

Impact of COVID-19 on socioeconomically deprived communities

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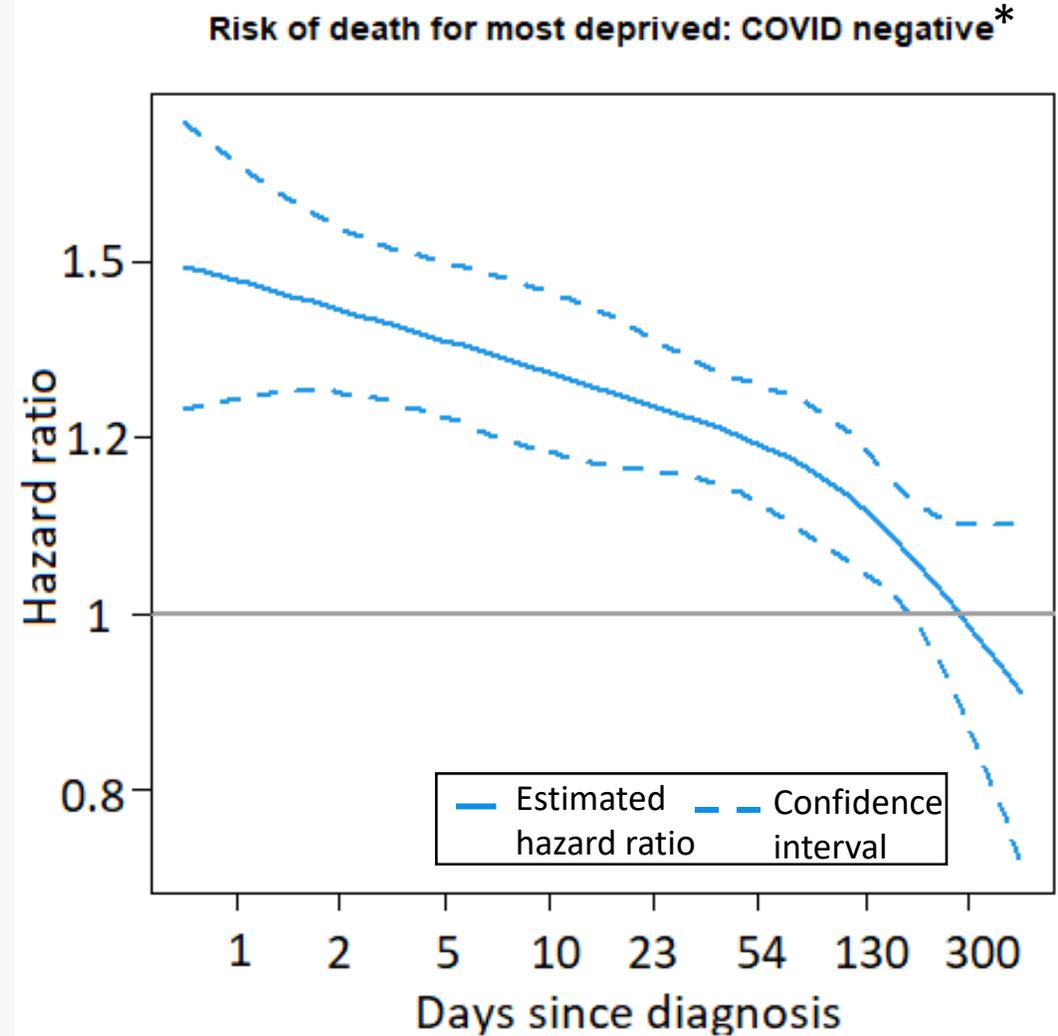
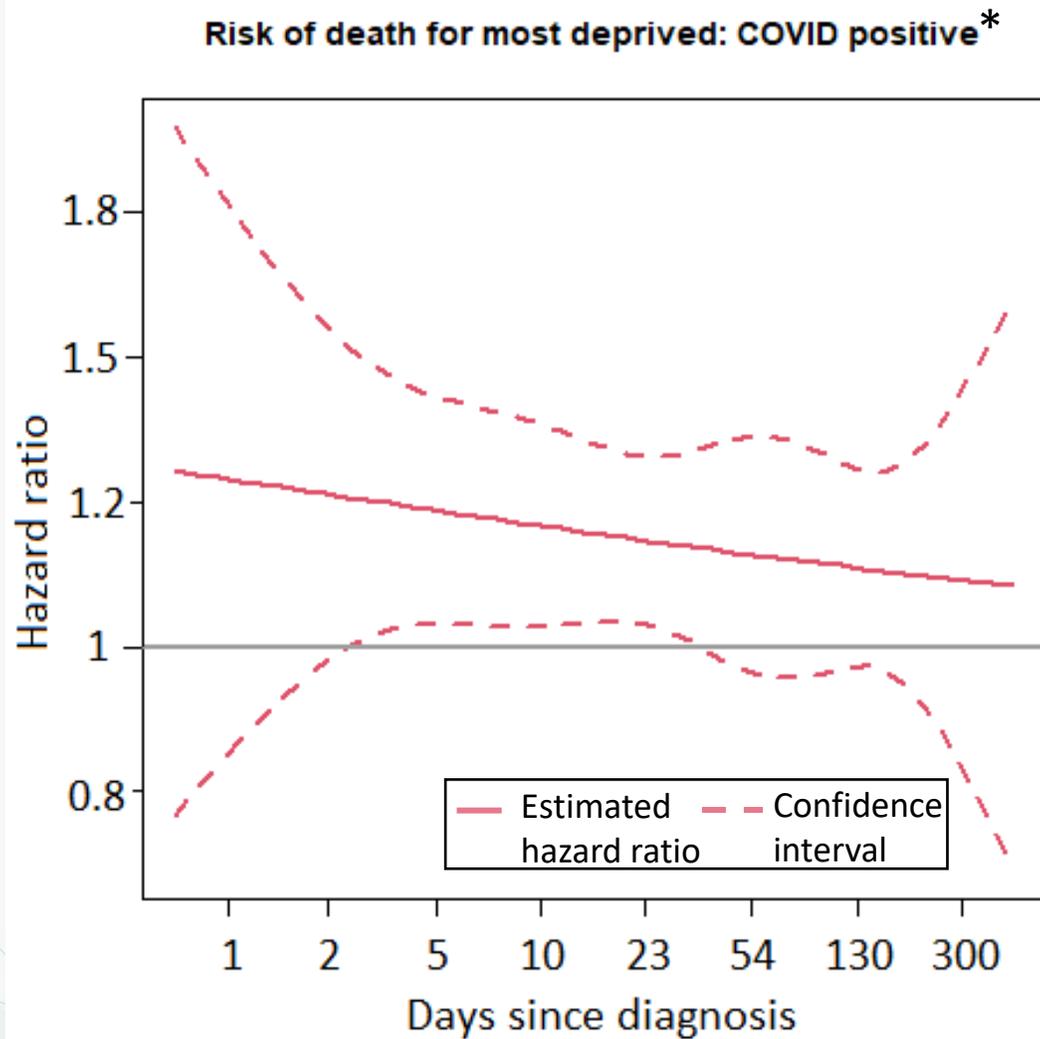
Secure Anonymised Information Linkage (SAIL) Databank

- **Aim: to assess the impact of socioeconomic status on COVID-related outcomes in Wales**
- E-cohort for residents alive and living in Wales on 1st January 2020 with follow-up to 31st March 2021
- Anonymised routinely collected data including linked demographic, primary and secondary care data for 80% of the population
- 2,319,185 definitive COVID PCR test results were recorded (2,140,051 negative, 179,134 positive) for 899,107 individuals

WIMD	Most Deprived	2 nd Most Deprived	Mid Deprived	2 nd Least Deprived	Least Deprived
n	201,196	191,721	167,997	163,559	174,634
Mean age (SD)	37.1 (21.7)	39.0 (22.1)	40.0 (22.5)	40.8 (22.7)	40.5 (22.9)
Male (%)	90,566 (45.0%)	86,066 (44.9%)	75,602 (45.0%)	73,410 (44.9%)	80,278 (46.0%)
Median Charlson score (IQR)	7 (4, 14)	7 (4, 14)	8 (4, 14)	8 (4, 14)	8 (4, 14)
Median BMI (IQR)	28.4 (24.1, 33.6)	28.1 (24.1, 33)	27.6 (23.7, 32.2)	27.3 (23.5, 31.8)	26.8 (23.3, 31.0)
Mortality (%)	5524 (2.7%)	5542 (2.9%)	5034 (3.0%)	4863 (3.0%)	4860 (2.9%)

PCR, Polymerase chain reaction; WIMD, Welsh Index of Multiple Deprivation

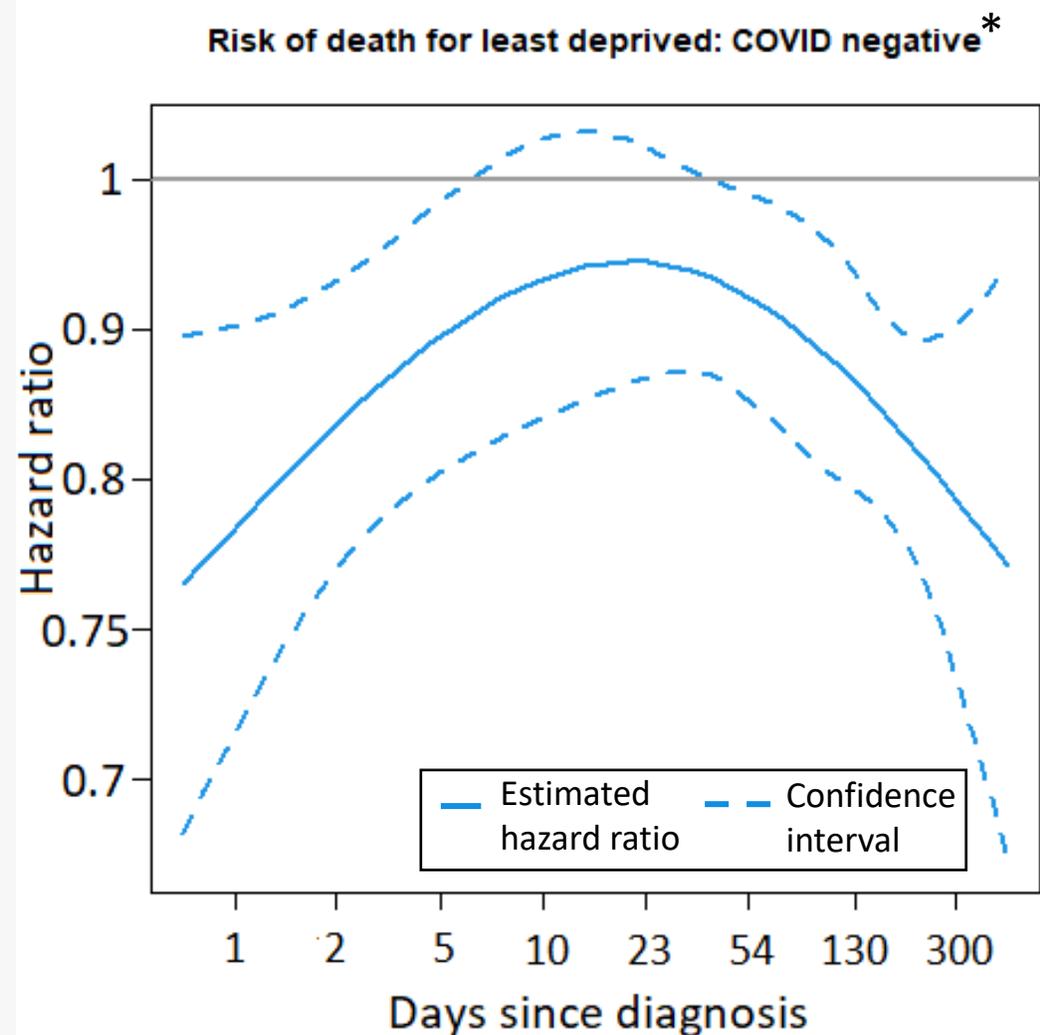
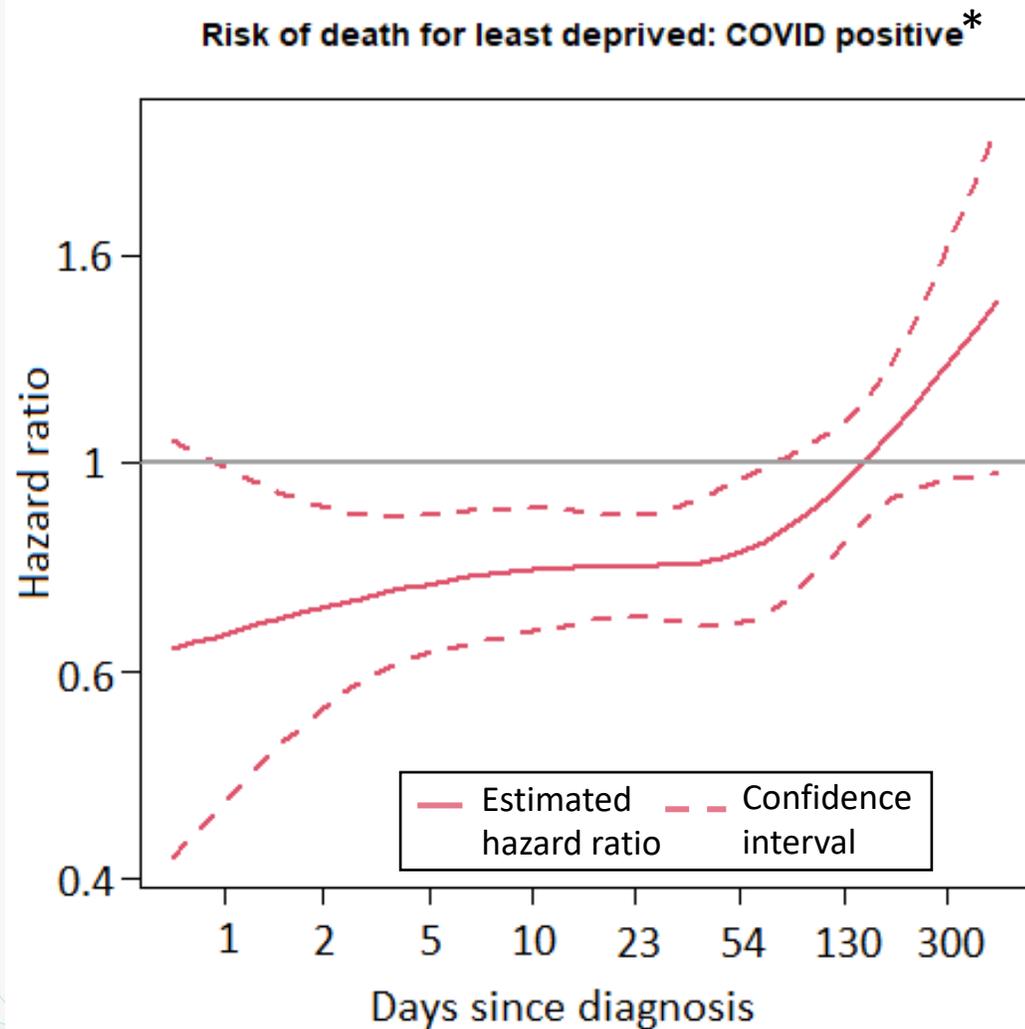
Mortality - Most deprived communities



*compared to mid deprived communities adjusted for age, gender, Charlson score, and BMI

N.B. there is no difference in mortality for 2nd most deprived compared to mid deprived communities

Mortality – Least deprived communities



*compared to mid deprived communities adjusted for age, gender, Charlson score, and BMI

N.B. there is no difference in mortality for 2nd least deprived compared to mid deprived communities

Hospitalisation

- Total number of admissions = 469,531; total number of individuals admitted = 204,918

IRR (95% CI)*	Length of stay		Number of admissions	
	COVID-related admissions	Non-COVID admissions	COVID-related admissions	Non-COVID admissions
Most Deprived	0.97 (0.84, 1.11)	1.06 (0.98, 1.14)	1.49 (0.84, 2.64)	0.91 (0.54, 1.52)
2 nd Most Deprived	0.99 (0.86, 1.13)	1.05 (0.97, 1.13)	1.25 (0.69, 2.27)	1.18 (0.69, 2.01)
2 nd Least Deprived	1.05 (0.92, 1.20)	0.95 (0.88, 1.02)	0.98 (0.62, 1.56)	0.89 (0.57, 1.40)
Least Deprived	0.89 (0.78, 1.02)	0.91 (0.84, 0.98)	1.10 (0.70, 1.73)	1.08 (0.67, 1.75)

- 9% reduction in mean length of stay of non-COVID-19 related admissions for least deprived communities*.
- No difference in length of stay for COVID-related admissions, and number of COVID-related and non-COVID admissions for most, 2nd most, 2nd least and least deprived communities*.

*compared to mid deprived communities adjusted for age, gender, Charlson score, and BMI;

IRR, Incidence Rate Ratio; CI, Confidence Interval; WIMD, Welsh Index of Multiple Deprivation

Discussion

- **Summary of findings**

- **Most deprived communities** with a positive and negative COVID-19 test appeared to **have up to 20% and up to 50% increased risk of death**, respectively, compared to mid deprived communities*
- **Least deprived communities** with a positive and negative COVID-19 test appeared to have **up to 40%, and up to 25% decreased risk of death**, respectively, compared to mid deprived communities*
- There appeared to be a **9% reduction in mean length of stay** for non-COVID-19 admissions in the **least deprived communities** compared to mid deprived communities*
- There did not appear to be a difference in the length of stay for COVID-19 admissions, or number of all-cause hospital admissions between different socio-economic communities*

- **Important lessons learned from COVID-19**

- Importance of the availability and subsequent analysis of e-cohorts including anonymised, linked, routinely collected healthcare data at a population level
 - to rapidly assess health inequalities, health services, epidemiology and outcomes of COVID-19 to improve patient care and health-related outcomes
 - no additional burden to the NHS at a time when resources are particularly scarce

**having adjusted for age, sex, comorbidities, and BMI.*

Acknowledgements

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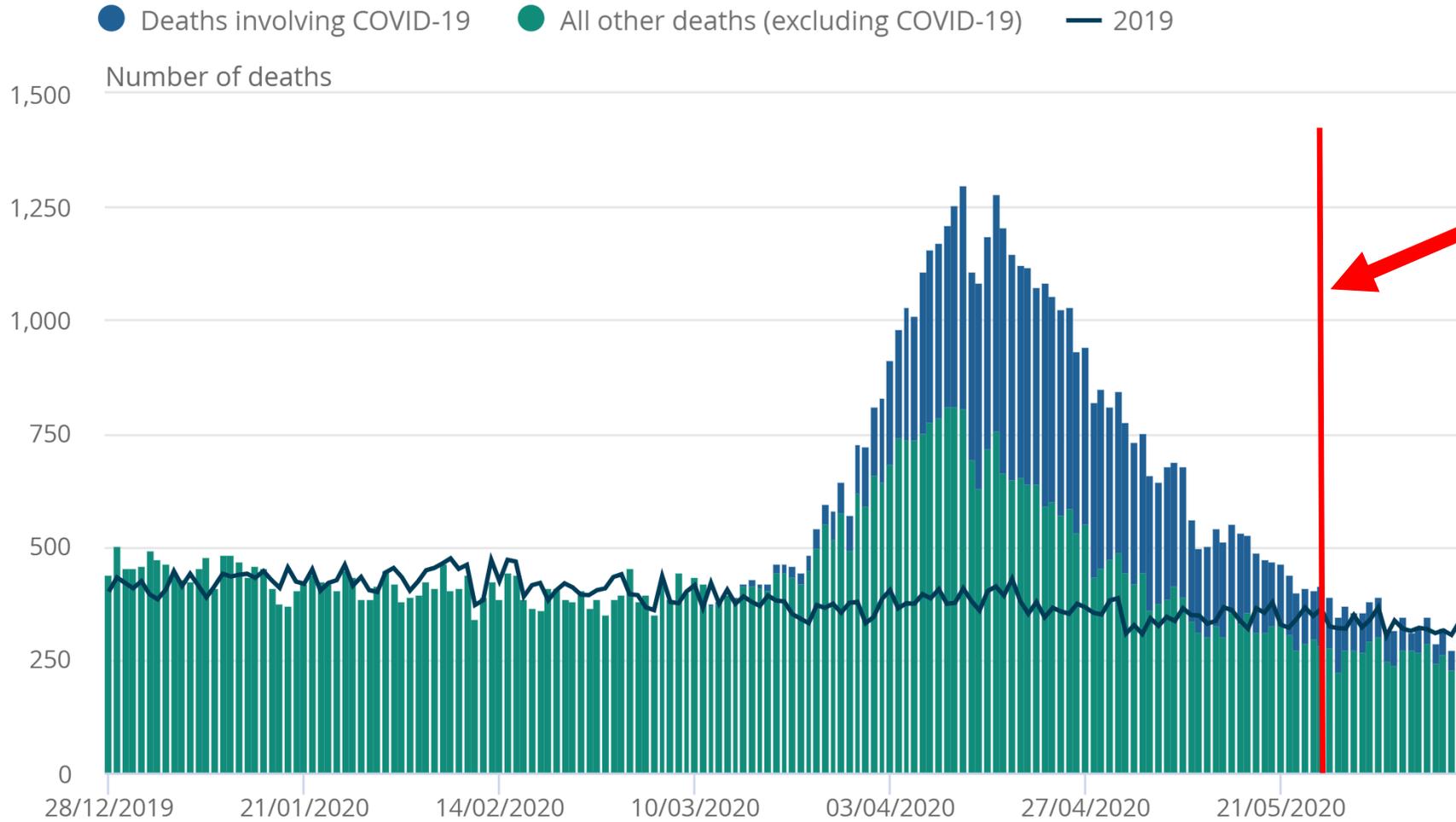
This work uses data provided by patients and collected by the NHS as part of their care and support. We would also like to acknowledge all data providers who make anonymised data available for research. We wish to acknowledge the collaborative partnership that enabled acquisition and access to the de-identified data, which led to this output. The collaboration was led by the Swansea University Health Data Research UK team under the direction of the Welsh Government Technical Advisory Cell (TAC) and includes the following groups and organisations: the Secure Anonymised Information Linkage (SAIL) Databank, Administrative Data Research (ADR) Wales, NHS Wales Informatics Service (NWIS), Public Health Wales, NHS Shared Services and the Welsh Ambulance Service Trust (WAST). All research conducted has been completed under the permission and approval of the SAIL independent Information Governance Review Panel (IGRP) project number 0911.

**An epidemic within an epidemic:
COVID-19 in English care homes
(VIVALDI study)**

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Wave 1: Number of deaths in care home residents from 28/12/19 – 12/6/20, England and Wales

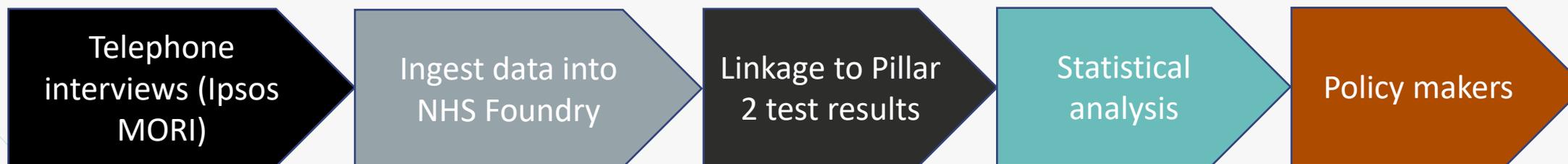


Introduction of whole care home testing in England

SOURCE: ONS

VIVALDI-1 survey – study design

- Collaboration between UCL, ONS, DHSC and PHE
- Telephone survey of care home managers (26 May – 19 June)
- English care homes mainly providing dementia care or care to > 65 years
- Outcomes:
 - Self-reported confirmed infections*
 - Risk factors for infection, outbreaks and large outbreaks#



*Number of confirmed cases reported to the care home since the start of the pandemic as a proportion of the total ; # > one third of staff/residents infected or at least 20 cases per care home

Main risk factors for SARS-CoV-2 infection & outbreaks

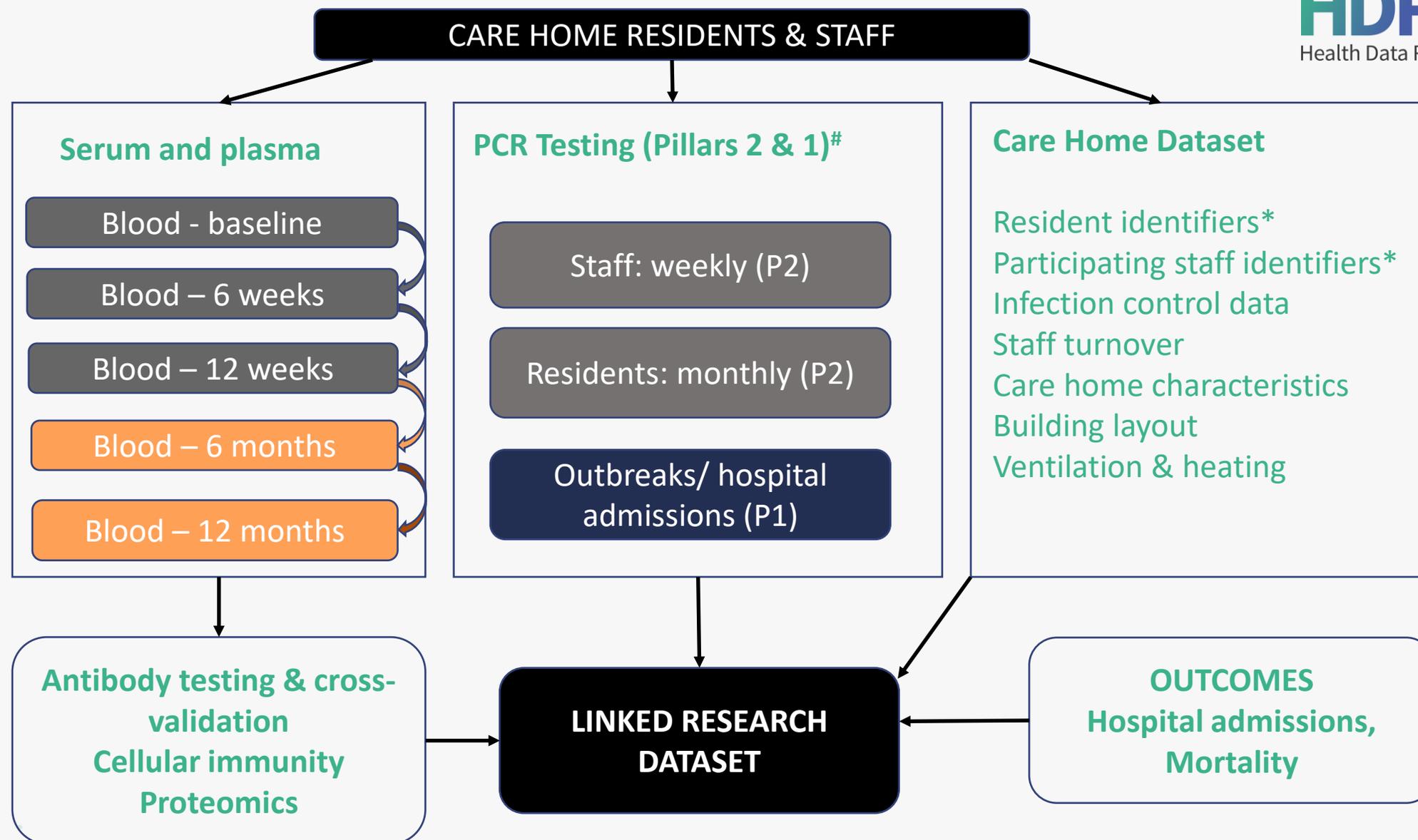
Structural factors	Infection outcome			
	Infections in residents	Infections in staff	Outbreak*	Large outbreak†
Increased social deprivation	Red	Green	Green	Green
For-profit status	Red	Red	Green	Yellow
Larger LTCFs	Grey	Grey	Red	Green
Staffing factors				
Lower staff-to-bed ratio	Red	Red	Green	Green
Use of agency nurses	Red	Red	Red	Red
Staff working at other sites	Green	Red	Green	Green
Staff not cohorted	Red	Red	Red	Green
No staff sick pay	Red	Red	Green	Yellow
Control measures				
Lower cleaning frequency	Yellow	Red	Green	Green
Inability to isolate residents	Red	Red	Red	Red
Number of admissions to LTCF	Red	Red	Red	Green
Later closure to visitors	Yellow	Green	Green	Green

■ p<0.008
 ■ p=0.008–0.05
 ■ p>0.05
 ■ Risk factor reduces odds of infection, an outbreak, or both

Weighted period prevalence of SARS-CoV-2 (wave 1):

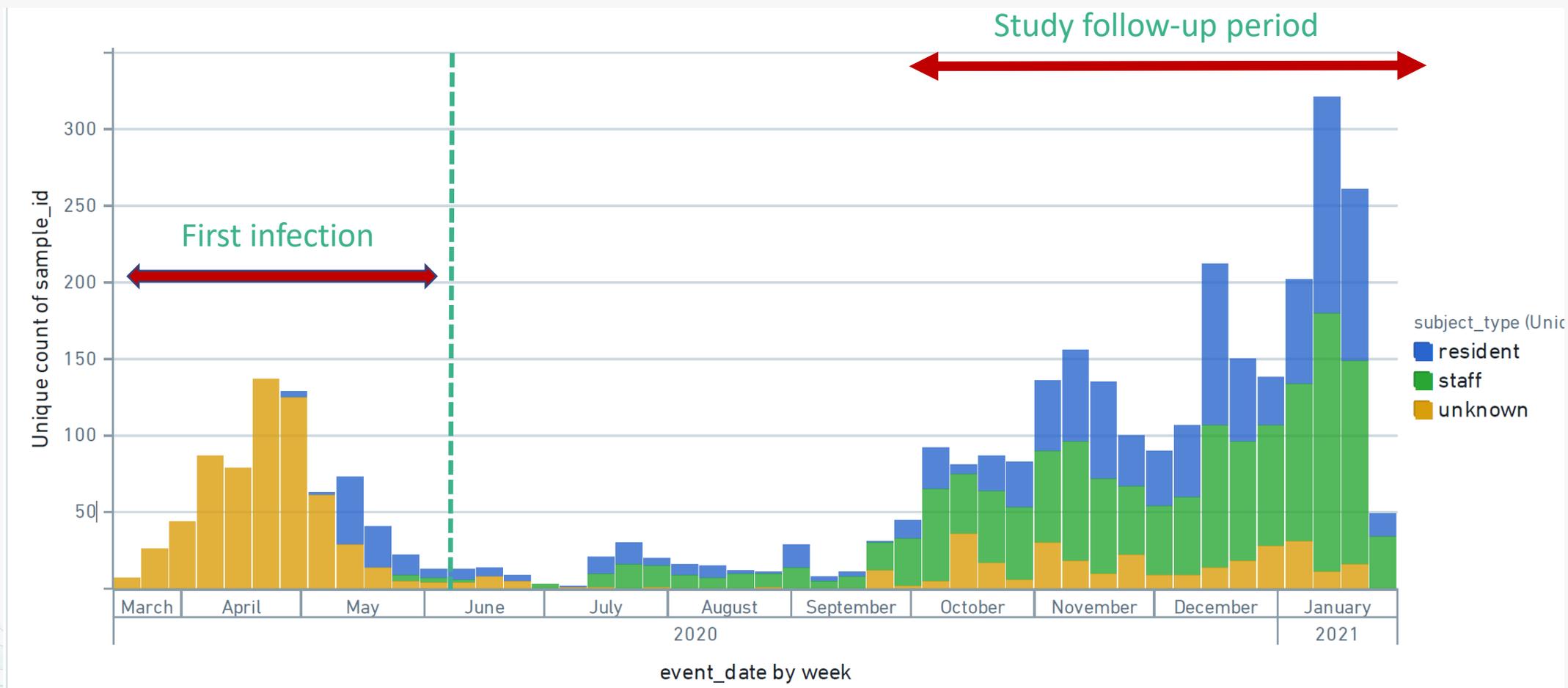
RESIDENTS (n=160,033):
10.5 % (9.9-11.1%)

STAFF (n=248,594):
3.8% (3.4-4.2%)

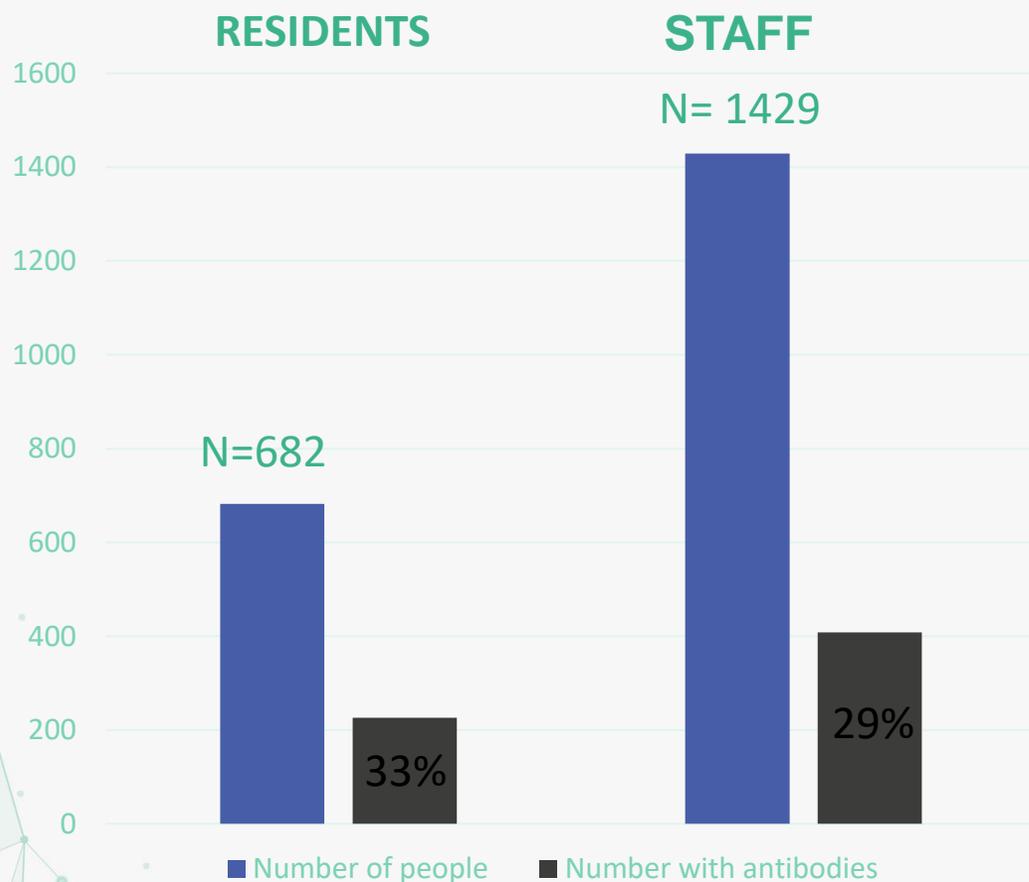


data available from March 1st; *enables linkage between datasets

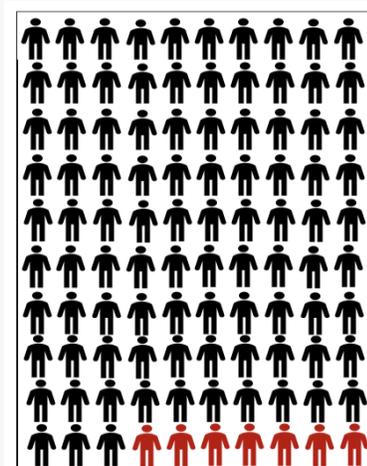
Number of PCR positive tests in staff and residents from care homes participating in VIVALDI March 2020-Jan 2021



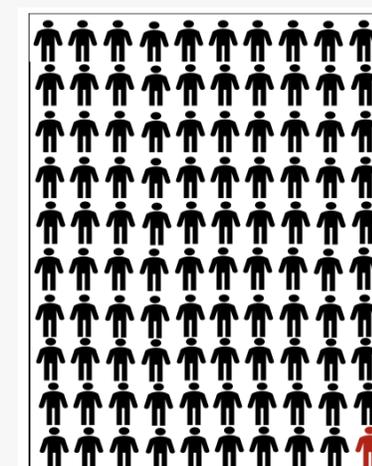
Seroprevalence and risk of PCR-positive infection



In an average 4 week period between Oct 2020 and Feb 2021



6.9% **antibody-negative** residents will get COVID-19



<1% of **antibody-positive** residents will get COVID-19

Adjusted HR for PCR-positive infection in antibody-positive versus antibody-negative residents is 0.15 (95% CI: 0.05-0.44)

perhaps there needs to be a link between social care and health like there used to be. The relevance of these studies is very very important as it shows that they are not forgotten.”



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