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THL recommendation and justifications for the target groups for the COVID-19 vaccine doses of late autumn 2022 and the fourth doses

THL currently recommends the COVID-19 booster vaccines of the late autumn for people aged 65 or over and those belonging to medical risk groups. They have the greatest risk of developing severe coronavirus disease, against which both the original and the variant-specific vaccine can provide protection.

[Diagram of vaccination recommendations for adults](#)

[Coronavirus booster vaccinations in late autumn 2022](#)

The scope of the THL recommendation does not currently include healthy adults under the age of 65: they still have good protection against developing serious disease and a low risk of developing a severe case of the disease (Grewal et al.). New Omicron-tailored vaccines are not expected to bring significant additional benefits in relation to the achieved protection against a severe case of COVID-19.

At the population level, additional vaccine doses for healthy people under 65 can hardly affect the number of COVID-19-related deaths in Finland. According to the National Infectious Diseases Register, less than 7 per cent of the deaths from coronavirus recorded in 2022 have occurred in people under the age of 65. The underlying cause was nearly always inadequate vaccination and/or severe long-term diseases.

Even with additional vaccinations, protection against infections and communicability is only moderate and short-term, from 2 to 3 months (Woodbridge et al., Canetti et al.). Omicron-tailored BA.4–5 booster vaccines do not provide a better antibody response than the original vaccine product, which predicts a similar, short-term duration of additional protection (Wang et al., Collier et al.).

Based on antibody testing, it has been estimated that a large proportion of the population under the age of 65 in Finland have been infected with coronavirus during 2022 ([THL: Late autumn coronavirus booster not currently recommended for health and social services professionals](#)).

It should also be noted that when the immunity formed as a result of previous vaccination, infection or a combination of the two is still high, additional vaccination cannot significantly improve the response, especially if a short time has passed since the previous vaccination or infection (Buckner et al.).

For these reasons, the benefits and disadvantages for individuals and the population must be carefully weighed when making a recommendation at the population level. This includes reflection on what critical healthcare may not be provided and how to tackle the backlog in care if healthcare resources are used for vaccination.

More detailed justifications

Disease burden

Currently, the risk of serious COVID-19 is very low in healthy adults under the age of 65. This is influenced by both the immunity among the population and the characteristics of the spreading virus. The risk of a serious disease is lower for those vaccinated in line with the THL recommendation than for those of the same age with inadequate vaccination.

The omicron subvariant currently circulating as the dominant virus causes a clearly less severe disease to persons with long-term immunity resulting from either vaccination or possibly vaccination in combination with previous infections.

Asymptomatic infections and mild symptoms are currently common. They occur in a lot of people of all ages, regardless of their previous immunity status. Protection against infections based on neutralising antibodies fades within a short period of time from the most recent vaccination. This is because the number of antibodies decreases and only some antibodies recognise coronavirus variants. This results in the decreased prevention of transmission of the virus and there are breakthrough infections and chains of infection. New Omicron variants also have a considerable capacity to evade the antibody response produced by the Omicron-tailored booster vaccine. (Kurahde et al., Qu et al.)

As the disease burden affects older people and risk groups, it is important to prioritise and secure the comprehensive progress of vaccinations in accordance with the recommendation at the population level.

Healthcare burden

The vaccination of healthy working-age people has aimed at reducing the burden on hospitals and COVID-19-related deaths. This could be achieved in two ways: indirectly or directly.

If vaccination reduced the infections and communicability of working-age people, it could indirectly protect older people and at-risk groups in a vulnerable position whose health is threatened by a coronavirus infection.

However, preventing infection and communicability with current variant-tailored vaccines is not currently really possible, and breakthrough infections are common.

Direct protection refers to the protection obtained by a vaccinated person against serious disease and death. The vaccinated person's risk of developing a serious case of COVID-19 affects this.

At the turn of October and November, the inpatient wards of specialised medical care had between 100 and 200 patients hospitalised due to coronavirus on a daily basis. In addition, 200 to 300 patients have been treated for coronavirus in inpatient wards in primary healthcare at a given time.

Although the difficult staffing situation of home care and other places of further treatment cause unnecessary prolongation of the hospitalisations of older people, the treatment periods carried out due to coronavirus have become shorter since last spring.

The age of hospitalised people has been high: patients aged over 70 have accounted for more than 60 per cent of those treated in specialised medical care due to COVID-19 since May 2022, and for as many as 95 per cent of those treated in primary care wards.

Since the spring of 2022, the number of patients admitted to the hospital due to the COVID-19 pandemic was the highest in the second week of October. In addition to hospitalisations, the number of registered cases has also taken a downward turn.

In other words, the increased risk of hospitalisation applies to older people, not healthy people under the age of 65. As a result, the current epidemic situation does not require extending the vaccination recommendation at the population level to healthy adults.

Vaccine effectiveness

Three vaccine doses provide healthy adults of working age with excellent, long-term protection against developing a severe case of COVID-19. The protection remains almost unchanged for at least 15 months (Bobrovitz et al.). The protection against serious disease is not expected to deteriorate substantially even after 15 months unless there are major changes in the structure of the virus.

From the perspective of a serious disease, the fourth dose is not expected to provide significant additional benefits for healthy working-age people. The fourth dose may somewhat increase the protection against infections and mild disease profiles for a few months, but does not particularly prevent communicability. This means that a person who has been vaccinated four times can unknowingly spread the virus to their surroundings. (Woodbridge et al., Canetti et al.)

It has been suggested in public that additional doses could be used to prevent sick leaves among health and social services professionals and therefore contribute to better maintaining the functioning of the healthcare system.

There are some studies on how well COVID-19 vaccinations have fared in preventing illness-related absences of health and social services professionals. For example, according to a study conducted in Greece, the number of sick days was 1.6 days lower for those who had received three doses compared to those with inadequate vaccinations (8.1 vs. 9.7 days). However, this was a short-term impact with a duration of less than 4 months (Maltezou et al.). On the other hand, in healthy working-age people, vaccination reactions can directly cause significant absences regardless of the epidemic situation and the risk of a COVID-19 infection.

Vaccine safety

COVID-19 vaccines have been found safe in trials conducted both before the marketing authorisation as well as follow-ups carried out after the marketing authorisation.

However, all COVID-19 vaccines can cause often transient local symptoms and generalised symptoms, such as fever, muscle pain and a feeling of illness. Rare adverse effects include severe allergic reactions. The symptoms are more common in later vaccine doses than in the first doses. The summaries of product characteristics also describe any rare adverse effects specific to each vaccine.

When additional vaccine doses are recommended at the population level to healthy people with a very low risk of serious disease, the benefits to the target group must be carefully weighed against any adverse effects.

In a situation where the coronavirus has spread very widely in the population, previous vaccinations and viral infections affect the immune response of individuals against the virus. Each additional vaccination will affect the stronger immune responses to specific areas of the spike protein. As a result, additional

vaccinations may increase the response to areas that do not protect against new variants. Meanwhile, the ability of the immune defence to produce new responses to new vaccine structures may be impaired.

Studies have found indications that vaccinations administered (Buckner et al.) or repeated too frequently may even be harmful in relation to the formation of antibody response (Reynolds et al.) and protection (Chemaitelly et al.). It is therefore unclear whether the temporary prevention of infections achieved through enhancing the vaccine response will be ultimately beneficial or whether this will only postpone the infections, or actually increase the risk of infection at a later stage.

A vaccine granted marketing authorisation by a pharmaceutical authority is defined as a medicinal product. Prescribing must always be backed up with sufficient medical reasons.

Other countries

It is important to understand the difference between a *vaccination recommendation* and *offered vaccination*. The COVID-19 vaccination recommendations of different countries are partly subordinate to what is laid down in a given country's act and decree determining who makes decisions related to the vaccination programme, who pays for the vaccinations and who issues vaccination recommendations.

The weight placed on an evidence basis for the drafting of recommendations varies from country to country. The overall level of vaccination coverage in the country also affects the issuing of recommendations. With a lower-than-average coverage, boosters may be introduced in late autumn in an effort to increase the overall coverage. This is the case in countries such as the United States and in many EU countries.

Of the EU countries, Sweden's Public Health Agency Folkhälsomyndigheten does not recommend fourth doses to healthy people aged 18–64 but calls on the provinces to provide this age group with an opportunity to get vaccinated. Social welfare and healthcare professionals are not mentioned separately.

In Denmark, the Danish Health Authority Sundhedsstyrelsen does not recommend fourth doses to healthy people aged 18–49. Meanwhile, the Danish Ministry of Health offers people in this age group an opportunity to get vaccinated in return for a fee.

In countries such as Germany, the fourth vaccine is recommended for older people, risk groups and healthcare professionals. In Germany, healthy people may also receive a fourth dose based on a physician's assessment. In Germany, a previous infection is still counted as a single vaccine, which contributes to reducing the need for a third dose.

In Norway, the Ministry of Health and Care Services is currently considering the possibility of vaccinating healthy working-age people with a fourth dose, even though the Folkehelseinstituttet (Norwegian Institute of Public Health) does not recommend it.

More information on EU countries' coronavirus vaccination programmes, including target groups and dose-specific vaccination coverage, is available at the European Centre for Disease Prevention and Control's (ECDC) database at <https://www.ecdc.europa.eu/en/publications-data/covid-19-vaccine-tracker>

International organisations

The recommendations of both the ECDC and the World Health Organisation (WHO) are indicative and not binding on the Member States.

The recommendations of international organisations have often been interpreted in a misleading way in public. The recommendation issued by the ECDC in September is conditional on the effectiveness of new variant-tailored vaccines. The recommendation states that national authorities make final decisions on administering boosters for different target groups in late autumn, depending on the groups' risk profile and the epidemiological situation in the country.

The current evidence of the effectiveness of the variant-specific vaccines is discussed above. ECDC does not recommend extensive vaccinations for a healthy working-age population. According to it, there is currently no epidemiological evidence supporting extensive vaccinations. (ECDC)

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