

COALESCE: A UK whole-population analysis

1

of

2



For study period:
1 June - 30 September 2022

Used electronic health data for the
whole UK population (aged 5+)

To investigate the risk associated with
COVID-19 under-vaccination

1 44.4% of the UK population were under-vaccinated



Under-vaccinated: when a person has been given less than their recommended number of vaccine doses

2 People were more likely to be under-vaccinated if:



Male



Young



Non-white ethnicity

Living in
More deprived areas



Living with
Fewer underlying health conditions



Read the **paper** at: [https://doi.org/10.1016/S0140-6736\(23\)02467-4](https://doi.org/10.1016/S0140-6736(23)02467-4)

3 Under-vaccination linked to greater risk of COVID-19 related hospital admissions & deaths

For example, compared to those who were fully vaccinated...

Children are
2X
more at risk



Adults aged 75+ are
3X
more at risk



During the study period, we estimate

7,180 severe outcomes
may have been avoided,
if everyone had been fully vaccinated



We now have a UK-wide picture of COVID-19 under-vaccination, as well as its associated risks.

Our results can help inform health policy and public health interventions at all levels of decision making to improve vaccine uptake.

Image credit to Usher Institute, the University of Edinburgh

This work was done by the
HDR UK COALESCE Consortium,
led in partnership between:



THE UNIVERSITY
of EDINBURGH

usher
institute

HDRUK
Health Data Research UK



How did we do this?

For part 2 scan QR code or read the full summary at:
<https://edin.ac/422Njsl>



How did we do it?

1

Performed parallel analyses in each of the 4 UK nations

Datasets held in national Trusted Research Environments (TREs), containing linked general practice (GP), hospital, prescribed medicines, COVID-19 vaccination and testing data

No. anonymised individuals



1.9M



2.4M



5.0M



58.9M

2

Harmonised data meta-analysed across all 4 UK nations



Completed the first epidemiological study using individual-level health data for the entire UK population
What did we find? Scan the QR code or visit <https://edin.ac/422Njsl>



Insights gained



In-depth, instructive results

Created a detailed picture of COVID-19 vaccination uptake across the whole of the UK, which can support all levels of decision-making



Difficulties in data harmonisation

- Each nation records data differently
- Data availability can vary between nations
- Challenging to write code that is 100% compatible with each of the national TREs



Difficulties of scale

Needed to use special techniques to run analysis on massive English datasets

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We have demonstrated that the UK's health data environment has the potential to support whole UK population analyses.

These approaches could be refined and extended into other areas of medicine, to help drive better understanding, prevention and treatment of disease.