- Department of Health & Social Care (https://www.gov.uk/government/organisations/department-of-health-and-social-care)

Independent report

Joint Committee on Vaccination and Immunisation (JCVI) updated statement on the COVID-19 vaccination programme for autumn 2022

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Advice

Over the last 2 years, through a combination of vaccine-induced immunity and immunity generated following natural infection (natural immunity), large proportions of the UK population have developed at least partial immunity against COVID-19. As the UK transitions from a period of pandemic emergency response to pandemic recovery, the focus will increasingly be on protecting those in society who continue to be more at risk of severe COVID-19. To achieve this, a planned and targeted vaccination programme is considered more appropriate than a reactive vaccination strategy.

For the 2022 autumn booster programme, the primary objective is to augment immunity in those at higher risk from COVID-19 and thereby optimise protection against severe COVID-19, specifically hospitalisation and death, over winter 2022 to 2023.

Accordingly, JCVI advises that for the 2022 autumn booster programme, the following groups should be offered a COVID-19 booster vaccine:

- residents in a care home for older adults and staff working in care homes for older adults
- frontline health and social care workers
- all adults aged 50 years and over
- persons aged 5 to 49 years in a clinical risk group, as set out in the Green Book, chapter 14a, tables 3 and 4 (https://www.gov.uk/government/publications/covid-19-the-green-book-chapter-14a)
- persons aged 5 to 49 years who are household contacts of people with immunosuppression
- persons aged 16 to 49 years who are carers, as set out in the Green Book, chapter 14a, table 3 (https://www.gov.uk/government/publications/covid-19-the-green-book-chapter-14a)

In order to optimise protection over the winter months, the autumn programme should aim to complete vaccinations by the start of December 2022. Operational flexibility will apply in relation to vaccine supply, promotion of vaccine uptake and prioritisation for vaccination according to underlying risk of severe COVID-19.

It is not the intention of JCVI that the 2022 COVID-19 autumn booster programme should disrupt or delay deployment of the annual influenza immunisation programme. Both programmes are important for individual and public health, especially over the coming winter. Where operationally expedient, COVID-19 and influenza vaccines may be co-administered.

Considerations

JCVI has reviewed:

- the latest epidemiology of COVID-19 in the UK (see the National flu and COVID-19 surveillance reports for July (https://www.gov.uk/government/statistics/national-flu-and-covid-19-surveillance-reports-2021-to-2022-season) and the COVID-19 Schools Infection Survey, March to April 2022 (https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/covid19schoolsinfectionsurveyengland/pupilantibodiesandvaccinesentimentmarch2022))
- data on vaccine safety (https://www.gov.uk/government/publications/coronavirus-covid-19-vaccine-adverse-reactions)
- data on vaccine effectiveness [footnote 1], [footnote 2], [footnote 3]
- mathematical modelling [footnote 4], [footnote 5], [footnote 6]

- data from trials undertaken to understand the immunological impact of booster vaccination [footnote 7] [footnote 8]

During this period of pandemic recovery, planned programmes of COVID-19 vaccination are considered important to optimise the protection of those at higher risk of severe COVID-19 disease. Although there are uncertainties regarding the size and timing of potential future waves of COVID-19, winter remains the season when the threat from COVID-19 is greatest. Over winter 2022 to 2023, it is anticipated that other winter respiratory viruses such as influenza virus and respiratory syncytial virus (RSV) will return and could co-circulate with SARS-CoV-2. An overlap in waves of infection due to different respiratory viruses would pose increased risks to the health of individuals and to the NHS.

Vaccine effectiveness

Recent data from the UK Health Security Agency (UKHSA) indicates that vaccine effectiveness against severe outcomes of COVID-19, such as hospitalisation requiring oxygen or ventilation and admission to intensive care, remain high (about 80%) to over 6 months after a booster vaccine. In contrast, vaccine effectiveness against non-severe symptomatic disease caused by the Omicron BA.2 variant wanes to approximately 40% 15 weeks after a booster dose (https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00309-7/fulltext)).

The COV-BOOST trial indicated that a fourth dose of COVID-19 mRNA vaccine was well tolerated and boosted both cellular and humoral immunity (https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(22)00271-7/fulltext). Similarly, a study in Israel found that a fourth COVID-19 mRNA vaccine dose restored antibody levels to peak post-third dose levels (https://www.nejm.org/doi/10.1056/NEJMc2202542?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed).

Individuals at higher risk from COVID-19

Throughout the pandemic, COVID-19 has disproportionately affected those in older age groups, residents in care homes for older adults, and those with certain underlying health conditions, particularly those who are severely immunosuppressed (see the Living risk prediction algorithm (https://www.bmj.com/content/371/bmj.m3731.long)). Following vaccination, these same factors continue to identify those persons who are at higher risk of developing severe COVID-19 [footnote 9], [footnote 10].

Women who are pregnant

In December 2021, data from studies from the UK Obstetric Surveillance System (UKOSS) and the Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE-UK) indicated that clinical outcomes following COVID-19 in pregnant women had worsened over the course of the pandemic, and the majority of pregnant women admitted to hospital with COVID-19 were unvaccinated. In view of this data, women who are pregnant are considered to be in a clinical risk group within the COVID-19 vaccination programme. Unvaccinated women who become pregnant are strongly encouraged to come forward for vaccination. Women who are pregnant and have previously been vaccinated should be offered a booster dose this autumn.

Household contacts of immunosuppressed persons and carers

The effectiveness of currently available COVID-19 vaccines to protect against non-severe infection and virus transmission due to the Omicron variants is of relatively short-duration (weeks) (see COVID-19 vaccine surveillance report, week 24 (https://www.gov.uk/government/publications/covid-19-vaccine-weekly-surveillance-reports)). Nonetheless, for household contacts of immunosuppressed

persons and carers of vulnerable persons, such protection over the winter months, when indoor virus transmission is likely to be greater, is considered to confer worthwhile benefits. Those offered vaccination should understand that these benefits relate mainly to the potential for short-term indirect protection of the person they care for or their household contact who is immunosuppressed.

For carers, direct protection against severe illness and hospitalisation could also mean that they are better able to continue providing the vital care that is required of them over the winter.

Symptoms following SARS-CoV-2 infection

A wide range of symptoms have been described following SARS-CoV-2 infection. Efforts are on-going to better define and understand the syndrome commonly termed long COVID (https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(22)00135-7/fulltext). In studies of post-COVID syndromes involving control participants, many of the symptoms reported by persons with previous confirmed SARS-CoV-2 infection are also reported by persons without previous SARS-CoV-2 infection, highlighting the difficulties in diagnosis and attribution of symptoms to a single underlying cause[footnote 11], [footnote 12]. The degree to which vaccination may ameliorate the occurrence or severity of post-COVID symptoms is not yet established.

Paediatric inflammatory multisystem syndrome (PIMS-TS) is an acute inflammatory disorder mostly occurring 2 to 6 weeks after exposure to SARS-CoV-2 infection. Over the initial months of the pandemic, the estimated risk of PIMS-TS was 1 in 3,000 to 1 in 4,000 children infected with SARS-CoV-2 (https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2780861). Since then, it is estimated that in the UK, in persons aged 0 to 16 years, PIMS-TS rates per confirmed SARS-CoV-2 infection during the pre-vaccine Delta period were 56% lower, and during the Omicron period 95% lower, than during the Alpha period (https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac553/6631205). During the Delta predominant period, vaccine effectiveness against PIMS-TS was about 90%[footnote 13], [footnote 14]. Precise estimates of vaccine effectiveness against PIMS-TS during the Omicron period are not yet available.

Future variants and vaccines

The vaccines currently used in the UK COVID-19 vaccination programme were developed from the original SARS-CoV-2 strain. These vaccines have been effective in providing good protection against severe COVID-19 due to the Alpha, Delta, and Omicron variants [footnote 15], [footnote 16]. Omicron sub-lineage variants will most likely continue to circulate in winter 2022 to 2023, although the emergence of new variants of concern cannot be discounted due to the unpredictability of virus evolution. Studies of variant-specific vaccines are ongoing. Whether variant vaccines will provide greater protection against severe COVID-19 compared to original strain vaccines has not yet been determined and will be influenced by the variant virus that is circulating at the time of vaccination. Advice regarding which vaccines to use and associated posology will be provided in due course.

Rapid vaccine response measures may be required should there be substantial changes in population immunity against the dominant circulating variant, including any new variant of concern. The maintenance of sufficient surge capacity to enable a proportionate response to emergent circumstances is an integral component of the autumn booster programme.

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6. Preprint (2022). The changing impact of vaccines in the COVID-19 pandemic (https://www.medrxiv.org/content/10.1101/2022.03.10.22272222v1)
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