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Covid-19: Assess the effects of extending Pfizer vaccine dosing interval, expert urges

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A leading statistician has written to health secretary Matt Hancock urging him to investigate the effects of extending the gap between the first and second dose of the Pfizer BioNTech covid-19 vaccine.¹

Sheila Bird, former programme leader at the Medical Research Council Biostatistics Unit at the University of Cambridge and a member of the Royal Statistical Society's covid-19 taskforce, said that while deviating from the recommended dosing interval of three weeks could be the right decision that saves more people, the government should ensure they find out the consequences.

Her call comes as concerns were raised over whether everyone who receives the first dose will be given a second dose. When asked about this by Sky News, foreign secretary Dominic Raab repeatedly declined to guarantee that all people would get a second dose but said that was what the government was aiming for.

NHS England sent a letter to healthcare staff on 30 December announcing the decision to prioritise giving the first doses of vaccine (either Pfizer BioNTech or Oxford AstraZeneca) to as many people as possible on the priority list. Second doses of the vaccine should then be given up to 12 weeks after the first dose.

Unlike the Oxford vaccine trials, however, the Pfizer vaccine trial did not test different dosing intervals, with all participants receiving their second dose 21 days after the first. Results published in the *New England Journal of Medicine* reported that vaccine efficacy between the first and second doses was 52%, however Pfizer has stressed that there is no evidence of efficacy for the first dose after the 21 days.²

In the letter, Bird said, "Precedents that the Joint Committee on Vaccination and Immunisation relied on do not include mRNA vaccines because no previous such vaccine has ever been deployed. As noted by the British Society for Immunology, we do not know the precise pattern for how effectiveness for Pfizer BioNTech's mRNA vaccine wanes after the first dose if the second is not administered as in Pfizer's trial."

She said that the UK's rapid roll out of the Pfizer vaccine means as many as 800 000 people could be randomised in just two weeks, enabling researchers to ascertain key outcomes such as covid-19 diagnoses and related hospitalisations.

In the UK Oxford vaccine trial, 59% of participants who had two standard doses received the second dose between nine and 12 weeks after the first. Meanwhile, in the Brazil study, 18.6% received a second dose between nine and 12 weeks after the first. Interim combined trial results, published in the *Lancet*, found that vaccine efficacy 14 days after a second dose was higher in the group that had more than six weeks between the two doses (65.4%) than in the group that had less than six weeks between doses (53.4%).³

1 Whipple T, Swinford S. Second covid vaccine doses in doubt amid call for study into single jab. *Times*. 18 January 2021. www.thetimes.co.uk/article/second-covid-vaccine-doses-in-doubt-amid-call-for-study-into-single-jab-hmv5bcsc.

2 Mahase E. Covid-19: Pfizer vaccine efficacy was 52% after first dose and 95% after second dose, paper shows. *BMJ* 2020;371:m4826. doi: 10.1136/bmj.m4826 pmid: 33310706

3 Iacobucci G, Mahase E. Covid-19 vaccination: What's the evidence for extending the dosing interval? *BMJ* 2021;372:n18. doi: 10.1136/bmj.n18 pmid: 33408068