

REPORT

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THE CORONAVIRUS IMMUNISATION PROGRAMME

# Advice on priority groups for coronavirus vaccination in Norway

Expert group in ethics and priority setting

15 November 2020

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## Executive Summary

The Norwegian Ministry of Health and Care Services has commissioned the Norwegian Institute of Public Health to organise the national coronavirus immunisation programme. As a partial delivery of the assignment, the Norwegian Institute of Public Health has established an external expert group in ethics and prioritisation (henceforth: the ethics advisory group). This ethics advisory report describes the external group's working process and conclusions concerning the order of priority of the vaccines in the first phase of the Norwegian Coronavirus Immunisation Programme. The overall objective of this ethics advisory report has been to establish clear goals for what the Coronavirus Immunisation Programme should achieve, *as well as* to make recommendations for which groups should be given priority in the first phase of the programme. The advisory group has proceeded from values, to goals and lastly to priority categories. The following five values were adopted as the core values to guide prioritisation: *equal respect, welfare, equity, trust* and *legitimacy*. Five goals were then proposed and ranked in order of their importance: 1) Reduce the risk of death. 2) Reduce the risk of severe illness. 3) Maintain essential services and critical infrastructure. 4) Protect employment and the economy. 5) re-open society. Based on these values and goals, three categories for prioritisation were established: *risk factors for severe illness and death, the infectious situation* and *occupation*. The ethics advisory group has suggested dynamic health priorities based on the Norwegian Government's long-term scenario for the course of the pandemic and recommended that I. risk groups and II. healthcare personnel should be prioritised in pandemic scenarios 1–2a, and that in the event of widespread infection (scenario 2b–), the priority order should instead be I. healthcare personnel, II. risk groups and III. critical societal functions. These three priority groups are in accordance with the values, goals and priority categories proposed by the ethics advisory group in this document. These are preliminary recommendations for the order of priority for coronavirus vaccines in Norway, and the ethics advisory group has taken into account that the recommendations may need to be revised if there are significant changes to the empirical evidence.

## Foreword

The Norwegian Ministry of Health and Care Services has commissioned the Norwegian Institute of Public Health to prepare a national immunisation plan that includes preparing, implementing and following up vaccination against COVID-19. As part of the assignment, the Norwegian Institute of Public Health will develop recommendations to prioritise groups for vaccination and therefore established an expert group for ethics and prioritisation.

The members of the ethics group were appointed by the Norwegian Institute of Public Health, and are all experts in ethics and prioritisation. The experts are Eli Feiring, Reidun Førde, Søren Holm, Ole Frithjof Norheim, Berge Solberg, and Gry Wester.

The group has held six meetings and has developed the recommendations described in this report. The Norwegian Institute of Public Health has had a secretariat function where Jasper Littmann and Trygve Ottersen helped to facilitate the process. In addition, Carl Tollef Solberg contributed to writing this report. He is therefore listed as a co-author of the report together with the six appointed experts. The three members of the secretariat participated in the discussions, but the views described in this report belong to the appointed experts. None of the experts report any conflicts of interest, but it is noted that Ole Frithjof Norheim has a minor additional position at the Norwegian Institute of Public Health associated with another project.

This report has been used as a basis for the Norwegian Institute of Public Health's commission to develop recommendations for priority groups. The report was also submitted to the Norwegian Ministry of Health and Care Services and published as a separate product.

The expert group emphasises that their recommendations may change with new knowledge about the epidemic and the vaccines that become available.

## 1 Introduction

Since the beginning of 2020, the COVID-19 pandemic has posed significant challenges worldwide. As of November 2020 in Norway, 291 people have died, 1407 have been hospitalised, and 26503 have been confirmed to be infected with the SARS-CoV-2 virus. The treatment options for COVID-19 have been limited. Norway has introduced comprehensive infection control measures – such as social distancing, quarantine, school closures and travel restrictions. These measures are not sustainable in the long term.

The use of effective *SARS-CoV-2 vaccines* (henceforth referred to as *coronavirus vaccines*) will probably constitute the best strategy for returning society back to a normal state. As of November 2020, more than 150 coronavirus vaccine candidates are under development, 47 are in various phases of clinical trials with large-scale testing (WHO 2020a), several vaccine candidates are in the final phase of clinical trials and two vaccines have been sent for approval to the European Medicines Agency (EMA). Norway has joined the EU's procurement agreement for vaccines and is currently concluding purchase agreements with several vaccine manufacturers. When the EMA approves a vaccine, it will also be approved in Norway, and the manufacturer can begin distribution.

It is expected that the demand will initially exceed the number of vaccines, so it will be necessary to prioritise. The purpose of such prioritisation is to ensure efficient and fair use of the coronavirus vaccine. Consequently, the main aim of this ethics advisory report is to establish clear goals for what the Coronavirus Immunisation Programme should achieve, *and* to advise which groups should have priority. Much about the coronavirus vaccines remain unknown. This means that the recommendations proposed in this report are preliminary and may need revision as more knowledge about the coronavirus vaccines becomes available.

This is an external ethics advisory report that is included in the Norwegian Institute of Public Health's recommendations for prioritisation, which is submitted to the Norwegian Ministry of Health and Care Services. The report is the result of in-depth discussions between six leading experts in ethics and prioritisation in Norway. The Norwegian Government will make the final decision on the priority groups and the order of their priority.

This ethics advisory report is presented as follows: Part 2 provides a brief introduction to Norwegian health priorities, as well as special considerations for COVID-19. Part 3 presents five values that the ethics advisory group finds particularly relevant. Part 4 presents five ranked goals for the Coronavirus Immunisation Programme. In part 5, the priority groups are presented.

## 2 Health priorities

### 2.1 The framework for health priorities in Norway

In an ideal world, everyone would receive medical resources according to their needs. However, resources are scarce and have alternative uses. In the event of a vaccine shortage, vaccinating some people could mean that others are not vaccinated. Prioritisation is therefore necessary. During the coronavirus pandemic, even high-income countries have experienced a real shortage of healthcare workers, medicines and equipment (Emanuel et al. 2020), which makes it necessary to have transparent and fair prioritisation.

Fortunately, Norway has a long tradition of transparent health prioritisation.<sup>1</sup> Is the intervention expensive? Does it work? Are the costs reasonable compared to the benefits? Is the condition severe? Setting priorities is largely about rationing the available resources to achieve the most important things first. Norway employs three criteria to guide prioritisation in the national health service:

One, according to *the health-benefit criterion*, priority should be given to more effective measures over less effective ones. Two, according to *the resource criterion*, priority should be given to less expensive measures over more expensive ones. Three, according to the *severity criterion*, one should prioritise more severe conditions over less severe ones.

These three criteria *must* be considered together (rather than separately), and they apply at both a group *and* an individual level. At the group level and under certain conditions, the first two criteria express *cost-effectiveness*: That is, the cost of a measure should be in a reasonable proportion to its benefits. The third criterion, the severity criterion, implies that sometimes less cost-effective interventions should and can be prioritised *if* the severity indicates it. These three criteria are also legally founded in *Prioriteringsforskriften* (Lovdata 2020), and they give important guidance about which forms of treatment, medications and other measures should be offered in the Norwegian national health service.

### 2.2 Existing guidelines for prioritisation of pandemic vaccines in Norway

The Norwegian national preparedness plan for infectious diseases specifies the following additional prioritisation considerations in a pandemic context:

The offering of treatment or vaccines in case of scarcity of resources should follow the same principles as otherwise, where priority is normally given to groups that are at particular risk of getting the disease or have the strongest clinical indication,

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<sup>1</sup> See e.g., NOU (1974); NOU (1981); Lønning et al. (1987), (1997); Norheim et al. (2014); Magnussen et al. (2015); Meld. St. 34. (2015–2016a); Blankholm et al. (2018); and Meld. St. 19 (2018–2019). These NOUs (i.e., white papers) and reports to the Norwegian Storting are available in Norwegian. For an explanation of the Norwegian priority setting system in English, see e.g., Ottersen et al. (2016). A summary of the latest report to the Storting on priority setting is also available in English, see Report. St. 34 (2015–2016b).



clinical health professionals and defined key workers, and then the rest of the population (HOD 2019, 40).<sup>2</sup>

A similar order of prioritisation was used in previous pandemic situations. The most recent is the swine flu pandemic in 2009–2010, where healthcare workers and at-risk individuals were prioritised.<sup>3</sup> The order of priority also forms the basis for *the Norwegian National Vaccination Plan for Pandemic Influenza* (see Appendix 1).

However, there are some crucial differences between pandemic influenza and pandemic COVID-19. We have a great deal of knowledge about pandemic influenza, there is seasonal vaccination, and the risk groups are well established (see e.g., WHO 2004). In contrast, knowledge about pandemic COVID-19 is still lacking. Furthermore, there are different risk groups (it is assumed, for instance, that young children are less exposed to COVID-19 infection). In addition, Norway is already well into a COVID-19 pandemic. Consequently, the Coronavirus Immunisation Programme will not prevent comprehensive infection control measures, rather aims to enable the lifting of these measures.

Overall, there are also relevant differences between prioritisation for vaccines and prioritisation for other healthcare treatments and services. For vaccines, there is a greater focus on societal value. Vaccination is also preventive, and the goals of an immunisation programme are often broader than the goals of a healthcare system and require an assessment of indirect benefits and welfare.<sup>4</sup>

In summary, the three Norwegian prioritisation criteria (i.e., the *health-benefit criterion*, the *resource criterion* and the *severity criterion*) as well as the experiences with pandemic influenza vaccines, provide a good starting point.<sup>5</sup> Nevertheless, there is a need for further independent consideration for the upcoming coronavirus vaccines.

### 2.3 Scarcity of what?

At the beginning of the Coronavirus Immunisation Programme, a scarcity of the vaccine itself is to be expected.<sup>6</sup> It is expected that this vaccine scarcity will cease as more vaccine doses become available.

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<sup>2</sup> For further details regarding the Norwegian national preparedness plan, see the Regjeringen (2014).

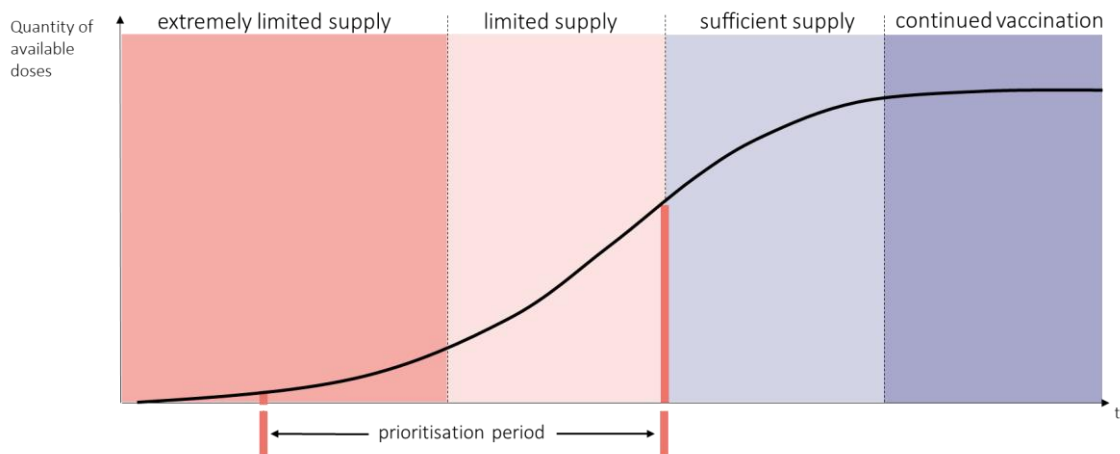
<sup>3</sup> For further reflections on how to define risk groups, see e.g., Littmann (2014).

<sup>4</sup> In line with the Prioritisation Report (Prioriteringsmeldingen) (Meld. St. 34 (2015–2015a)), the latest Public Health Report (Folkehelsemeldingen) (Report to the Storting 19 (2018–2019)) points out that: «The Ministry will [...] assess in more detail how the methodology for prioritisation between different public health measures in the last two categories can be further developed. In this context, the ministry will also study a system for decisions on immunisation programmes." (p. 54).

<sup>5</sup> For a review of the ethics literature on pandemic influenza, see Williams et al. (2020).

<sup>6</sup> The COVID-19 pandemic has resulted in a shortage of health resources worldwide. In the Norwegian healthcare sector, however, it is first and foremost infection control equipment that has been in short supply. At the beginning of this pandemic, there were also concerns about a potential shortage of intensive care units and respirators in Norway. Necessary infrastructure for the upcoming vaccination program may also be subject to scarcity. See also Imperial College (2020).

Eventually, Norway will provide enough vaccine doses to anyone who wishes to be vaccinated. In other words, the prioritisation situation is *dynamic* (see Figure 1 below).



Graphic adapted from <https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2020-09/COVID-07-Dooling.pdf>

**Figure 1.** The y-axis shows the quantity of available doses, while the x-axis shows time. There will be an initial scarcity phase where one must prioritise.

#### 2.4 Empirical questions that will affect the final recommendation

As of November 2020, much remains unknown: there is uncertainty concerning the development of the pandemic, the effects of the different vaccine candidates, and when and in what quantity they will become available.

The final priority order will be affected by the following conditions:

- The groups for which the vaccine(s) are first *approved for*
- *The effect* of the vaccine(s) and the ability to elicit an immune response in different age and risk groups
- *The safety* of administering the vaccine(s) for different age groups and groups at risk
- The vaccine's ability to *prevent* infection and infection
- Which groups that are at increased *risk* for severe illness or death
- The risk of infection for certain professions
- The epidemiological and clinical characteristics of COVID-19
- The course of the pandemic and the infection situation when the vaccine(s) will be available

In addition, the degree of the availability of the vaccine will affect how specific the prioritisation scheme needs to be. This will depend on the number of doses available in the first phase and on the need for one or two doses per person. Over time, it is likely that several different coronavirus vaccine candidates will become available. Therefore, it may be necessary to compare the different vaccine candidates and their respective efficacy in different groups over time. This, in turn, may make it necessary to adjust the recommendations for priority groups.

It is important that the values and goals of the immunisation programme are *well defined in advance*. This is what this ethics report does. If the proposed order of priority proves to be unfeasible (e.g., because the coronavirus vaccine is not medically approved for a specific age group), it may become necessary to change the order of priority before the actual start of the Coronavirus Immunisation Programme. In addition, the role of inclusion and exclusion criteria for recommended priority groups will be based on the latest knowledge and may change as more information becomes available. However, these adjustments do not represent a fundamental change in the proposed order of priority but specify the conditions that should be considered.

### 3 Values

Deciding who should receive the coronavirus vaccine first involves challenging choices. However, these choices need to be made to ensure that the coronavirus vaccine is used in the best possible way. The Coronavirus Immunisation Programme must be evidence based. However, priorities cannot be governed by evidence alone (WHO 2020b). How one *should* handle the COVID-19 pandemic is fundamentally an ethical question. It includes a clear description of the values that guide the prioritisation. Clear and distinct values will support the priorities, as well as build trust in the population.

Vaccine prioritisation requires that the interests of the individual and the society are weighed against each other at all times. On the one hand, the individual is the most fundamental moral unit.<sup>7</sup> Individuals can feel pain, rejoice, think, set goals and suffer. On the other hand, vaccines do not only benefit the recipient. Vaccines also protect others from infection, reduce the disease burden and a coronavirus vaccine could give Norway the opportunity to gradually re-open society. The individual and the societal perspective often align, but not always. Therefore, it is even more important to define the values that will govern the priorities. The ethics advisory group has argued that the following five values are of particular importance for coronavirus vaccine priorities: equal respect, *welfare*, *equity*, *trust* and *legitimacy* (see also St. Meld. 2015–2016 2020b; WHO 2020c).

First, the prioritisation of coronavirus vaccines should be based on *equal respect*. This means that similar cases must be treated equally. All human beings have equal moral status and therefore their interests are deserving of equal moral consideration (WHO 2020b). In practice, this means that vaccines should be prioritised in line with morally relevant criteria and at the same time actively exclude morally irrelevant or discriminatory criteria. Criteria that violate equality are, for example, skin colour, religion, income and social status. The next value is *welfare*. Promoting welfare is based on a duty to do good to others, as well as to reduce harm. This value also means that when possible, one should seek to vaccinate those who benefit most from the vaccination. A third value is *equity*, which means that where possible, one should seek to reduce inequity in health and welfare (WHO 2020b). For example, the Coronavirus Immunisation Programme will be free of charge for the entire Norwegian population. Furthermore, equity draws attention to those who, for various reasons, are the most disadvantaged in society, i.e., they are in a less fortunate position due to the COVID-19 pandemic or the extensive infection control measures. Fourthly, the immunisation programme should be based on *trust*. Trust between all parties is important. Trust requires voluntariness, which in turn means that where possible, people should be able to choose whether they want to be vaccinated against COVID-19. Trust cannot be assumed or demanded but must be earned, by adhering to the other values outlined above. Finally, the priorities should be *legitimate* to ensure that they are based on the best evidence, shared values, transparency and the appropriate input from the affected parties (WHO 2020b). This is what prioritisation seeks to provide.

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<sup>7</sup> For a philosophical argument for *methodological individualism*, see e.g., Elster (1982).

By proposing that these values be used as a basis for establishing explicit prioritisation criteria, one seeks to ensure transparent and fair prioritisation and avoid the priority groups being ranked on the basis of irrelevant, unfair, hidden or arbitrary considerations.

## 4 Goals

### 4.1 Goals

As mentioned, health prioritisation implies that you should do the most important thing first. Accordingly, one must be prepared to state the most important goals for the Norwegian Coronavirus Immunisation Programme. Setting such goals is challenging because many important individual and societal interests are at stake simultaneously (see, e.g., Appendices 3 and 4). On the one hand, a strategy that primarily aims at preventing infection will prioritise those who are most likely to infect others (the so-called disease vectors). On the other hand, a strategy to reduce mortality will focus directly on those at risk of dying. For COVID-19, these two groups do not entirely overlap (see also WHO 2020b).

The Government's long-term strategy for the COVID-19 pandemic aims to: «safeguard health, reduce disturbances in society and protect the economy» (Government 2020, 2), as well as to avoid an overload of the health care system.<sup>8</sup> The ethics advisory group proposes five goals and a framework for the Coronavirus Immunisation Programme. The goals are ranked:

1. Reduce the risk of death
2. Reduce the risk of severe illness
3. Maintain essential services and critical infrastructure
4. Protect employment and the economy
5. Re-open society

The constraint is that coronavirus vaccination, in line with the five goals, should not discriminate or exacerbate existing inequalities. Whenever possible, all five goals should be addressed simultaneously. However, when two or more of the goals conflict, the highest-ranked goal should be prioritised.

The relevant effects of the Coronavirus Immunisation Programme can be both direct (on the individual receiving the vaccination) and indirect (on other individuals). For example, a direct reduction in the risk of death may have the indirect effect that society can gradually return to normal. In this way, a direct goal of reducing the risk of death will also indirectly help the most disadvantaged in society, who in turn have been hardest hit by the current infection control measures.

### 4.2 Relevant measures

The achievements of the Coronavirus Immunisation Programme can be estimated and measured in many different ways.<sup>9</sup> This applies to the risk of death, risk of severe illness,

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<sup>8</sup> It should also be noted that pandemic plans in different countries are not always consistent. Rather, these different plans identify a number of objectives for their respective immunization programmes, as well as recommended priority groups. Straetemans, M. et al. (2007).

<sup>9</sup> Furthermore, the choice of effect measure has important implications for how the health-benefit criterion is expressed.

essential services, critical infrastructure, employment, finances and the degree of re-opening. The ethics advisory group does not consider it to be their mandate to provide detailed assessments of different measures for each of the five goals. Nevertheless, the group emphasises that the chosen measure should be as simple and understandable as possible, in order to ensure trust and legitimacy in the population.

First and foremost, the measure will be the relative risk reduction for severe illness and death. However, the goal of reducing the risk of death deserves a separate comment. Should the goal "Reduce the risk of death" be understood as reducing the *number of deaths* or *years of life lost*? The Norwegian Prioritisation report (Prioriteringsmeldingen) highlights healthy life years as a measure for both the benefit and severity criteria. The Government's current strategy for dealing with the pandemic also emphasises that the burden of disease can be measured in lost years of life with good health.

The ethics advisory group believes that the distribution of limited health resources, should aim to reduce the number of years of life lost, with particular priority to the most disadvantaged. However, in a pandemic like this, the vaccine distribution will affect behaviour and welfare beyond health. The indirect value of avoided deaths is so great for society that an adjustment to years of life lost will likely have little significance. The more lives saved by the vaccine, the faster the other four goals will be reached.

Thus, the ethics advisory group tentatively recommends focusing on the number of deaths rather than years of life lost. If new knowledge indicates that the vaccines have very different effects in different age groups – and that there will be significant scarcity, and the indirect effect of avoided deaths on behaviour and welfare will be small – then the ethics advisory group recommends that the number of lost life years should be used as a measure.

## 5 Priority groups

### 5.1 Other countries' rankings

Norway has previously defined and ranked priority groups in the pandemic contingency plan (see Appendix 1). As mentioned, however, the COVID-19 pandemic requires an independent assessment of priority groups. As of November 2020, a number of countries have made similar assessments for COVID-19 (see Appendix 2). Normally, such preliminary recommendations will change in line with new knowledge and revisions (see also an overview of relevant empirical questions above).

The available preliminary recommendations show that the groups that most often are proposed as a priority are: healthcare workers, the elderly and people with underlying medical risk factors. Other mentioned groups are personnel in critical societal functions (see Appendix 2). The ethics advisory group has discussed which groups should be considered in accordance with the five goals that have been set.

### 5.2 The Ethics Advisory Group's proposals for prioritisation

In the first instance, the ethics advisory group proposes three categories: *risk factors for severe illness and death*, the *infection situation* and *occupation*. These are relevant because they affect the expected benefit of the vaccine and are in line with the five stated goals. The three categories can also be clearly defined, implemented in practice, and they are in line with the overall health-benefit criterion in the Prioritisation Regulations.

#### 5.2.1 Category 1: Risk factors for severe illness and death

Given goals 1 and 2, risk factors for severe illness and death are a good category for prioritisation. In particular, two sub-categories of risk factors stand out: *directly medically relevant risk factors* and *special groups*.

For the first sub-category, medical risk factors, a good deal is known. Advanced age carries a high risk, and the elderly have the highest morbidity and mortality for COVID-19. In addition, people with certain underlying diseases are at increased risk of severe illness and death. Vaccinating people with medical risk factors first also reduces the risk of overloading the health service. To assess which groups are most vulnerable, updated systematic reviews are needed.

For the second sub-category, disadvantaged groups, certain socio-economic groups are over-represented among those with a severe COVID-19 disease course. In addition, infection control measures can hit certain groups harder and lead to increased social inequality. The Coronavirus Immunisation Programme cannot compensate for increased social inequality alone, but it should not increase social disparities further. This concern applies, for example, to groups such as undocumented immigrants, who in principle have poor access to the Norwegian health care system. Socially disadvantaged groups are not currently proposed as a separate priority category, but it is crucial that everyone who is recommended coronavirus vaccination receives adapted information and access to the vaccine.



A prioritisation of medical risk groups is in line with the goals because it is assumed that it will be able to reduce mortality and severe illness (goals 1 and 2). Better protection of the risk groups will also make it possible to remove the current infection control measures that shield them from the rest of society. A prioritisation of risk groups also meets all the three aforementioned Norwegian prioritisation criteria: the health-benefit criterion because it is assumed that the risk group can be well protected by vaccination, the resource criterion because vaccination is more cost-effective than infection control measures and the severity criterion because it emphasises those with the highest risk of disease and death.

**The ethics advisory group therefore recommends that medical risk factors and age be considered as high-risk factors and be used as a priority category.**

### 5.2.2 *Category 2: Geographical variation of the infection situation*

It is difficult to predict what the infection situation will look like when the coronavirus vaccines become available, but so far, the pandemic has affected parts of Norway in different ways. Many major outbreaks have occurred in densely populated areas. Consequently, it may be relevant to assess a geographical priority based on the degree of infection burden. The reason for such a geographical prioritisation is simply that some regions may experience higher infection burden than others. Areas with high infection burden are more vulnerable to an overloaded health service, infection control measures are the strictest and most onerous in such areas, and a vaccine will be of most use where transmission is greatest. This is in line with all five goals of the Coronavirus Immunisation Programme. Such a prioritisation could help reduce the risk of severe illness and death, as well as counteract overloading of the healthcare service. Not least, a geographical prioritisation can facilitate lifting the most intrusive infection control measures in areas with high infection burden more quickly and thus contribute to the protection of employment and the economy, as well as a reopening of society. The decision on which areas are prioritised must be made according to the infection situation, and logistical feasibility.

**The ethics advisory group therefore recommends that geographical prioritisation should be considered *if* the infection burden shows large differences between different geographical areas in Norway when the vaccine first becomes available.**

### 5.2.3 *Category 3: Occupational groups*

Some occupational groups have an increased risk of becoming infected and / or infecting others. In light of the objectives of the immunisation programme, there are at least three questions that should be considered to determine whether an increased risk of transmission gives cause for prioritisation: (1) Does the occupational group itself have an increased risk of severe illness and death? (2) Does transmission from the occupational group constitute an increased risk of severe illness and death among others? (3) Will increased sick leave in the occupational group affect the capacity in the health service or in critical societal functions? Based on these three questions, two groups appear to be particularly relevant: namely *healthcare personnel* and *people in critical societal functions*.

Healthcare personnel provide a risk of transmission for risk groups through direct patient contact, including people who are very ill and people who cannot be vaccinated. Whether

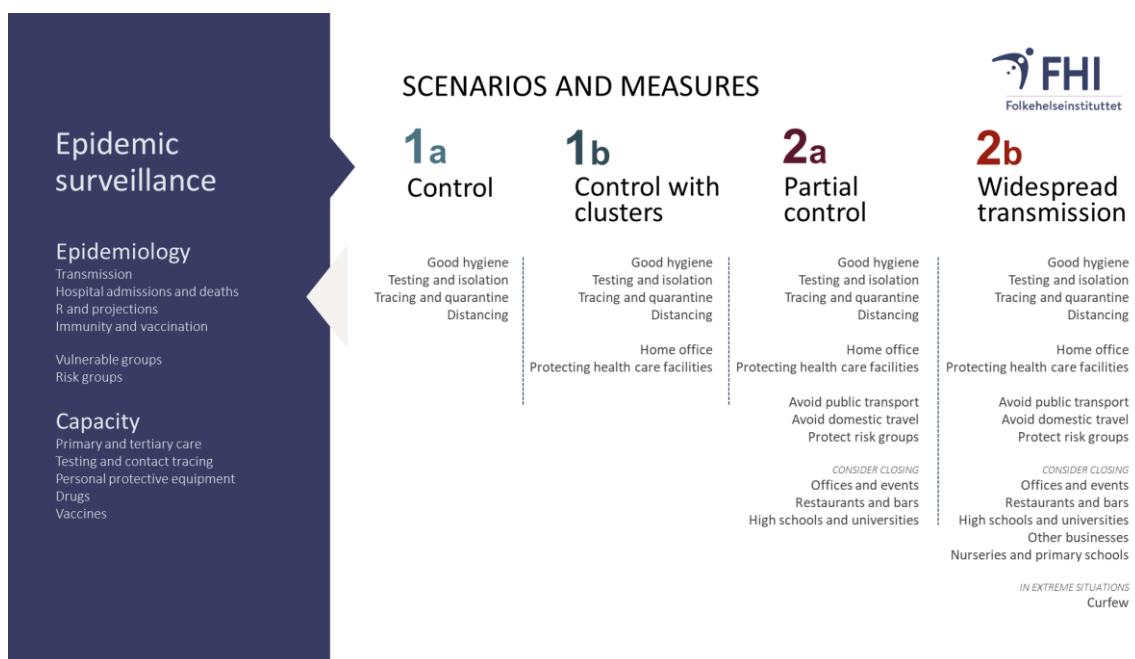
this is sufficient grounds to prioritise healthcare personnel will ultimately be determined by the vaccine's effect on further transmission. Healthcare personnel are also exposed to infection, which can have serious consequences for themselves, their family, and society through reduced capacity in the health service. *Healthcare personnel* should include all those who are *often* in physical contact with risk groups through their profession. This also includes support staff in healthcare institutions and carers.

During a severe pandemic process, it may be necessary to prioritise people in groups that to ensure that critical infrastructure and services in Norway continue to function. It is challenging to promote good inclusion and exclusion criteria for such critical societal functions. Accordingly, the ethics advisory group proposes that existing overviews of critical societal functions be assessed in accordance with the immunisation programme's five goals and that people with occupations that will directly affect the risk of death and severe illness in society be assessed for prioritisation.

**The ethics advisory group currently recommends that healthcare personnel and people in critical societal functions are given priority, following an assessment of the infection burden.**

### 5.3 Dynamic prioritisation

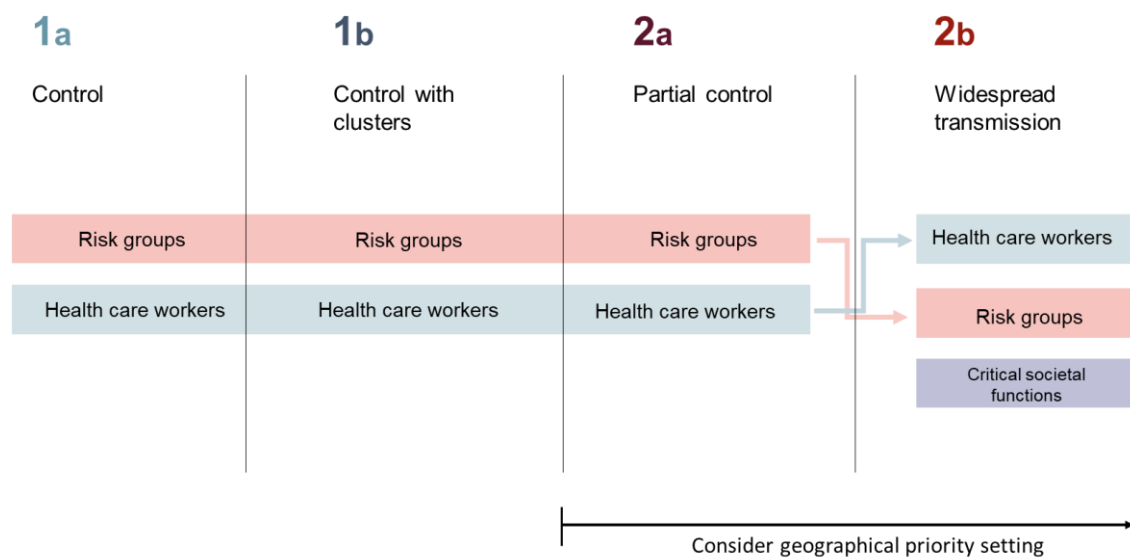
It is important to note that not all groups are equally relevant in all phases of the pandemic. In other words, the pandemic scenario and the order of priority must be seen in context. The government's long-term strategy for the COVID-19 pandemic proposes various scenarios that adapt recommended measures. The purpose is that only necessary measures are introduced, and that the burden of measures is kept as high as necessary but as low as possible (ref. Figure 2).



**Figure 2.** This figure shows four different scenarios for the COVID-19 pandemic. In scenario 1a, the pandemic is under control and these are only mild infection control measures. However, in scenario 2b, measures are proposed that involve closure of society.

The ethics advisory group recommends that the vaccination strategy, including the prioritisation order, should be adjusted in line with the pandemic (read: dynamic prioritisation). Such a dynamic prioritisation scheme accounts for the course of the pandemic, the properties of the vaccines, and the infection situation in Norway. The priority order should be adapted to each individual scenario. (The last scenario, scenario 3, is considered unlikely in Norway as of 6 November 2020 and is not evaluated in this report).

In scenarios 1a – 2a, where there is lower infection burden, the NIPH will first and foremost recommend vaccination to risk groups. In addition, priority will be given to health personnel who have close contact with risk groups. The reason is that healthcare personnel pose a risk of transmission for their own patients in risk groups. In the event of higher infection burden, including scenario 2b (and possibly 3), the order of priority should be changed. The higher the infection burden, the greater the risk that critical societal functions will experience problems. In the event of a widespread transmission, critical societal functions should be included as a third priority group. In scenario 2b, healthcare personnel should be given first priority. This is because a situation with widespread transmission (i.e., 2b) could lead to capacity problems for the health service, which, in turn, can affect the entire population. See Figure 3 below for a summary of the priority groups in line with the various pandemic scenarios.



**Figure 3.** Dynamic prioritisation by scenarios

This figure illustrates the ethics advisory group's proposals for dynamic vaccine prioritisation. During the first three scenarios, risk groups and health personnel should be given priority. However, if Norway were to be in scenario 2b at the beginning of the Coronavirus Immunisation Programme, then health personnel should be ranked above risk groups, and critical societal functions should be included as a third priority group.

## 6 Conclusion

The primary aim of this ethics advisory report has been to establish clear goals for what the Coronavirus Immunisation Programme should achieve, as well as to recommend which groups should have priority in the first phase of the programme. The ethics advisory group proceeded from values, to goals, to main categories for priorities. The following five values were adopted as the core values to guide prioritisation considered: equal respect, welfare, equity, trust and legitimacy. Five goals, ranked by order of importance, were then proposed: 1) Reduce the risk of death. 2) Reduce the risk of severe illness. 3) Maintain essential services and critical infrastructure. 4) Protect employment and the economy. 5) re-open society. In summary, this resulted in three main priority categories, namely risk factors for severe illness and death, the infection situation and occupation. The ethics advisory group has built upon dynamic health priorities and recommends that I. risk groups and II. healthcare personnel should be given priority in pandemic scenarios 1–2a, and that in the event of widespread transmission (scenario 2b–), the priority should be I. health personnel, II. risk groups and III. critical societal functions. These priority groups are in line with the values, goals and categories proposed by the ethics advisory group in this document. This is a preliminary recommendation for coronavirus vaccine priorities in Norway, and the ethics advisory group has taken into account that the recommendation may have to be changed if the knowledge base changes.

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## Appendix 1

**Table of priority groups for vaccination for pandemic influenza in Norway**

Prioritet	Målgruppe
1	Smitteeksponert personell i helsejenseten
2	Personer med økt risiko for komplikasjoner
3	Barn i alder 6–24 måneder
4	Gravide
5	Personell i kritiske samfunnsfunksjoner («nøkkelpersonell») etter en nærmere vurdering av situasjonen
6	Annet helse- og omsorgspersonell med pasientkontakt
7	Frivillige pleiere innen pleie- og omsorgstjenesten og andre med pasientkontakt
8	Barn i barnehage og barnehagepersonale
9	Barn i grunnskolen og skolens personale, inklusive skolefritidsordning
10	Sjåførere og andre med kundekontakt i kollektivtransport
11	Personell i servicenæring med stor publikumskontakt
12	Alle andre

**Table 1.** This table shows a ranking of priority groups for vaccination of pandemic influenza in Norway. We see that infection-exposed personnel in the health service are ranked at the top, followed by people with an increased risk of complications, children aged 6–24 months, and pregnant women (NIPH 2020).

## Appendix 2

**Table of preliminary recommendations for priority groups from other countries**

Belgium	Estonia	France	Germany	Luxembourg	Poland	Sweden	UK
<ul style="list-style-type: none"> <li>• Health care workers</li> <li>• Persons &gt;65</li> <li>• Persons 45-65 with underlying medical condition</li> </ul>	<ul style="list-style-type: none"> <li>• Health care workers</li> <li>• Social workers</li> <li>• Persons with underlying medical conditions</li> <li>• Persons &gt; 65</li> </ul>	<ul style="list-style-type: none"> <li>• Health care workers</li> <li>• Social workers</li> <li>• Persons &gt; 65</li> <li>• Persons with underlying medical conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Persons with underlying medical conditions</li> <li>• Persons &gt; 65</li> <li>• Health care workers</li> <li>• Persons in critical societal functions</li> </ul>	<ul style="list-style-type: none"> <li>• Persons &gt; 65</li> <li>• Health care workers</li> <li>• Vulnerable groups</li> </ul>	<ul style="list-style-type: none"> <li>• Health care workers</li> <li>• Social workers with close contact to risk groups</li> </ul>	<ul style="list-style-type: none"> <li>• Persons &gt; 70</li> <li>• Risk groups for severe disease</li> <li>• Health care workers</li> </ul>	<ul style="list-style-type: none"> <li>• Care home residents</li> <li>• Persons &gt; 80</li> <li>• Persons &gt; 75</li> <li>• Persons &gt; 70</li> <li>• Persons &gt; 65</li> <li>• High and moderate risk groups &lt;65</li> <li>• Persons &gt;60</li> <li>• Persons &gt; 55</li> <li>• Persons &gt; 50</li> <li>• Remaining population</li> </ul>

**Table 2.** This table summarises preliminary recommendations (as of 11 November 2020) on priority groups for coronavirus vaccination for Belgium, Estonia, France, Germany, Luxembourg, Poland, Sweden and the UK, respectively. (ECDC 2020; Deutscher Ethikrat 2020; GOV. UK 2020; Folkehelsemyndigheten 2020). The ordering of groups does not necessarily represent a prioritisation.RC

## Appendix 3

### Objectives in the national contingency plan for a pandemic

The Norwegian national contingency plan for a pandemic sets the following three overall goals for vaccine prioritisation:

- Prevent infection and reduce morbidity and mortality
- Treat the sick and dying, both at home and in nursing homes
- Maintain necessary and essential healthcare services across all sectors (HOD 2019, 40).

These three objectives are in line with other countries' pandemic plans.<sup>10</sup>

## Appendix 4

Different goals in Norwegian documents Different goals that are pending in other pandemic plans are:

- Minimise mortality
- Minimise morbidity
- Limit social disruption

<sup>10</sup> See, e.g., USA (CDC 2018); Sweden (Folkehelsemyndigheten 2019); and Germany (Robert Koch Institut 2020).



- Maintain the healthcare system
- Protect the infrastructure
- Limit financial losses

(Folkehelsemyndigheten 2019, 2020, HOD 2019, Robert Koch Institut 2020, WHO 2004).

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