 2020



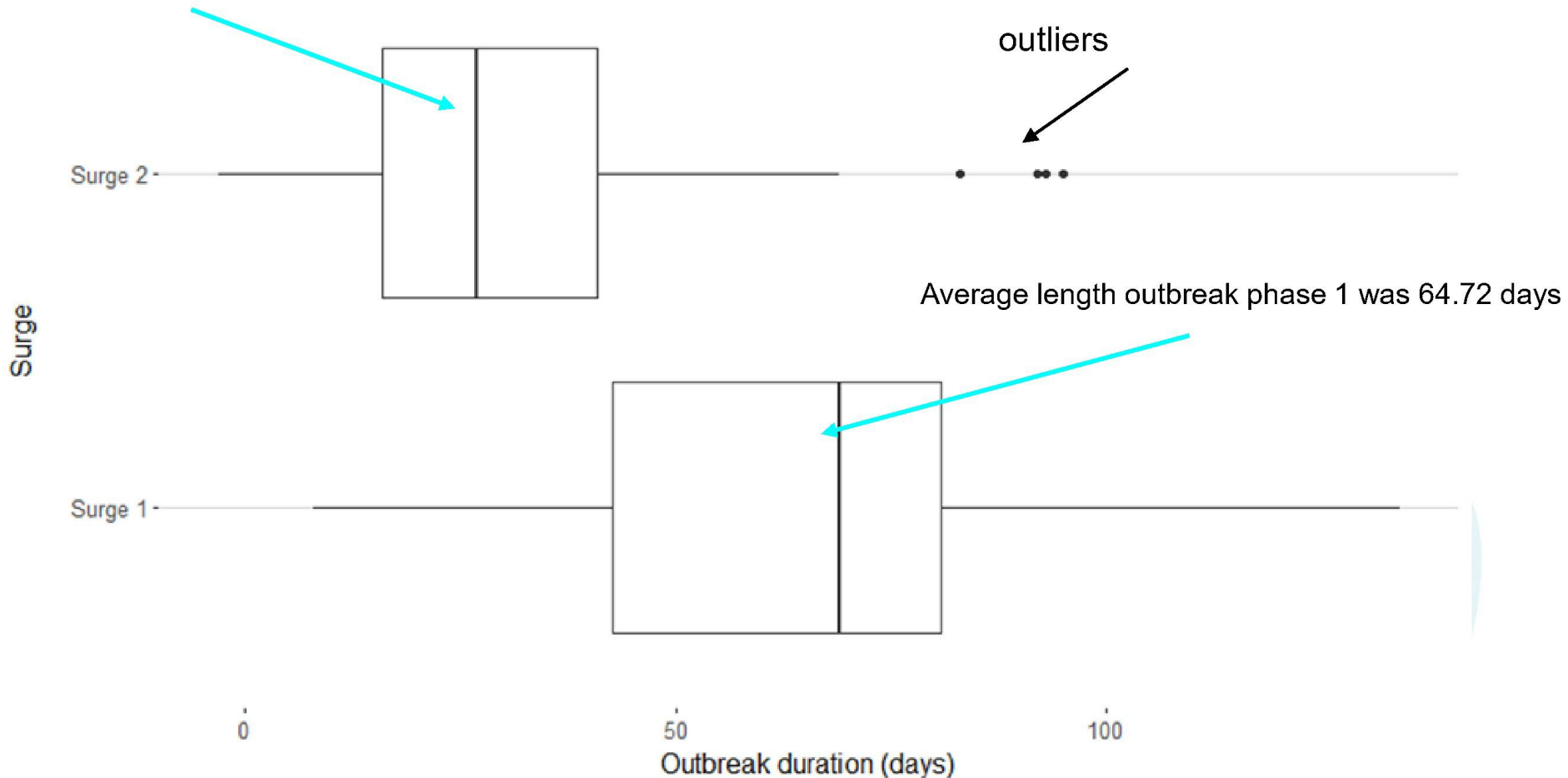
# Comparison of phase 1 & phase 2: Outbreak duration

	Mean duration(days)
Phase 1	64.72
Phase 2	34.97
<b>All outbreaks</b>	<b>44.11</b>

- Average duration of outbreaks reduced by 30 days
- Finding is statistically significant (next 2 slides)

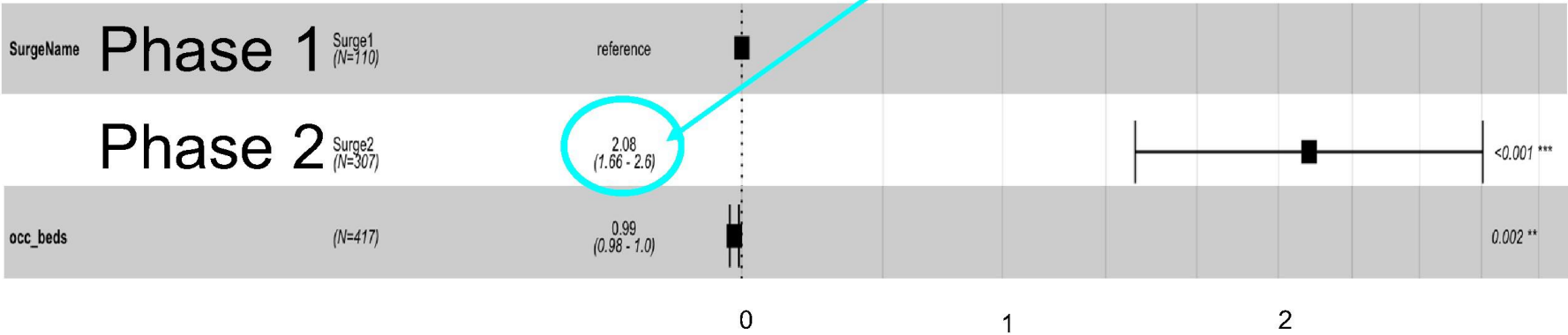
# Comparison of phase 1 & phase 2 : Outbreak duration (t-test analysis)

Average length outbreak phase 2 was 34.97 days



# Comparison of phase 1 & phase 2: Outbreak closure (survival analysis)

$$HR = 2.08 (1.66 - 2.6)$$



Hazard ratio (HR) = 2.08 i.e. care homes in second surge were over 2 times as likely to experience outbreak extinction (be closed - can we put 14 day timeframe?)

# Comparison of phase 1 & phase 2: Conclusions

- More outbreaks were recorded in Phase 2 after the implementation of asymptomatic testing as compared to phase 1
- In both phases – 30:70 split between residential and nursing home outbreaks
- Deprivation does not appear to be linked to outbreaks
- Variation across trust areas in the proportion of care home outbreaks was experienced
- Larger care homes were more likely to have an outbreak
- Asymptomatic testing played a pivotal role early intervention and risk reduction
- Both the length and severity of outbreaks were reduced in phase 2
- Some data limitations

## 2: Vaccination policy – 4 studies

- Vaccine uptake in residents and staff in care homes
- The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)
- Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff
- Qualitative study – Care home experience of vaccination



## 2: Vaccination policy

- **Vaccine uptake in residents and staff in care homes**
- The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)
- Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff
- Qualitative study – Care home experience of vaccination

# Vaccine uptake in residents and staff in care homes



# Aims

- to assess the vaccination uptake by care home residents and staff across all care homes in Northern Ireland
- to describe variation in uptake across Trusts and main categories of care home

## Data

- Daily care home returns to RQIA



# Methods

- Individual person level data is required to answer questions about vaccine safety and efficacy - VMS (vaccine management system) in development (not included in this work)
- In the interim, data on COVID-19 vaccine uptake was sourced from:
  - Trust vaccination data
  - Care home daily returns
- Limitations on use for both data sets
- Agreed approach on staff denominator data was secured
- Care home daily returns data set used for the analysis reported (fewer limitations)

## Vaccine Uptake among care home residents by HSCT (8/12/20 – 14/02/21)

Trust	Residents (no.)	First Vaccination	Both Vaccination	% First Vaccination	% Both Vaccination
BHSCT	2,577	2,155	1,923	83.6%	74.6%
NHSCT	3,380	2,663	2,323	78.8%	68.7%
SEHSCT	3,054	2,590	2,310	84.8%	75.6%
SHSCT	2,178	1,835	1,606	84.3%	73.7%
WHSCT	1,721	1,523	1,282	88.5%	74.5%
<b>Northern Ireland</b>	<b>12,910</b>	<b>10,766</b>	<b>9,444</b>	<b>83.4%</b>	<b>73.2%</b>

# Vaccine Uptake in Care Home Residents by type of home (8/12/20 – 14/02/21)

	No of homes	Number of Residents	First Vaccination	Both Vaccination	% First Vaccination	% Both Vaccination
<b>Nursing</b>	243	8,839	7,391	6,393	<b>83.6%</b>	<b>72.3%</b>
<b>Residential</b>	228	4,071	3,375	3,051	<b>82.9%</b>	<b>74.9%</b>
<b>Northern Ireland</b>	471	12,910	10,766	9,444	83.4%	73.2%

# Vaccine uptake among care home staff by Trust (8/12/20 – 14/02/21)

Trust	Staff Numbers	First Vaccination	Both Vaccinations	% First Vaccination	% Both Vaccinations
<b>BHSCT</b>	3,901	2,656	2,191	<b>68.1%</b>	<b>56.2%</b>
<b>NHSCT</b>	5,858	3,549	3,097	<b>60.6%</b>	<b>52.9%</b>
<b>SEHSCT</b>	5,358	3,572	3,285	<b>66.7%</b>	<b>61.3%</b>
<b>SHSCT</b>	3,386	1,958	1,640	<b>57.8%</b>	<b>48.4%</b>
<b>WHSCT</b>	2,610	1,867	1,611	<b>71.5%</b>	<b>61.7%</b>
<b>Northern Ireland</b>	<b>21,113</b>	<b>13,602</b>	<b>1,1824</b>	<b>64.4%</b>	<b>56.0%</b>



# Vaccine uptake among care home staff by type of home (8/12/20 – 14/02/21)

	No of homes	Staff Numbers	First Vaccination	Both Vaccination	% First Vaccination	% Both Vaccination
Nursing	243	13,869	8,889	7,865	64.1%	<b>56.7%</b>
Residential	228	7,244	4,713	3,959	65.1%	<b>54.7%</b>
NI	471	21,113	13,602	11,824	64.4%	56.0%

# Care Home returns – 11/03/21

Homes	No. of homes operational	471
	No. of homes submitting a return that day	448
	% submitting	95%
	No. of homes not submitting (most recent data used)	23
Staff	No. of staff (denominator data)	20,564
	No. vaccinated - first	14,079
	<b>% first vaccination</b>	<b>68.5%</b>
	No. vaccinated - both	12,724
	<b>% both vaccinations</b>	<b>61.9%</b>
Residents	No. of residents (denominator data)	12,865
	No. vaccinated - first	11,250
	<b>% first vaccination</b>	<b>87.4%</b>
	No. vaccinated - both	10,176
	<b>% both vaccinations</b>	<b>79.1%</b>

# Care Home returns – 11/03/21

	RQIA data as at 11/03/21	DoH Dashboard data - updated 11/03/21	Difference (RQIA minus DoH)
Staff – first vacc	14,079	13,694	385
Staff – both vaccs	12,724	11,780	944
Resident – first vacc	11,250	13,846	-2,596
Resident – both vaccs	10,176	12,019	-1,843

# Vaccine uptake - conclusions

- Interpretation is difficult
  - Valid reasons for variation
  - Large uncertainties around accuracy of the data
- Vaccine estimates dependant on accurate numbers
- There needs to be a root and branch review of how we collect and collate data about residents in care homes.

# Recommendations for improved quality of and access to care home data

## Immediate

- Improve denominator data and agree protocol for use across partner organisations
- Address outliers by contacting individual care homes to validate baseline data (March 2021)

## Medium – longer term

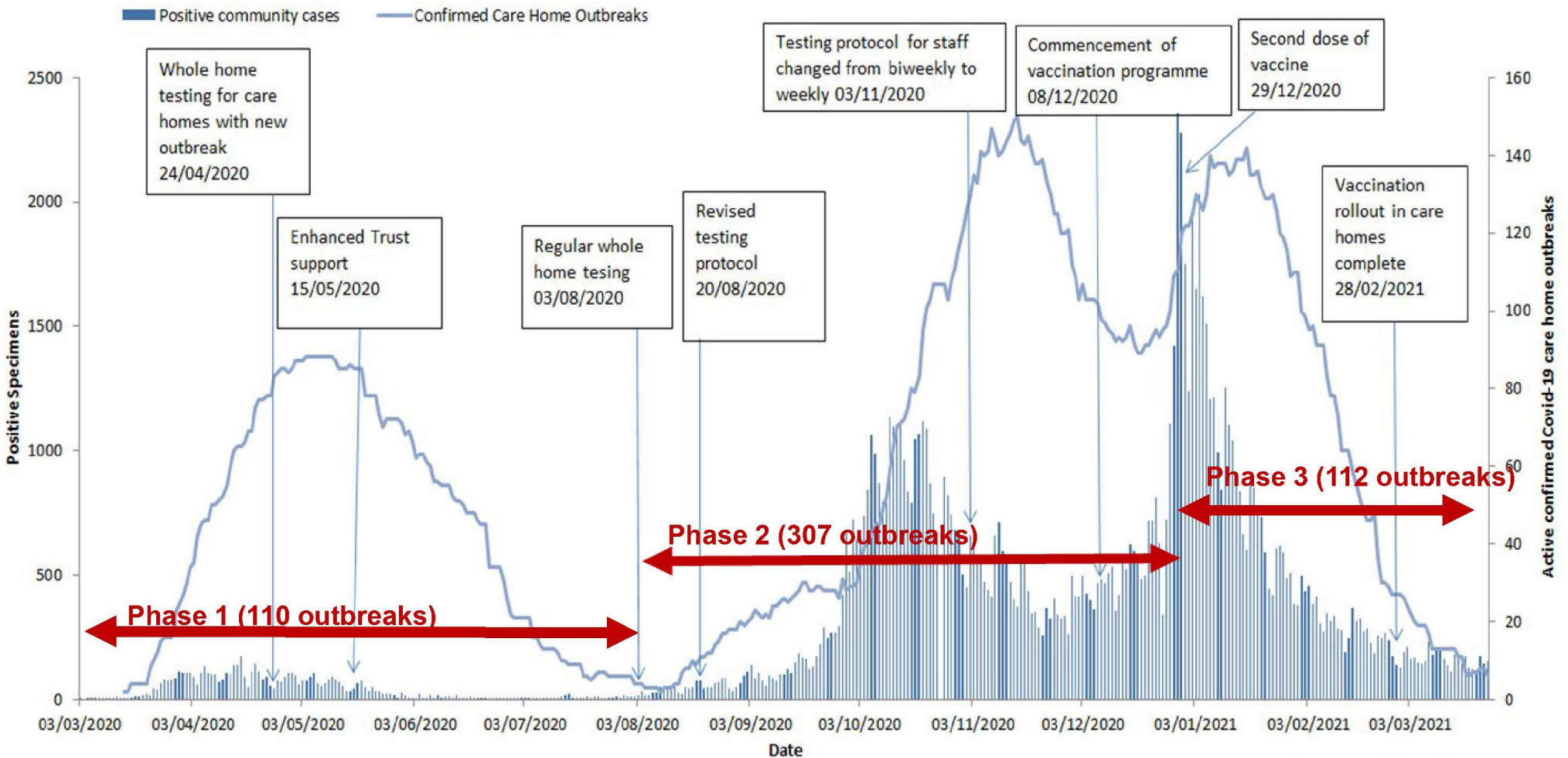
- Enhance care home engagement – ECHO workshops
- Explore possibility of individual level data uploads
- Transfer of dashboard to power BI to make it more stable and continue to develop
- Agree and implement a minimum care home data set
- Improved care home interface /hub for care home data
- Formal buy in on proposals from partner organisations (Partner organisation group established May 2020)
  - Lead organisation to coordinate
  - Host organisation & resource for care home hub



## 2: Vaccination policy

- Vaccine uptake in residents and staff in care homes
- **The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)**
- Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff
- Qualitative study – Care home experience of vaccination

# Care home outbreaks and positive test results



# Aim

Using care home level data to analyse the **impact of vaccination** on care homes in outbreak (phase 3) using relevant statistical methodology to explore:

- Impact of first vs. second vaccine
- Outbreak closure
- Resident attack rates
- Risk of further outbreak
- Hospital admissions
- Mortality

# Study population and data sources

- 471 operational care homes (243 nursing and 238 residential)
- Resident (11,250) and staff (20,564) numbers were identified using care home reported data submitted via RQIA web portal to BSO data warehouse
- Positive cases of COVID-19 reported to PHA Health Protection Duty Room. Cases extracted from HP Zone by surveillance team
- Hospital admissions data and PCR positive databases used to identify cases admitted from nursing and residential care homes
- Deaths data sourced from NISRA

# Methods

- **Impact of 1<sup>st</sup> vs 2<sup>nd</sup> vaccine dose**

Cox survival

- **Outbreak I**

A Cox proportional hazards model was used to produce the hazard ratios (HR) and 95% confidence intervals (CIs) to measure outbreak duration of COVID-19 in care homes across different periods of immunity adjusted for community prevalence and care home size

- **Resident attack rates**

Wilcoxin

- **Risk of outbreak**

Poisson

- **Hospital admissions**

Data linked using health and care number

Binary logistic regression model used to calculate the odds of any admission being from a care home

- **Mortality rates**

Binary logistic regression model used to calculate the odds of any death occurring in a care home compared to deaths that occurred outside the care home using the time period before the vaccination as the reference category.



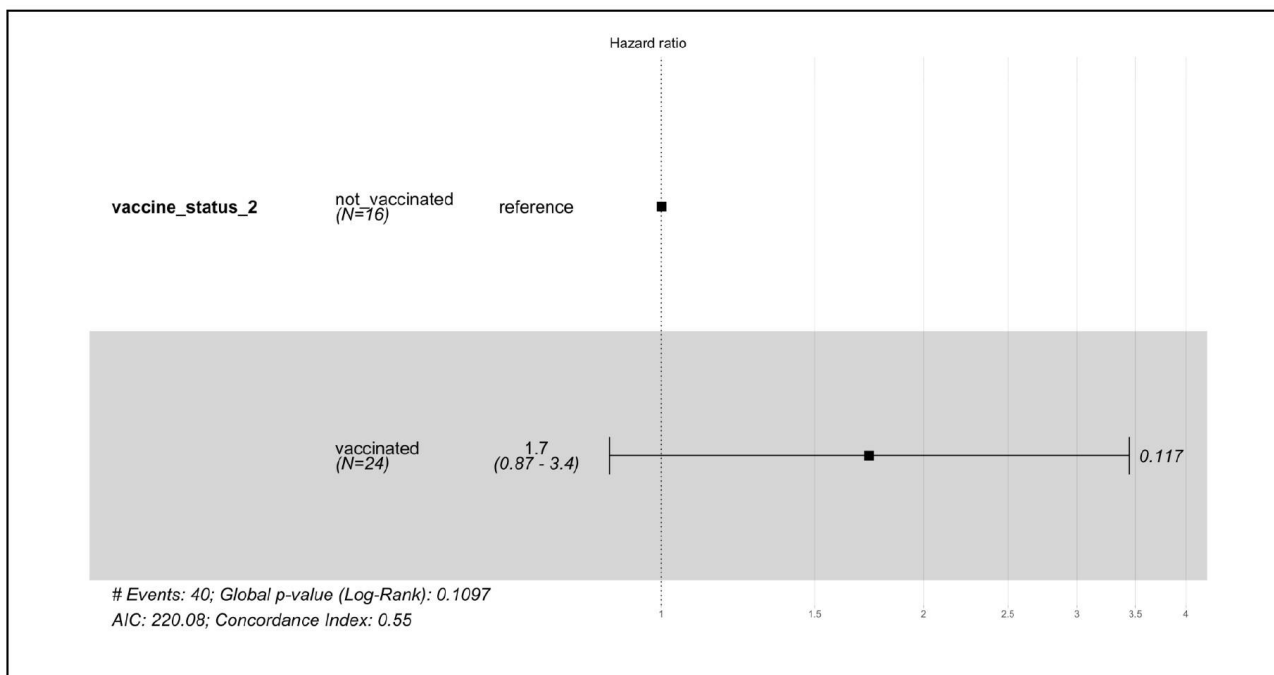
# Impact of 1<sup>st</sup> vs. 2<sup>nd</sup> vaccine

- Method: Cox survival analysis
- Comparing length of outbreak in care homes in outbreak after 1 round of COVID-19 vaccination had been completed with care homes in outbreak after 2 rounds of COVID vaccination had been completed (21 day interval between vaccination rounds)
- 40 care homes identified (date of analysis)
- Analysis completed at 21 days post second vaccine
- (were the 16 care homes that only had the 1<sup>st</sup> vaccine also 21 days post vaccine?)

# Impact of 1st vs. 2nd vaccine

Comparing length of outbreak in care homes 21 days post second round of vaccination with those 21 days post first round of vaccination.

Results: no statistical difference



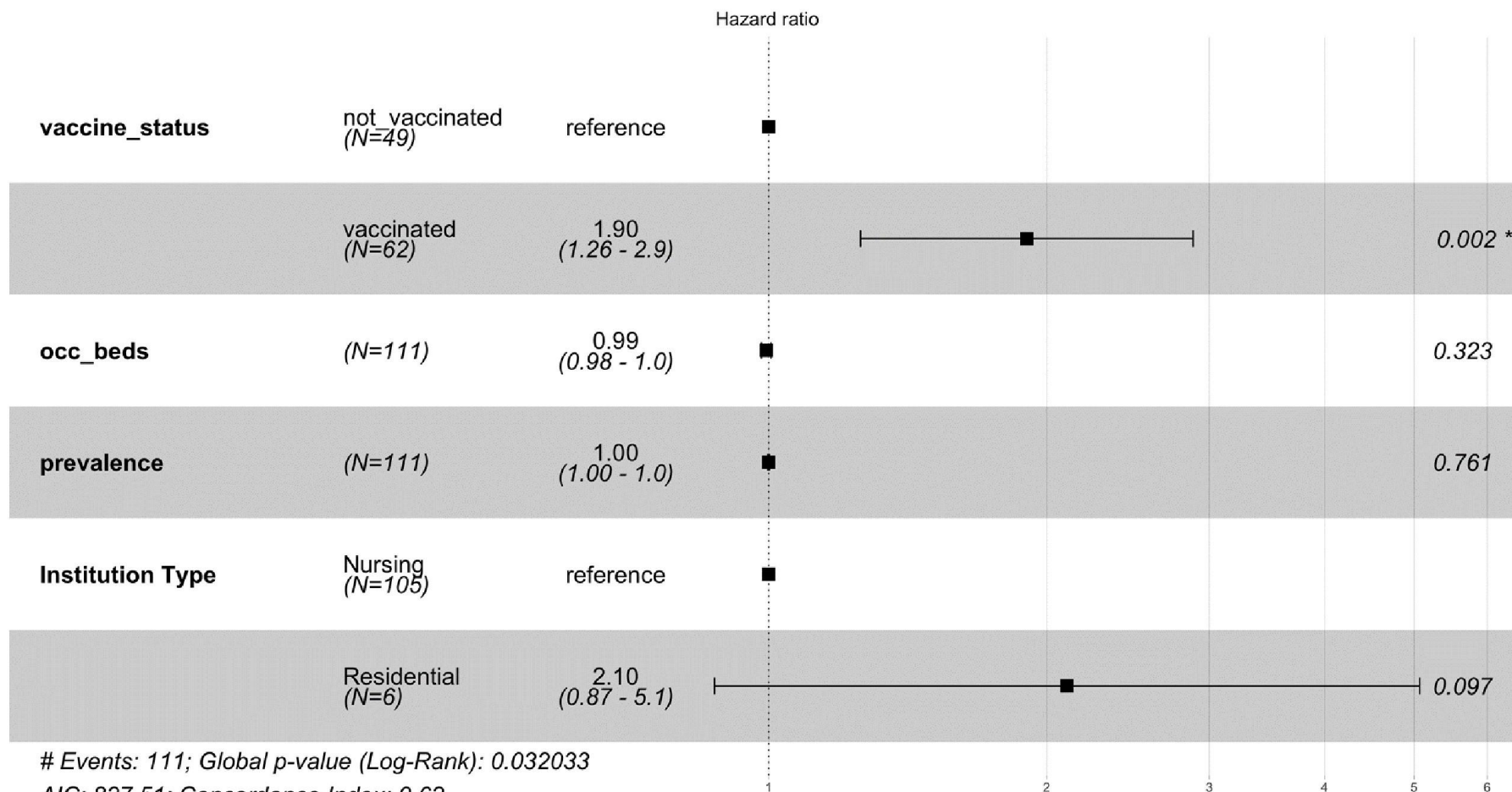
Interpretation – no significant improvement in further reducing the length of outbreak after getting the 2<sup>nd</sup> dose of vaccine

Note: small numbers in the analysis

# Length of outbreak: method

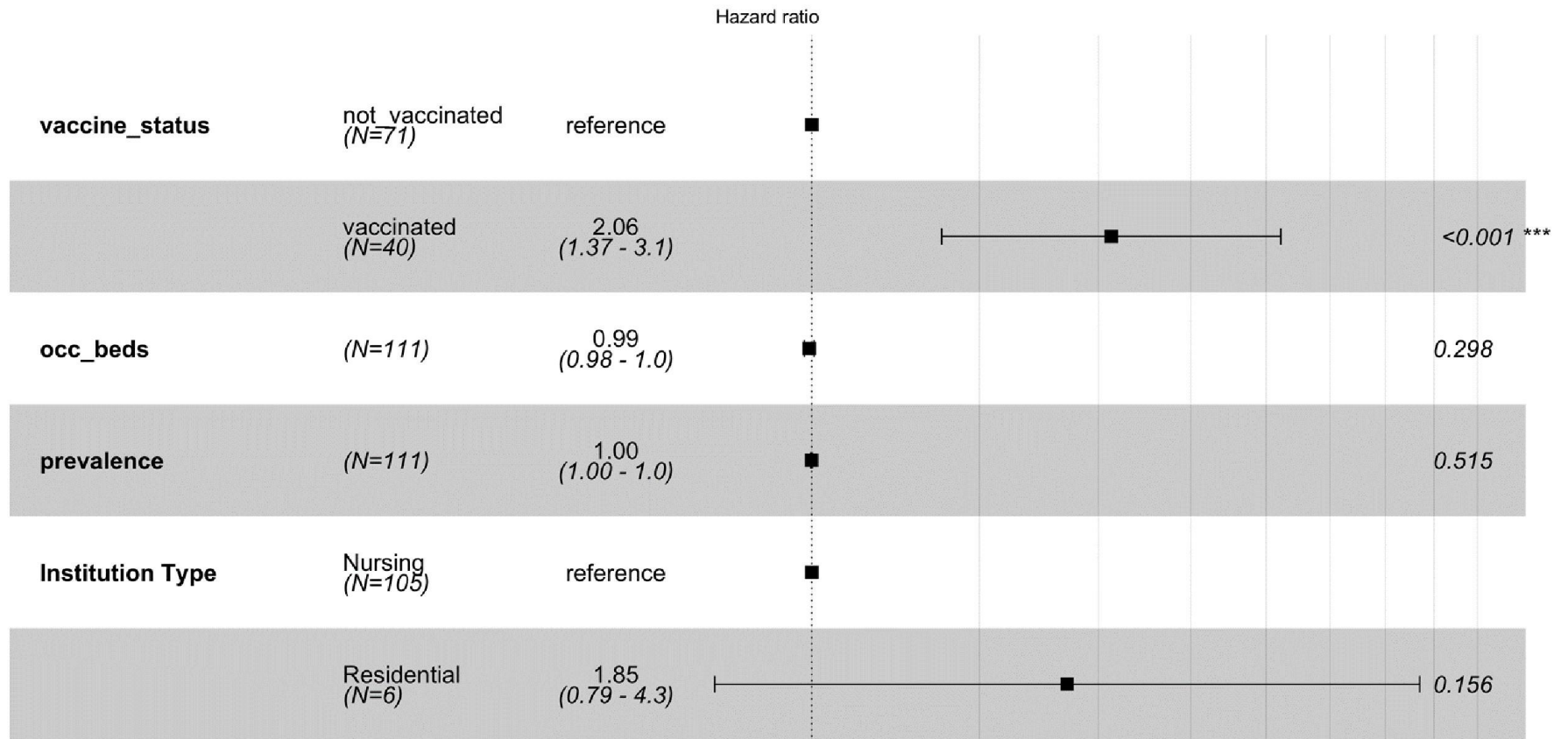
- Adjusted for care home size and community prevalence of Covid-19
- Analysis focused on care homes post first vaccine
- Care homes in outbreak after the vaccination programme rolled out – phase 3 - 8th Dec – 16th Feb.
- 112 homes identified
- Date of first vaccine dose to care homes identified from Trust returns
- Survival analysis done at day 7, 14, 28 and 35 (weekly increments post vaccine)
- Statistical tests used - cox survival analysis

# Length of outbreak at 14 days (1<sup>st</sup> dose)





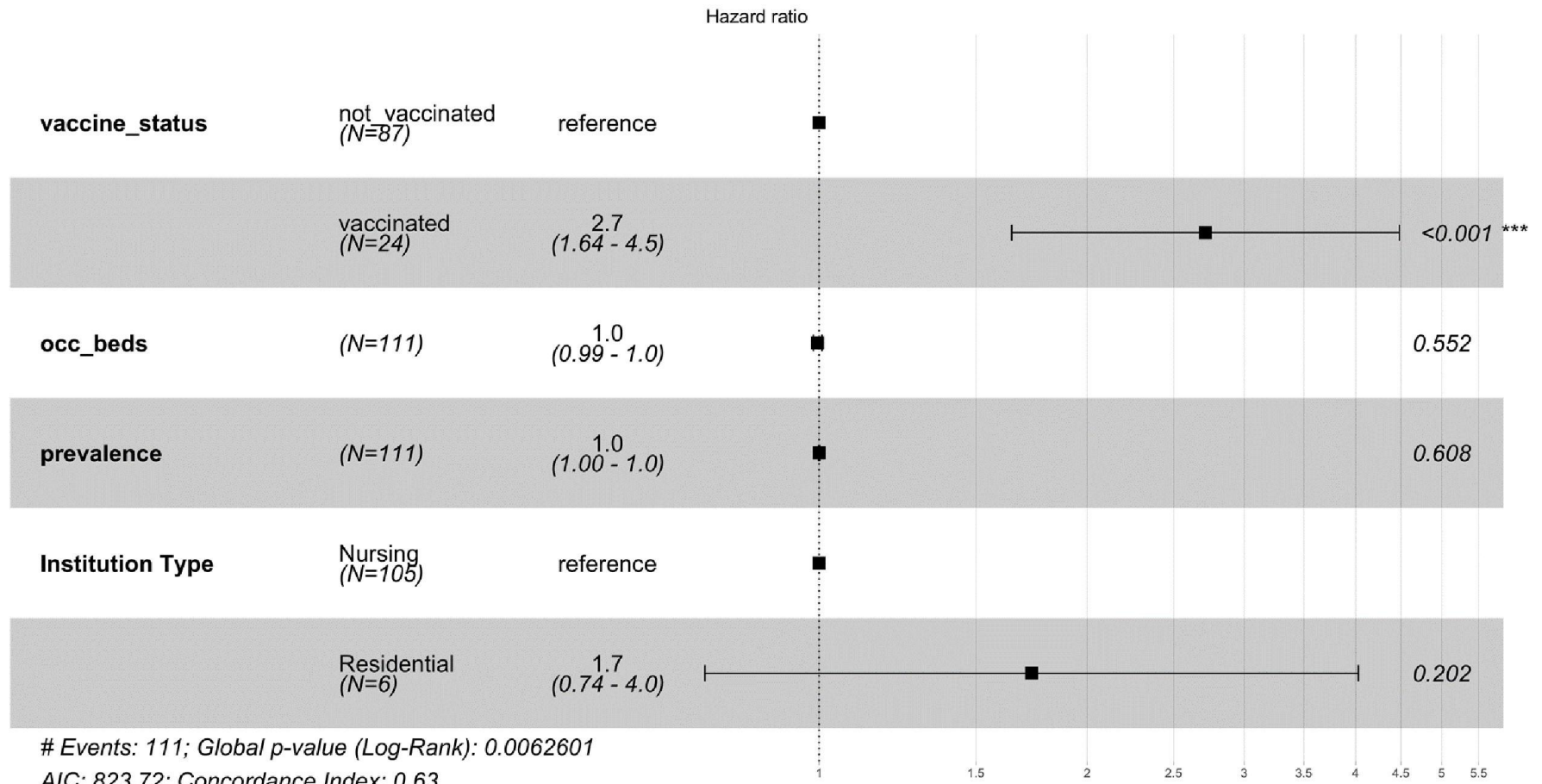
# Length of outbreak at 21 days (1st dose)



# Events: 111; Global p-value (Log-Rank): 0.015673  
 AIC: 825.83; Concordance Index: 0.63



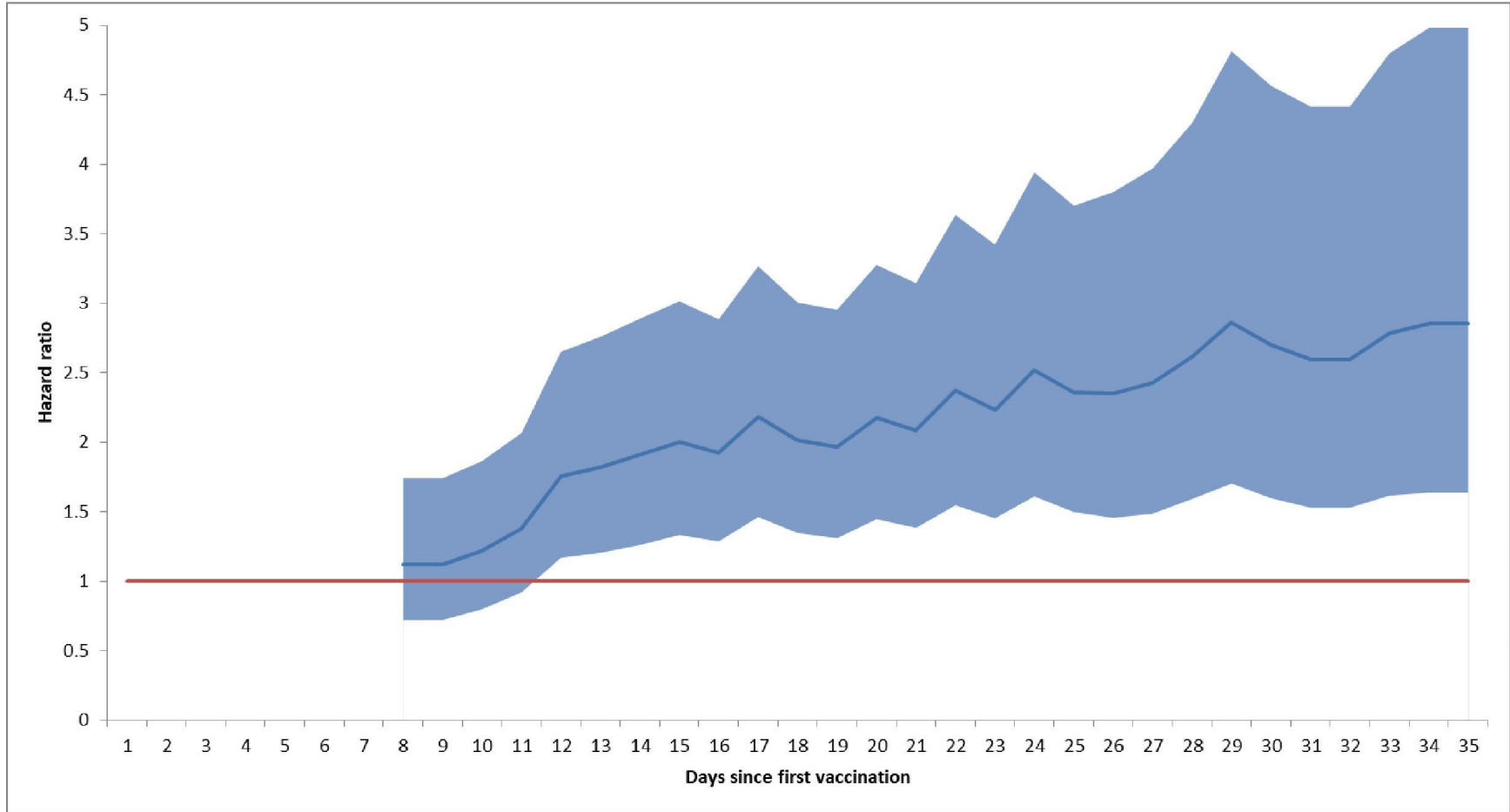
# Length of outbreak at 21 days (1<sup>st</sup> dose)



## Summary: Survival analysis for 112 care homes at 2, 3, 4 and 5 weeks post vaccination.

Interpretation: 1<sup>st</sup> dose vaccination had a significant impact on reducing the length of care home outbreaks

	N	HR (95% CI)	p
<b>14 days</b>			
Non-Vaccinated	50	1	
Vaccinated	62	1.91 (1.26 – 2.9)	0.002
<b>21 days</b>			
Non-Vaccinated	72	1	
Vaccinated	40	2.09 (1.38 – 3.1)	<.001
<b>28 days</b>			
Non-Vaccinated	88	1	
Vaccinated	24	2.6 (1.59 – 4.3)	<.001
<b>35 days</b>			
Non-Vaccinated	94	1	
Vaccinated	18	2.9 (1.64 – 5.0)	<.001



# Resident attack rates

Explore difference in attack rates between the vaccinated/unvaccinated care homes post 21 days immunity

# Resident attack rates : Methods

- Wilcoxon test (non-parametric)
- Hypothesis
  - H0: The median attack rates in the vaccinated and unvaccinated groups are equal (i.e. no difference)
  - H1: The median attack rate in the vaccinated group **is less** than the median attack rate in the unvaccinated group (i.e. the vaccinated group are less likely to be recorded as COVID-19 positive)
- Groups = vaccinated and unvaccinated



# Resident attack rates: results

## Result

- H1 - alternative hypothesis is accepted i.e. the true location shift is less than 0
- p-value = 0.01075 (highly significant)

## Interpretation

- The p-value of the test is 0.01075, which is less than the significance level  $\alpha = 0.05$  (ie 95% confidence).
- We can conclude that the median attack rate is significantly less in vaccinated care homes 21 days post vaccination with a p-value = 0.01075.

# Risk of further outbreak

Data on care home outbreaks analyses to test if the rate of new care home COVID outbreaks decreased as the vaccine coverage of care homes increased

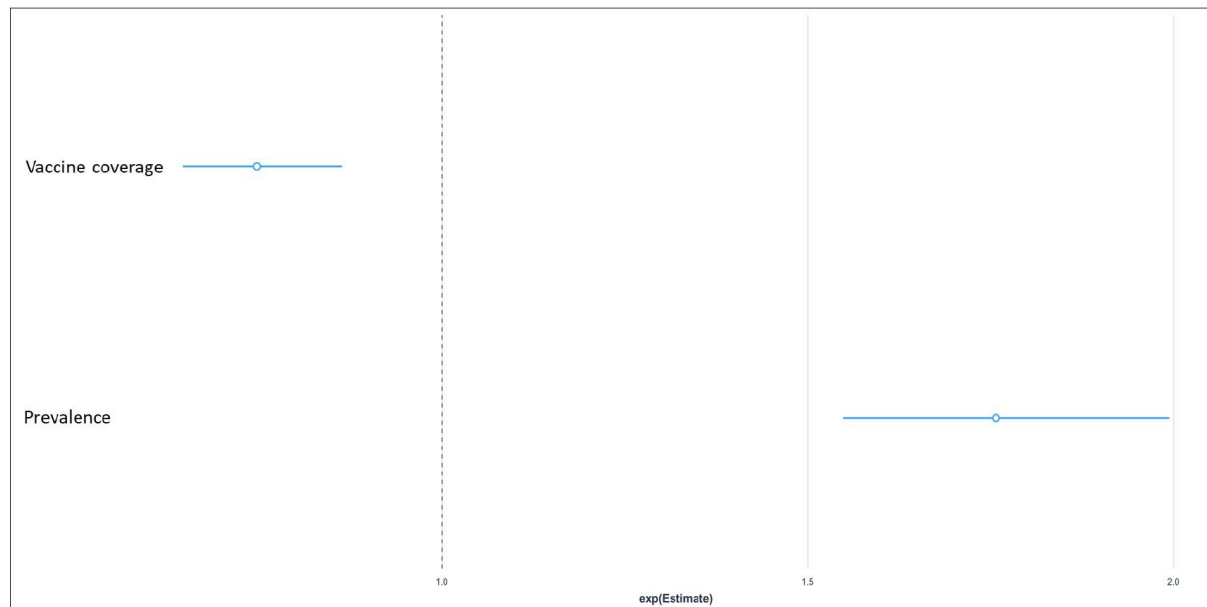
# Risk of further outbreak: Methods

- Poisson model used
- Adjusted for changes in background prevalence
- Study period 8/12/20 – 11/03/21



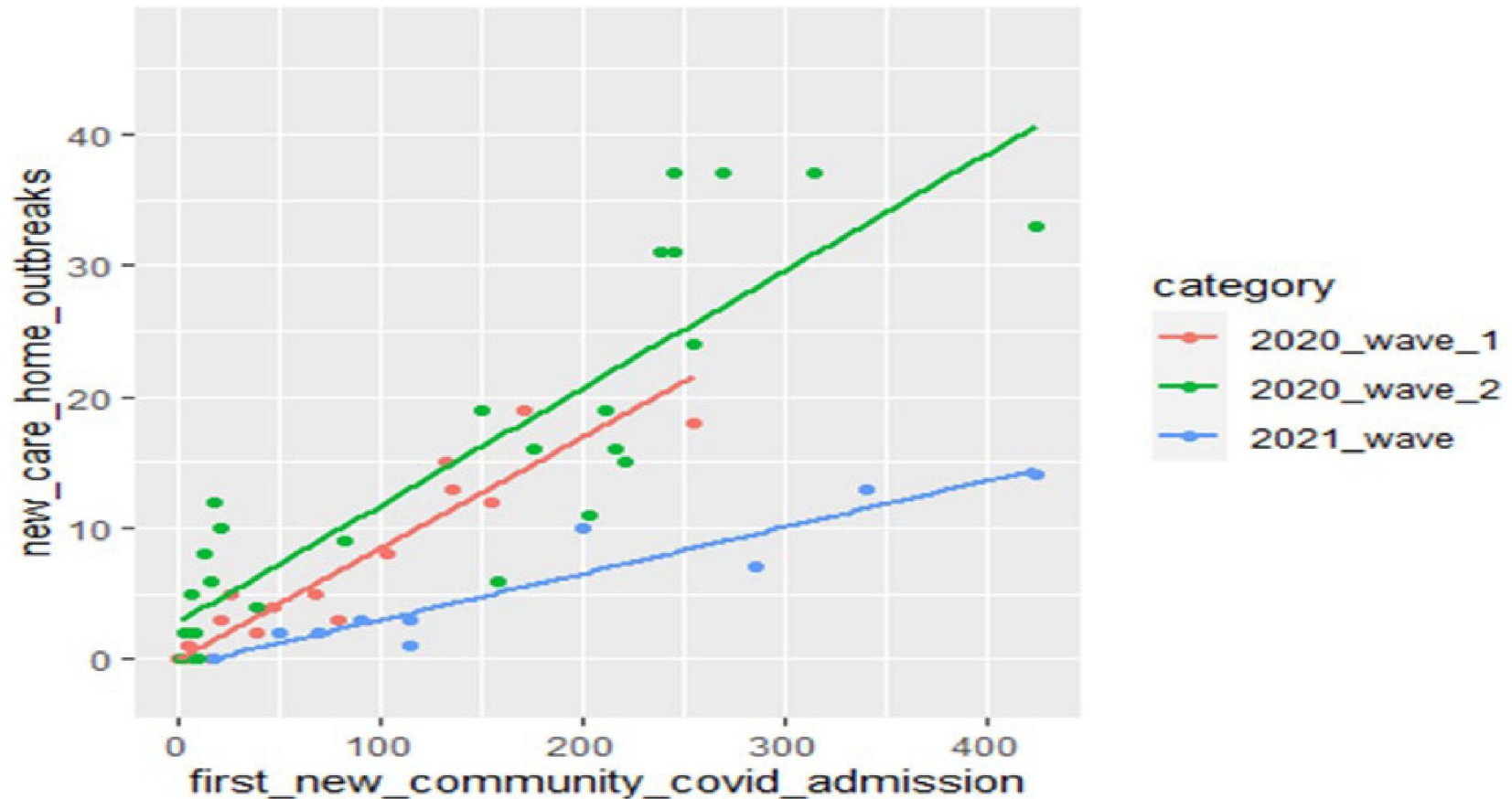
# Results

- the rate of new outbreaks within care homes significantly reduces as vaccine coverage increases whilst controlling for background prevalence
- Finding is highly significant -  $p < 0.0001$



# Frequency of care home outbreaks

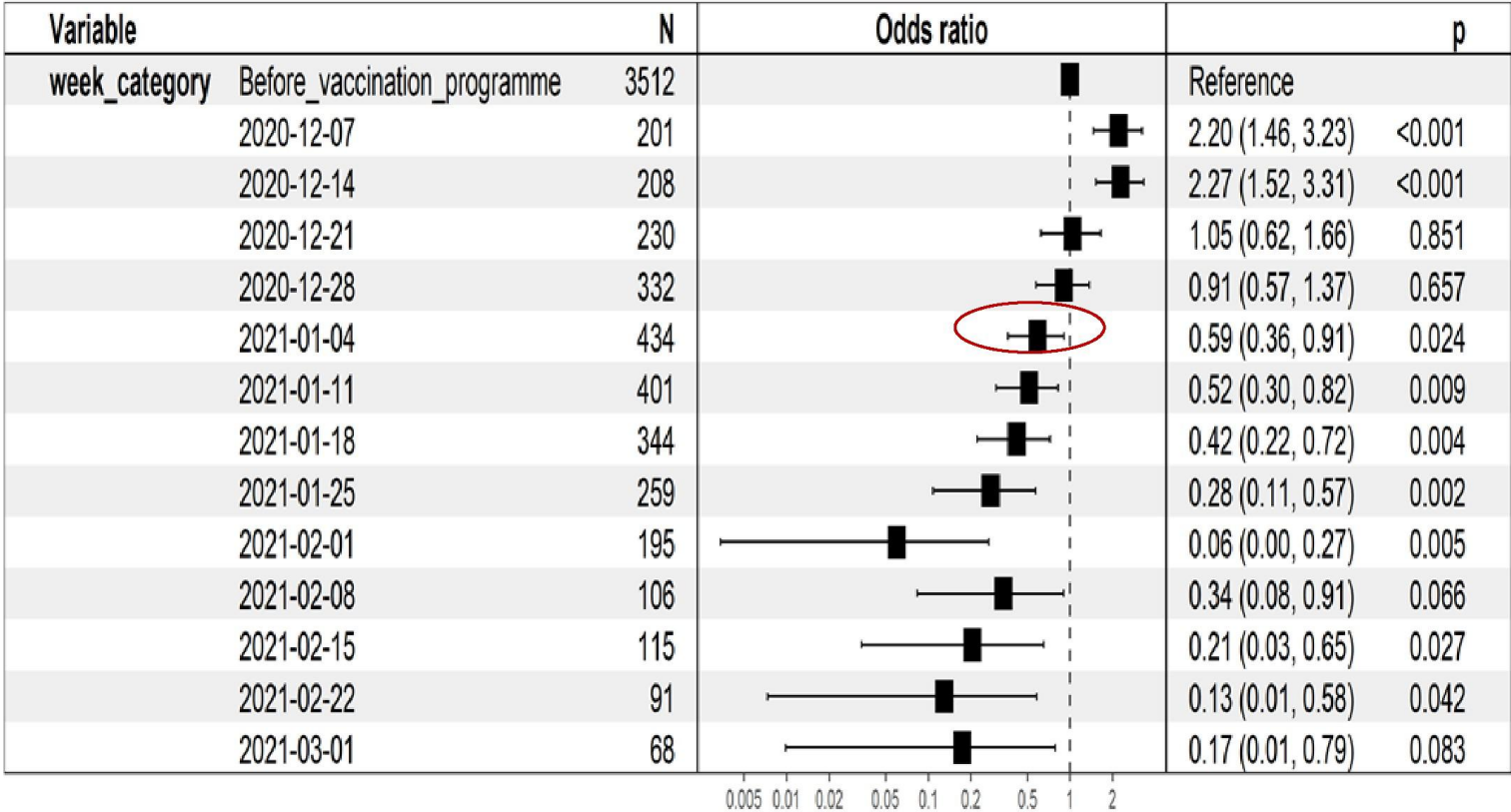
Community and Care level home infections across the three waves of the pandemic.





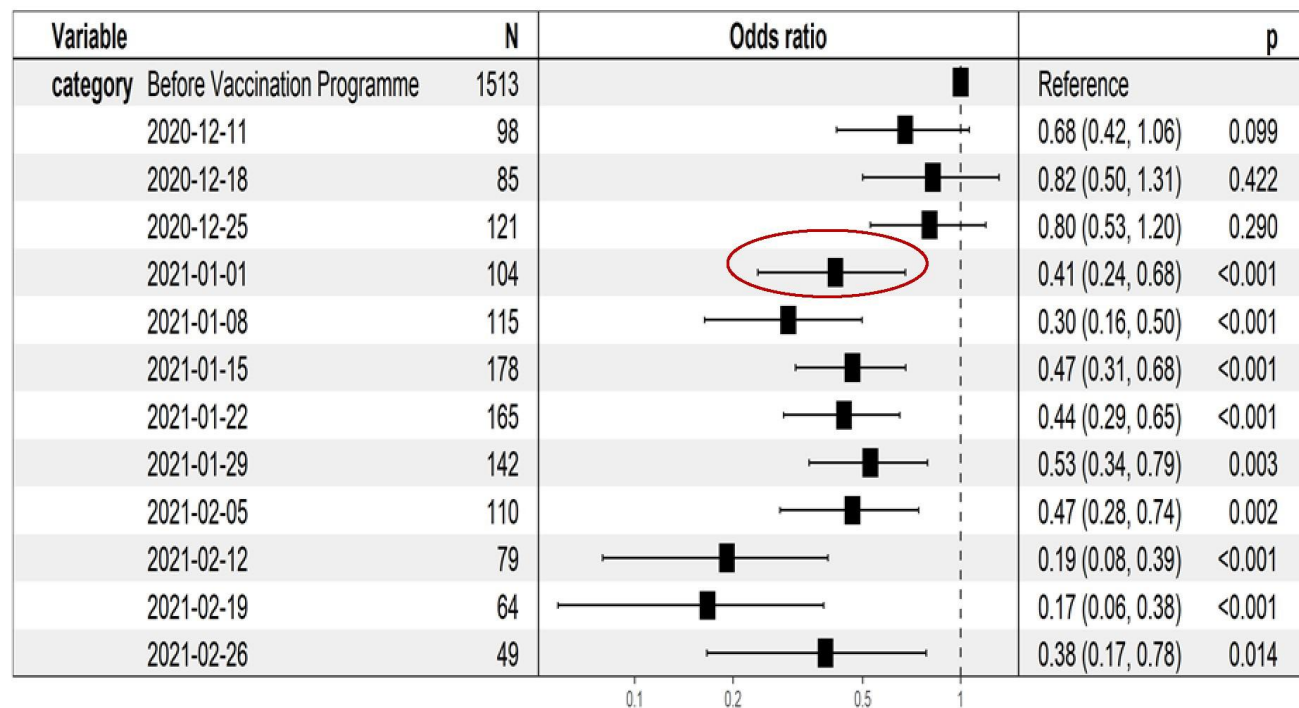
# Hospital admissions after vaccination

Odds Ratios and 95% confidence intervals for hospital admissions among care home residents in the period pre-and-post vaccination roll out.



# Mortality after vaccination

Effect of vaccination on care home deaths



# Conclusions

- Statistical analysis shows that after 1<sup>st</sup> round of vaccination in care homes:
  - The majority of the benefit in **reducing length of outbreak** is experienced after the first dose of vaccine
  - Care home outbreak length is significantly reduced
  - Resident attack rate is significantly reduced
  - Risk of outbreak is significantly reduced
  - Risk of hospital admission reduced
  - Deaths in care homes due to COVID-19 reduced

## 2: Vaccination policy

- Vaccine uptake in residents and staff in care homes
- The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)
- **Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff**
- Qualitative study – Care home experience of vaccination

# Information on homes in outbreak status post vaccine

Small study of 4 homes, 157 residents and 256 staff

NOTE! Small sample, indicative information for service purposes



# Objectives

- To determine vaccine uptake in the pilot homes amongst residents and staff for dose 1 and dose 2.
- To determine attack rate amongst care home residents and staff.
- To determine what risk factors are present in those testing positive for COVID-19 who have received the vaccine.
- To determine the length of time between vaccination (dose 1 +/- or dose 2) and outbreak notification.
- Collect data on reasons for vaccine refusal.

# 1a. Vaccine uptake - residents

- The data indicated some variation in vaccine uptake. For residents this was **84.6%** (93%, 89%, 81%, 76%) for the first dose.
- Second dose uptake rates were slightly lower than for first dose at: **80.8%** (87%, 86%, 81%, 69%).
- Reasons for non-vaccination
  - Resident unwell
  - History of allergies/allergic reaction
  - Resident Covid-19 positive (or within 28 days of symptom onset/ positive test)
  - Refused
  - New admission to home

# 1b. Vaccine uptake – staff

- Dose 1 the four home average was **68.3%** (76%, 68%, 66%, 63%)
- Second dose uptake rates were slightly lower than for first dose at: **65.9%** (70%, 67%, 64%, 63%).
- Reasons for non-vaccination
  - Did not wish to receive vaccine
  - Allergic reactions
  - Pregnancy
  - Symptomatic or unwell
  - Delays from Dose 1

# Attack rate

This is the overall attack rate at time of study participation, and includes both those who were vaccinated and unvaccinated

- Residents 4-home average **24.2%** (52%, 43%, 3%, 0%)
- Staff 4-home average **8.4%** (18%, 9%, 4% and 4%)

Average days from first dose in the facility and outbreak was 27 days (10, 28, 33, 37 days in the 4 facilities).

Average days from the second dose in the facility and outbreak was 7 days (-10, 8, 12, 17 days – one home went into outbreak between the 2 vaccination dates).



# Individual level data (residents)

- The overall proportion that tested positive was 35 (22.3%).
- Symptomatic was 23 (65.7%) and 12(34.3%) were asymptomatic. The most common symptom reported was cough (n=17).
- Approximately two thirds of the positive residents made a full recovery without hospitalisation
- 7 (20%) required hospitalisation of which 2 (5.7%) died.
- The number who died in the care facility was 5 (14.3%).



# Vaccination status & test result - residents

Vaccination status of residents and COVID-19 test result at outbreak				
Update list / positive and negative	Positive	Negative	Unknown	Total
All residents sampled	35 (22.3%)	119 (75.8%)	3 (1.9%)	157
*Dose 1 > 21 days and Dose 2 >=7 days	20 (26.3%)	56 (73.7%)	0 (-)	76
**Dose 1 received > 21 days and dose 2 < 7 days	5 (83.3%)	1 (16.7%)	0 (-)	6
Dose 1 received > 9 days	5 (10.2%)	44 (89.8%)	0 (-)	49
Dose 1 received <= 9 days	0 (-)	0 (-)	0 (-)	0
No vaccine recorded as given	4 (19.0%)	16 (76.2%)	1 (4.8%)	21
Missing resident vaccination history				
*equates to clinical vaccine failure **possible post-vaccine infection				

# Individual level data (staff)

- The overall proportion that tested positive was 26 (12.4%).
- Symptomatic was 14(53.8%) and 12 (46.2%) were asymptomatic. The most common symptom reported was cough (n=9).
- Where reported, all staff members made a full recovery
- 98.3% with (dose 1 > 21 days & dose 2 >=7 days) tested negative

# Vaccination status & test result - staff

Vaccination status of staff and COVID-19 test result at outbreak				
	Positive	Negative	Unknown	Total
All staff sampled	26 (12.4%) <sup>#</sup>	166 (79.0%)	18 (8.6%)	210
*Dose 1 > 21 days and Dose 2 >=7 days	1 (1.7%)	57 (98.3%)	0 (-)	58
**Dose 1 received > 21 days and dose 2 < 7 days	8 (26.7%)	22 (73.3%)	0 (-)	30
Dose 1 received > 9 days	2 (4.2%)	46 (95.8%)	0 (-)	48
Dose 1 received <= 9 days	2 (40.0%)	3 (60.0%)	0 (-)	5
No vaccine recorded as given	13 (21.7%)	35 (58.3%)	12 (20.0%)	60
Missing staff vaccination history	0 (-)	3 (33.3%)	6 (66.7%)	9
<sup>#</sup> differs from facility average due to variation in number of staff in each home and non-response * equates to clinical vaccine failure ** possible post-vaccine infection				

# Conclusions

- Vaccine failure (~25% residents and ~2% staff), small number of facilities and variation in numbers
- COVID infection post vaccine skewed by one facility that was in outbreak before dose 2 given. However two thirds residents recovered without hospitalisation, unfortunately 7/35 (20%) residents died, [2 of whom had second dose  $\geq$  7 days previously]. All staff recovered without hospitalisation.
- Given the small sample size the findings of this survey should be interpreted with caution.
- Challenges related to sampling, data collection, support and data checking and validation

# Learning and way forward

- Small scale study, snap-shot and self reported data with inherent weaknesses
- Resource intensive

But..

- Results fit with emerging picture
- Enhanced surveillance of homes with outbreak as vaccine failure/post vaccine infection
- Regional data on vaccine effectiveness/efficacy best from alternative linked databases



## 2: Vaccination policy

- Vaccine uptake in residents and staff in care homes
- The effect of the Covid-19 vaccination programme on care home outbreaks (comparing care homes in outbreak pre and post vaccination)
- Information on homes in outbreak status post vaccine: Small study of 4 homes, 157 residents and 256 staff
- **Qualitative study – Care home experience of vaccination**

# Qualitative study – Care home experience of vaccination

## **PURPOSE**

To develop a data collection tool to collate and analyse the experience of Care Home Managers of the COVID 19 Vaccination Programme.

## **FOCUS**

- Care Homes with an outbreak of COVID-19 post vaccination programme
- Care homes with previous outbreak prior to vaccination programme
- Care homes that never experienced an outbreak

## **APPROACH**

To identify the core concepts and inform the data collection tool, individual semi-structured interviews with 6-8 care home managers will be facilitated. Interviews will be recorded, transcribed and analysed to identify core concepts

## **DATA MANAGEMENT**

All data will be managed in line with GDPR principles including consent for recording

# General Experiences of the Vaccination programme

- What were your hopes when your Care Home engaged with the vaccination programme at the first instance?
- What were your fears when your Care Home engaged with the vaccination programme at the first instance?
- What challenges did staff face regarding the vaccination programme during implementation?
- What challenges did residents face regarding the vaccination programme during implementation?
- What challenges did relatives face regarding the vaccination programme during implementation?
- From your perspective, what were the positive aspects about the vaccination programme?
- From your perspective, what were the negative aspects about the vaccination programme?
- How did the social media impact the vaccination programme in your Care Home?
- What do you think of the vaccination programme? and why? Please comment on the speed of vaccine delivery and time to be prepared.

# Responding to the Outbreak

- Did you realise that you could still get an outbreak even after the vaccination programme? and why?
- What were the emotional responses of staff when your Care Home experienced an outbreak following the vaccination programme?
- Have you witnessed emotional responses from residents and their relatives regarding the outbreak following the vaccination programme? What was your experience?
- If you had an outbreak prior to the vaccination programme was the experience different in any way to that post the vaccination programme? What do you think the reasons were for any differences?
- What were your interventions or actions in managing the outbreak?
- What information would have supported you to communicate with staff about the outbreak?
- What information would have supported you to communicate with residents about the outbreak?
- What information would have supported you to communicate with relatives about the outbreak?

# Progress

- Planning phase – completed
- Semi-structured interviews arranged – completed
- Analysis – March – April
- Questionnaire offered to all care homes – April 2021
- Analysis and feedback – May/June 2021