

Appendix 1: SARS-CoV2 vaccine development milestones

Date	Milestone
01/12/2019	COVID-19 illness documented
11/01/2020	SARS-CoV-2 virus sequence shared
13/01/2020	NIH designs mRNA vaccine in collaboration with Moderna
03/02/2020	SARS-CoV2 virus sequence published ¹
16/03/2020	Moderna Phase I/II trial begins
22/04/2020	Pfizer/BioNTech Phase I/II trial begins
14/07/2020	Moderna Phase I/II trial published ²
27/07/2020	Moderna and Pfizer/BioNTech Phase III trials begin
12/08/2020	Pfizer/BioNTech Phase I/II published ³
22/10/2020	Enrolment in Moderna and Pfizer/BioNTech Phase III trials complete >74,000 participants
09/11/2020	Pfizer/BioNTech announced interim analysis efficacy >90%
16/11/2020	Moderna announced interim analysis efficacy 94.5%
18/11/2020	Pfizer/BioNTech announced 95% efficacy as final result
02/12/2020	Permission for use granted in the UK for the BNT162b2 vaccine (Pfizer/BioNTech) ⁴
08/12/2020	First person receives BNT162b2 vaccine (Pfizer/BioNTech) in UK
08/12/2020	ChAdOx1 nCov-19 vaccine (AstraZeneca) Phase III data published ⁵
10/12/2020	BNT162b2 vaccine (Pfizer/BioNTech) Phase III data published ⁶
30/12/2020	Permission for use granted in the UK for the ChAdOx1 nCov-19 vaccine ⁷
30/12/2020	mRNA-1273 vaccine (Moderna) Phase III data published ⁸
04/01/2021	First person receives ChAdOx1 nCov-19 vaccine in UK
08/01/2021	Permission for use granted in the UK for the mRNA-1273 vaccine ⁹

References

1. Wu F, Zhao S, Yu B, et al. A new coronavirus associated with human respiratory disease in China. *Nature* 2020; **579**(7798): 265-9.
2. Jackson LA, Anderson EJ, Rouphael NG, et al. An mRNA Vaccine against SARS-CoV-2 - Preliminary Report. *The New England journal of medicine* 2020; **383**(20): 1920-31.
3. Mulligan MJ, Lyke KE, Kitchin N, et al. Phase I/II study of COVID-19 RNA vaccine BNT162b1 in adults. *Nature* 2020; **586**(7830): 589-93.
4. Medicines & Healthcare products Regulatory Agency. Information for Healthcare Professionals on Pfizer/BioNTech COVID-19 vaccine. <https://www.gov.uk/government/publications/regulatory-approval-of-pfizer-biontech->

[vaccine-for-covid-19/information-for-healthcare-professionals-on-pfizerbiontech-covid-19-vaccine](#) (accessed 08/01/2021).

5. Voysey M, Clemens SAC, Madhi SA, et al. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. *Lancet (London, England)* 2020.

6. Polack FP, Thomas SJ, Kitchin N, et al. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. *The New England journal of medicine* 2020.

7. Medicines & Healthcare products Regulatory Agency. Information for Healthcare Professionals on COVID-19 Vaccine AstraZeneca.

<https://www.gov.uk/government/publications/regulatory-approval-of-covid-19-vaccine-astrazeneca/information-for-healthcare-professionals-on-covid-19-vaccine-astrazeneca> (accessed 08/01/2021).

8. Baden LR, El Sahly HM, Essink B, et al. Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine. *The New England journal of medicine* 2020.

9. Medicines & Healthcare products Regulatory Agency. Information for Healthcare Professionals on COVID-19 Vaccine Moderna.

<https://www.gov.uk/government/publications/regulatory-approval-of-covid-19-vaccine-moderna/information-for-healthcare-professionals-on-covid-19-vaccine-moderna> (accessed 08/01/2021).