FACULTY OF POPULATION HEALTH, INSTITUTE OF HEALTH INFORMATICS

Use of administrative data to investigate the burden of COVID-19 in care homes

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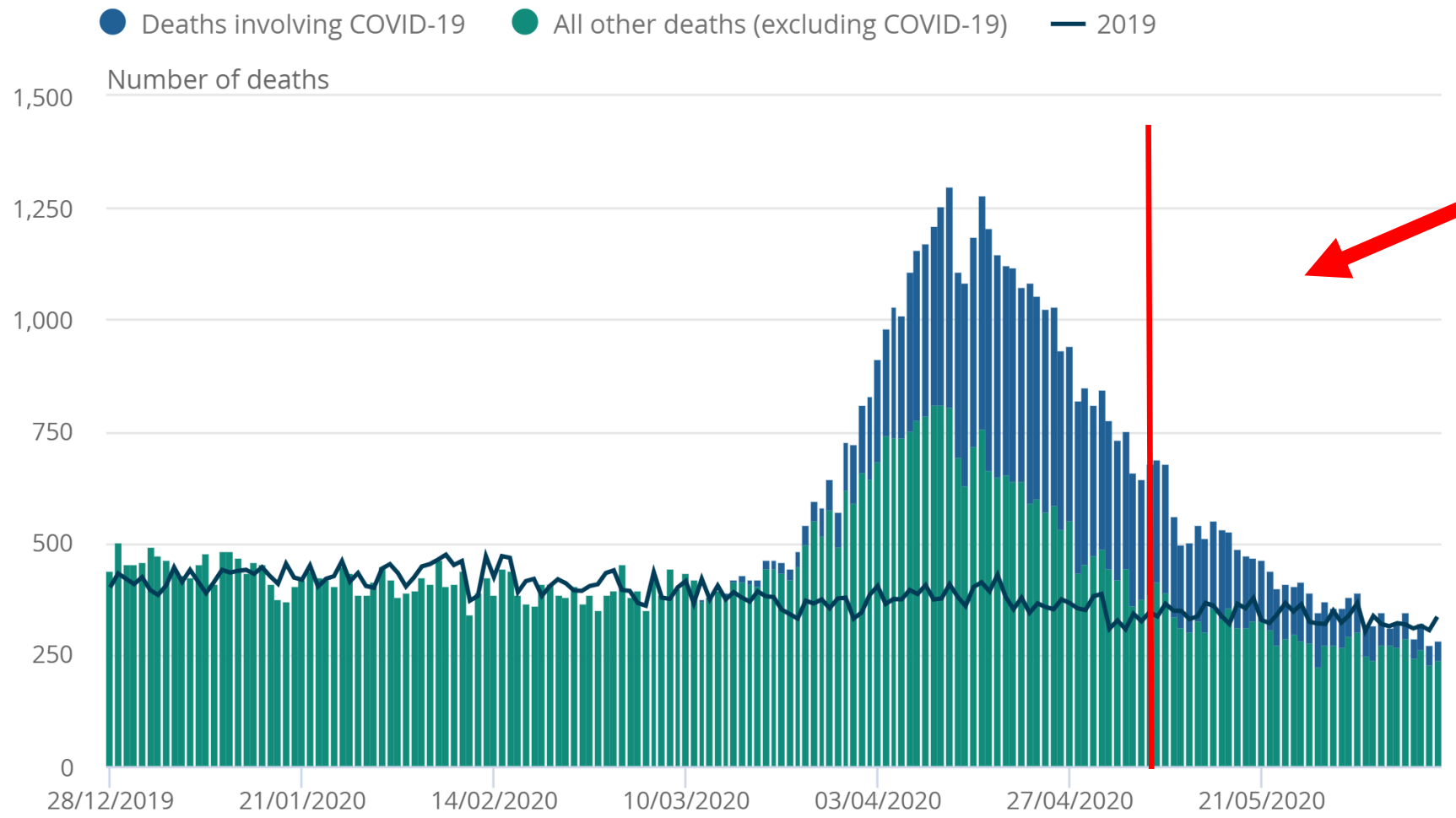
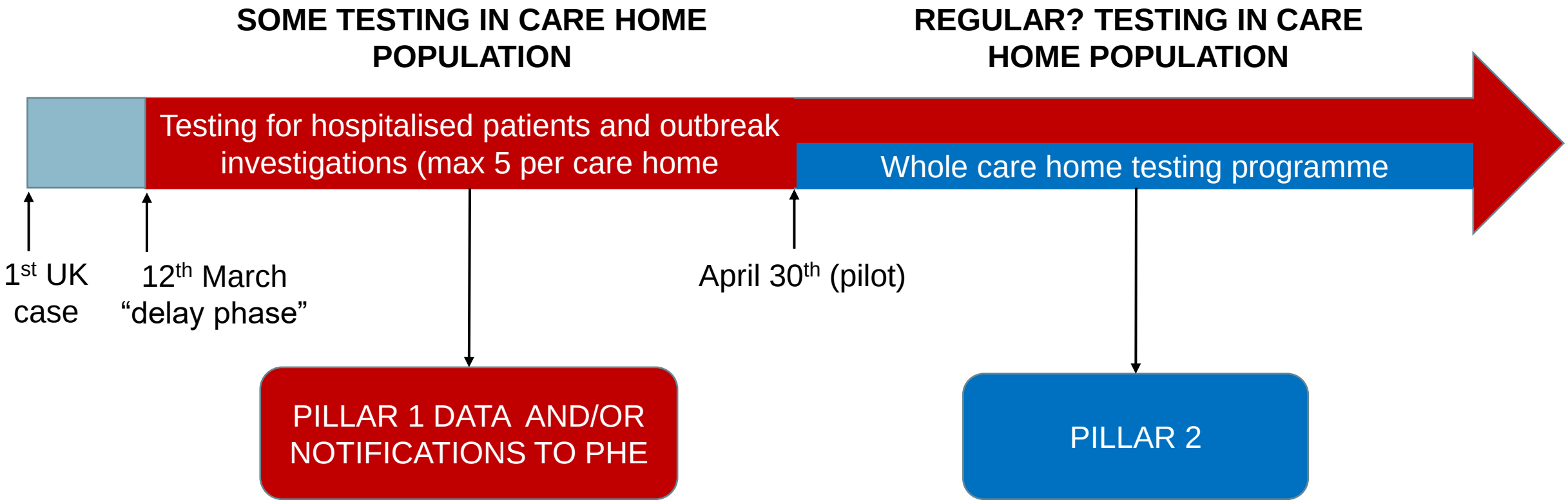
Number of deaths of care home residents from 28/12/19 – 12/6/20, England and Wales



Introduction of whole care home testing in England

SOURCE: ONS

How to measure burden of COVID-19 in care homes?



COVID-19: Impact and Burden in Care Homes (CATCH-19)

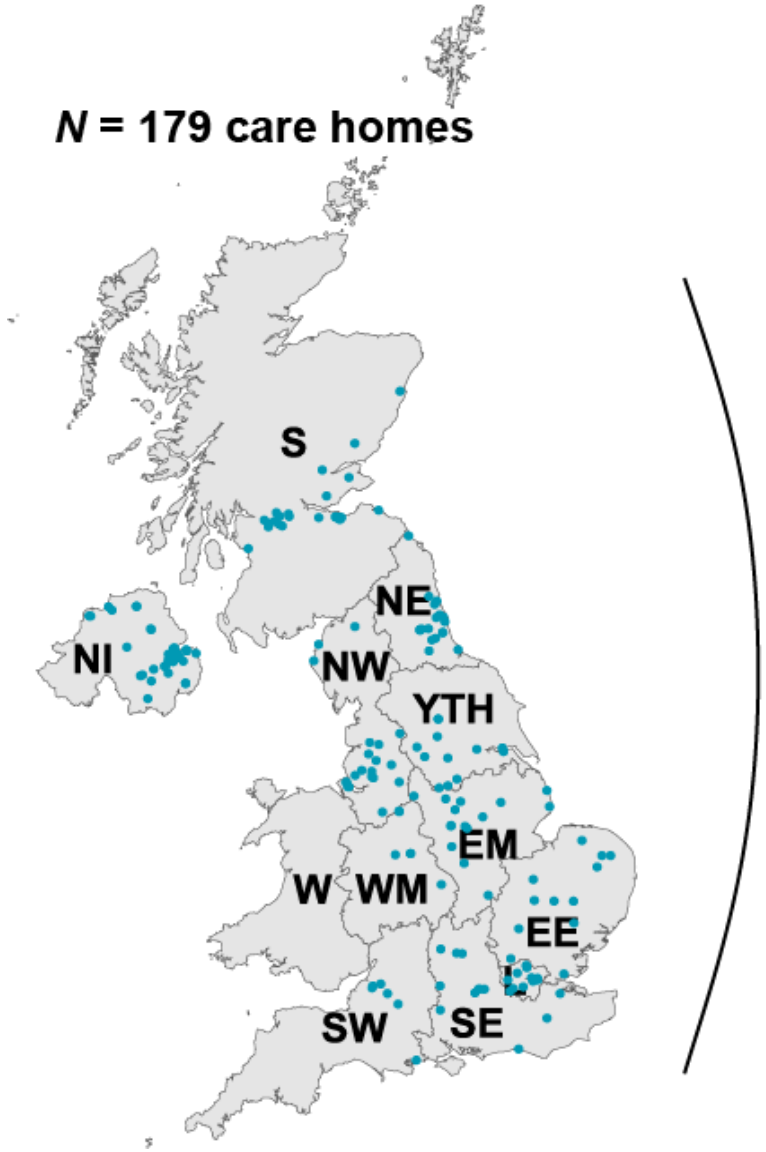
1. **Use routine data to investigate the burden of COVID-19 in care home staff and residents**
   - **Incidence of and risk factors for suspected and confirmed infection**
   - **Incidence of and risk factors for mortality in residents**
2. Undertake qualitative interviews with care home staff to understand the impact of the pandemic on staff and residents and ways of working in the care home (collaboration with UCL Centre for Behaviour Change)

Collaboration with Four Seasons Healthcare

Datasets	Details
Active surveillance system for COVID-19 (aggregate)	Daily tallies of suspected and confirmed infections and COVID-19 related deaths reported by care home managers (aggregate data)
Administrative datasets (individual)*	Demographics, dates of care home entry and exit; care home characteristics
Incident reporting (individual)*	Individual-level data recorded on a range of incidents including COVID-19 infections

*Linked using combination of forename, surname and care home ID

Collaboration with Four Seasons Healthcare



Aggregate data

Daily number of new cases per home

24 March → 14 June 2020

8,713 private beds

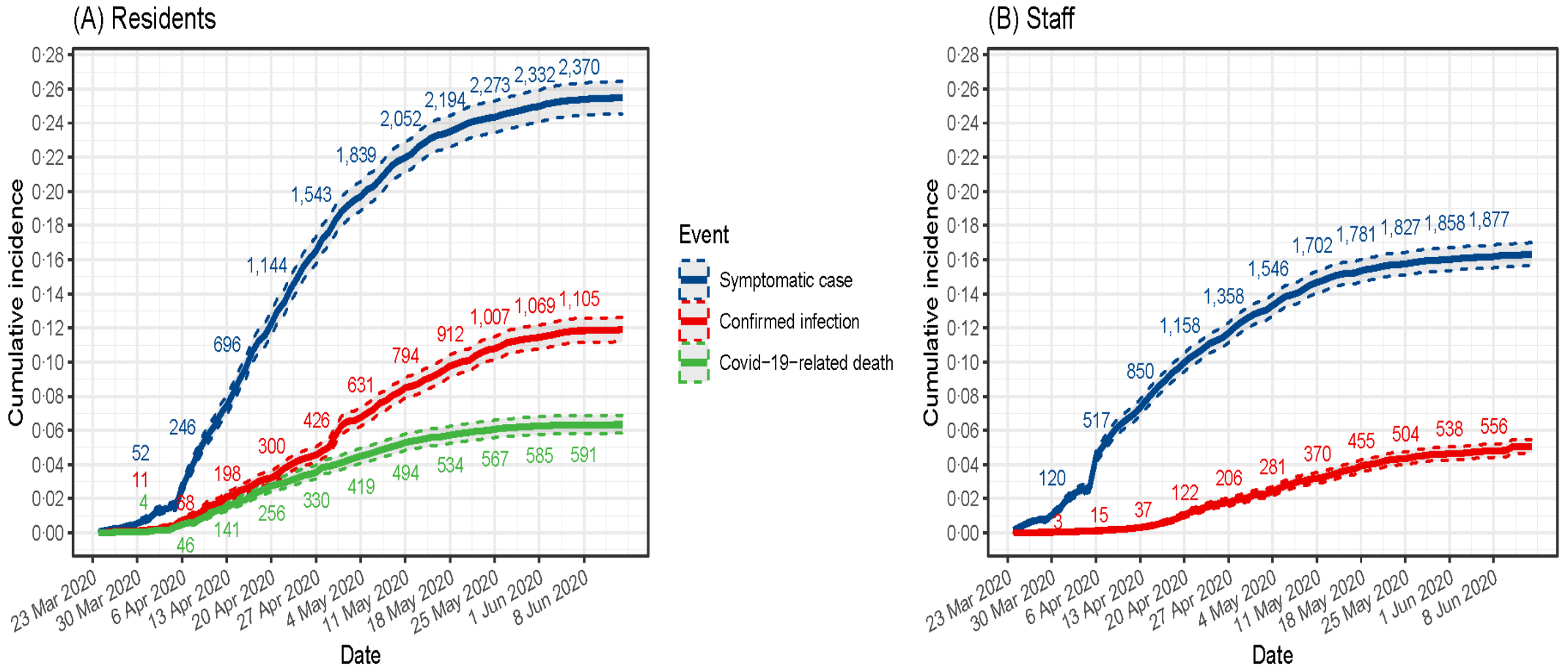
855 local authority contract beds

Individual-level records

Infection incident reports (Datix)

2 March → 14 June 2020

Cumulative incidence of suspected and confirmed infection in staff and residents (daily tallies)



Incidence of suspected and confirmed infection (daily tallies)

Group (number)	Number with Symptoms (Cumulative Incidence %)	Number with Confirmed infection (Cumulative incidence %)
Residents n=9339	2075 (22.2%; 95% CI: 21.4-23.4)	951 (10.2%; 95% CI: 9.6-10.8%)
Staff n=11604	1892 (16.3%; 95% CI: 15.6-17.0)	585 (5.0%; 95% CI: 4.7-5.5

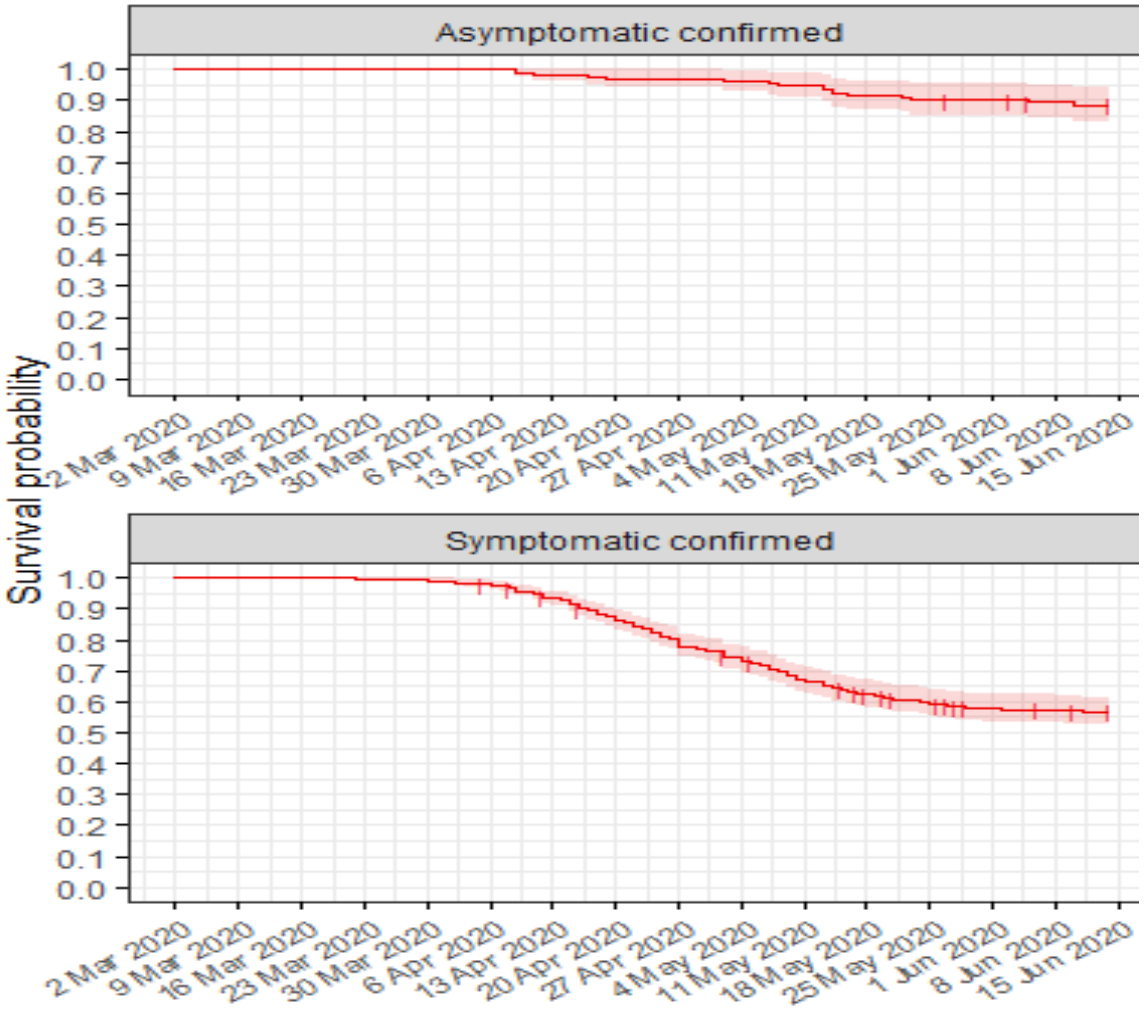
Mortality in residents and comparison with community prevalence (aggregate data)

- 526 COVID-19 related resident deaths (crude, cumulative incidence of 5.6%; 95% CI: 5.2-6.1%
- 24.7% of these deaths took place in hospital
- Rate of confirmed infections was 13-fold higher in care home residents compared to the community population based on comparison to the ONS household survey (IRR = 12.7 [8.9; 18.3])

Case fatality (incidents dataset)

Age (years)	Sex	Number	Confirmed infections	Total deaths	Deaths in confirmed infections	Case-fatality rate (%)
<75	F	712	48	87	9	18.8 [8.9; 32.6]
75–84	F	1,687	114	254	31	27.2 [19.3; 36.3]
85–94	F	2,617	173	484	58	33.5 [26.5; 41.1]
95+	F	651	42	171	18	42.9 [27.7; 59.0]
<75	M	712	37	114	12	32.4 [18.0; 49.8]
75–84	M	1,178	96	266	41	42.7 [32.7; 53.2]
85–94	M	1,012	86	277	44	51.2 [40.1; 62.1]
95+	M	144	11	41	4	36.4 [10.9; 69.2]
All	**All**	**8,713**	**607**	**1,694**	**217**	**35.7 [31.9; 39.7]**

Kaplan-Meier estimates of survival



ASYMPTOMATIC RESIDENTS
15/133 (11.3%) deaths

SYMPTOMATIC RESIDENTS
202/474 (42.5%) deaths

Conclusions

- 1 in 5 residents had symptoms of infection during the pandemic – highly likely burden of infection substantially underestimated (lack of testing, asymptomatic infection)
- Extremely high case fatality (comparable to data from other countries)
- Mortality in symptomatic confirmed much greater than mortality in asymptomatic confirmed cases
- Active surveillance system provided unique insight into burden of symptomatic infection

Future research in care homes

- Feasible to extract and rapidly analyse data from care home providers

BUT:

- Difficult to access reliable individual-level data
- Depends on strong collaboration/trust between Provider and research team
- Datasets are complex so it is essential to understand their limitations
- Working with care home chains is easier, but unlikely that findings are generalizable across the sector

Acknowledgements

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Pre-print available: https://www.medrxiv.org/content/10.1101/2020.07.14.20152629v1