

# Application framework for revaccination against COVID-19

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## Executive summary

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Health Council of the Netherlands



The Netherlands has been dealing with the COVID-19 pandemic for two years. Over this period, several different variants of the SARS-CoV-2 virus have emerged, with varying degrees of infectivity and pathogenicity. Since late 2020, vaccines have been available that are effective at preventing severe disease, but the protection acquired through vaccination wanes over time. An additional vaccination with an mRNA vaccine restores the level of protection, but the protection provided by revaccination (*booster or additional shot*) is also temporary. There is uncertainty about how the pandemic will develop over the long term. For example, it is uncertain whether and when new variants of the virus will emerge, whether they will be more or less pathogenic and whether the virus will eventually develop a predictable seasonal pattern. It is also not clear when the new vaccines and treatment methods currently in development will be ready for use, or what their effectiveness will be. It is

expected that it will not be possible to consider a structural vaccination programme for COVID-19 until the autumn of 2023 at the earliest.

The Health Council of the Netherlands will provide advice about this long-term programme at a later stage. This advisory report is focused on the medium term, i.e. between now and mid-2023.

The Health Council's Subcommittee on COVID-19 Vaccinations considers that, in the medium term, it is not absolutely necessary to maintain the immunity levels of the entire population by regularly offering everyone additional vaccinations. However, the committee does recommend making preparations to be able to offer a timely additional vaccination to vulnerable target groups in a targeted way, if warranted by the epidemiological situation.

The burden of disease, and thus the desirability of protection through revaccination, will change over time, based on a number of determinants. Factors outside of the individual (extrinsic determinants) will play a role, such as the infection pressure and virulence of the virus. Factors within the individual (intrinsic determinants) will also play a role, such as age and underlying conditions (medical risk group), temporary acquired immunity resulting from previous exposure to COVID-19 and temporary immunity from previous vaccinations. Based on these determinants, the committee has developed an application framework as a supplement to the existing assessment framework for vaccinations. It provides further guidance to enable timely and targeted decisions to be made about the desirability of revaccination for vulnerable groups (groups that are intended to be protected by revaccination). The application framework sets out a number of



questions that can be used to assess which target groups should be eligible for revaccination, at what time and with what vaccine, given the epidemiological situation at that time. Decisions about revaccination will always be made by considering the most up-to-date scientific data in accordance with the assessment and application framework. Modelling national and international observations will also be considered.

efficiently identify and contact medical risk groups.

Use of the application framework to decide to offer additional vaccinations to specific target groups at specific times requires the ability to scale up quickly and efficiently when necessary. The time required to implement a vaccination programme must be taken into account in making decisions. The committee recommends considering how the preparation time can be shortened, so that the administration of vaccinations can be scaled up quickly when necessary. The committee also advises exploring a structural way to quickly and



## Application framework for additional COVID-19-revaccination

Question	Explanation
1. Is an epidemic wave of a variant of the SARS-CoV-2 virus expected?	Sources: national and international trend monitoring and modelling
2. What is the virulence of the dominant virus variant?	Sources: monitoring of the national and international situation and the scientific literature
3. What objectives will be set for revaccination?	Possible objectives: 1.Reducing severe disease and death due to COVID-19; 2.Preventing infection with SARS-CoV-2; 3.Suppressing the spread of SARS-CoV-2; 4.Preventing social disruption.
4. Which target groups are eligible for revaccination, given the epidemiological situation and the selected objective?	Defined clusters of target groups, in descending order of risk of severe disease and death: 1.People aged 70 and older, nursing home residents, patients in high-risk groups; 2.People between 60 and 69 years of age; 3.Adults with a medical risk; 4.a. People between 18 and 59 years of age; b. Children and teenagers between 5 and 17 years of age with a medical risk; 5.a. Healthy teenagers between 12 and 17 years of age; b. Healthy children between 5 and 11 years of age.
5. What is the expected degree of natural immunity in the selected target group(s) during the wave?	Sources: national and international monitoring of the duration of protection following infection and the scientific literature
6. What is the expected degree of protection from the most recent vaccine administered to the selected target group(s)?	Sources: national and international monitoring of the decline in protection following previous vaccination and the scientific literature
7. What is the risk-benefit ratio of revaccination for the selected target group(s)?	<ul style="list-style-type: none"> <li>• Is the burden that will be experienced by the target group(s) from revaccination reasonably proportionate to the health benefit for the target group(s)?</li> <li>• Is the health benefit provided by revaccination for the selected target group(s) proportionate to other means of reducing the burden of disease, such as antiviral therapy? (see the assessment framework for vaccinations)</li> </ul>
8. What is the optimal time for revaccination?	<ul style="list-style-type: none"> <li>• Current decline in protection for the selected target group(s);</li> <li>• The expected course of the pandemic.</li> </ul>
9. What is the optimal vaccine to use for revaccination?	<ul style="list-style-type: none"> <li>• Effectiveness of the vaccine against the circulating variant, given the selected objective(s) for the booster vaccination programme;</li> <li>• Safety of the vaccine for people in the selected target group(s).</li> </ul>



The Health Council of the Netherlands, established in 1902, is an independent scientific advisory body. Its remit is “to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research...” (Section 22, Health Act).

The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.

Most Health Council reports are prepared by multidisciplinary committees of Dutch or, sometimes, foreign experts, appointed in a personal capacity. The reports are available to the public.

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