THE UNIVERSITY of EDINBURGH

Press Release

Issued: **22 February 2021**

Vaccine roll-out working, first national study suggests

Vaccination has been linked to a substantial reduction in the risk of Covid-19 admissions to Scotland's hospitals, landmark research suggests.

The study is the first to describe across an entire country the effect of the Pfizer and Oxford-AstraZeneca jabs in the community on preventing severe illness resulting in hospitalisation. Previous results about vaccine efficacy have come from clinical trials.

By the fourth week after receiving the initial dose, the Pfizer and Oxford-AstraZeneca vaccines were shown to reduce the risk of hospitalisation from Covid-19 by up to 85 per cent and 94 per cent, respectively.

Among those aged 80 years and over - one of the highest risk groups - vaccination was associated with an 81 per cent reduction in hospitalisation risk in the fourth week, when the results for both vaccines were combined.

As part of the EAVE II project, which uses patient data to track the pandemic and the vaccine roll out in real time, researchers from the Universities of Edinburgh, Strathclyde, Aberdeen, Glasgow and St Andrew's and Public Health Scotland (PHS) analysed a dataset covering the entire Scottish population of 5.4 million.

Data on vaccine effect was gathered between 8 December and 15 February. During this period, 1.14 million vaccines were administered and 21 per cent of the Scottish population had received a first dose based on Scottish Government prioritisation.

The Pfizer vaccine has been received by some 650,000 people and 490,000 have had the Oxford-AstraZeneca vaccine.

Researchers analysed data for every week during this period – including GP records on vaccination, hospital admissions, death registrations and laboratory test results – and compared the outcomes of those who had received their first jab with those who had not.

The preliminary results have been posted on the SSRN preprint server and submitted to a journal to undergo peer review.

The study team says the findings are applicable to other countries that are using the Pfizer and Oxford-AstraZeneca vaccines. They caution that the data does not allow for comparisons between the two.

Lead researcher Professor Aziz Sheikh, Director of the University of Edinburgh's Usher Institute, said: "These results are very encouraging and have given us great reasons to be optimistic for the future. We now have national evidence – across an entire country – that vaccination provides protection against Covid-19 hospitalisations.

"Roll-out of the first vaccine dose now needs to be accelerated globally to help overcome this terrible disease.

“The study was led from the University of Edinburgh’s Usher Institute, which is one of five Data-Driven Innovation Hubs as part of the Edinburgh and South East Scotland City Region Deal. The Institute is a sector-leader in applying data science to develop innovative and financially sustainable models of health and social care that improve lives.”

Dr Jim McMenamin, National Covid-19 Incident Director at PHS, said: “These results are important as we move from expectation to firm evidence of benefit from vaccines. Across the Scottish population the results shown a substantial effect on reducing the risk of admission to hospital from a single dose of vaccine.

“For anyone offered the vaccine I encourage them to get vaccinated. We are continuing our evaluation and look forward to describing the benefits that we hope will follow the second doses of these vaccines.”

Dr Josie Murray, PHS Public Health Consultant Lead for EAVE II, said: “These data show real promise that the vaccines we have given out can protect us from the severe effects of Covid-19. We must not be complacent though. We all still need to ensure we stop transmission of the virus, and the best way we can all do this is to follow public health guidance - wash your hands often, keep 2 metres from others, and if you develop symptoms, isolate and take a test.

“We also all need to protect ourselves, our families and friends by taking the second dose of vaccine when it is offered.”

Professor Chris Robertson, Professor of Public Health Epidemiology at the University of Strathclyde, said: “These early national results give a reason to be more optimistic about the control of the epidemic. They also show the value of linked national data sets with academic research groups working closely with public health institutes.”

The work was funded by the Medical Research Council, the National Institute for Health Research and Health Data Research UK, and supported by the Scottish Government.

Additional support has been provided through Public Health Scotland and Scottish Government Director-General Health and Social Care, and the UKRI COVID-19 National Core Studies Data and Connectivity programme led by HDR UK.

Additional quotes

Professor Chris Whitty, Chief Medical Officer for England and co-lead for the National Institute for Health Research (NIHR), said: "This research provides encouraging early data on the impact of vaccination on reducing hospitalisations.”

Professor Fiona Watt, Executive Chair of the Medical Research Council, which helped fund the study, said: “The discovery of very high protection before the second dose of the vaccines is very welcome news. These promising early results are a testament to the extraordinary efforts of the everyone who worked so hard to develop the vaccines and roll them out with unprecedented speed, and to these researchers who’ve analysed Scottish health data in near real-time.”

Professor Andrew Morris, Director, Health Data Research UK, said: “These important results are the first nationwide data to demonstrate that vaccines reduce Covid-19 related admissions to hospital in the real world. When HDR UK announced the rapid funding call in December for Covid-19 research projects as part of the UKRI National Core Studies' Data & Connectivity programme, this was exactly the type of rapid impact we hoped to achieve, so all credit to the UK-wide team.

“Importantly, the data used in this research is accessible via the HDR Innovation Gateway; supporting the UK's research community by making health datasets easily discoverable and accessible. This commitment to open collaborative science at scale is vital in our quest to combat Covid-19.”

For further information, please contact: Shane Canning, Press and PR Office, 0755 782 0266, shane.canning@ed.ac.uk or Kate McAllister, Press and PR Office, 0782 592 3164, kate.mcallister@ed.ac.uk