COVID-19 vaccination: The Moderna vaccine and the vaccination strategy

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Executive summary

Health Council of the Netherlands

Moderna's mRNA-1273 vaccine against COVID-19 (brand name *COVID-19 Vaccine Moderna*) recently received a positive review by the European Medicines Agency (EMA) and was registered by the European Commission. This means that it can be used in the Netherlands to combat the COVID-19 pandemic. The Minister of Health, Welfare and Sport has asked the Health Council of the Netherlands for advice concerning the use of this vaccine in the various target groups that are eligible for vaccination. The Committee on the Medical Aspects of COVID-19 has assessed the vaccine, based on the criteria used by the Health Council as part of the vaccination advisory process.

COVID-19 involves a high burden of disease

When assessing the potential use of vaccination, the first criterion is that there must be a considerable burden of disease. That is clearly the case with COVID-19. By the start of January, the Dutch Municipal Health Service (GGD) had confirmed 834,064 cases of disease and 11,826 deaths from COVID-19. The risk of severe morbidity increases with age, while those with a chronic disorder are also at risk. The average age of patients on the wards was 67. For those in the ICU, it was 64. The vast majority of deaths occur among the elderly, many of whom were nursing home residents.

The vaccine is very effective in adults, the elderly, and in medical risk groups

Another criterion is that vaccination must be efficacious and effective. The vaccine is administered in two doses, 28 days apart. The mRNA-1273 vaccine's efficacy against COVID-19 has been tested in a group of over 28,000 people, half of whom received the vaccine and the other half a placebo. This revealed that vaccination provides effective protection for adults, as well as for the elderly and medical risk groups. Its efficacy, in all groups, was well in excess of 80%. As yet, nothing is known about the duration of protection nor about the extent to which vaccination might prevent viral transmission.

The vaccine is sufficiently safe – any adverse effects are usually mild

The safety of vaccination is another important criterion. The mRNA-1273 vaccine is sufficiently safe and is well-tolerated. Like all medicinal products, vaccines can have adverse effects. The purpose of vaccination is to induce a response from the immune system. This is often accompanied by associated transient symptoms. Most of those who are vaccinated with the mRNA-1273 vaccine experience adverse effects after both the first and second doses. These mostly involve mild to moderate pain at the injection site, as well as fatigue, headache, and muscle pain. Such reactions were more

common in younger people, and they mostly occurred after the second dose. Most of these adverse effects resolved within a few days after vaccination.

Vaccination is acceptable – the benefits outweigh the drawbacks

In the Committee's view, the benefits of vaccination (health gains resulting from protection against COVID-19) outweigh the drawbacks (adverse effects that are usually mild and short-lived). Thus, the criterion of acceptability has also been met. Given the current lack of data concerning the cost-effectiveness of vaccination, this aspect cannot yet be assessed.

Recommendation: use the vaccine, mainly in the elderly

The Committee concludes that vaccination with the mRNA-1273 vaccine is efficacious, sufficiently safe and acceptable for adults, the elderly, and medical risk groups. Accordingly, the Committee recommends using this vaccine in public vaccination programmes against COVID-19. This vaccine has very high efficacy in the elderly, also the burden of disease resulting from COVID-19 is greatest in this group, and the vaccine is available in relatively small quantities. For these reasons, the Committee recommends that the mRNA-1273 vaccine be mainly administered to elderly people aged 60 and above, starting with the oldest age group, regardless of whether or not they belong to a medical risk group.

Vaccination of the elderly (those who still live independently, as well as the residents of long-term care institutions) will mitigate the burden of disease in this group. This, in turn, will ease the pressure on the healthcare system. Thus it is important to use the currently available vaccines to vaccinate the elderly. This means that the vaccination programme must be designed to facilitate the ongoing implementation of the chosen vaccination strategy.

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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.

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