TECHNICAL REPORT

Overview of the implementation of COVID-19 vaccination strategies and deployment plans in the EU/EEA

6 May 2021

Key messages

This report provides an updated overview of the progress of national COVID-19 vaccination strategies in EU/EEA countries, including updates on:

- overall vaccine uptake and uptake by target group;
- current vaccination phases and priority groups, including adjustments made to priority groups during the rollout;
- vaccination strategies and policies;
- use of vaccination certificates;
- challenges and good practice with the rollout.

Vaccine COVID-19 rollout overview

- As of 2 May 2021, a total of 187 490 581 COVID-19 vaccine doses have been distributed by manufacturers to European Union/European Economic Area (EU/EEA) countries, including over 34 million in the last week. Comirnaty (BNT162b2) developed by BioNTech/Pfizer represents 65.6% of all doses distributed to EU/EEA countries via the European Commission's Vaccine Strategy, followed by Vaxzevria (AZD1222) previously COVID-19 Vaccine AstraZeneca (23.8%), COVID-19 Vaccine Moderna (8.9%) and COVID-19 Vaccine Janssen (1.1%).
- A total of 153 770 592 vaccine doses have been administered, which represents 82% of the doses distributed to countries since the beginning of the rollout. Overall, the proportion of vaccine doses administered out of those distributed is 90.3% for Comirnaty, 67.9% for Vaxzevria, 69.1% for COVID-19 Vaccine Moderna, and 22.7% for COVID-19 Vaccine Janssen.
- Since the start of COVID-19 vaccine deployment in the EU/EEA in December 2020, the cumulative vaccine uptake in the adult population (aged 18 years and older) in the EU/EEA has progressed, reaching 30% for at least one vaccine dose (range: 10.6–50.5%) and 11.6% for the full vaccination course (range: 2.5-25.8%).
- In people aged 80 years and above, the median vaccine uptake was 78% (range: 10.1-100%) for at least one dose and 56.1% (range: 2.4–97.8%) for the full vaccination course (24 countries reporting). Seven countries have administered the full vaccination course to more than 80% of the population aged 80 years and above.
- In healthcare workers (HCW), the median vaccine uptake was 80.2% (range: 20.4–100%) for at least one dose and 53.7% (range: 17.2–100%) for the full vaccination course (16 countries reporting). Eight countries administered at least one vaccine dose to more than 80% of healthcare workers.

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Priority groups defined for vaccination

- Vaccinations continue to be rolled out in phases through various priority groups. As of 27 April 2021, two countries are still in their first phase, while 22 countries have progressed to groups in subsequent phases (out of 24 countries that responded to this question).
- Countries have primarily prioritised elderly people (with various lower age cut-offs across countries), residents and personnel of long-term care facilities, healthcare workers, social care personnel, and people with certain comorbidities. Countries are currently continuing vaccination of these groups and progressing to vaccination of younger age groups and essential workers critical to societal infrastructure.
- Twelve countries have already fully vaccinated at least one priority group, such as healthcare workers, residents and/or personnel in LTCFs, elderly people (with various lower age cut-offs across countries) or adults with co-morbidities.
- Sixteen countries have further adapted the prioritised groups to be vaccinated, including additional age groups, healthcare workers in different settings, educational workers, and other groups with high risk of severe disease.

Vaccination strategies and policies during rollout

- Sixteen countries have extended the timing between vaccine doses to provide the first dose to as many people in the priority groups as possible. The timing between the first and second dose varies by country and by vaccine product.
- For individuals previously infected with SARS-CoV-2, nine countries currently recommend only one dose (for vaccines that have a two-dose schedule).
- Seventeen countries recommend specific COVID-19 vaccine products for specific population groups.
- Four countries reported that they have adapted their COVID-19 vaccination strategy due to the circulation of new variants of concern. Adjustments included providing more vaccine doses to areas of high incidence or a redefinition of the priority groups based on the epidemiological situation.
- Fourteen countries have changed their vaccination guidelines regarding suspected adverse events following immunisation, an additional six countries since the previous report. Following the conclusion from the European Medicines Agency's Pharmacovigilance Risk Assessment Committee (PRAC) that thromboembolic events associated with thrombocytopenia are very rare side effects of Vaxzevria, a number of countries have restricted the vaccine to certain older age groups and Denmark and Norway have made the decision to suspend the use of Vaxzevria in their vaccination campaigns.
- Nine countries answered that they do offer vaccination to certain individuals/target groups who reside outside of the country but come to work within the country such as transnational workers in LTCFs, health facilities or other essential services and all responding countries answered that vaccination will be accessible to any European citizen in the country but may include certain conditions.

Vaccination certificates

- The majority of responding countries are issuing COVID-19 vaccination certificates, and many have started discussions regarding the possible use of these certificates in the future, for example for travel, tourism, the easing of non-pharmaceutical interventions, or access to specific places/events.

Challenges and good practices

- The majority of countries (19/22, 86%) reported that limited vaccine supply is the main challenge they face with the rollout of vaccines.
- Some countries shared lessons learned so far in the vaccination rollout such as establishing mass vaccination centres in cooperation with municipalities to ensure faster and effective vaccine roll-out, using, and optimising waiting lists for reduced wastage of doses and using pedagogical communication.

As countries continue with the rollout of their national vaccination campaigns, strategies and plans will continue to be adapted. This is a rapidly moving process, and this report provides a snapshot of the progress to date.

Scope of this document

On 19 January 2020, the European Commission set out actions to step up the response against the pandemic and accelerate the rollout of vaccination campaigns, with the targets of vaccinating at least 80% of people over the age of 80 years, and 80% of health and social care professionals in every Member State by March 2021. In addition, a minimum of 70% of the adult population should be vaccinated by the summer of 2021 [1].

ECDC has previously published technical reports on vaccination strategies and vaccine deployment across EU/EEA countries, on 2 December 2020 [2], 1 February 2021 [3] and 29 March 2021 [4]. This technical report provides an updated overview of the progress of national COVID-19 vaccination strategies in EU/EEA countries, including updates on: vaccine uptake overall and by target group; current vaccination phases and priority groups, as well as any adjustments made to priority groups during the rollout; vaccination strategies and policies in place; and the use of vaccination certificates and challenges countries face with the rollout and good practices to mitigate these challenges.

Target audience

Target audiences for this document are the European Commission, the Health Security Committee (HSC), the EU/EEA National Immunisation Technical Advisory Groups (NITAGs) collaboration and national public health institutes and ministries of health in the EU/EEA, as well as public health experts and decision-makers at subnational level in charge of implementing vaccine deployment plans.

Methods

The information provided in this report was collected from the following sources:

The Integrated Situational Awareness and Analysis report

Questions on vaccines are sent by the European Commission to EU/EEA countries via the Integrated Situational Awareness and Analysis (ISAA) report. The ISAA report is prepared under the Integrated Political Crisis Response Mechanism (IPCR) of the Council of the European Union [5,6].

- Since 9 December 2020, a weekly set of questions has been sent via the ISAA report to representatives of countries, as validating authorities of the IPCR, to gather regular information on various topics around COVID-19. One section of these questions covers vaccination strategies and deployment. The representatives of countries gather the responses to the questions from different agencies and ministries in their countries.
- This report is based on the responses from countries to the vaccine-related questions received on 29 March 2021, 12 April 2021, 19 April 2021, and 26 April 2021.The response rate from countries to each question is specified in the sections below.

Data from The European Surveillance System

ECDC, in conjunction with the World Health Organization's Regional Office for Europe , has implemented a monitoring system to collect information on vaccine rollout (the number of doses distributed to EU/EEA countries and administered, including by age groups and other prioritised populations) since mid-January 2021. EU/EEA countries have been reporting data on the COVID-19 vaccine rollout through The European Surveillance System (TESSy), which can be viewed on the COVID-19 vaccine tracker [7] on ECDC's website, as well as the weekly report on the COVID-19 vaccine rollout overview [8].

Information on Vaxzevria policies

Current recommendations on the use of Vaxzevria was provided by the EU/EEA National Immunisation Technical Advisory Group (NITAG) collaboration members, upon request from ECDC, on 19 April 2021. Further information was provided at a follow-up EU/EEA NITAG collaboration webinar on 15 April 2021. Additional details about recommendations were gathered through a review of public sources.

On 28 April 2021, a draft version of this report was sent to the EU Health Security Committee Members for verification and validation, and to complement any missing information.

Results

COVID-19 vaccine rollout overview

By January 2021, all 30 EU/EEA countries had started COVID-19 vaccination campaigns [3] and different COVID-19 vaccine products have been gradually introduced as they became available through the EU Coronavirus Vaccines Strategy. The Annex presents an overview of COVID-19 vaccines currently being rolled out in EU/EEA countries and the dates of their first administration.

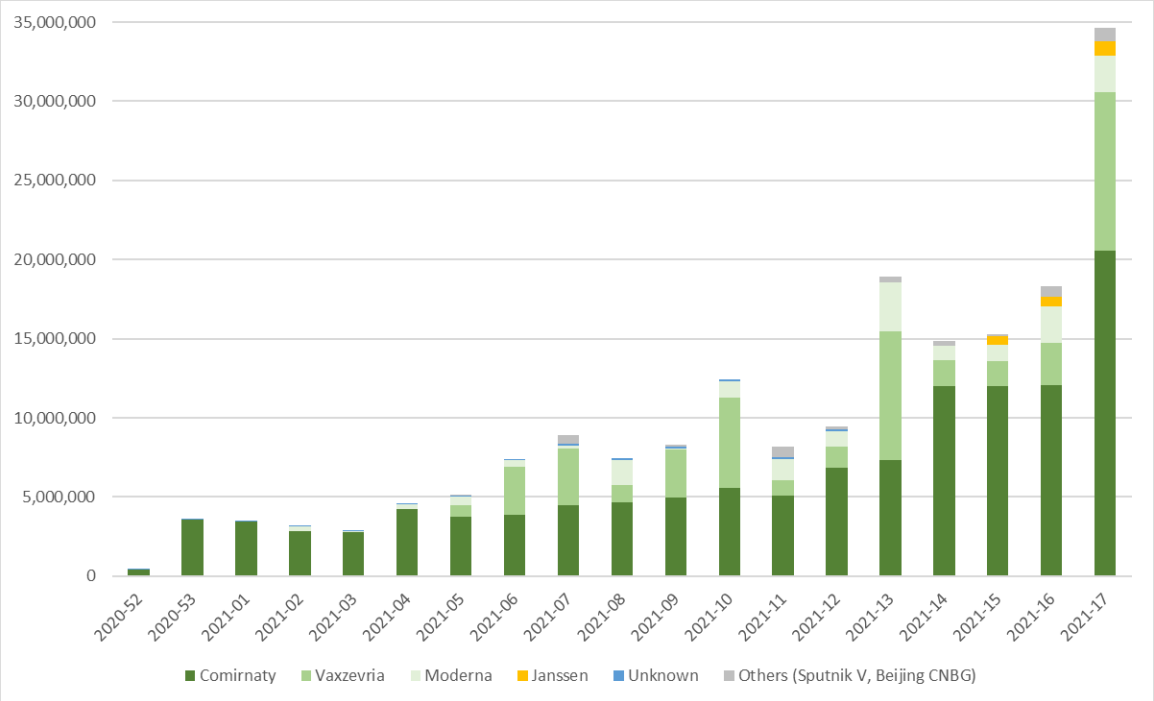
Currently, four COVID-19 vaccines have received conditional marketing authorisation in the EU [9], following evaluation by EMA, and are part of the EU Coronavirus Vaccines Strategy Portfolio: Comirnaty (BNT162b2) developed by BioNTech/Pfizer, COVID-19 Vaccine Moderna (mRNA-1273), Vaxzevria (AZD1222) previously COVID-19 Vaccine AstraZeneca, and COVID-19 Vaccine Janssen (Ad26.COV 2.5). Rolling reviews for additional COVID-19 vaccines are ongoing: NVX-CoV2373 by Novavax (started 03 February 2021), CVnCoV by Curevac (started 12 February 2021), and Sputnik V (Gam-COVID-Vac) by Gamaleya (started 4 March 2021)[10-12].

All EU/EEA countries have received and are using Comirnaty, COVID-19 Vaccine Moderna and Vaxzevria, except for Liechtenstein, where only the first two products are being used. By week 17, 2021 (2 May 2021), supplies of COVID-19 Vaccine Janssen have also been distributed to 24 EU/EEA countries. In addition, Hungary has received supplies of Sputnik V by Gamaleya and Inactivated Beijing CNBG by Sinopharm through bilateral negotiations with the manufacturers.

As of 2 May 2021, a total of 187 490 581 vaccine doses have been distributed by manufacturers to EU/EEA countries, including 34 653 592 in the last week (29 countries reporting; data for Malta not reported to TESSy).

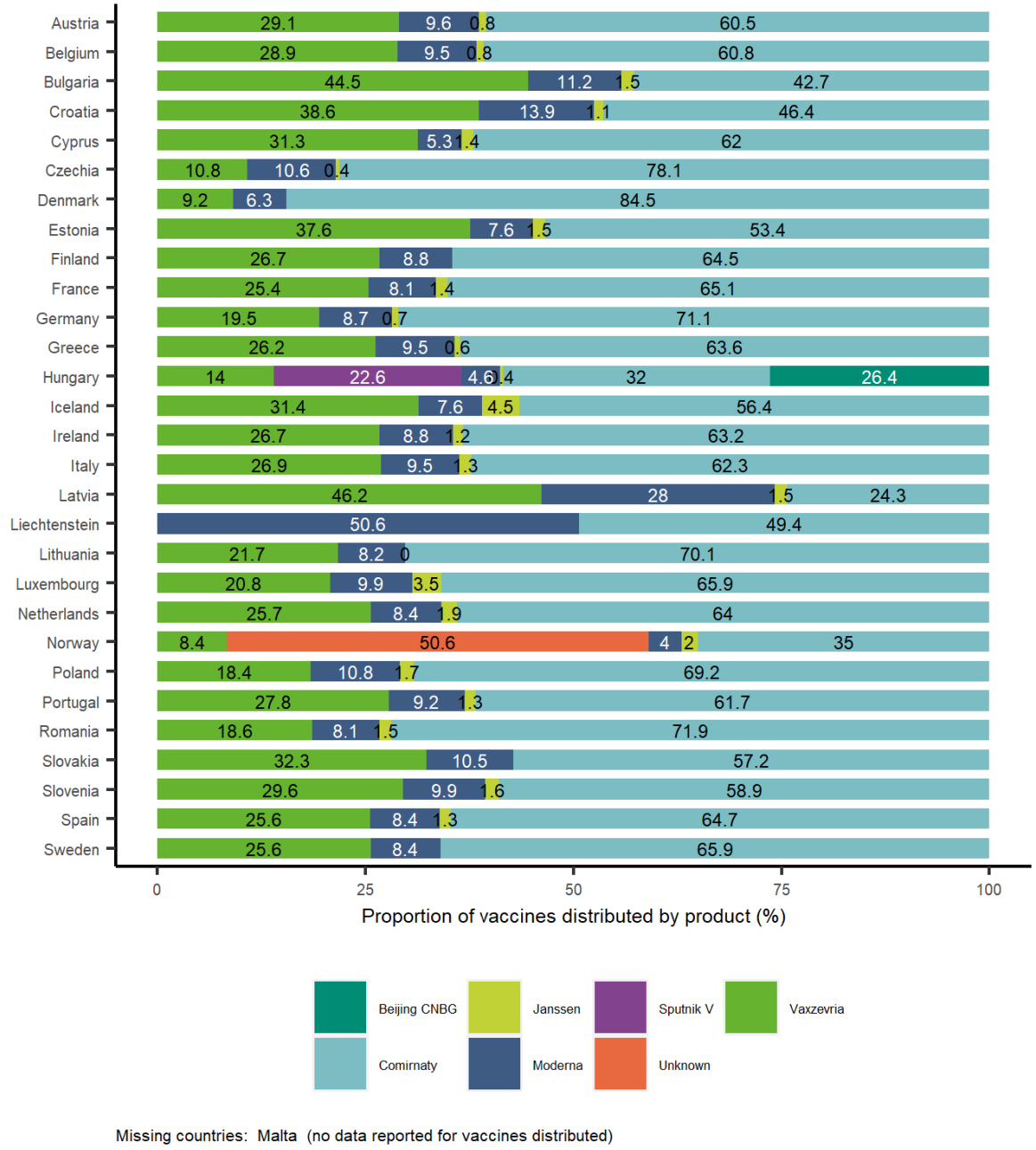
Figure 1 shows the weekly number of vaccine doses distributed by manufacturers to EU/EEA countries by vaccine product since the beginning of the rollout and as of 2 May 2021. Overall, Comirnaty represents 65.6% of all doses distributed to EU/EEA countries via the European Commission's Vaccine Strategy, followed by Vaxzevria (23.8%), COVID-19 Moderna (8.9%) and Janssen (1.1%); 1 056 885 vaccine doses distributed to Norway are reported to TESSy as an unspecified product (0.6%). Sputnik V and Inactivated Beijing CNBG were only supplied to Hungary. Figure 2 shows the proportion of vaccine doses distributed by manufacturers to each EU/EEA country by vaccine product as of 2 May 2021.

Figure 1. Weekly number of COVID-19 vaccine doses by product, distributed by manufacturers to EU/EEA countries *



Source: TESSy; data reported by 29 countries as of 2 May 2021 (missing Malta).

Figure 2. Proportions of COVID-19 vaccine doses by product, distributed by the manufacturers to EU/EEA countries *

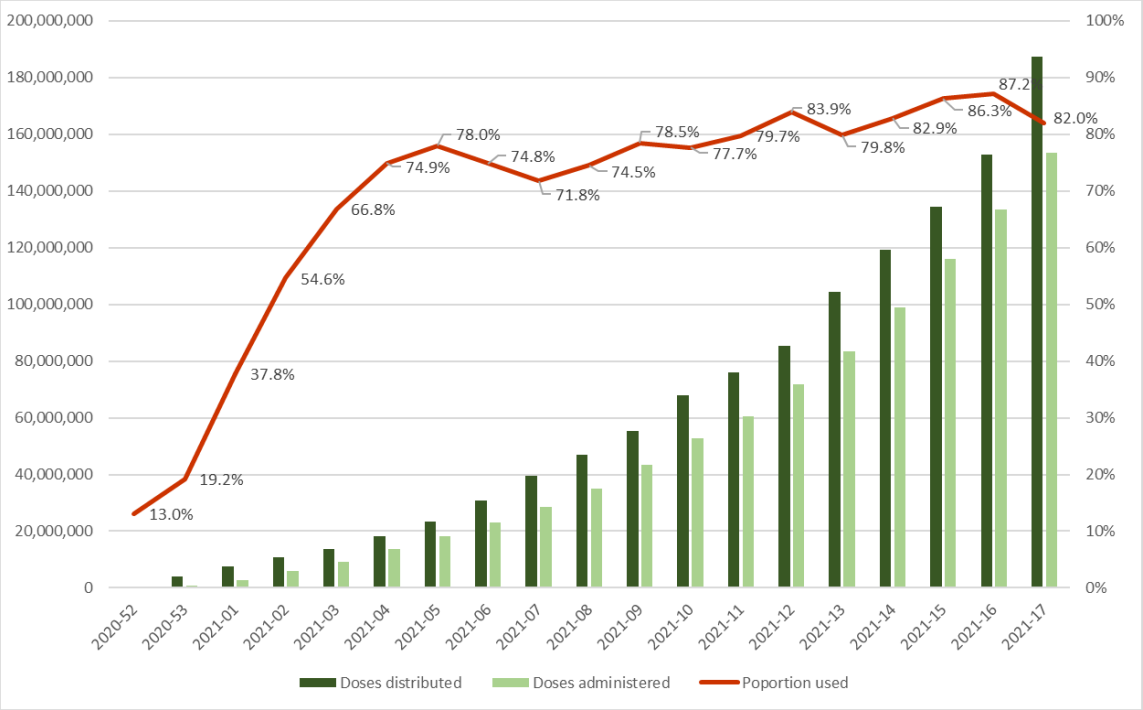


Missing countries: Malta (no data reported for vaccines distributed)

**Source: TESSy; data reported by 29 countries as of 2 May 2021.*

As of 2 May 2021, a total of 153 770 592 vaccine doses have been administered to adults aged 18 years and above in all EU/EEA countries, which represents 82% of the doses cumulatively distributed to countries since the beginning of the rollout. Overall, the proportion of vaccine doses administered out of those distributed to EU/EEA countries is 90.3% for Comirnaty, 67.9% for Vaxzevria, 69.1% for COVID-19 Vaccine Moderna, and 22.7% for Janssen. Figure 3 shows the cumulative number of doses distributed to EU/EEA countries, administered and the proportion of doses used by week.

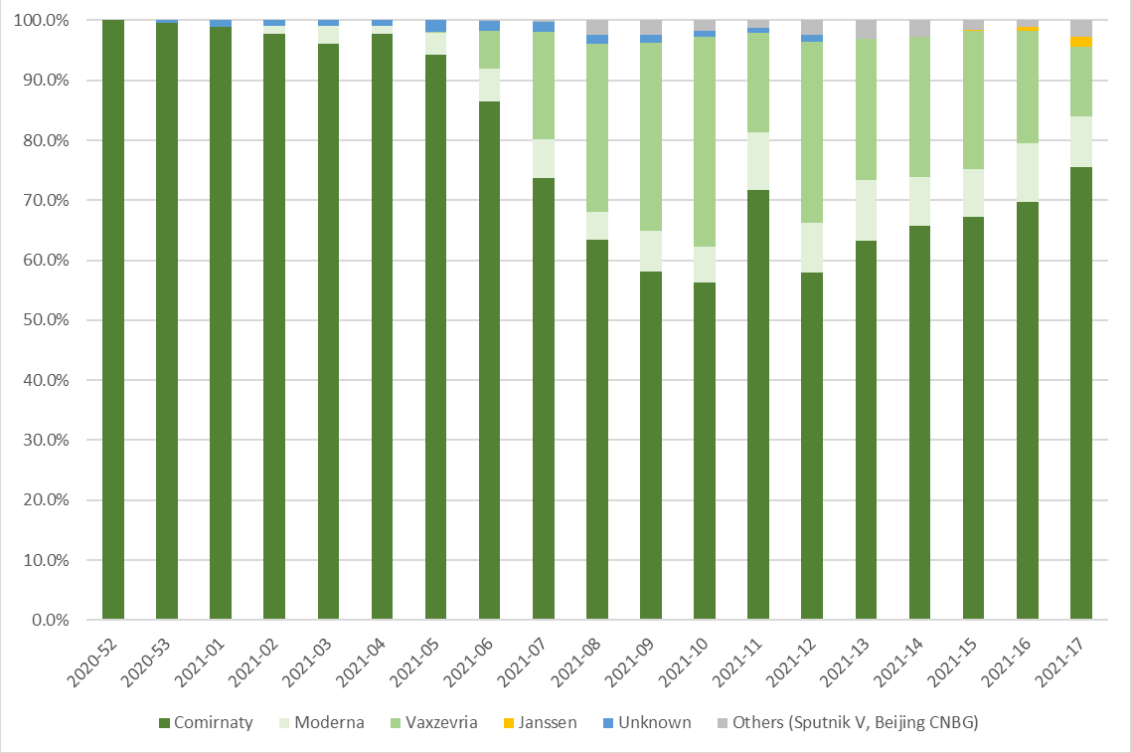
Figure 3. COVID-19 vaccine doses distributed, administered and proportion used in EU/EEA countries*



**Source: TESSy; data reported by 29 countries as of 2 May 2021 (Malta not included due to missing data on doses distributed to the country).*

Overall, Comirnaty represents 70.7% of all doses administered in EU/EEA countries, followed by Vaxzevria (19.3%), COVID-19 Moderna (7.4%) and Janssen (0.3%); 1.8% others (Sputnik V and Inactivated Beijing CNBG) and 0.5% unknown vaccine products. Figure 4 shows the proportion of vaccine doses administered in EU/EEA countries by vaccine product per week as of 2 May 2021.

Figure 4. Proportion of COVID-19 vaccine doses administered in EU/EEA countries by vaccine product per week*

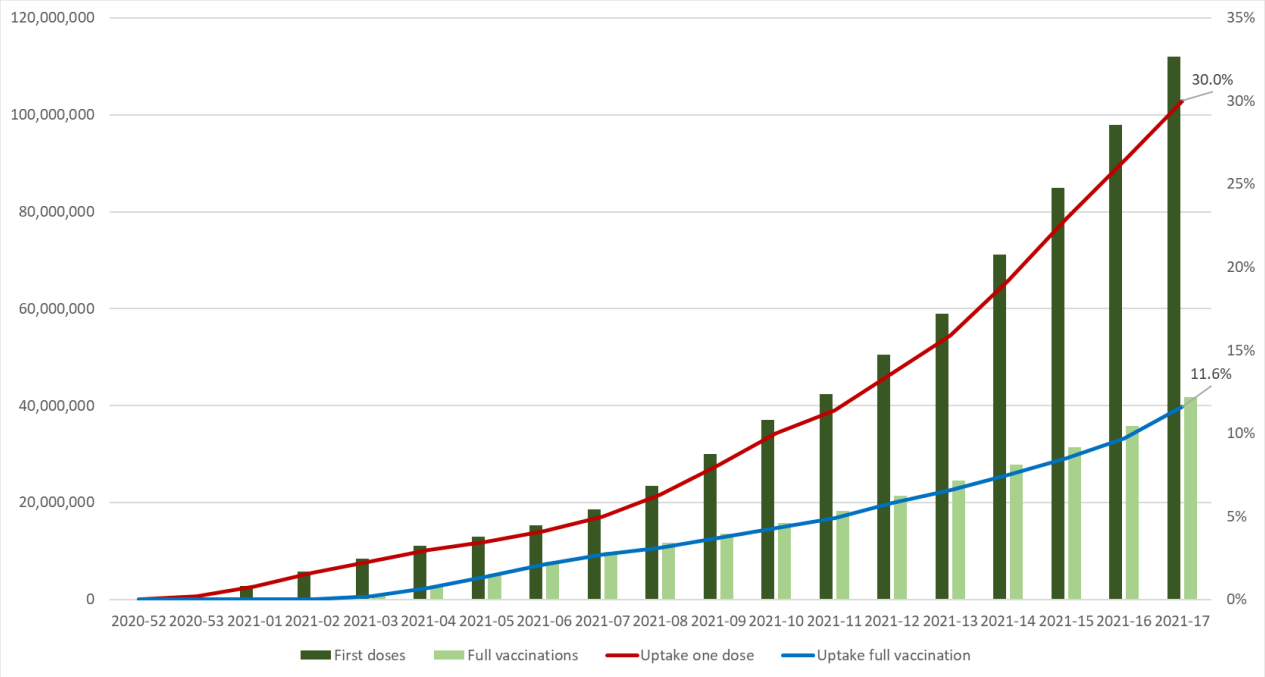


**Source: TESSy; data reported by 30 countries as of 2 May 2021.*

Since the start of the rollout of COVID-19 vaccination campaigns in the EU/EEA in December 2020 and as of 2 May 2021, the cumulative vaccine uptake in the adult population (aged 18 years and older) has reached 30% for at least one vaccine dose (range: 10.6-50.5%) and 11.6% for the full vaccination course (range: 2.5-25.8%) (Figure 5).

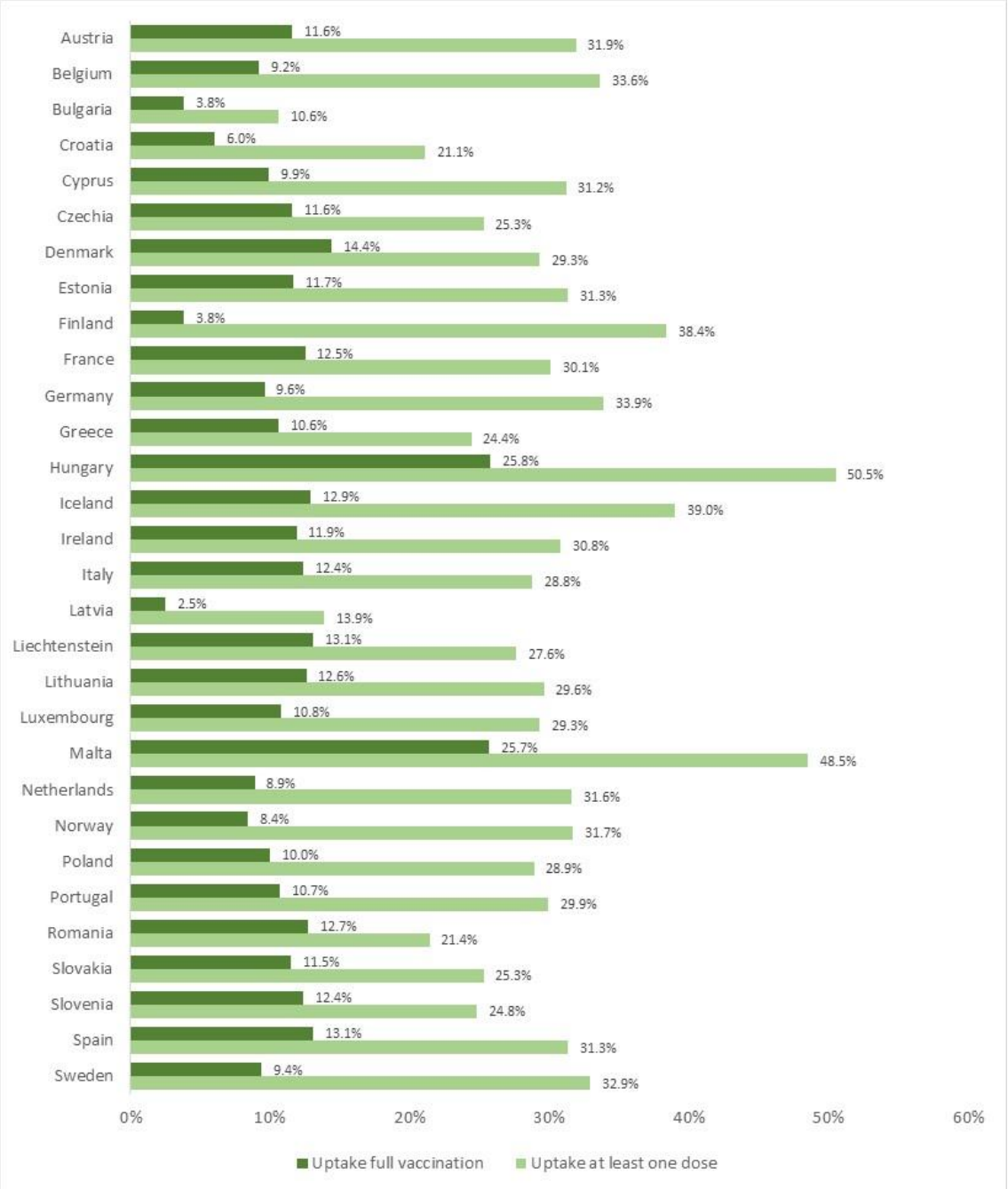
The cumulative uptake of the first vaccine dose and full vaccination in the adult population (18+) in each EU/EEA country as of 2 May 2021 is shown in Figure 6.

Figure 5. Cumulative uptake of the first vaccine dose and full vaccination among adults aged 18 years and above in the EU/EEA by reporting week*



Source: TESSy; data reported by 30 countries as of 2 May 2021.

Figure 6. Cumulative uptake of the first vaccine dose and full vaccination among adults aged 18 years and above by EU/EEA country*



**Source: TESSy; data as of 2 May 2021.*

As of 2 May 2021, the median vaccine uptake among people aged 80 years and above was 78% (range: 10.1-100%) for at least one dose and 56.1% (range: 2.4–97.8%) for the full vaccination course (24 countries reporting). Eleven countries (Belgium, Denmark, Finland, Iceland, Ireland, Italy, Malta, Norway, Portugal, Spain and Sweden) administered at least one vaccine dose to more than 80% of the population aged 80 years and above, while seven (Denmark, Iceland, Ireland, Malta, Norway, Portugal and Spain) also administered a full vaccination course to more than 80% of this target population.

Among healthcare workers (HCW), as of 2 May 2021, the median vaccine uptake was 80.2% (range: 20.4–100%) for at least one dose and 53.7% (range: 17.2–100%) for the full vaccination course (16 countries reporting). Eight countries (Czechia, France, Hungary, Iceland, Ireland, Latvia, Romania and Spain) administered at least one vaccine dose to more than 80% of healthcare workers, while only two countries (Hungary and Romania) also administered a full vaccination course to more than 80% in this target group.

Table 1 shows a summary of the cumulative uptake of at least one vaccine dose and full vaccination in adults (18+), people aged 80 years and above and healthcare workers (EU/EEA median and range). More information on the COVID-19 vaccine rollout in EU/EEA countries can be found on the ECDC Vaccine Tracker [7] and in the weekly COVID-19 vaccine rollout overview [8].

Table 1. Summary table of vaccine uptake by target populations

Vaccine uptake	Median (range)	Reporting countries
At least one dose among adults (18+ years)	30% (range: 10.6-50.5%)	All 30 EU/EEA countries
Full vaccination among adults (18+ years)	11.6% (range: 2.5-25.8%)	All 30 EU/EEA countries
At least one dose among people 80+ years	78% (range: 10.1–100%)	24 (Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Slovenia, Spain, Sweden)
Full vaccination among people 80+ years	56.1% (range: 2.4–97.8%)	24 (Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Slovenia, Spain, Sweden)
At least one dose among healthcare workers (HCW)	80.2% (range: 20.4–100%)	16 (Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Romania, Slovenia, Spain, Sweden)
Full vaccination among HCW	53.7% (range: 17.2–100%)	16 (Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Romania, Slovenia, Spain, Sweden)

**Source: TESSy; data as of 2 May 2021.*

Priority groups defined for vaccination

Due to the limited availability of COVID-19 vaccines at the start of vaccination campaigns, most countries opted to prioritise vaccination for those individuals most at risk of severe disease (e.g. the elderly and residents in long-term care facilities (LTCFs), as well as healthcare workers. Vaccination phases differ by country, with a range of two to 16 different phases (Table 2), depending on their specific prioritisation strategies and vaccine availability.

This section of the report focuses on population groups that are being offered vaccination in the current stage of the rollout. As more vaccines become available, countries can start vaccinating additional groups, such as younger individuals or workers of essential public services other than healthcare.

Table 2. Number of phases to vaccinate prioritised groups in EU/EEA countries (n=30)*#

Number of phases to vaccinate prioritised target groups	Countries
Two	Italy, Portugal
Three	Austria, Belgium, Croatia, Czechia, Greece, Poland, Romania, Spain
Four	Finland, Germany, Latvia, Malta, the Netherlands, Sweden
Five	Estonia, France, Slovenia
Six	Cyprus, Luxembourg
Other	Denmark (12 phases), Hungary (seven phases), Iceland (10 phases), Ireland (15 phases), Latvia (eight phases), Lithuania (16 phases), Norway (nine phases), Slovakia (11 phases), Slovenia (seven phases)

** Information gathered from ISAA reports between 9 February and 29 March 2021; information received from HSC and NITAG members on 28 January 2021*
 # Several countries provided detailed information on the description of different vaccination phases:
***Belgium:** Phase 1A: started on 5 January 2021, involves residents and staff in nursing homes and has been completed by all healthcare workers. Phase 1B: begins in March and will address people aged 65 years and older, people aged 45 years and older at risk, and those fulfilling so-called 'essential' social or economic functions. Phase 2 will take place in May or June and will involve the adult population 18 years and older.*
***Croatia:** Phase 1: elderly and staff in long-term care facilities, healthcare workers, primarily those working with COVID-19 patients (ICU, testing-sites). Phase 2: elderly age range > 65 years and adults with chronic diseases, age range < 65. Phase 3: others.*
***Czechia:** 3 phases (Phase IA, IB, and II). In Phase II, vaccines should already be available to the general public.*

Cyprus: *Phase 1: since 27 December 2020, residents and staff of LTCFs and healthcare workers. Phase 2: since 26 January 2021, people > 80 years old (priority in vulnerable groups); the age limit is lowered at regular intervals. Phase 3: since 16 February 2021, people > 75 years old (priority in vulnerable groups). Phase 4: since the end of February 2021, people ≥ 16 years with high risk for severe disease. Phase 5: since the end of February 2021, people working in primary healthcare centres, followed by other health professionals/personnel, and residents in other closed structures, such as prisons and hosting centres for refugees and migrants. Phase 6: the rest of the population according to age.*
Estonia: *Phase 1 (since 27 December 2020): healthcare workers and people working in healthcare institutions; Phase 2 (since January 2021): residents and staff of LTCF; Phase 3 (since end of January 2021): the elderly and risk groups; Phase 4 (started in mid-February 2021 due to Vaxzevria´s preliminary use-recommendation, continued on a small scale and depending on available vaccine quantities and recommendations for different vaccines): front-line and essential services providers; Phase 5 (since May 2021): the rest of the population by age-groups. The phases are overlapping in most cases and depend mostly on available vaccine quantities and recommendations.*
Germany: *Four phases: Three phases with priority groups (very high, high, moderate), followed by the remaining population (not listed in group 1-3).*
Italy: *Phase 1: healthcare workers and socio-healthcare workers, residents and staff of long-term facilities for the elderly; elderly > 80. Phase 2 (with six categories of prioritisation): extremely vulnerable people; people aged between 75 and 79 years; people aged between 70 and 74 years; people with increased clinical risk if infected by SARS-CoV-2 aged 16-69 years; people aged 55-69 years; people aged 18-54 years. Vaxzevria can be administered to school and university staff, to members of the army and police, in at-risk settings such as prisons, specific communities, and to people working in essential services.*
Iceland: *The population is divided into 10 priority groups. For information on priority groups see: https://www.covid.is/covid-19-vaccine#w-tabs-0-data-w-pane-1*
Latvia*: The population is divided in eight priority groups.*
The Netherlands*: Phase 1: elderly healthcare staff and people living in elderly care, people with mental disabilities in institutions and their staff; people 60 years of age and older, nurses delivering home-based care. Phase 2: people between 18 and 60 years with certain underlying medical conditions. Phase 3: other healthcare staff. Phase 4: people between 18 and 60 years.*
Spain: *Phase 1: elderly and staff in long-term care facilities, healthcare and social care workers, primarily those working with COVID-19 patients (frontline), non-institutionalized individuals with high level of dependency. Phase 2: elderly age range > 60 years and adults with chronic diseases, age range < 60, essential workers critical to societal infrastructure. Phase 3: others.*

Twenty-four countries replied to the question about indicating their current priority phase (Table 3). Twenty-one of these countries had also replied to the question on 1 March 2021. As of 27 April 2021, nine countries are in the same vaccination phase as on 1 March 2021. Out of these, two countries are in phase 1, four countries are in phase 2, two countries are in phase 3 and one country is in another phase without further specification. Thirteen countries have progressed from the vaccination phase reported on 1 March 2021. This includes three countries that progressed from phase 1 to a higher phase, one country that progressed from phase 2, four countries that progressed from phase 3 to higher phases and five countries that progressed from other phases.

Table 3. Current vaccination phases in EU/EEA countries (n=24)*#

Current vaccination phase	Countries
Phase 1	Belgium (phase 1B), Czechia (phase 1B)
Phase 2	Austria, Croatia, Germany, Portugal, Spain
Phase 3	Finland, the Netherlands, Romania, Sweden
Phase 4	Malta, France
Phase 5	Estonia, Luxembourg, Norway
Other	Denmark (phase 9-10) Iceland (group 2,3,5,6 and 7) Ireland (phase 7) Latvia (phase 6-8) Lithuania Poland (all groups) Slovakia (phase 8) Slovenia (phase 6)

** Information gathered from ISAA reports on 29 March, 12 April, 19 April and 26 April. To consider the current vaccination phase latest information available is displayed in the table.*
 # Several countries provided detailed information on the description of different vaccination phases:
Estonia: *Phase 5 (rest of adult population) is starting in May 2021.*
Germany: *Phase 1 is still ongoing, while phase 2 has already started (as of 22 April 2021)*
Iceland: *Priority groups 2, 3, 5 and 6.*
Latvia: *Phase 6 started on 27 April 2021. Since 3 May 2021 vaccination of the other population groups is in progress.*
Lithuania: *Healthcare workers and patients/staff of long-term care facilities have been fully vaccinated. Vaccination of other priority groups is in process including educational institutions workers. Municipalities started the vaccination of elderly and adults with co-morbidities. Invitations for phase 5 have been sent out.*
The Netherlands: *Phase 1 (People living and working in LTCF, healthcare workers in ICU and acute care) and 2 (people >60 years) are still ongoing, while phase 3 (people with high-risk medical conditions; specified groups of healthcare workers) has started.*
Poland: *From 20 April until 9 May all age groups (adults) are gradually vaccinated.*
Romania: *Phase 3 started on 15 March 2021.*
Sweden: *Phase 2 is still ongoing, while phase 3 has started in all regions.*
Spain: *Phase 1 practically completed, phase 2 very advanced.*

The most common priority groups currently vaccinated in EU/EEA countries are similar to those previously reported (Table 4). All countries are still prioritising the elderly (with various lower age cut-offs across countries). Two countries report having almost fully vaccinated the elderly and, considering that in several countries the cumulative vaccine uptake has increased in older age groups, younger age groups are now also being vaccinated; e.g. Slovakia is now vaccinating people 40 years and older; Estonia and Malta are vaccinating people 50 years and older; Denmark, Iceland, Latvia, the Netherlands, and Spain have extended vaccination to people 60 years and older. Eighteen countries (78%) are still prioritising residents in LTCFs compared with 96% of countries that were prioritising residents in LTCFs in March 2021. Adults with comorbidities are currently being vaccinated in 23 countries (96%) compared with 60% of countries that were prioritising this group in March 2021. Healthcare workers and social care personnel are considered as priority groups in 19 (83%) and 15 (63%) countries, respectively. In 22 countries (96%), other groups, including essential workers critical to societal infrastructure (response and rescue units, police, firefighters, coast guard, border guard), educational workers, people with mental or physical disabilities, socially vulnerable and younger people with high risk of severe COVID-19 are also prioritised for vaccination.

Table 4. Overview of priority groups currently being vaccinated in EU/EEA countries (n=24)*

Countries	Priority groups currently being vaccinated					
	Elderly	Elderly in LTCFs	Adults with co-morbidities	Healthcare workers	Social care personnel	Other risk groups (i.e. workers of essential public services other than healthcare; others)
Austria	Yes (65+)	Yes	Yes (regardless of age)	Yes	Yes	Essential workers critical to societal infrastructure. Educational institutions workers. Close contact persons of pregnant women living in the same household. Selected employees with direct personal contact and increased risk of infection, especially in the police, penal system, federal army.
Belgium	Yes (65+)		Yes			Phase 1B started in March and includes people aged 65 + and those aged 18+ and at risk. The vaccination strategy recommends vaccinating old people by decreasing age categories. In most regions, the category 70-75 is currently invited to be vaccinated, in other regions younger people with comorbidities are already invited.
Croatia	Yes		Yes			Elderly based on age range, in order: 1. people aged 80 and over, 2. people 75 -79 years, 3. people 70–74 years, 4. people 65 - 69 years, Adults with underlying health conditions - age range < 65, with chronic diseases. Emergency services (Red Cross, mountain service, police, firefighters) and citizens in the area affected by the earthquake.
Czechia	Yes	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure. Adults in different age groups.
Denmark	Yes (60+)	Yes	Yes	Yes	Yes	Socially vulnerable groups. Vaccinations rollout based on age groups.
Estonia	Yes (50+)	Yes	Yes	Yes	Yes	Other essential workers critical to societal infrastructure.
Finland	Yes (70+)	Yes	Yes	Yes	Yes	Election officers of the 2021 municipal elections.
France	Yes (55+)	Yes	Yes	Yes	Yes	People aged 55+ and social and healthcare workers at risk are prioritised. People 18+ at high risk of severe COVID-19.
Germany	Yes	Yes	Yes	Yes		
Iceland	Yes (60+)		Yes	Yes		People over 60 years living at home (working downwards from the oldest, 97% of those over 90 years and 95% of people aged 80-89 years have been vaccinated), healthcare workers, staff in care homes.

Countries	Priority groups currently being vaccinated					
	Elderly	Elderly in LTCFs	Adults with co-morbidities	Healthcare workers	Social care personnel	Other risk groups (i.e. workers of essential public services other than healthcare; others)
Ireland	Yes (70+)	Yes	Yes	Yes	Yes	People 16-69 years at very high risk of severe COVID-19 - conditions: cancer, chronic kidney disease, chronic neurological disease or condition, chronic respiratory disease, uncontrolled diabetes, severely immunocompromised, inherited metabolic diseases, Down syndrome, obesity BMI >40 Kg/m2, sickle cell disease.
Latvia	Yes (60+)	Yes	Yes	Yes	Yes	Other staff working in medical treatment institutions. Medical students who come into direct contact with patients in a medical treatment institution during studies; medical practitioners in educational institutions; inspectors of the Health Inspectorate who control the safety of services in social care centres and medical treatment institutions, including vaccination institutions, and also control the activities of pharmacies. After medical indications - patients for whom serious medical manipulations are necessary according to a decision of a physician, including high-cost or high-complexity surgeries. Employees of long-term social care centres (and other service providers having equivalent risks). Adults living with children with chronic health conditions, Adults providing care for persons with serious health conditions. Educational institutions workers. Key government officials. Employees of operational services, including State Police and municipal police officers; Border Guard officers. Employees of the Prisons. Administration/State Probation Service, Employees of the Corruption Prevention and Combating Bureau, The National Armed Forces (including the National Guard), Certain critical employees of different sectors. Persons who stay in special institutions, including the clients of shelters, persons in prisons (from 27 April) Government's decision – starting from 3 May to 'open' vaccination to all people without any priority groups.
Lithuania	Yes (65+)	Yes	Yes	Yes	Yes	Educational institutions workers.
Luxembourg	Yes	Yes	Yes	Yes		Essential workers critical to societal infrastructure. Adults in different age groups.
Malta	Yes (50+)	Yes	Yes			Other essential workers critical to societal infrastructure.
the Netherlands	Yes (60+)	Yes	Yes	Yes	Yes	People over 16 years with high risk of severe illness due to: Down syndrome, morbid obesity (BMI>40), haematological malignancy in past 5 years, (pre)-dialyses, organ transplantation, primary immunodeficiency. inpatients in mental health facilities.
Norway	Yes (65+)		Yes	Yes		Certain groups of healthcare workers. People 18-64 years with conditions leading to a high risk of severe illness.
Poland	Yes	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure. Socially vulnerable groups. Adults in different age groups.

Countries	Priority groups currently being vaccinated					
	Elderly	Elderly in LTCFs	Adults with co-morbidities	Healthcare workers	Social care personnel	Other risk groups (i.e. workers of essential public services other than healthcare; others)
Portugal	Yes		Yes			Essential workers critical to societal infrastructure. Adults in different age groups. People over 16 years with high risk of severe illness.
Romania	Yes	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure. Socially vulnerable groups. Adults in different age groups.
Slovakia	Yes (40+)	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure. Adults in different age groups.
Slovenia	Yes	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure, educational institutions workers, key government officials.
Spain	Yes (60+)	Yes	Yes	Yes	Yes	Essential workers critical to societal infrastructure. Non-institutionalized individuals with a high level of dependency.
Sweden	Yes	Yes	Yes	Yes	Yes	Adults in different age groups.

[*]Information gathered from ISAA reports on 29 March, 12 April, 19 April and 26 April. To consider the current vaccination phase latest information available is displayed in the table.
Note: In Germany, all healthcare workers and personnel working in long-term care facilities are eligible for vaccination even if they live outside Germany.

Seventeen countries replied to the question about fully vaccinated priority groups (Table 5). As of 27 April 2021, thirteen countries report at least one fully vaccinated priority group. Eleven countries reported that healthcare workers have been fully vaccinated. The elderly in LTCFs and personnel in LTCFs have been fully vaccinated in nine countries and in six countries, respectively. Four countries have fully vaccinated elderly people with different age-ranges, while two countries have fully vaccinated adults with co-morbidities and social care personnel, respectively. Six countries have fully vaccinated other priority groups, e.g. essential workers critical to societal infrastructure, LTCF residents with intellectual disabilities and people in home care.

Fully vaccinated does not necessarily mean that 100% of the respective groups have been vaccinated. Even fully vaccinated groups can include certain individuals who have not been vaccinated such as people who refused vaccination or people who are not eligible for vaccination due to risk factors. Some countries have added further explanations (e.g. in percentage to define the number of vaccinated persons within one group). To reflect the full picture, we show fully vaccinated groups as reported by the countries and add further explanations where available.

Table 5. Fully vaccinated priority groups in EU/EEA countries (n=17)[*#]

Countries	Priority groups fully vaccinated (including comments provided by countries)						
	Elderly	Elderly in LTCFs	Adults with co-morbidities	Healthcare workers	Personnel in LTCFs	Social care personnel	Other risk groups (i.e. workers of essential public services other than healthcare; others)
Austria		Yes		Yes (HCW in highly exposed settings).	Yes		
Croatia				Yes (72% of all HCW).			
Denmark	Yes (80+)	Yes	Yes	Yes (almost fully vaccinated).			
Estonia		Yes		Yes	Yes		
Finland		Yes		Yes (critical HCW).	Yes		Yes (essential workers critical to societal infrastructure).

Countries	Priority groups fully vaccinated (including comments provided by countries)						
	Elderly	Elderly in LTCFs	Adults with co-morbidities	Healthcare workers	Personnel in LTCFs	Social care personnel	Other risk groups (i.e. workers of essential public services other than healthcare; others)
Iceland				Yes (HCW in COVID-19 wards, ICU and emergency rooms).			Yes (ambulance staff, paramedics, employees of the coast guard, fire brigade employees, prison guards, call-out police officers).
Lithuania				Yes			
Malta	Yes (60+)	Yes	Yes	Yes	Yes		Yes (essential workers critical to societal infrastructure, educational institutions workers).
the Netherlands				Yes (HCW directly involved in the care and treatment of COVID-19 patients).	Yes	Yes (district nurses and social support workers)	Yes (residents of small-scale residential homes and disability care homes, nursing homes for people with intellectual disabilities).
Norway	Yes (75+)	Yes					Yes (all residents in LTCF).
Portugal	Yes (80+)	Yes		Yes (essential/critical HCW)	Yes		
Spain	Yes (80+ with 1 dose)	Yes		Yes	Yes	Yes	
Sweden		Yes (94% with first dose, 89% with second dose).					Yes (people in home care are almost fully vaccinated).

** Information gathered from ISAA reports on 12 April, 19 April and 26 April. To consider the most recent adjustments of the priority groups the latest information available is displayed in the table.*
#Countries with no fully vaccinated priority groups: Croatia, Czechia, Poland, Romania.

As of 27 April 2021, 18 of 21 countries have adjusted their original plans to efficiently administer COVID-19 vaccines to target groups (Austria, Czechia, Denmark, Finland, France, Germany, Iceland, Ireland, Malta, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden), while one country (Luxembourg) is currently discussing such adjustments (Table 5). Adjustments were made to prioritise additional age groups (Austria, Denmark, Portugal, Spain, Sweden), healthcare workers and staff in long-term care facilities (Austria, Czechia, the Netherlands), people working in the educational system (Germany, Malta, Portugal, Romania), people with high exposure to SARS-CoV-2 at work (Finland, Lithuania), and other groups with high risk of severe disease (Austria, France, Iceland, Ireland, Norway, Portugal, Sweden).

Table 6. Adjustments made to the original priority groups during the rollout (n=21)*#

Countries	Adjustments to original priority groups	Reason for adjustment
Austria	Prioritisation of people of 80 years and older, people with additional severe underlying health conditions, people with special cognitive and physical needs (living in the community), staff in mobile (nursing) care, people with disabilities and with personal assistance and their personal assistants, people in LTCFs.	Slow initial uptake in elderly care homes, more specific definitions of risk groups.
Czechia	Prioritisation of healthcare workers, social care workers and elderly in long-term care facilities over the originally envisaged people aged 65+ and people with comorbidities.	Logistics and need for cold chain as the mRNA vaccines were the first vaccines available.
Denmark	No vaccination with Vaxzevria. Age is now the primary factor for prioritisation for vaccination, starting with the oldest.	Continues vaccine rollout without Vaxzevria since 14 April 2021 due to possible side effects. Continues vaccine rollout without Janssen vaccine since 3 May 2021 due to possible side effects.
Finland	Prioritisation of election officers of the June 2021 municipality elections in priority phase 1.	
France	Inclusion of home care workers, firefighters, people with serious comorbidities.	
Germany	Inclusion of kindergarten and primary school teachers and teachers at schools for children with special needs.	
Iceland	People of prioritisation group 4, first responders, have been vaccinated along with group 2.	Part of the group has been vaccinated with doses that would otherwise have gone to waste because of no-shows at vaccination sites.
Ireland	Number of priority groups have been reduced and simplified. People aged 16-69 years at very high risk of severe COVID-19 disease have been prioritised. Age-based allocation (10-year bands) has been introduced for the final group.	
Malta	Prioritisation of workers in the educational system in the third cohort.	
Latvia	Since 3 May vaccination is available to entire population	
Lithuania	Inclusion of workers who have contact with other people at work in large companies is planned.	
Netherlands	Prioritisation of acute COVID-19 care staff in hospitals and general practitioners. Extra high-risk groups with a medical indication have been defined.	
Norway	More vaccine doses will go to particularly infected areas.	A new distribution key for vaccines to the municipalities based on the number of people aged 18 years or older is introduced.
Poland	Yes (adjustments are made according to current needs).	
Portugal	Prioritisation by age, of workers in the educational system and of people with high-risk comorbidities.	Accelerate the rollout of vaccination campaigns.
Romania	Inclusion of workers in the educational system in the category of essential workers.	
Spain	Prioritisation of people over 80 years of age.	The limitation in the use of the Vaxzevria in people between 18 and 60 years and the temporary suspension has also led to adaptations in the strategy and its implementation.
Sweden	Larger emphasis on prioritisation by age. The prioritisation is also updated to include socioeconomic factors and specification of other risk factors/groups.	

** Information gathered from ISAA reports on 29 March, 12 April, 19 April and 26 April. To consider the most recent adjustments of the priority groups, the latest information available is displayed in the table.*
 # Countries with no adjustments to original priority groups: Belgium, Croatia.
Countries currently discussing adjustments to original priority groups: Luxembourg.

Vaccination strategies and policies during rollout

Countries continue to adapt vaccination strategies and policies based primarily on the changing epidemiological situation at country and subnational level, vaccine supply, new information regarding different COVID-19 vaccines efficacy, safety, effectiveness and new evidence about the virus and its impact on human health.

The vaccination policies captured in this section include the timing of COVID-19 vaccine doses; vaccination of individuals previously infected with SARS-CoV-2; extraction of additional doses of vaccine from vials; recommendations of vaccine products for age or target groups; changes in vaccination strategy due to variants of concern; changes in vaccination guidelines related to suspected adverse events following immunisation, eligibility for vaccination of individuals who live outside the country and eligibility for vaccination of citizens from other EU countries, and vaccination of individuals under the age of 18 years.

Extension of timing between the first and second dose of COVID-19 vaccines

Sixteen responding countries, five more compared with the previous report (Austria, Belgium, Czechia, Denmark, Luxembourg), have extended the timing between vaccine doses to provide the first dose to as many people in the priority groups as possible. Romania applied extended timing in special circumstances. Germany indicated that this is currently under discussion. Currently, four countries (Iceland, Latvia, Malta, Spain) have not extended the timing between the first and second dose of authorised vaccines.

Regarding the timing between first and second dose, policies vary by country and product as follows:

- Comirnaty: 28 days (Ireland, Portugal), 35 days (Belgium), 42 days (Austria, Croatia, Czechia, Estonia, France, the Netherlands, Norway Poland), up to 42 days under special circumstances in Romania, three to six weeks (Denmark), six weeks (Sweden) and 12 weeks (Finland).
- COVID-19 Vaccine Moderna: 28 days (Italy, Portugal), up to 35 days under special circumstances in Romania, 42 days (Austria, Czechia, Germany under discussion, France, the Netherlands, Norway, Poland, Sweden), four to six weeks (Denmark) and 12 weeks (Finland).
- Vaxzevria: minimum nine weeks (Norway), 9-11 weeks (Sweden), 12 weeks (Croatia, Estonia, Finland, France, Ireland, Poland, Portugal, Slovenia), up to 12 weeks (Latvia).

Table 7. Extension of timing between the first and second dose of COVID-19 vaccines (n=22)

Has the timing between the first and second dose of vaccine been extended?	Countries
Yes	Austria, Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Ireland, Luxembourg, the Netherlands, Norway*, Poland, Portugal**, Romania***, Sweden
No	Iceland, Latvia, Malta, , Spain
Currently under discussion	Germany****, Lithuania*****,

** In Norway, a 12-week extended period for both the COVID-19 Moderna and the Comirnaty vaccines is under discussion for people under 45 years of age.*
*** for Comirnaty*
**** Under special circumstances*
***** In Germany, Under discussion 42 days between two doses for the COVID-19 Moderna and Comirnaty and until 12 weeks (Vaxzevria)*
****** In Lithuania, the second dose of Vaxzevria is recommended 12 weeks after the first dose although for some population groups (f. e. educational institutions workers) and according individual situation this period could be shortened. The possibility to extend timing between two Pfizer vaccine doses is also being discussed.*

Recommendation of COVID-19 vaccination in individuals previously infected with SARS-CoV-2

There is some evidence that for those individuals who have already been previously infected with SARS-CoV-2, for currently available vaccines that require a two-dose schedule, a single dose may provide sufficient immunity [17,18].

Thirteen countries currently recommend the full vaccination schedule to those individuals who were previously infected while nine countries recommend only one dose of vaccine (for vaccines that have a two-dose schedule). Iceland does not recommend vaccination for those previously infected.

Latvia reported that while there is a shortage of vaccines, vaccination is not recommended for those previously infected for 90 days after infection. This topic is still under discussion in Portugal.

Some countries provided the timing for administering a single dose of vaccine in individuals after previous SARS-CoV-2 infection:

- Austria: one dose after three months (neutralisation test) or six to eight months (PCR test) following infection (for all vaccines currently in use).
- Finland: individuals infected with SARS-CoV-2 in the last three to six months are recommended to be vaccinated six months after the infection.
- Estonia: one dose, preferably in the sixth month after recovery. However, one dose is recommended for all that have had a previous positive test of SARS-CoV-2 regardless of the time. If the first dose has been administered and the test is positive within two weeks from vaccination, it is recommended to vaccinate with one dose in the sixth month after recovery. If a positive test result is given more than two weeks after the first dose, the second dose will not be administered.
- France: One dose six months after infection (except for those in residential care homes).
- Latvia: 90 days after infection. The infection status can be verified/accessible by the general practitioner.
- The Netherlands: One dose of any vaccine is offered to all individuals infected six months after infection.
- Norway: one dose three months after recovery (for all vaccines currently in use).
- Portugal: one dose at least six months after infection.
- Romania: 30 days after infection.
- Slovenia: one dose after six to eight months following infection.
- Spain: one dose six months after infection in people under 65 years of age.

Regarding the question on how documentation of previous infections is performed, Austria verifies infection at three months with a neutralisation test or six to eight months with PCR positive test. Finland indicated that a proof of a laboratory test is required (the information can be accessed through National Patient Healthcare Register). In Norway, a previously infected individual must have a proof of infection based on a laboratory test (Norway has a national registry for all positive lab tests). Estonia also requires proof of a laboratory test. In the Netherlands, proof of infection is not required. The infection status of an individual is available within the integrated health information system in Romania. Spain indicated that in people aged 18-65 years, previous infection should be documented with a laboratory test confirming infection or through available information within the integrated health information system.

Four countries gave information on how the vaccination status is recorded for previously infected individuals. In Austria, they are recorded as individuals receiving a single dose of the vaccine; and in Norway they are also recorded as individuals receiving a single dose of the vaccine, however in the register, the healthcare practitioner administering the vaccine to individuals previously infected with COVID-19 can register/make a note in the journal that a second dose is contraindicated. In Estonia, the vaccination is marked as completed with one dose and a person is considered fully vaccinated. In Spain and in the Netherlands, previously infected individuals who receive one dose are recorded as fully vaccinated i.e. receiving the full course of the vaccine (e.g. two doses).

Table 8. Recommendations of COVID-19 vaccination in individuals previously infected with SARS-CoV-2 (n=23)

COVID-19 vaccine recommendations for those previously infected	Countries
The full vaccine schedule is given	Belgium, Croatia, Czechia, Denmark, Finland, Ireland, Latvia, Lithuania*, Luxembourg, Malta, Poland, Romania, Sweden
Only one dose of vaccine is recommended (for vaccines that have a two-dose schedule)	Austria, Estonia, France, Germany, the Netherlands, Portugal, Slovenia, Spain, Norway
No vaccine is recommended	Iceland

** Lithuania reported that they are trying to come to a general conclusion on whether it would be advisable to introduce a nationwide practice of vaccinating people who have recovered from COVID-19 with only one dose of vaccine (when the manufacturer recommends a two-dose schedule) and when it is most appropriate to start vaccination after the disease.*

Extraction of additional COVID-19 vaccine doses

As of April 2021, a total of 17 responding countries (Austria, Belgium, Czechia, Denmark, France, Germany, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Portugal, Romania, Spain) reported extracting additional doses from vaccine vials (e.g. a seventh dose from the six-dose vial of Comirnaty, 11th dose from the COVID-19 Vaccine Moderna). Four countries (Croatia, Finland, Poland, Sweden) do not use additional doses from COVID-19 vaccine vials.

Recommendations of specific COVID-19 vaccine products to any target group/age group

Thirteen responding countries indicated that they have recommended specific COVID-19 products to certain population groups.

Table 9. Countries providing COVID-19 vaccine recommendations to any age or target groups (n=21)

Recommendations of COVID-19 vaccine products to any target group/age group	Countries
Yes	Belgium, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Malta, the Netherlands, Poland, Spain, Sweden
No	Austria, Croatia, Czechia, Denmark*, , Lithuania, Norway**, Romania
Currently under discussion	Luxembourg

**In Denmark the vaccine program is rolled-out without Vaxzveria and COVID-19 Vaccine Janssen*
*** In Norway the vaccine program is rolled-out without Vaxzevria*

The recommendations vary by country and by vaccine product, detailed in Table 10 below.

Table 10. Details of country recommendations of specific COVID-19 vaccine products for age or target groups

Country	Comirnaty	COVID-19 vaccine Moderna	Vaxzevria	COVID-19 Vaccine Janssen
Belgium			≥41 years of age, decision temporary and planned to be reassessed within four weeks	
Bulgaria			Not to be used in women under 60 years of age with increased risk of thrombosis and/or history of thrombocytopenia.	
Denmark			Vaccine no longer used	Vaccine will not be used
Estonia			≥50 years	≥60 for those people who have difficulty reaching a family doctor or a serious illness due to which they cannot go to a vaccination venue themselves or in a situation where one dose of vaccine is considered optimal (e.g. people moving to elderly care homes, risk group patients in hospitals etc).
Finland	Recommended primarily for 70+ years	Recommended primarily for 70+ years	≥65 years (however those ≥65 years with previous cerebral venous sinus thrombosis (CVST) or atypical heparin-induced thrombocytopenia (aHIT) should not receive Vaxzevria)	
France	18-54 years with comorbidities or eligible workers and 60+ years	18-54 years with comorbidities or eligible workers and 60+ years	≥55 years	≥55 years
Germany			≥60 years	
Greece			≥30 years	

Country	Comirnaty	COVID-19 vaccine Moderna	Vaxzevria	COVID-19 Vaccine Janssen
Iceland			≥60 years, who do not have risk factors that increase the risk of thrombosis.	Deployment of Janssen vaccine is pending further study of reported side effects.
Ireland	Recommended primarily for 70+ years where practicable and timely	Recommended primarily for 70+ years where practicable and timely	≥50 years	≥50 years
Italy			≥60 years	≥60 years
Latvia				Primarily for those who are harder to reach such as those who have difficulty reaching vaccination sites and those living in shelters
Luxembourg			≥55 years Pregnant women should be given mRNA vaccine. For people aged 30-54 at risk for severe COVID-19, preference should be given to mRNA vaccines, if available. Benefit-risk estimation for healthy people used to determine restrictions in Vaxzevria use.	
Malta			18-70 years	
the Netherlands			≥ 60 years	
Norway			Vaccine no longer used	
Poland			69 years and under	
Portugal			≥ 60 years	≥50 years
Spain	Recommended primarily for 70+ years and high-risk conditions for severe COVID-19		60-69 years	Recommended primarily for elderly (70-79 years)
Sweden			≥65 years	Janssens vaccine suspended.

Note: Information about recommendations for Vaxzevria gathered from ISAA responses, NITAG survey results and official public health authority websites.

Changes in vaccination strategy due to the circulation of new variants of concern

The introduction and increased spread of new SARS-CoV-2 variants of concern first identified in the United Kingdom (B.1.1.7), South Africa (B.1.351), and Brazil (P.1) has raised concerns of increased transmissibility, and possibly more severe disease. Such an increased transmissibility is likely to lead to an increased number of infections, which leads to higher hospitalisation and death rates across all age groups, but particularly for those in older age groups or with co-morbidities [13].

Sixteen responding EU/EEA countries (Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Sweden) made no changes to the public health objective of the vaccination campaign in light of the circulation of new variants of concern.

Austria reported that, due to a high circulation of B.1.351 in the Tyrolian district of Schwaz, the Austrian government in collaboration with the EU and BioNTech/Pfizer agreed to provide an additional 100 000 Comirnaty doses to this area. All inhabitants aged 16 and older were eligible to be vaccinated and almost 50 000 inhabitants have been vaccinated.

In Germany, the Coronavirus Vaccination Ordinance of March 10, 2021 (CoronaImpfV) introduced the possibility of deviating from the order of eligibility specified, in order to prevent dynamic spread of SARS-CoV-2 from highly contaminated border regions and in or from high-incidence areas in Germany.

Malta reported that different cohorts are being called for vaccination in parallel to the priority groups due to new variants of concern.

Norway reported that on 9 March 2021, NIPH announced that more vaccine doses will go to particularly infected areas. Spain responded that the appearance of new variants may have impacted the current (or it may impact in the future) epidemiological situation in which the hospitalisation and death of the elderly and the limitation of the doses of available vaccines have led to adjustments to the priority groups for vaccination. France commented that there has not been a change in strategy, but that additional doses were sent to regions most exposed to the virus circulation.

Table 11. Changes in COVID-19 vaccination strategy due to the circulation of new variants of concern (n=23)

Change in COVID-19 vaccination strategy due to the circulation of new variants of concern	Countries
Yes	Austria, Germany, Malta, Norway
No	Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovenia, Sweden
Currently under discussion	Luxembourg, Spain

Changes in vaccination guidelines related to suspected adverse events following immunisation

Fourteen responding countries indicated that they have changed vaccination guidelines in relation to any suspected adverse events following immunisation (Table 12) since the start of the campaign. There have been six additional countries that have changed guidelines since the previous report.

Table 12. Changes in COVID-19 vaccination guidelines related to suspected adverse events following immunisation (AEFI) (n=20)

Change in COVID-19 vaccination guidelines following suspected AEFI	Countries
Yes	Austria, Denmark, Finland, France, Germany, Iceland, Ireland, Latvia, Netherlands, Norway, Portugal, Romania, Spain, Sweden
No	Belgium, Croatia, Czechia, Lithuania, Malta, Poland
Under discussion	Luxembourg

In April, following the conclusion from the Pharmacovigilance Risk Assessment Committee (PRAC) of EMA that thromboembolic events associated with thrombocytopenia are very rare side effects of Vaxzevria and that the benefits of vaccination outweigh the risks [14], the majority of countries have now resumed the use of Vaxzevria with some recommending different age groups for vaccination (see Table 10). Denmark and Norway made the decision to discontinue the use of Vaxzevria in their vaccination campaigns [15,16].

In April 2021, a recommendation was made by the US Food and Drug Administration and the Centers for Disease Control and Prevention to pause the use of the Janssen COVID-19 vaccine in the US while they carried out investigation of reports of blood clotting disorder in six vaccine recipients who developed cerebral venous sinus thrombosis in combination with low levels of blood platelets (thrombocytopenia) [17]. The EMA PRAC meeting on 20 April 2021 concluded that a warning about unusual blood clots with low blood platelets should be added to the product information for COVID-19 Vaccine Janssen. EMA stated that the reported combination of blood clots and low blood platelets is very rare, and the overall benefits of COVID-19 Vaccine Janssen in preventing COVID-19 outweigh the risks of side effects [18]. The majority of countries will continue with the rollout of COVID-19 Vaccine Janssen, while Sweden and Norway have suspended its use in their vaccination campaigns while further assessment takes place and Denmark will continue the roll-out without the Janssen COVID-19 Vaccine [16,19,20].

Latvia and Norway reported the necessity of assessing the risk-benefit balance among very frail patients (terminally ill, the elderly) before vaccination.

Eligibility for vaccination of individuals/target groups who live out of the country

Nine responding countries answered that they do offer vaccination to certain individuals/ target groups who live outside of the country (e.g. transnational workers, with certain criteria such as working in LTCF, health facilities or essential workers).

Table 13. Eligibility for vaccination of people living out of the country (n=19)

Eligibility for vaccination of people living out of the country	Countries
Yes	Austria, Belgium, Denmark. Finland, Luxembourg, the Netherlands, Norway, Romania, Slovenia, Sweden
No	Croatia, Estonia, Germnay, Latvia, Lithuania, Malta, Poland, Spain
Under discussion	Czechia

Some countries provided further details about the specific population living outside the country who will be offered the vaccine:

- Austria: commuters are eligible for vaccination.
- Belgium: vaccination will be possible in Belgium for Belgian nationals living abroad, particularly for those living in a country where non EMA-approved vaccines are being used or those who have no access to COVID-19 vaccines (as per priority groups)
- Denmark: all residents from the age of 16 who have Danish health insurance are eligible to be vaccinated.
- The Netherlands: transnational workers.
- Norway: healthcare workers who are non-permanent resident.
- Sweden: diplomatic staff with families, missionaries, certain Swedish citizens living abroad.

Eligibility for vaccination of citizens from other EU countries

All responding countries (Austria, Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Iceland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Romania, Slovenia, Spain, Sweden) answered that vaccination will be accessible to any European citizens in the country, but there may be certain conditions.

Table 14. Eligibility for vaccination of citizens from other EU countries (n=20)

Citizens from other EU countries get vaccinated in your country	Countries
Yes	Austria, Denmark, Estonia, France, Iceland, Latvia, the Netherlands, Slovenia
If they are long-term residents	Croatia, Finland, Lithuania, Spain, Norway
If they are long-term residents or if they are in the national social security/health insurance scheme (e.g. through work)	Belgium, Czechia, Luxembourg, Poland, Romania, Sweden

Further details:

- Denmark: if you have been in Denmark for more than 14 days and your length of stay is at least 30 days.
- Finland: persons living in Finland permanently/long-term are recommended to be given COVID-19 Vaccines (as per priority groups) even if they don't have citizenship or residency in Finland (e.g. EU citizens and third country residents). Vaccines are given in the general order of prioritisation.
- Latvia: individuals who have been granted a temporary residence permit in Latvia, foreign students studying full-time in Latvia, employees of institutions and agencies of the EU employed in Latvia and their family members residing in Latvia.
- The Netherlands: all residents of the Netherlands age 18 and over are eligible to receive the COVID-19 vaccine, including expats and internationals.
- Poland: foreigners with the right of residence get vaccinations on the same terms as citizens of Poland.
- Iceland: anyone who is working, studying, or residing in Iceland, permanently or temporarily coinciding with the vaccination campaign/pandemic, will be vaccinated if they wish to be, according to the schedule determined by the Ministry of Health.
- Estonia: Estonian citizens who live abroad, including diplomats, etc. are offered vaccination in Estonia. Also, vaccination is provided to foreign citizens that live, work or study in Estonia on a permanent or long-term basis.

Vaccination of individuals under the age of 18 years

Twelve countries recommend COVID-19 vaccination in individuals aged <18 years with the Comirnaty vaccine, which is the only authorised vaccine recommended in the 16+ age group.

Table 15. Vaccination of individuals aged <18 years (n=21)

Vaccination of individuals <18 years	Countries
Yes	Austria, Belgium, Croatia, Czechia, Denmark, Estonia, Finland, Malta, the Netherlands, Portugal, Romania, Sweden,
No	Germany, Iceland, Ireland, Latvia, Lithuania, Norway, Poland, Portugal, Spain

Further details:

- Belgium: individuals 16-18 years of age in healthcare facilities, young healthcare students.
- Croatia: those 16-18 years of age who belong to priority group (HCW, chronic diseases).
- Denmark: all residents from the age of 16 years are offered vaccination.
- Estonia: in those 16-17 years of age, it is possible to use Comirnaty. Currently, only priority groups (16- and 17-year olds with specific diagnosis or conditions) are being vaccinated but it will later be possible to vaccinate the general population.
- Finland: children between 16 and 18 years of age can be vaccinated with Comirnaty.
- Malta: vulnerable individuals aged 16+.
- The Netherlands: 16 and 17-year-olds within specified high-risk groups for COVID-19.
- Portugal: those 16-18 years of age can be vaccinated with Comirnaty.
- Spain: individuals are not vaccinated under the age of 18 years; however, vaccination can be considered for individuals between 12-16 years of age with severe neurological disability with an individualised medical benefit-risk evaluation.
- Sweden: those <18 years with medical conditions.

COVID-19 vaccination certificates

Nineteen countries (Austria, Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Latvia, Lithuania, the Netherland, Poland, Romania, Spain, Sweden) answered that their country is planning to issue official vaccination certificates. Vaccination certificates are currently under discussion in three countries (Luxembourg, Portugal and Norway). Ten countries (Austria, Denmark, Germany, Greece, Croatia, Lithuania, the Netherlands, Poland, Finland and Sweden) indicated that the certificate is planned for medical use and for secondary use such as travel.

Several countries provided additional information:

- Czechia: currently issues the certificate as a proof of vaccination for medical purposes only.
- Denmark: to be used as proof of vaccination and have also created corona pass which includes a test certificate and vaccination certificate which is being used as part of the re-opening strategy rather than for medical use.
- Estonia: COVID-19 vaccination certificates can be issued for proof of vaccination when needed. A digital vaccination certificate was launched on 30 of April. Secondary use for the certificate is currently under discussion. When possible, the certificate can be used for travel.
- In Finland, the discussion on the possible expanded use of vaccination certificates is on hold and waiting for more scientific evidence on the effect of the vaccines on preventing infection and transmission. The certificates are primarily to be used for travelling according to the EC digital green certificate. Possible use for other purposes is under discussion. Currently Finland does not exempt travellers with vaccination certificates from testing and quarantine measures upon arrival.
- In Greece, the topic of the possible future use of vaccination certificates, especially regarding travel and tourism, is under discussion at the European level.
- Germany is discussing digital vaccination certificates.
- Ireland is giving ongoing careful consideration to the possible use of vaccination certificates based on scientific evidence. Ireland is engaging at EU level to ensure alignment across Member States in preparing for the reopening of international travel for non-essential purposes as soon as it is safe to do so. Vaccine certificates record the batch number of the vaccine given, if a person has an adverse reaction, it may be related to a certain batch, which enables follow up with all persons vaccinated with a particular batch.
- In Latvia, the topic on use of the certificate is under development.
- The Netherlands is currently developing a vaccination certificate to facilitate international travel. There is discussion about future use within the Netherlands for national policies, however, more scientific data are necessary about the effect of vaccination on transmission of the virus.
- The Norwegian health authorities are in the process of mapping the need for and possible solutions for establishing an international vaccine passport. If this becomes relevant, the government will consider whether it should be introduced in Norway. In that case, they will return with information on how the certificates are to be issued, and what rights they give.
- In Portugal, the certificate will also be used for travel and tourism.
- Romania has already started issuing official vaccination certificates and uses them for medical purpose only.
- In Spain, the topic of specific uses is under discussion.

Current challenges and good practices with vaccine rollout

The majority of countries that responded (19/22, 86%) to questions about challenges with the rollout reported that limited vaccine supply is the main issue they are facing (Table 16). Two countries (Germany, Romania) reported that they are not facing challenges with vaccine supply. The majority of countries mentioned that the late confirmation of shipments and last-minute alterations to delivery quantities (usually less than planned for) leads to difficulties in planning appointments and organising mass vaccination. Countries also pointed out that the unpredictability of shipments can lead to logistical issues, where sometimes forecasts are only for 2 to 6 weeks in advance.

Due to challenges with vaccine supply 11 countries have needed to make adaptations to priority groups (Austria, Denmark, Estonia, Spain, Finland, Latvia, Lithuania, Malta, the Netherlands, Poland, Sweden) and five countries have responded that suspension of the vaccination campaign in different regions has impacted the vaccination rollout (Estonia, Ireland, Latvia, Lithuania, Sweden). Countries mentioned that the speed of the vaccination campaign has slowed down in certain areas and the capacity to vaccinate is larger than the availability of vaccines. Countries also mentioned adjusting timelines and increasing the time interval between two doses to deal with limited vaccine supply.

The other main challenges mentioned by countries include shortages of equipment, communication and update, especially challenges with vaccine acceptance and scheduling appointments to ensure vaccination time slots are filled and back up plans for those that don't turn up.

Table 16. Current challenges countries are facing with the rollout of COVID-19 vaccines (n=22)

Challenge	EU Member States
Vaccine supply	
Limited vaccine supply	Austria, Belgium, Czechia, Croatia, Denmark, Estonia, Finland, France, Ireland Iceland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Spain, Sweden
Equipment	
Shortages of equipment needed for vaccination, such as syringes, including shortage of low dead-end space syringes/needles	Latvia, Lithuania, Malta
Communication and uptake of vaccines	
Communication with different population groups	Austria, Estonia, Latvia, Lithuania, Sweden
Communicating about prioritisation of population groups and the rationale behind the choices	Austria, Poland
Communicating adaptations made to vaccination strategies	Estonia, Lithuania, the Netherlands, Spain
Vaccine acceptance among those groups eligible for vaccination	Belgium, Estonia, Finland, Latvia, Lithuania, Slovenia
Scheduling vaccination appointments	
Identifying and contacting target groups for vaccination	Austria,
Inefficient booking systems for scheduling people for vaccinations	
Lack of capacity to ensure vaccination time slots are filled and back up plans for those that don't turn up	Austria, Romania
Logistics and infrastructure	
Wastage of doses	Sweden
Shipping and trans-shipment (e.g. from distribution hubs to vaccination delivery sites, such as vaccination centres)	Sweden
Managing vaccines with different requirements (regarding adapting logistics, storage and/or administration)	Poland
Workforce	
Necessity to train additional staff such as GPs and pharmacists	Poland
Vaccination delivery sites	
Access of vaccination to vulnerable population groups	Latvia, Spain
Systems to monitor vaccinations	
Data from all vaccination centres do not reach the authorities within the agreed timeframe	Poland
Data missing on key variables such as vaccine product, dose number, date dose administered	Belgium
Incomplete reporting, but distributed at random in the national territory	Belgium, Latvia
Incomplete data for some specific population groups	Austria, Poland

** information gathered from ISAA reports on 30 March 2021, 5 April 2021, 19 April 2021, 26 April 2021*

Some countries provided further details on the challenges above:

- In Belgium, the identification of at-risk individuals has been an issue, although most of these issues have been resolved now. They have put strategies in place to ensure that sufficient staff for administering vaccination are recruited for the next months as the rollout increases. In terms of systems to monitor vaccines, they have found that dose number data can be missing which needs to be calculated based on date of administration which in case of incomplete reporting can lead to errors. There can also be issues with the quality of data, with errors in lot numbers that require manual reporting. Data is missing on key variables such as vaccine product, dose number, date dose administered.
- In Spain, it can be more difficult to reach and vaccinate those dependents with severe disabilities. Regarding systems to monitor vaccinations, they have faced issues with debugging the data in real time due to the large number of daily registrations.
- Finland have found that there has been an emergence of vaccine hesitancy around the vaccine Vaxzevria.
- In Sweden, there have been some instances where vaccines have been transported in the wrong temperature, however this is not a common issue. There are also instances of some wastage of doses due to people not showing up for their appointments, but this is not a major problem.
- In Iceland, the suspension of the use of Vaxzevria due to reported rare side effects has caused delays in the national vaccination plan.
- Spain reported that identifying and contacting target groups for vaccination is difficult and could slow down the vaccine rollout.
- Latvia has seen vaccination inequalities in different regions and a distrust of vaccines has been observed, in particular for the Vaxzevria vaccine. On 11 March 2021, a communication campaign commenced.
- In Ireland, the current recommendation for Vaxzevria vaccine is for it to be administered to those over 50 years of age only and the suspension of the Janssen COVID-19 vaccine may have implications for the vaccine campaign, however the suspension was announced prior to the Janssen vaccine being used in the vaccination roll out program in Ireland.
- Estonia reported that they face challenges with communication due to the rapidly changing data and recommendations for use of the vaccines.
- In Sweden, a new report from the Public Health Agency shows that vaccination rates vary depending on a person's country of birth. This applies to people vaccinated during phase one and the groups currently being vaccinated.
- Ireland and Latvia reported that they vaccinate outside of priority groups to avoid wastage of doses.

Lessons learned and good practice to mitigate challenges

Vaccine supplies

- In Belgium**,** considering the lack of certainty regarding planned deliveries, they have started protecting second doses by creating a minimum reserve stock. Latvia also applied this strategy for Vaxzevria vaccines.

Logistics and workforce:

- In Latvia, mass vaccination centres have been established in cooperation with municipalities to ensure faster and more effective vaccine rollout. The system of waiting lists has also been optimised.
- In Belgium, vaccination centres were established following the forecasts (around 200 vaccination centres throughout the territory were estimated be required to answer the vaccination needs).
- In Spain, a mechanism for wide coordination and communication between key actors involved is in place.
- Malta is trying to source necessary materials from various manufacturers and recruiting clinical staff on a contract basis.
- In Slovenia, vaccination centres have been established in primary health centres.

To avoid wastage of doses, countries have implemented the following solutions:

- In Austria, vaccination sites are encouraged via various channels to avoid vaccine wastage at all costs, preferably by vaccinating those on the official COVID-19 vaccination prioritisation list as defined by the Austrian NITAG. However, if unable to do so, all those eligible for vaccination may be called in for last-minute spots to avoid vaccine wastage. If, despite all efforts, vaccines are discarded, this must be documented separately, by calendar week, and reported upon request.
- Latvia continuously adjusts the principles and mechanisms for recalculations of daily deliveries of vaccines to vaccination sites.
- In Belgium, in addition to the invitations, reserve lists are created to complete the daily schedules to avoid the wastage of doses for those who do not show up.
- In the Netherlands, to avoid wastage of doses, follow up groups in the national vaccination strategy are provided with vaccinations if there are doses left over.

Communication and uptake of vaccines

- France have put in place strategies to effectively communicate about COVID-19 such as using a pedagogical approach to communication.
- In Latvia, a vaccination campaign '2 million reasons to be vaccinated' has started. The campaign is a follow-up of the public awareness initiatives that have been done so far.
- In Lithuania, the choice of vaccine is allowed if a person does not want to be vaccinated with Vaxzevria vaccine.
- In the Netherlands, the recent reports of severe thrombotic adverse events associated with the use of Vaxzevria have raised concerns, therefore they provide additional information on this issue as it becomes available.

Scheduling vaccine appointments

- Croatia has established a digital platform that allows all citizens to apply for vaccination according to priority group and place of residence to reduce the pressure on GPs who are the main providers of mass vaccination.
- Estonia is using the already existing national digital registration system for registering COVID-19 vaccinations.
- In April, Latvia launched a national centralised vaccination IT system featuring e-booking and some additional functionality, such as vaccine ordering.

Limitations of the information collected in this report

The information presented in this report is not exhaustive. There were different response rates from countries to the vaccine questions collected via the ISAA report from week to week. Countries will continue to adapt strategies and plans as the rollout continues, and this report provides an overview of the progress at a particular time.

Conclusions

The COVID-19 vaccine rollout is progressing steadily, and vaccination is gathering pace across EU/EEA countries. Although many countries did not reach the target of vaccinating at least 80% of people over the age of 80 years and health and social care professionals by March 2021, eleven countries have now exceeded a cumulative uptake of 80% for the first vaccine dose in people aged 80 years and older, seven of them also achieving more than 80% of full vaccination, and eight in healthcare workers. As of 02 of May, over 153 million doses have been administered in the EU/EEA, with over 112 million people in the EU/EEA receiving at least one vaccine dose and 41 million with a full vaccination course.

Many countries have put in place policies to vaccinate as many people in the priority groups as possible, including extracting extra doses from vaccine vials and extending timing between doses. A number of countries are recommending only one dose of vaccine to those individuals who have been previously infected with SARS-CoV-2, however the timing for providing a dose following infection and the ascertainment of the previous infection differ among countries. A more standardised approach across EU/EEA countries on the vaccination protocol in previously infected individuals, including the timing of vaccination after infection, is needed, as well as more data for evidence-based decisions.

As vaccination coverage of older age groups gradually increases, many countries are starting to expand access to younger groups. Other policies countries have put in place such as providing vaccines to those living outside their countries, for example transnational workers, or providing vaccinations to individuals under 18 years of age, provides some insight into the different strategies of vaccine deployment across Member States.

Based on country context, including epidemiology and the availability of vaccines, countries have also recommended specific COVID-19 vaccine products to different target groups/age groups and may have made changes to vaccination strategy based on circulation of new variants of concern or adverse events following immunisation. Following the conclusion from the Pharmacovigilance Risk Assessment Committee (PRAC) of EMA that thromboembolic events associated with thrombocytopenia are a very rare side effects of Vaxzevria, the suspensions and different recommendations by age group in countries may have an impact on vaccination rollout and reaching national and European targets. In addition, the suspension and restrictions of use of the COVID-19 Vaccine Janssen may also have an effect on country vaccination campaigns. In relation to the rare side effects of Vaxzevria, some countries reported a lowering of acceptance of this vaccine in target groups, with individuals refusing vaccination or missing vaccination appointments. It is essential to maintain an efficient communication strategy, especially with a focus on messaging around safety and risk/benefit evaluation towards target groups and for the general population to ensure high vaccine uptake.

To ensure a smooth scale-up of the vaccination deployment, it is important to understand what challenges countries are facing with the rollout. The majority of countries still report that they continue to face challenges with limited vaccine supply and unpredictable deliveries. Countries also reported that they are ready to expand their vaccination programs once vaccines are supplied more regularly. It is expected that vaccinations will continue to accelerate across countries. The European Commission has announced the speed-up of delivery of vaccines to EU/EEA countries, with 50 million additional doses of Comirnaty, initially planned for delivery in the fourth quarter of 2021, now to be delivered in April instead [21]. As more COVID-19 vaccine supplies become available, it is clearly of paramount importance to all EU/EEA countries to accelerate the rollout of their vaccination programmes. Countries are preparing for accelerating and expanding the rollout by opening more mass vaccination centres, piloting mass vaccination procedures, creating effective reserve lists to limit wastage of doses and putting in place communication campaigns. It will be especially important to monitor vaccine acceptance across the population and to have strategies in place to reach out to those individuals, groups and/or communities that are hesitant or sceptical. It is also essential to reach those that find it difficult to access vaccination sites, such as vulnerable or hard to reach individuals, by utilising mobile vaccination sites and teams.

Countries will continue to adapt vaccination policies and strategies as the epidemiological situation evolves, with increases of vaccine availability and as continuous updates on vaccine safety and real-world evidence on vaccine effectiveness becomes available.

Contributing ECDC experts (in alphabetical order)

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Disclaimer

All data published in this report is correct to the best of our knowledge at the time of publication.

Annex

Table 14. Overview of COVID-19 vaccines in use in EU/EEA countries and date of first administration (n=30)*

Country	Comirnaty	Moderna	Vaxzevria	Janssen
Austria	27/12/2020	15/01/2021	08/02/2021	week 15, 2021
Belgium	05/01/2021	18/01/2021	15/02/2021	
Bulgaria	27/12/2020	week 2, 2021	week 5, 2021	
Croatia	27/12/2020	13/01/2021	08/02/2021	week 17, 2021
Cyprus	27/12/2020	19/01/2021	17/02/2021	week 17, 2021
Czechia	26-27/12/2020	14/01/2021	11/02/2021	16/04/2021
Denmark	27/12/2020	14/01/2021	09/02/2021	
Estonia	27/12/2020	week 2, 2021	week 7, 2021	week 17, 2021
Finland	27/12/2020	08/01/2021	10/02/2021	
France	27/12/2020	14/01/2021	06/02/2021	23/04/2021
Germany	26/12/2020	week 2, 2021	08/02/2021	week 17, 2021
Greece	27/12/2020	week 7, 2021	week 7, 2021	
Hungary**	26/12/2020	week 2, 2021	week 5, 2021	
Iceland	29/12/2020	13/01/2021	11/02/2021	week 17, 2021
Ireland	29/12/2020	16/01/2021	08/02/2021	
Italy	31/12/2020	week 2, 2021	week 6, 2021	week 16, 2021
Latvia	28/12/2021	13/01/2021	09/02/2021	27/04/2021
Liechtenstein	18/01/2021	missing	*not in use*	
Lithuania	27/12/2021	13/01/2021	09/02/2021	23/04/2021
Luxembourg	28/12/2020	week 3, 2021	week 6, 2021	15/04/2021
Malta	27/12/2020	04/02/2021	12/02/2021	
The Netherlands	06/01/2021	25/02/2021	week 6, 2021	21/04/2021
Norway	27/12/2020	15/01/2021	25/02/2021	
Poland	26-27/12/2020	12-20/01/2021	12/02/2021	15/04/2021
Portugal	27/12/2020	13/01/2021	08/02/2021	01/05/2021
Romania	27/12/2020	04/02/2021	15/02/2021	
Slovakia	26/12/2020	week 4, 2021	week 6, 2021	
Slovenia	27/12/2020	week 3, 2021	week 5, 2021	week 17, 2021
Spain	27/12/2020	14/01/2021	09/02/2021	22/04/2021
Sweden	27/12/2020	13/01/2021	week 6, 2021	

** Data on vaccines in use and date of first vaccine administration gathered from ISAA reports from 22 March to 26 April 2021; missing data complemented with data reported by EU/EEA countries to TESSy (e.g. vaccine products and reporting week of first administration of doses for each product); updates received from HSC members on 3 May 2021. Dates of first administration presented as dates (dd/mm/yyyy) or epidemiological week depending on the source and format that the country used in the ISAA reports.*

*** Hungary started using Sputnik V (Gamaleya) in week 5 2021 and BBIBP-CorV (Sinopharm) in week 7 2021.*

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