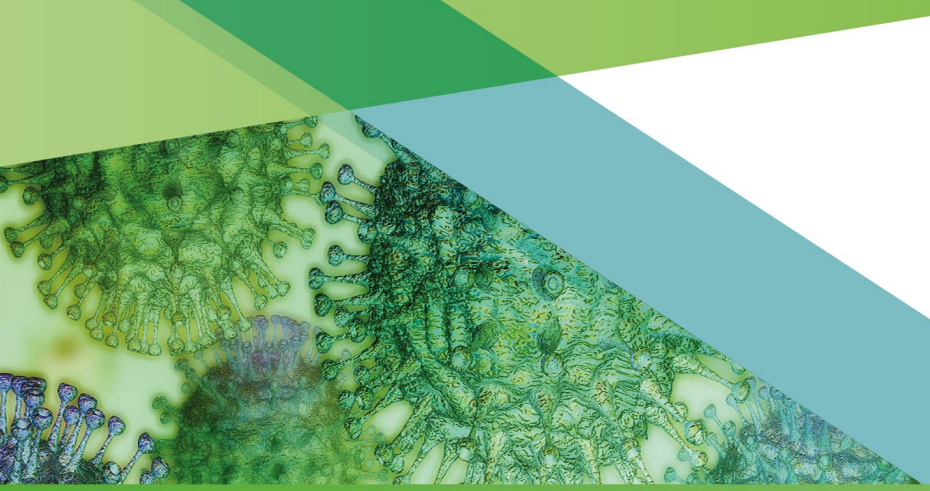


TECHNICAL REPORT

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

23 September 2021

Key messages

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

- overall vaccine uptake and uptake by target group;
- vaccination strategies and policies;
- challenges and good practices with the rollout, including vaccine acceptance and hesitancy; and
- strategies to increase vaccination uptake.

Vaccine COVID-19 rollout overview

- As of 12 September 2021, a total of 671 767 335 COVID-19 vaccine doses have been distributed by manufacturers to EU/EEA countries, including over 17 million in the last week. Comirnaty (BNT162b2), developed by BioNTech/Pfizer, represents 69% of all doses distributed to EU/EEA countries via the European Commission's Vaccine Strategy, followed by Vaxzevria (AZD1222) (14%), Spikevax (12%), and COVID-19 Vaccine Janssen (3%).
- A total of 540 115 965 vaccine doses have been administered in the EU/EEA, including over 8 million in the last week. Based on data available from 29 countries, 85% of the doses distributed in the EU/EEA since the beginning of the rollout have been administered.
- 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 78.1% for at least one vaccine dose (range: 23.3-96.9%) and 71.6% for the full vaccination course (range: 21.7-90.5%) (30 reporting countries). However, as of 12 September 2021, across all age groups in the 30 reporting countries there are approximately 27 million people who have received a first dose and have yet to complete their primary vaccination course.
- Cumulative vaccine uptake is higher in those target groups that have been prioritised since the beginning of the vaccine rollout, in particular the elderly and healthcare workers.
- In people aged 80 years and above, 15 countries have administered the full vaccination course to more than 80% of this population. However, there are still gaps, with 12 countries still not reaching 80% of their population of 80-year-olds and above with the full vaccination course. Eleven countries have administered full vaccination to over 80% of healthcare workers.
- Overall, the level of weekly increases of uptake is decreasing in most age groups and appears to have been plateauing since week 23.

Suggested citation: European Centre for Disease Prevention and Control. Overview of the implementation of COVID-19 vaccination strategies and vaccine deployment plans in the EU/EEA – 23 September 2021. ECDC: Stockholm; 2021.

- There are significant differences in vaccination uptake between countries, with some countries reporting very high uptake of full vaccination in adults over 18 years, in healthcare workers, those aged 80 years and above, and in long-term care facilities (LTCFs), while in some other countries the uptake is still generally very low compared to the EU/EEA median.

Vaccination strategies and policies during rollout

- From the start, vaccinations have been rolled out in phases through various priority groups. Countries have primarily prioritised elderly people, residents and personnel of LTCFs, healthcare workers, social care personnel, and people with certain comorbidities. As of 20 September 2021, all EU/EEA countries have opened vaccination to the general population, with the majority offering vaccination to all those aged 12 years and over.
- In June, 16 countries had extended the timing between vaccine doses to provide the first dose to as many people in the priority groups as possible for vaccines with a two-dose schedule. The timing between first and second doses varies by country and by vaccine product. As of September, seven countries who had extended the timing between doses earlier in the vaccination campaign had decreased the timing between doses of some vaccine products.
- For individuals previously infected with SARS-CoV-2, 14 countries currently recommend only one dose (for vaccines with a two-dose schedule).
- Twenty countries recommend specific COVID-19 vaccine products for specific population groups. The adaptation is mainly based on age-specific recommendations for both the Vaxzevria and COVID-19 Vaccine Janssen.
- A minority of countries (n=8) reported that they have adapted their COVID-19 vaccination strategy due to the circulation of new variants of concern, mainly by reducing the timing between vaccine doses.
- Twenty-eight countries recommend vaccination for all adolescents aged 12-17 years, while two countries are currently recommending vaccination of 12-17-year-olds in risk groups. Most countries are administering vaccines for adolescents in vaccination centres.
- Most countries (n=23) recommend the vaccination of pregnant women, most of them following the first trimester with mRNA vaccines.
- Thirteen countries recommend an additional dose as an extension of the primary series (i.e. to immunocompromised individuals), and nine countries recommend both an additional dose as an extension of primary series and a booster dose for waning immunity. Seven countries are currently discussing additional and booster dose recommendations, and one country does not currently have recommendations.
- Sixteen countries are generally administering a heterologous combination of vaccine doses, with the majority administering mRNA vaccines as second dose.
- The majority of countries do not have mandatory vaccination in place for any population groups. Four countries have mandatory vaccination in place for healthcare workers and/or workers in long-term care facilities.

Challenges and good practices with the vaccine rollout

- Only two countries reported a challenge with limited vaccine supply; for the other 15 reporting countries this was no longer considered an issue. The main challenge countries face is around communication and with the uptake of vaccines in different population groups.

Vaccine acceptance, hesitancy, and uptake

- With vaccination uptake plateauing, and with some countries lagging behind in increasing uptake, many countries are now trying to reach those population groups that still have low uptake, such as under-served and vulnerable groups and young people.
- Countries are using a range of strategies to encourage vaccine acceptance and address vaccine hesitancy or uptake. These include measures such as: targeted communication campaigns; increasing knowledge and information; ensuring easier access to vaccinations; partnerships with stakeholders, including engaging with communities; sending vaccination reminders; incentives; and addressing vaccinations in workplaces.
- Increasing vaccination coverage, closing the immunity gap, and ensuring all eligible individuals are fully vaccinated, especially those at higher risk of severe disease, is the highest priority at this stage of the vaccination rollout in the EU/EEA.

The rollout of national vaccination campaigns is a continuously moving process, and this report provides a snapshot of the progress to date.

Scope of this document

On 19 January 2021, 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, the goal was set for a minimum of 70% of the adult population to be vaccinated by the summer of 2021 [1].

ECDC has previously published five technical reports on vaccination strategies and vaccine deployment across EU/EEA countries, on 2 December 2020 [2], 1 February 2021 [3], 29 March 2021 [4], 6 May 2021 [5], and 14 June 2021 [6]. This sixth 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; vaccination strategies and policies in place; vaccine acceptance and hesitancy; and challenges countries face with increasing uptake 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 [7,8].

- 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:
  - Responses from countries to the vaccine-related questions received between 7 June and 6 September 2021. Where relevant, data are included from responses provided before June. The response rate from countries to each question is specified in the sections below.
  - Two European Commission surveys given to the Health Security Committee in July on challenges and good practices to increase COVID-19 vaccination uptake and current recommendations for the vaccination of adolescents.
- On 14 September 2021, a draft version of this report was sent to the Health Security Committee Members for verification and validation, and to complement any missing information.

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 [9] on ECDC's website, as well as the weekly report on the COVID-19 vaccine rollout overview [10]. The information on the COVID-19 vaccine rollout presented in this report is based on most recent data reported by EU/EEA countries to TESSy and displayed in the Vaccine Tracker as of 12 September 2021. The Vaccine Tracker may be consulted for additional details and country specific disclaimers on data.

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 have become available through the EU Vaccines Strategy. Annex 1 (Table 18) presents an overview of COVID-19 vaccines currently being rolled out in EU/EEA countries and the dates of their first administration.

Since the beginning of the vaccination rollout in the EU, four COVID-19 vaccines have received conditional marketing authorisation in the EU, following evaluation by the European Medicines Agency (EMA) [11]: Comirnaty (BNT162b2), Spikevax (mRNA-1273), Vaxzevria (AZD1222), and COVID-19 Vaccine Janssen (Ad26.COV 2.5). All vaccine products authorised in the EU were initially registered for use in people aged 18 years and older, with the exception of Comirnaty, which was approved for use in individuals 16 years and older. Corminarty and Spikevax indications were recently extended to include children aged 12 to 15 years and 12 to 17 years, respectively.

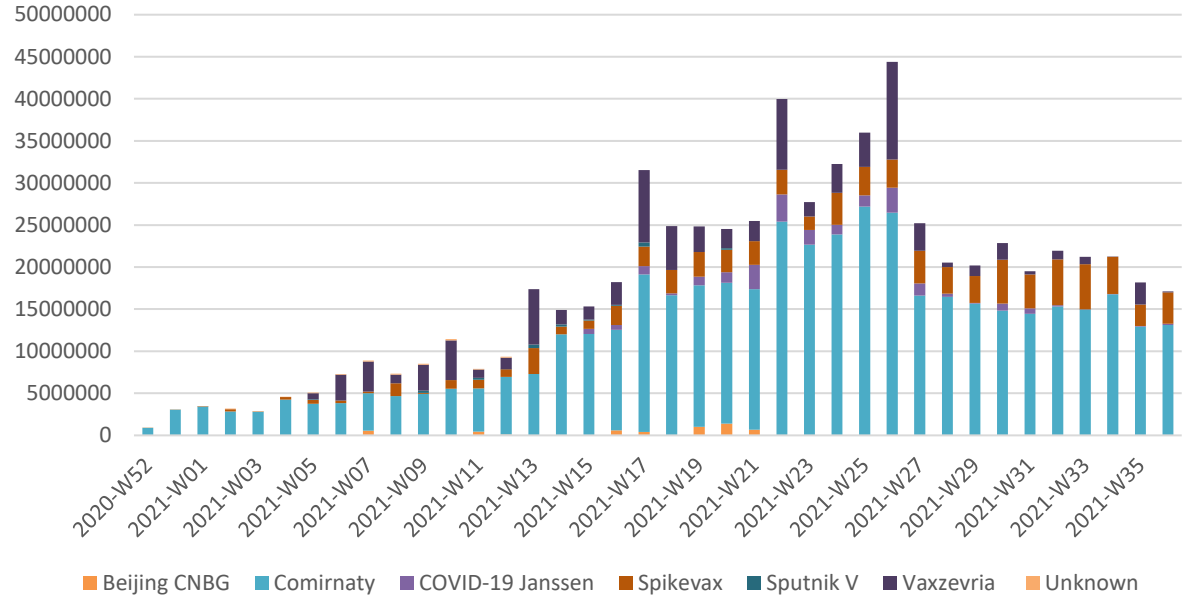
Rolling reviews for additional COVID-19 vaccines are ongoing: NVX-CoV2373 by Novavax (started 3 February 2021), CVnCoV by CureVac (started 12 February 2021), Sputnik V (Gam-COVID-Vac) by Gamaleya (started 4 March 2021), COVID-19 Vaccine (Vero Cell) Inactivated (started 5 May 2021), and Vidprevtyn (Sanofi Pasteur) (started 20 July 2021) [12].

Distribution of vaccine doses by manufacturers to EU/EEA countries

As of 12 September 2021, overall and based on data reported by 29 countries (data for Malta not reported to TESSy), a total of 671 767 335 vaccine doses have been distributed by manufacturers to EU/EEA countries (Figure 1). These data do not take into account doses that may have been re-sold or donated to third countries. Comirnaty represented 69% of all doses distributed, followed by Vaxzevria (14%), Spikevax (12%), and Janssen (3%); 1 056 885 vaccine doses distributed to Norway are reported to TESSy as unspecified product (0.3%). COVID-19 Vaccine Janssen was not distributed to Liechtenstein and Sweden and is not in use in Finland (albeit distributed). Vaxzevria was not distributed to Liechtenstein and is no longer in use in Denmark and Norway. Hungary and Slovakia receive supplies of Sputnik V and Hungary of Inactivated Beijing CNBG through bilateral negotiations with the manufacturers.

As of 12 September 2021, the distribution rate of COVID-19 vaccines ranges from 95.9 and 102.3 vaccines per 100 inhabitants respectively in Bulgaria and Romania to 264.3 vaccines per 100 inhabitants in Hungary. The overall median distribution rate was 189.1 vaccines per inhabitants. A peak in doses distributed to countries has been observed between week 22 and week 26 (Figure 1). Since then, the distribution of vaccine doses to EU/EEA countries decreased, fluctuating at around 20 million doses per week (about 17 million in week 36). In recent weeks, Comirnaty and Spikevax represent the majority of vaccine doses distributed to EU/ EEA countries, while a reduction in the supply of Vaxzevria and COVID-19 Vaccine Janssen is observed.

Figure 1. Weekly number of vaccine doses distributed by manufacturers to EU/EEA countries by vaccine product since the beginning of the rollout and as of week 36, 2021

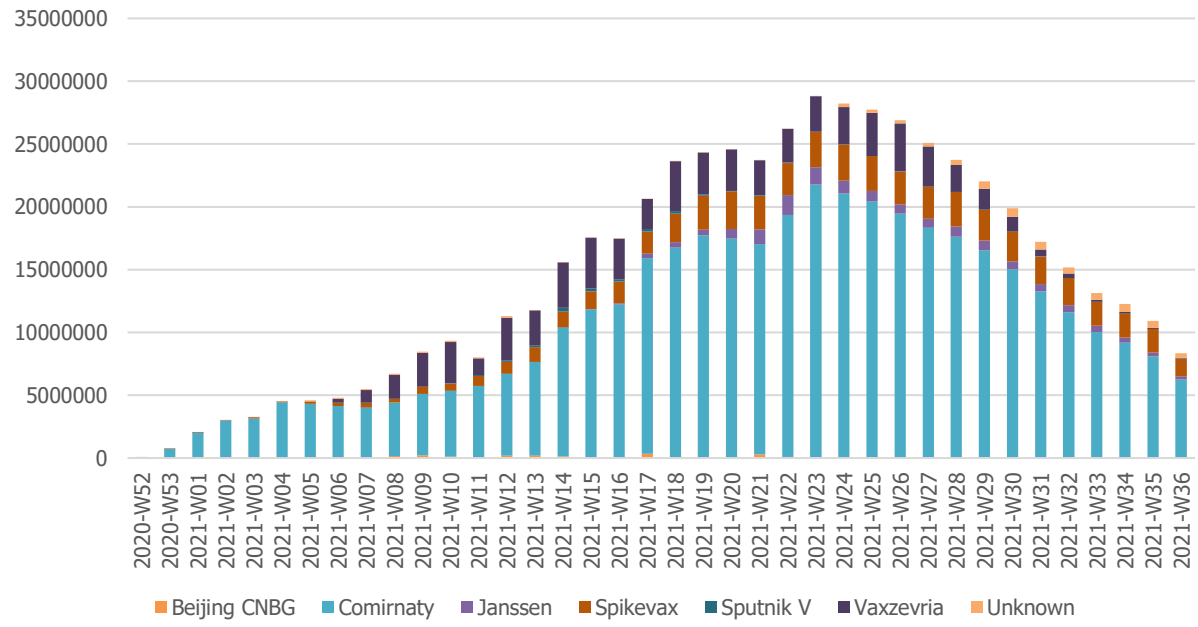


**Source: TESSy; data reported by 29 countries as of Week 36, 2021 (missing Malta)*

Administration of vaccine doses in EU/EEA countries

As of 12 September 2021, a total of 540 115 965 vaccine doses have been administered to adults and eligible adolescents and children (30 countries reporting). A peak in the weekly number of vaccines administered was observed in week 23 and has been slowly decreasing since (Figure 2). The median percentage of usage of vaccine supplies was 80% among 29 EU/EEA countries with available information. Overall, Comirnaty represents 73% of all doses administered in EU/EEA countries, followed by Vaxzevria (12%), Spikevax (10%), and COVID-19 Vaccine Janssen (3%); 1.4% others (Sputnik V and Inactivated Beijing CNBG), and 0.3% unknown vaccine products.

Figure 2. Weekly number of COVID-19 vaccine doses by product, administered in EU/EEA countries as of week 36, 2021*

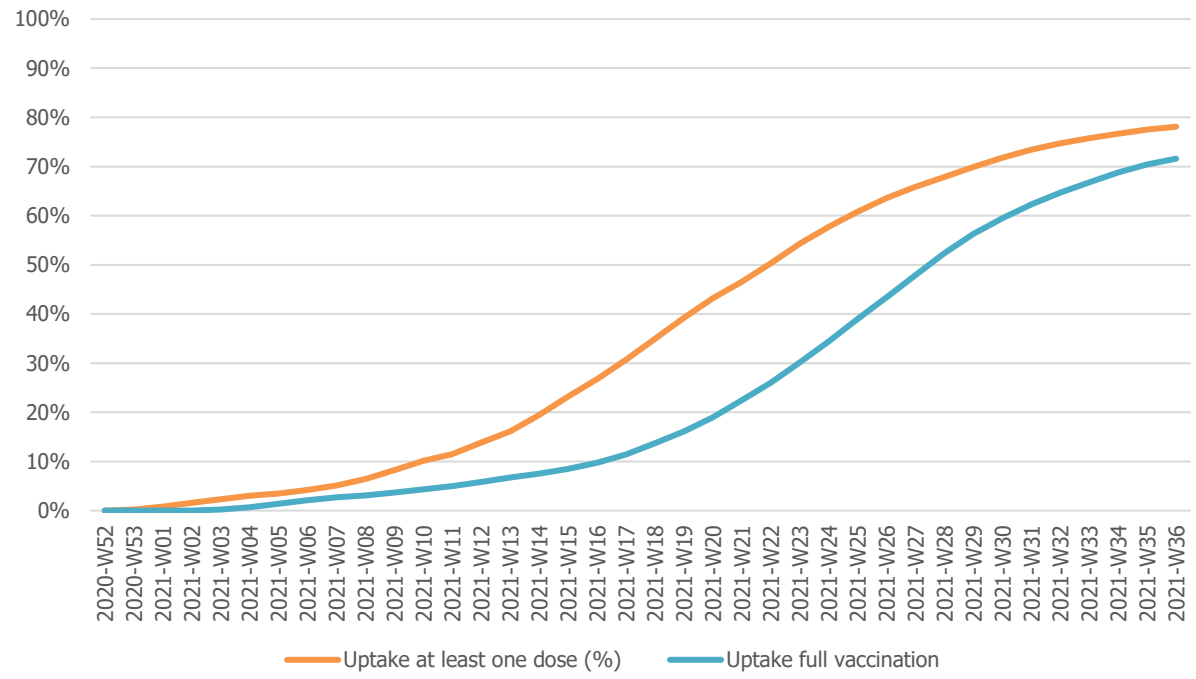


**Source: TESSy; data reported by 30 countries as of Week 36, 2021*

Vaccination uptake in different age groups

Since the start of the rollout of COVID-19 vaccination campaigns in the EU/EEA in December 2020, and as of 12 September 2021, the cumulative vaccine uptake in the adult population (aged 18 years and older) has reached 78.1% for at least one vaccine dose (range: 23.3–96.9%) and 71.6% for the full vaccination course (range: 21.7–90.5%) (30 reporting countries) (Figure 3). The cumulative uptake of at least one vaccine dose and full vaccination in the adult population (18 years and above) in each EU/EEA country is shown in Annex 2. The median level of vaccine uptake of one dose and full vaccination was respectively 79.6% and 70.9%. It is notable that a few countries are lagging, with six countries reporting less than 60% of uptake of at least one dose (Bulgaria, Croatia, Latvia, Romania, Slovakia, and Slovenia).

Figure 3. Cumulative uptake (%) of at least one vaccine dose and full vaccination among adults (18+ years) in EU/EEA countries as of week 36



As of 12 September 2021, the median vaccine uptake of at least one dose by age group in adults ranged from 60.8% in 18-24-year-olds to 88.1% in 70-79-year-olds. Notably, the level of vaccine uptake of at least one dose in 70-79-year-olds and 60-69-year-olds has now reached the level observed in those 80 years old and above (Figure 4). Overall and in all age groups above 70-year-olds, the level of one-dose uptake has been plateauing since week 23 and more recently in 60-69-year-olds (week 30). In 24-49 and in 50-59-year-olds, the uptake gained about 2-3% over the past four weeks, which may be the initial phase of a plateau.

A similar observation may be made for the full vaccination uptake that ranged between 61% in 18-24-year-olds to 87% in 70–79-year-olds, with a plateau observed in those 70 years and above since week 29. The completion of the full vaccination scheme remains a priority in those aged 60 years and older. The progression of full vaccination in other adult age groups needs to be carefully monitored.

With the recent authorisation of Comirnaty and Spikevax in children aged 12 to 15 years and 12 to 17 years, respectively, the rollout started among these age groups over the summer. As of 12 September 2021, the level of uptake of at least one dose and of full vaccination in those under 18 years reached 13% and 10%, respectively.

Figure 4. Median cumulative vaccination uptake of at least one dose by age group, as of week 36, 2021 (27 reporting countries, see below)

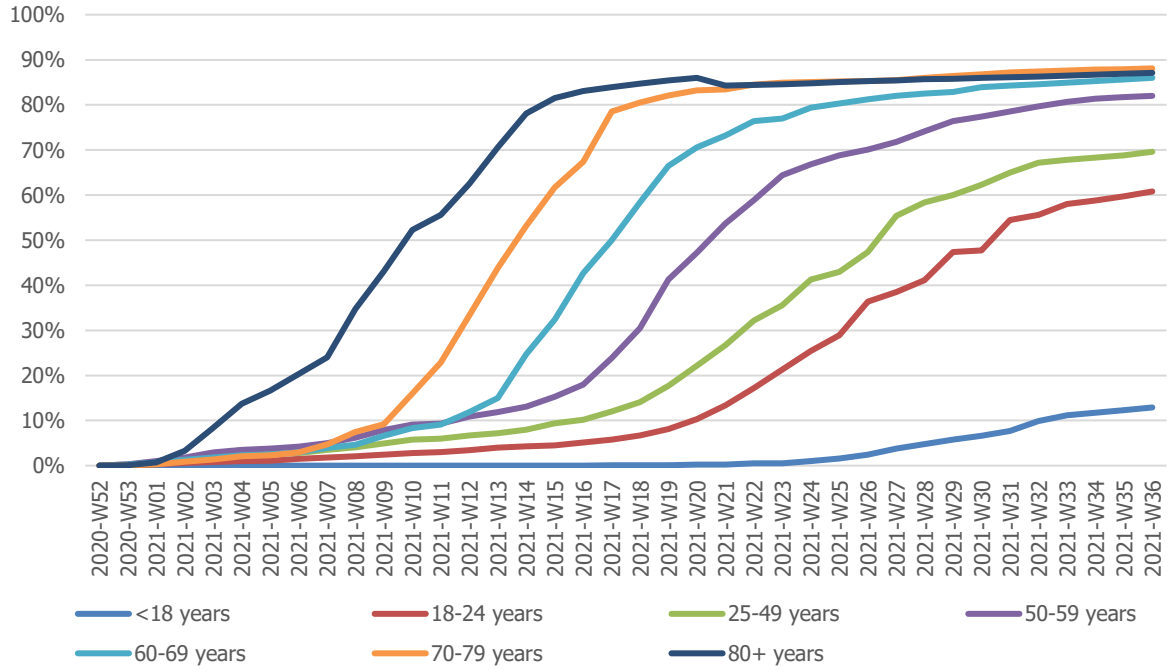
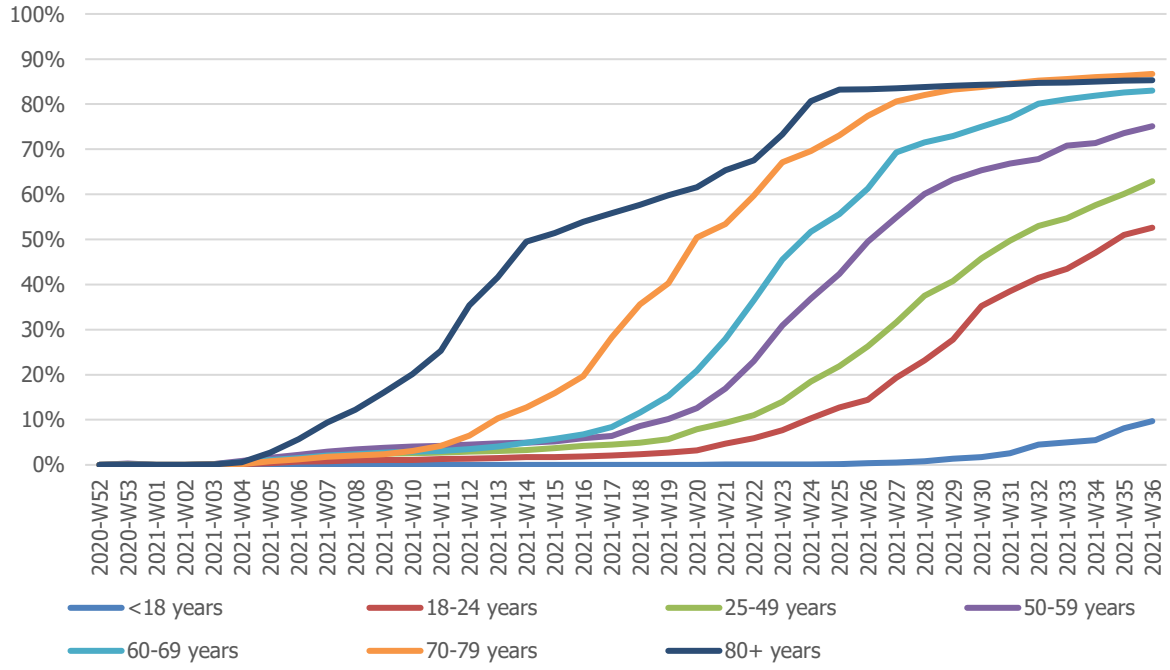


Figure 5. Median cumulative of full vaccination uptake by age group, as of week 36, 2021 (27 reporting countries, see below)



Other adult target groups

Among healthcare workers, as of 12 September 2021, the median vaccine uptake of at least one dose and full vaccination remained stable at 83.9% (range: 24.1–100%) and 81.1% (range: 23.2-100%), respectively (17 countries reporting). The same observation applies to the level of uptake reported in LTCFs (Table 1).

Table 1 shows a summary of the cumulative uptake of at least one vaccine dose and full vaccination in adults (18+), individuals under 18 years old, and other adult priority groups (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 [9] and in the weekly COVID-19 vaccine rollout overview [10].

Table 1. Summary table of vaccine uptake by target populations as of week 36 (12 September), 2021

Vaccine uptake	Uptake (range)	Reporting countries
At least one dose among adults (>=18 years old)	78.1% (range: 23.3–96.9%)	All 30 EU/EEA countries
Full vaccination among adults (>=18 years old)	71.6.% (range: 21.7–90.5%)	All 30 EU/EEA countries
At least one dose among under 18 years old	13% (range: 0.7-30.6)	25 (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden)
Full vaccination among under 18 years old	10% (range:0.4-22.7)	25 (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden)
At least one dose among people 80+ years (median)	87.2% (range: 20.7–100%)	27 (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden)
Full vaccination among people 80+ years (median)	85.4% (range: 19.4–100%)	27 (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden)
At least one dose among healthcare workers (HCW) (median)	83.9% (range: 24.1–100%)	17 (Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta, Romania, Slovenia, Spain, Sweden)
Full vaccination among HCW (median)	81.1% (range: 23.2–100%)	17 (Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta, Romania, Slovenia, Spain, Sweden)
At least one dose in long-term care facilities (median)	81.1% (range: 36.4–100%)	13 (Bulgaria, Czechia, Denmark, Estonia, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta)
Full vaccination in long-term care facilities (median)	84.2% (range: 36.4–100%)	13 (Bulgaria, Czechia, Denmark, Estonia, Greece, Hungary, Iceland, Ireland, Latvia, Luxembourg, Malta)

**Source: TESSy; data reported as of Week 36, 2021*

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; recommendations of vaccine products for age or target groups; changes in vaccination strategy due to variants of concern (VOC); vaccination of adolescents aged 12-17 years, recommendation of vaccination for pregnant women, recommendations for an additional vaccine dose or booster dose, administration of a heterologous combination of vaccine doses, mandatory vaccination and use of vaccination certificates.

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), as well as healthcare workers. Vaccination phases differed by country, with a range of two to 16 different phases, depending on their specific prioritisation strategies and vaccine availability.

As vaccines have been made widely available, all countries have now opened vaccinations to the general population and are no longer in the prioritisation phase of vaccinating only those at risk of severe disease and healthcare workers. All responding countries have now opened vaccination to those aged 12 years and over.

Timing between the first and second dose of COVID-19 vaccines

In June, 16 responding countries had 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. Seven countries (Iceland, Latvia, Lithuania, Malta, Slovakia, Slovenia, and Spain) had not extended the timing between the first and second dose of authorised vaccines, although Lithuania and Spain have special recommendations. For more details on the timing between the doses for the countries and vaccine products, please see the previous ECDC vaccine deployment report [6].

According to the latest responses from countries, in September seven countries (Austria, Belgium, Czechia, Finland, Ireland, Portugal, and Spain) that had extended the timing between doses earlier in the vaccination campaign have now decreased the timing between doses for some vaccine products. The decrease of timing between doses is due to the increase of vaccine supplies and carried out to enable an acceleration of the programmes, and in some countries also a response to the increase in the circulation of variants of concern, particularly Delta.

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, a single dose of the currently available vaccines with a two-dose schedule may provide sufficient immunity [13-17].

Based on the most recently reported information, 12 countries currently recommend the full vaccination schedule to people who were previously infected, while 14 countries recommend only one dose (for vaccines with a two-dose schedule). For timing of dose administration and documentation, please see the previous ECDC vaccine deployment report [6].

Table 2. Recommendations of COVID-19 vaccination in individuals previously infected (n=26)

Recommended vaccination dose in individuals previously infected with SARS-CoV-2	Countries
Full vaccination course	Belgium, Bulgaria, Cyprus, Czechia, Denmark, Finland, Lithuania, Luxembourg, Malta, Romania, Slovakia, Sweden
One dose (for those vaccines that have a two-dose regimen)	Austria, Croatia, Estonia*, France, Germany, Iceland, Ireland, Italy, Latvia, the Netherlands, Norway, Slovenia, Portugal, Spain

** A second dose may be administered if there is a need (e.g. problems entering a country that requires two doses even from those who have recovered from COVID-19).*

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

Twenty countries are recommending specific COVID-19 products to certain target and/or age groups, mainly for the use of Vaxzevria and/or COVID-19 Vaccine Janssen in older age groups. Four countries have suspended the use of certain COVID-19 vaccine products in their vaccination campaigns – in Denmark, the vaccines Vaxzevria and COVID-19 Vaccine Janssen are not used, and in Norway Vaxzevria is no longer used and COVID-19 Vaccine Janssen is not used routinely (only in specific situations). In Sweden and Finland, COVID-19 Vaccine Janssen is not being used in their vaccination campaigns.

Table 3. Details of country recommendations of specific COVID-19 vaccine products for specific age or target groups (n=20)

Country	Comirnaty	Spikevax	Vaxzevria	COVID-19 Vaccine Janssen
Belgium			≥41 years	≥41 years
Bulgaria			Not to be used in women younger than 60 years with increased risk of thrombosis and/or history of thrombocytopenia	
Croatia			≥50 years	
Denmark			Vaccine no longer used but can be given to people who want to take the vaccine after consultation with a doctor	Vaccine not used but can be given to people who want to take the vaccine after consultation with a doctor
Estonia			≥50 years	No official age limit recommendation, but recommended to use for vaccinating people who have difficulty reaching a family doctor or who have a serious illness that means they cannot go to a vaccination venue themselves, or are in a situation where one vaccine dose is considered optimal (e.g. people moving to elderly care homes, risk group patients in hospitals, etc)
Finland			>65years	
France			≥55 years	≥55 years
Germany			≥60 years	≥60 years
Greece			≥30 years	
Iceland			>55 years women >40 years men who do not have risk factors that increase the risk of thrombosis	
Ireland			≥50-69 years; Not recommended for pregnant women	≥50-69 years; <50 years if two-dose vaccine not feasible; not recommended for pregnant women
Italy			≥60 years	≥60 years
Latvia			Not recommended for pregnant women	Not recommended for pregnant women
Luxembourg	mRNA vaccine for people under <30 years and pregnant women. For people aged 30-54 years at risk of severe COVID-19, preference should be given to mRNA vaccines if available	mRNA vaccine for people under <30 years and pregnant women. For people aged 30-54 years at risk of severe COVID-19, preference should be given to mRNA vaccines if available	Those between 30-54 years can register to be voluntarily vaccinated ≥55 years	≥30 years

Country	Comirnaty	Spikevax	Vaxzevria	COVID-19 Vaccine Janssen
Malta			18-70 years	
The Netherlands			≥ 60 years	
Poland			69 years and under (born in 1952 and younger)	
Portugal			≥ 60 years	Recommended for all people ≥50 years and only for males <50 years
Spain			≥60 years	Recommended primarily for those > 40 years.
Sweden			≥65 years	Janssen vaccine suspended

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

As of 9 September 2021, ECDC has listed the following variants as VOCs for EU/EEA: B.1.351 (Beta, first detected in South Africa); P.1 (Gamma, first detected in Brazil); and B.1.617.2 (Delta, first detected in India) [18].

For the VOCs, clear evidence is available indicating a significant impact on transmissibility, severity and/or immunity that is likely to have an impact on the epidemiological situation in the EU/EEA, as well as on immunity following vaccination and on vaccine effectiveness. The Delta VOC is currently the most common variant in EU/EEA countries and the proportion is still increasing [19].

Fifteen responding EU/EEA countries (Bulgaria, Denmark, Estonia, Croatia, Ireland, Latvia, Luxembourg, Lithuania, Netherlands, Romania, Slovakia, Slovenia, Sweden, Iceland, and Norway) made no changes to the public health objective of the vaccination campaign in light of the circulation of new VOCs. Seven countries reported changes made to the health objective of the vaccination campaigns in relation to the new VOCs by reducing the previously extended timing between the first and second vaccine doses (Austria, Belgium, Czechia, Finland, Germany, Portugal, and Spain). In Portugal, the interval between doses of Vaxzevria was changed from 12 to eight weeks. In Malta, different cohorts were called for vaccinations in parallel due to new VOCs, and Germany reported that they recommend one dose of mRNA vaccine to people who have received Vaxzevria as a first dose in order to decrease the timing between the first and second dose and for an increase of antibodies.

Table 4. Changes in COVID-19 vaccination strategy due to the circulation of new VOCs (n=22)

Change in COVID-19 vaccination strategy due to the circulation of new VOCs	Countries
Yes	Austria, Belgium, Czechia, Finland, Germany, Malta, Portugal, Spain
No	Bulgaria, Denmark, Estonia, Finland, Croatia, Ireland, Latvia, Luxembourg, Lithuania, Netherlands, Romania, Slovakia, Sweden, Iceland, Norway

Vaccination of 12-17-year-olds

In comparison to the responses from countries in late May, when only two countries were vaccinating adolescents, as of 8 September 2021, 28 countries are recommending vaccination for 12-17-year-olds. Croatia responded that vaccination is available for adolescents but is recommended for adolescents with chronic diseases, while Sweden currently offers vaccination to 12-15-year-olds with risk factors.

Table 5. Country recommendations of vaccination of 12-17-year-olds (n=30)

Vaccination of adolescents aged 12-17 years	Countries
Yes, for all adolescents	Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Liechtenstein, Luxembourg, Malta, the Netherlands, Norway~, Poland, Portugal, Romania, Slovakia, Slovenia, Spain
Yes, but only for adolescents with risk factors	Croatia>, Sweden*

~One dose of vaccination is recommended for 12-15 years and two doses for 16-17 years.

>Vaccination is available for all adolescents but is currently recommended for adolescents with chronic diseases.

** Adolescents 16-17 years are offered vaccination; adolescents 12-15 years with risk factors are offered vaccination.*

Several countries provided details of where adolescent vaccinations are taking place. The majority of countries are offering adolescent vaccination at vaccination centres, with GP clinic/family doctors and schools the next popular options. Germany added a comment that settings for providing vaccinations can vary between the federal states.

Table 6. Locations/sites for providing adolescent vaccinations (n=22)

Sites for providing adolescent vaccination	Countries
Vaccination centres	Austria, Belgium, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Liechtenstein, Luxembourg, Poland, Portugal, Romania, Slovenia, Slovakia, Spain
GP clinics/Family doctors	Austria, Croatia, Estonia, Germany, Italy, Latvia, Liechtenstein, Luxembourg, Malta, Romania
Schools	Czechia, Croatia, Estonia, Finland, France, Latvia, Luxembourg, Lithuania, Poland
Paediatrician clinics	Austria, Czechia, Estonia, Germany, Latvia
Hospitals	Czechia, Estonia, Germany, Latvia, Slovakia, Spain
Mobile vaccination or pop-up vaccination sites	Austria, Denmark, Estonia, Germany, Latvia, Luxembourg, Malta
Pharmacies	Estonia, Italy

Recommendation of vaccination for pregnant women

Most countries are recommending vaccination for pregnant women after the first trimester, and most are recommending vaccination with one of the currently authorised mRNA vaccines (Comirnaty or Spikevax). Vaccination for pregnant women is not currently recommended in one country (Bulgaria).

Table 7. Recommendation of vaccination for pregnant women (n=24)

Vaccination recommended for pregnant women	Countries
Yes, any of the vaccine products are recommended	Romania, Czechia
Yes, but only certain vaccine products are recommended	Austria, Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden
No, pregnant women are not recommended to get vaccinated	Bulgaria

Countries provided further details on timing of the vaccination and vaccine products recommended:

- In Austria, vaccination with an mRNA vaccine is recommended after a careful individual benefit-risk evaluation, in the second or third trimester.
- In Croatia, vaccination is not routinely recommended for all pregnant women, but is advised if pregnant women have pre-existing comorbidities, mainly after the first trimester of pregnancy; an mRNA vaccine is recommended.
- In Czechia, the recommendation is for administration only during the second trimester.
- Denmark recommends mRNA-vaccines (Spikevax and Pfizer-BioNTech) for all pregnant women and administration in the second or third trimester from a precautionary principle.

- In Estonia, vaccination is recommended for pregnant women with mRNA vaccines.
- In Finland, the Vaxzevria vaccine is only recommended for people over 65 years old, so pregnant women are recommended one of the mRNA vaccines.
- In France, pregnant women from the second trimester onwards are recommended to be vaccinated preferably with Comirnaty or Spikevax, especially if the woman has comorbidities.
- In Germany, vaccination is recommended in the second trimester with one of the mRNA vaccines, and vaccination is also recommended for breastfeeding mothers.
- In Iceland, vaccination is provided preferably after week 12 using either of the mRNA vaccines.
- In Ireland, pregnant women are offered an mRNA COVID-19 vaccine at any stage of pregnancy, following an individual benefit/risk discussion with their obstetric care-giver.
- Either of the mRNA vaccines are recommended in Latvia.
- In Lithuania, COVID-19 mRNA vaccines (Comirnaty or Spikevax) are recommended for all pregnant women and can be given at any time during pregnancy. The same vaccines are recommended for breast-feeding women.
- In Malta, Comirnaty is recommended for pregnant women.
- In Portugal, Comirnaty or Spikevax are recommended for pregnant women, and for all women of childbearing age (COVID-19 vaccine Janssen can only be administered to women aged 50 years and over). Vaccination is recommended from the 21st gestation week onward (after the morphological echography) but can be administered at any point of the gestation.
- Slovakia recommends Comirnaty.
- In Spain, the recommendation is to vaccinate pregnant or lactating women with mRNA vaccines according to the prioritisation group to which they belong (i.e. age, risk conditions) at any time during the pregnancy.

Additional dose/booster dose recommendations

Twenty-two countries are recommending an additional dose or a booster dose to different population groups. Thirteen countries are only recommending an additional dose as an extension of the primary series, i.e. to immunocompromised individuals, and nine countries are recommending both an additional dose as an extension of primary series and a booster dose for waning immunity. Seven countries are currently discussing additional and booster dose recommendations, and one country does not have recommendations at this time.

Table 8. Summary of recommendations for an additional dose and/or booster dose (n=30)

Recommendation of an additional vaccine dose as extension of primary series and/or a booster for waning immunity	Countries
Additional dose as extension of primary series (e.g. for the immunocompromised)	Belgium, Estonia, Finland, Italy, Latvia, Liechtenstein, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Spain
Both as additional dose as extension of primary series (e.g. for the immunocompromised) and booster dose for waning immunity (e.g. certain risk groups)	Austria, Cyprus, Denmark, France, Germany, Hungary, Ireland, Lithuania, Slovenia
Under discussion	Croatia, Czechia, Greece, Iceland, Romania, Slovakia, Sweden
No recommendation	Bulgaria

Table 9. Details of recommendations for an additional dose and/or a booster dose (n=30)

Country	Recommendation of an additional vaccine dose as extension of primary series and/or a booster for waning immunity	Population groups are currently indicated	Homologous or heterologous regimen	Timing of additional dose or booster dose
Austria	Additional dose as extension of primary series and as booster dose for waning immunity (started)	Immunocompromised/ immunosuppressed individuals, LTCF residents, healthcare workers, personnel in mobile care, support, nursing and 24-hour care as well as caring relatives, personnel in educational institutions (childcare, school, university, etc.), the general population (people aged ≥ 65 years, people who received a vector-based primary vaccination series)	mRNA vaccine based	Different timings depending on the population group
Belgium	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	Homologous	
Bulgaria	No recommendations at this time			
Croatia	Under discussion for immunocompromised and elderly (65+)			Four months after full vaccination
Cyprus	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised/ immunosuppressed individuals LTCF residents Healthcare workers >65 years		Immunocompromised/immunosuppressed individuals (> four weeks) Healthcare workers, >65 years, LTCF residents (>6 months)
Czechia	Under discussion for immunocompromised individuals, especially transplant recipients		Homologous	Eight months after full vaccination
Denmark	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised/ immunosuppressed individuals and elderly people living in nursing homes	Homologous	Minimum four weeks after full vaccination and maximum eight months or at earliest convenience
Estonia	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals		
Finland	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	Homologous	Minimum two months after full vaccination
France	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised/ immunosuppressed people elderly above 65 years of age	mRNA vaccine based	Four weeks after full vaccination
Germany	Additional dose as extension of primary series and as booster dose for waning immunity	Severely immunocompromised, those above 60 years; and people working in healthcare settings or working with vulnerable groups; people in need of care, and also those who received a vector-based vaccine in primary series	mRNA vaccine based	Recommended interval at least five months for extension of primary series.
Greece	Under discussion			
Hungary	Additional dose as extension of primary series and as booster dose for waning immunity	Anyone who fulfils the following conditions: received a complete vaccination schedule (two doses of a two-dose scheduled vaccine or one dose of COVID-19 Vaccine Janssen); older than 18 years; four months or more have passed since the completion of primary	Heterologous recommended (homologous available)	Four months or more

Country	Recommendation of an additional vaccine dose as extension of primary series and/or a booster for waning immunity	Population groups are currently indicated	Homologous or heterologous regimen	Timing of additional dose or booster dose
		vaccination. The third vaccine is especially recommended for the elderly, those with chronic illness, and individuals with a weakened immune system.		
Iceland	Under discussion for immunocompromised and elderly second dose to those that received the COVID-19 Vaccine Janssen			
Ireland	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised, people aged over 80 years in the community, and those aged over 65 years in long-term residential care facilities	mRNA vaccine based	Minimal interval of six months following completion of the primary vaccination schedule
Italy	Additional dose as extension of primary series	Immunocompromised and transplant recipients	mRNA vaccine based	At least 28 days after last dose
Latvia	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	Heterologous	28 days after second dose (or 28 days after Janssen vaccine first dose)
Liechtenstein	Additional dose as extension of primary series	Severe immunocompromised patients		
Lithuania	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised/ immunosuppressed individuals, LTCF residents, healthcare workers, those receiving supportive care and nursing services; employees and staff of medical institutions, social service institutions, social workers; staff of laboratories in public health and pharmacies; drivers of municipalities and medical institutions transporting people suspected of suffering from COVID-19; people over 65 years	mRNA vaccine-based	180 days after full vaccination
Luxembourg	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	mRNA vaccine-based	0-4-12 week schedule for the first, second and third doses respectively (the third dose can also be administered after the 12th week, in case of catching up from a previous vaccination)
Malta	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals		
Netherlands	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	mRNA vaccine-based	At least four weeks after full vaccination
Norway	Additional dose as extension of primary series	Immunocompromised/ immunosuppressed individuals	Heterologous and homologous	At least four weeks between second and third
Poland	Additional dose as extension of primary series	Immunocompromised individuals	Homologous	≥28 days after full vaccination
Portugal	Additional dose as extension of primary series	Certain immunosuppressed individuals	mRNA vaccine-based	At least three months after full vaccination

Country	Recommendation of an additional vaccine dose as extension of primary series and/or a booster for waning immunity	Population groups are currently indicated	Homologous or heterologous regimen	Timing of additional dose or booster dose
Romania	Under discussion for immunosuppressed individuals and healthcare workers		Homologous	
Slovakia	Under discussion			
Slovenia	Additional dose as extension of primary series and as booster dose for waning immunity	Immunocompromised/ immunosuppressed individuals LTCF residents Healthcare workers	mRNA vaccine-based	At least six months (at least four weeks after completion of primary series for immunocompromised)
Spain	Additional dose as extension of primary series	Certain risk groups (e.g. immunocompromised)	Homologous	Different recommendations depending on the risk group
Sweden	Under discussion for immunocompromised/immunosuppressed individuals			

Sources:
ISAA survey responses and validation from countries
ECDC report - Interim public health considerations for the provision of additional COVID-19 vaccine doses [19]
Rapid desk review of official sources

Administration of a heterologous combination of vaccine doses

Sixteen countries are administering a heterologous combination of vaccine doses (mixed schedule), with the majority administering Vaxzevria as the first dose followed by Comirnaty or Spikevax for the second dose. Eight countries are not generally recommending administering a heterologous vaccine regimen.

Table 10. Administration of a heterologous combination of vaccine doses (n=24)

Country administering a heterologous combination of vaccine doses	Countries
Yes	Denmark, Estonia, Finland, France, Germany, Iceland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden
No	Austria^, Belgium, Bulgaria, Croatia*, Czechia, Ireland>, Romania, Slovakia~

^A heterologous combination can be used in case of adverse reactions that constitutes a medical contraindication for a second vaccine dose with the same vaccine or in case of pregnancy.
**A heterologous combination of vaccine doses is possible for people who have an allergic reaction or severe side effect to the first dose or on request.*
>Selective use of heterologous vaccination schedules where a second vaccine dose of a homologous regimen is contraindicated.
~A heterologous combination of vaccine doses is possible for people only in some cases indicated by doctors because of side effects.

Several countries gave details on the vaccine products and timing of a heterologous combination of vaccine doses used. In many countries, a first dose of Vaxzevria followed by a second dose of one of the mRNA vaccines (Comirnaty or Spikevax) is offered.

Further comments from countries about a heterologous combination of vaccines and timing included:

- In Austria, in case of adverse reactions that constitutes a medical contraindication for a second vaccine dose with the same vaccine or in case of pregnancy occurring after the first dose with the two-dose regimen vector vaccine, a heterologous combination of vaccine doses should be considered. If a heterologous combination of vaccine doses is used, it is recommended that the responsible physicians explicitly document the relevant information, including the explicit justification.
- In Finland, all who received Vaxzevria as first dose receive an mRNA vaccine (Comirnaty or Spikevax)
- In Germany, all people who have received Vaxzevria are recommended one dose of mRNA vaccine (Comirnaty or Spikevax) not before four weeks after first vaccination.

- In Ireland, homologous vaccine regimens are recommended for all age groups. Ireland does allow for selective use of heterologous vaccination schedules where a second vaccine dose of a homologous regimen is contraindicated, irrespective of whether the first dose was an mRNA or adenoviral vector vaccine. In addition, an mRNA vaccine can be offered to those who received a first dose of Vaxzevria but did not complete the vaccination schedule as recommended.
- In Luxembourg, it is possible for people under 55 years of age without vulnerability criteria, to receive Vaxzevria followed by a dose of mRNA vaccine (Comirnaty or Spikevax) within four to 12 weeks after the first vaccination.
- In Norway, some people are offered a combination of either of the two mRNA vaccines for dose one and dose two (Comirnaty and Spikevax). Due to the fact that the Vaxzevria vaccine was paused in Norway from 11 March 2021, the Norwegian Institute of Public Health recommends that people who received the first dose of the Vaxzevria receive a second dose of either Comirnaty or Spikevax.
- In Portugal, immunosuppressed individuals who had primary vaccination with either Vaxzevria or COVID-19 vaccine Janssen are given an additional dose with an mRNA vaccine (Comirnaty or Spikevax). Individuals who are below 60 years who had a first dose of Vaxzevria are administered with an mRNA vaccine for second dose.
- In Spain, people under 60 years old who have already been vaccinated with a first dose of Vaxzevria are recommended a second dose of Comirnaty.

Mandatory vaccination

At the start of the vaccination campaigns in the EU/EEA, no countries had mandatory vaccination in place for any population groups. There are now four countries with mandatory vaccination in place for healthcare workers and/or workers in long-term care facilities (France, Greece, Hungary, and Italy). Mandatory vaccination for healthcare workers is being discussed in four other countries. Some 18 countries responded that they do not have mandatory vaccination in place for any population groups.

Table 11. Mandatory vaccination (n=26)

Mandatory vaccination	Countries
Yes, for healthcare workers and/or workers in long-term care facilities	France, Greece, Hungary, Italy
No	Bulgaria, Croatia, Denmark, Estonia, Finland, Iceland, Ireland, Germany, Liechtenstein, Lithuania, Romania, the Netherlands, Norway, Portugal, Slovenia, Slovakia, Spain, Sweden
Under discussion for healthcare workers and/or workers in long-term care facilities	Austria, Belgium, Czechia, Latvia

Several countries provided further comments regarding mandatory vaccination for healthcare workers and/or workers in long-term care facilities.

In Greece, mandatory vaccination for healthcare workers has been decided and announced on 12 July. More specifically, personnel working in LTCFs, either public or private, must have received at least one vaccine dose before 16 August 2021. HCWs in the public and private sector (hospital, clinics, diagnostic centres, etc.), along with administrative workers, must have been vaccinated by 1 September 2021 with at least one dose. In Hungary, mandatory vaccination is planned for healthcare workers. In Italy, vaccination is mandatory for health professionals who perform their services in health facilities, social and health structures, social welfare structures, pharmacies and para-pharmacies and in professional offices, and can only be avoided in the event of an established health hazard due to particular documented clinical conditions. Failure to vaccinate leads to suspension from duties involving interpersonal contacts, with consequences in terms of pay. France reported that they have made vaccination mandatory for all healthcare professionals by mid-September.

Among those countries currently discussing mandatory vaccination, in Austria vaccination is not obligatory on a national level but is widely discussed as a matter of recruitment for new healthcare workers within their specific working contract, and a few large employers in the field have already announced that COVID-19 vaccination has been added to the list of mandatory vaccinations for newly recruited staff. In Belgium, motivation campaigns will be relaunched with measurement of quality indicators by institution and by professional group; if this is insufficient, mandatory vaccination may be considered. In Czechia, mandatory vaccination is being discussed for workers in long-term care facilities. In Latvia, mandatory vaccination for healthcare workers, workers in long-term care facilities, educational institutions and those working in internal affairs is being discussed.

COVID-19 vaccination certificates

All countries are using vaccination certificates for medical use, and the majority are also using them for travel. There are several responding countries using vaccination certificates for access to specific places/events (e.g. restaurants, museums, concerts, etc.): Austria, Belgium, Estonia, Greece, Ireland, Italy, Lithuania, Luxembourg, Romania, and Slovenia.

Current challenges and good practices with the vaccine rollout

Responses from countries in May (published in the previous deployment report) showed that a majority of countries at that time were still facing challenges around the limited vaccine supply. However, in comparison, most countries now report that they have an ample supply of vaccines, and only two of the 17 reporting countries responded that they still face an issue with this (Spain and Finland), while 14 countries responded that vaccine supply is no longer an issue (Austria, Belgium, Czechia, Germany, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Romania, Iceland, and Norway).

Many other challenges that countries were previously facing earlier in the vaccination campaign around logistics, infrastructure, equipment, and vaccine delivery sites have now been resolved. Two countries responded that they are now facing difficulties filling vaccination slots and that the vaccine supply is now outpacing the demand for vaccines (Belgium and the Netherlands). Czechia and Latvia both reported poor vaccination acceptance among those administering vaccines. Eight countries reported challenges around communication and uptake of vaccines (Belgium, Czechia, Finland, Latvia, Lithuania, the Netherlands, Spain, and Norway).

Vaccine acceptance and strategies to address vaccine hesitancy or uptake

As the vaccine supply steadily expanded in the EU in recent months, the vaccine rollout in the EU has rapidly increased. With full vaccination uptake in the EU now over 70% in adults over 18 years (although this differs substantially between countries), in recent weeks the vaccination campaign has now slowed down in a number of countries. There are also countries that still have a low percentage of fully vaccinated people; for example, in Bulgaria as of 12 September only 21% of the population over 18 years is fully vaccinated and only 19% in those over 80 years have received a full vaccination. Having such as high number of unvaccinated people puts countries at higher risk from the rapidly increasing dominance of the Delta VOC, which is more transmissible than the wild type or other VOCs. Many countries are now putting a lot of emphasis on the vaccination campaign to reach population groups and individuals that may be hesitant or resistant to vaccination and those individuals that are under-served, socially vulnerable, and/or face barriers to accessing vaccines due to geographical limitations or other reasons. Reaching these pockets of unvaccinated individuals is vital to increasing vaccination coverage and protection against severe disease, hospitalisations, and death. There is no one-size-fits all approach to increasing vaccination uptake in diverse populations, and many countries are using several different strategies.

Vaccine hesitancy is a complex issue, and the underlying reasons for hesitancy vary considerably between and within countries. In a survey completed by the members of the Health Security Committee in July, countries provided information on challenges faced with increasing uptake of COVID-19 vaccines in their populations. Fifteen countries (15/22, 68%) reported that they were facing challenges in terms of insufficient uptake of COVID-19 vaccines in general. Seven countries said that they were not facing challenges with increasing vaccination uptake.

Table 12. Challenges with increasing the uptake of vaccines (n=22)

Country facing challenges with the uptake of vaccines	Countries
Yes	Austria, Belgium Czechia, Estonia, France, Germany Greece, Hungary, Latvia, Liechtenstein, Lithuania, the Netherlands, Slovenia, Spain, Sweden
No	Denmark, Finland, Iceland, Ireland, Italy, Norway, Portugal

Countries indicated the population groups with whom they are facing challenges with increasing vaccination uptake. This primarily included young people, followed by socio-economically vulnerable groups, workers in long-term care, people living in remote areas, healthcare workers, and the elderly.

Table 13. Challenges with increasing vaccine uptake: main population groups (n=16)

Main population groups facing challenges with increasing vaccine uptake	Countries
Young people	Austria, Belgium, Czechia, Germany, Greece, Estonia, France, Lithuania, the Netherlands, Slovenia, Liechtenstein, Spain
Socio-economically vulnerable groups	Austria, Belgium, Czechia, Germany, Greece, France, Latvia, the Netherlands, Liechtenstein, Sweden
Workers in long-term care	Belgium, Czechia, Estonia, Greece, Slovenia
People living in remote areas	Austria, Czechia, Greece, France
Healthcare workers	Belgium, Greece, France, Slovenia
Elderly	Estonia, Latvia

Based on the ISAA responses, countries indicated the different socially vulnerable populations with whom they are facing challenges with increasing uptake or access to vaccines, with the majority being ethnic minorities, followed by irregular migrants, people experiencing homelessness, people with alcohol or drug dependence, prison populations, people with mobility issues, and people with disabilities (long-term physical, mental, intellectual, or sensory impairments). Some countries consider that there are challenges with access and uptake in all the above-mentioned socially vulnerable groups, but this remains unquantified.

Vaccine hesitancy in any specific population or age group and for any specific vaccines

Several countries have observed that there is particular hesitancy towards the Vaxzevria vaccine (Austria, Belgium, Iceland, Lithuania, Malta, the Netherlands, Slovakia, and Spain). In Belgium, there has been hesitancy due to misinformation about a link between vaccines and fertility issues in some cultural groups and among young people. In Finland, younger age groups seem to be more critical towards vaccinations than older age groups. Based on a population survey, 6 to 11% of those under 30 years would hesitate to be vaccinated. In comparison, Latvia has found that elderly people represent one of the groups hesitant to get vaccinated, either wanting 'to wait' or wanting to get a consultation from their physician. In Austria, there are no exact figures on this, but market research characterises members of the strong vaccination opponents' group as on average 39.3 years old, with the male to female ratio of 38:61, with low levels of formal education, based primarily in rural settings (28% in cities), and politically conservative. Austria also reported that uptake in the elderly and healthcare workers has been quite good, with challenges in both groups mainly rooted in logistics and/or misinformation. Austria observed that elderly members of the community were particularly challenged by the method chosen for the vaccination rollout (specifically the technology involved) and healthcare workers were mainly concerned with the type of vaccine they were assigned. In Estonia, for workers in long-term health facilities the coverage varies between the different providers; if the management is in favour of vaccination coverage is high, and if not coverage is lower. In the Netherlands, younger groups have a lower willingness to get vaccinated and the population living in the region in the Netherlands with the highest concentration of orthodox Protestants, often referred to as the Dutch 'Bible Belt', is also showing lower willingness to get vaccinated. In Germany, relevant studies show that a high level of willingness to be vaccinated and vaccine hesitancy is not currently the main challenge but access to vaccination has been identified as a barrier.

Vaccination refusal

The approximate percentage of vaccination refusals differs between countries and between population groups within countries. Many countries also pointed out that they have information on the vaccination coverage in the population, however the reasons for not getting vaccinated are often not collected, hence vaccine refusal due to misinformation or distrust for example may be one reason out of others for remaining unvaccinated. Out of the 17 countries that responded to this question on vaccine refusal nine (47%) countries reported that they have less than 10% of the general population refusing vaccination. Six (33%) countries have between 10-30% of refusal and three countries said that they did not have this information available.

Austria provided an additional comment that independent market research carried out in June found that 8.1% of respondents opposed the vaccine adamantly and 13.5% of respondents presented as 'concerned vaccination critics'.

Table 14. Percentage of the population on average refusing vaccination (n=19)

Percentage of the population, on average, refusing vaccination	Countries
<10%	Austria, Denmark, Finland, Germany, Malta, Spain, Iceland, Norway, Portugal, Sweden
10-30%	Belgium, Czechia, Estonia, Latvia, Luxembourg, the Netherlands
No information	Croatia, Lithuania, Romania

Good practices and strategies in place to encourage vaccination acceptance and address vaccine hesitancy or uptake

Countries have put in place several strategies in order to increase vaccination uptake in different population groups. Strategies differ depending on the reasons for low vaccination uptake, such as access challenges or hesitancy. Strategies that countries have reported are outlined below, and a more in-depth overview of these measures that countries have put in place is provided in Annex 2.

Communication campaigns

- Media campaigns
- Social media campaigns
- Targeted communication campaigns, e.g. targeted campaigns for parents
- Communication campaigns using celebrity ambassadors
- Communication campaigns using local influencers

Increasing knowledge and information

- Interviews of experts in different media
- Q&A with Ministry of Health
- Public consultations
- Hotlines and personal calls
- Targeted information for migrant population

Easier vaccination access

- Easily accessible vaccination centres
- Mobile vaccination teams
- Pop up vaccination clinics
- Vaccination without prior reservation
- Free transportation to vaccine centres
- Vaccination at transport hubs
- Vaccination at shopping centres, market fairs, events, and other gathering places
- Vaccination in GP offices, hospitals, HIV clinics, etc.
- Pop-up desks to help with vaccine appointment reservations and vaccination centres
- Home vaccination for the elderly

Partnerships with stakeholders

- Stakeholder communication measures that are based on interdisciplinary needs assessments
- Working with community-based organisations
- Active involvement of primary care physicians
- Cooperation with other ministries
- Support for family doctors to convince society to vaccinate
- Intersectoral partnerships for community-based interventions including close coordination between social and health agents (NGOs, social services, etc.)
- Community engagement and participation in service delivery
- Inclusion of community or faith leaders
- Outreach initiatives via mediators

Vaccination reminders

- Reminders sent to individuals eligible for vaccination

Incentives

- Participation in lotteries
- Vouchers
- COVID-19 certificate application
- Coupons to visit restaurants
- People who are fully vaccinated are able to access 'recreational' public venues, events, etc.

Addressing vaccination at workplaces

In order to increase vaccination in healthcare workers, the majority of countries are working with healthcare associations, mostly including healthcare institutions and authorities and professional associations (GPs, medical specialists, pharmacists, etc). Some specific practices that countries have put in place to address insufficient uptake of COVID-19 vaccines among healthcare workers and/or workers in long-term care facilities include:

- Awareness campaigns organised with hospitals, medical associations, and healthcare institutions
- Meetings with medical administrations, healthcare institutions, and LTCFS
- Information material for healthcare workers (training material for vaccination)
- Vaccinated healthcare workers do not need to follow the mandatory regular testing
- Work restrictions of unvaccinated healthcare workers and LTCF workers (e.g. not allowed to work in certain departments)
- Promotion of vaccination by the local government
- Easier access by providing vaccination in hospitals, healthcare services, and LTCFs
- Mandatory vaccination of healthcare workers and workers in LTCFs

Monitoring the scale-up and impact of different strategies to increase vaccination uptake in different population groups

Countries outlined how they assess the impact of the different strategies used to increase vaccination uptake. Majority of countries responded that they are regularly monitoring vaccination uptake in different population groups (Estonia, France, Hungary, Latvia, Liechtenstein, Portugal, Sweden, and Slovenia). Sweden uses its national vaccination register to follow the coverage at municipality level and, by using different patient or population registers, also in specific groups. In Latvia, the data on vaccination uptake are measured, compared, and analysed every week. Estonia closely follows changes in coverage and the vaccination rates, and they have some information about vaccination levels in specific groups (e.g. doctors, family doctors, nurses, and mid-wives), but mostly they look at coverage by regions and also on a local level. Austria and the Netherlands said that they monitor the effect of pop-up vaccination locations. In Belgium, Norway, and Spain, they provide regular surveys on the willingness to be vaccinated in the population. In Belgium, national surveys about motivation towards vaccination were conducted. These surveys illustrate the reduction in proportions of people who hesitated or refused to be vaccinated. Norway also conducts regular surveys on willingness to be vaccinated, and in addition measures the level of satisfaction with the available information on vaccination. Some countries reported that the impact is not assessed systematically yet (Finland, Greece, and Lithuania) or that it was still too early to evaluate the impact (Czechia).

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 has rapidly progressed in the majority of EU/EEA countries over the months of June, July, and August. As of 12 September 2021, the overall cumulative vaccine uptake in the adult population (aged 18 years and older) has reached 77.1% for at least one vaccine dose (range 23.3-96.9%), and 71.3% for the full vaccination course (range 21.7-90.5%) (30 reporting countries). Fifteen countries have already administered the full vaccination course to more than 80% of the population aged 80 years and above, and 11 to more than 80% of healthcare workers.

As vaccine uptake has progressed in priority groups (such as the elderly, residents in long-term care facilities and healthcare workers), and vaccine supplies have increased, countries have progressively expanded the rollout to include younger age groups. All EU/EEA countries have now opened vaccinations to 12-year-olds and over. Several countries have started recommending additional vaccine doses for immunocompromised individuals, and some have also recommended booster doses for older age groups, healthcare workers, and the general population. Many countries are still discussing the use of additional doses and booster doses as evidence continues to emerge on the duration of vaccine protection and 'real world' vaccine effectiveness against different outcomes, such as infection, severe disease, and hospitalisation due to the Delta VOC.

Although the overall picture of full vaccination uptake in the EU/EEA is promising, approximately 27 million people across all age groups in the 30 reporting countries have yet to complete their primary vaccination course. There are significant differences of vaccination uptake between and within countries, with some countries reporting very high uptake of full vaccination in adults over 18 years, in healthcare workers, those aged 80 years and above, and in LTCFs, such as Malta, Denmark, Iceland, and Ireland. In other countries, the uptake is still generally very low compared to the EU/EEA median, with six countries reporting less than 60% of uptake of at least one dose (Bulgaria, Croatia, Latvia, Romania, Slovakia, and Slovenia). Low vaccination uptake, especially in the older age groups and with the increasing dominance of the Delta VOC and the associated increase of transmissibility and virulence compared to other previous variants, means that reaching all eligible people with primary vaccination series is critical.

Several countries reported regional differences in uptake and are facing challenges in reaching unvaccinated pockets of the population. Countries reported challenges with reaching and increasing uptake in population groups such as under-served/socially vulnerable individuals, young people, and in some cases healthcare workers. Countries reported adopting a range of strategies to reach individuals and population groups with low vaccination uptake and have tried to adapt the different measures based on the issues behind low uptake, such as barriers to access and hesitancy due to reasons such as misinformation, distrust, or a lack of clear and suitably adapted information. Some of these strategies included: using targeted communication campaigns in a range of different media, such as social media and involving influencers for young people; increasing knowledge and information, such as Q&As and interviews with experts and using different languages; building strong partnerships with stakeholders, including NGOs and social services; and engaging with communities and including them in messaging and in service delivery.

Some countries have introduced incentives to be vaccinated, while others have mandatory vaccination for healthcare workers. In addition, most countries are trying to make vaccination access easier through methods such as introducing vaccination pop-up points with no reservations required or sending vaccination appointment reminders.

It is essential to keep track and monitor vaccination uptake across the population and assess the reasons behind low uptake to ensure the most relevant strategies to increase uptake are put in place. There is also a need to evaluate strategies on their effectiveness and to ensure enough flexibility to change course if it is found that a particular strategy is not working.

The rapid and effective administration of full vaccination is critical to reduce hospitalisations, deaths, and viral circulation in the community, as well as to protect against any emerging variants. Increasing vaccination coverage, closing the immunity gap, and ensuring all eligible individuals are fully vaccinated, especially those at higher risk of severe disease, is the highest priority at this stage of the vaccination rollout in the EU/EEA.

Contributing ECDC experts (in alphabetical order)

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Disclaimer

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

Annex 1

Table 18. Overview of COVID-19 vaccines in use in EU/EEA countries and date of first administration (n=30)*

Country	Comirnaty	Moderna	Vaxzevria	COVID-19 Vaccine Janssen
Austria	27/12/2020	15/01/2021	08/02/2021	29/04/2021
Belgium	05/01/2021	18/01/2021	15/02/2021	week 17, 2021
Bulgaria	27/12/2020	week 2, 2021	week 5, 2021	week 19, 2021
Croatia	27/12/2020	13/01/2021	08/02/2021	26/04/2021
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 (no longer in use)	week 20, 2021 (no longer in use)
Estonia	27/12/2020	week 2, 2021	week 7, 2021	week 17, 2021
Finland	27/12/2020	08/01/2021	10/02/2021	not in use
France	27/12/2020	14/01/2021	06/02/2021	23/04/2021
Germany	26/12/2020	13/01/2021	08/02/2021	26/04/2021
Greece	27/12/2020	week 7, 2021	week 7, 2021	week 18, 2021
Hungary**	26/12/2020	week 2, 2021	week 5, 2021	week 18, 2021
Iceland	29/12/2020	13/01/2021	11/02/2021	week 17, 2021
Ireland	29/12/2020	16/01/2021	08/02/2021	05/05/2021
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	week 6, 2021	not in use	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	06/05/2021
The Netherlands	06/01/2021	25/02/2021	week 6, 2021	21/04/2021
Norway	27/12/2020	15/01/2021	25/02/2021 (no longer in use)	week 16, 2021
Poland	26-27/12/2020	12-20/01/2021	12/02/2021	15/04/2021
Portugal	27/12/2020	14/01/2021	08/02/2021	01/05/2021
Romania	27/12/2020	04/02/2021	15/02/2021	week 18, 2021
Slovakia***	26/12/2020	week 4, 2021	week 6, 2021	week 24, 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	not in use

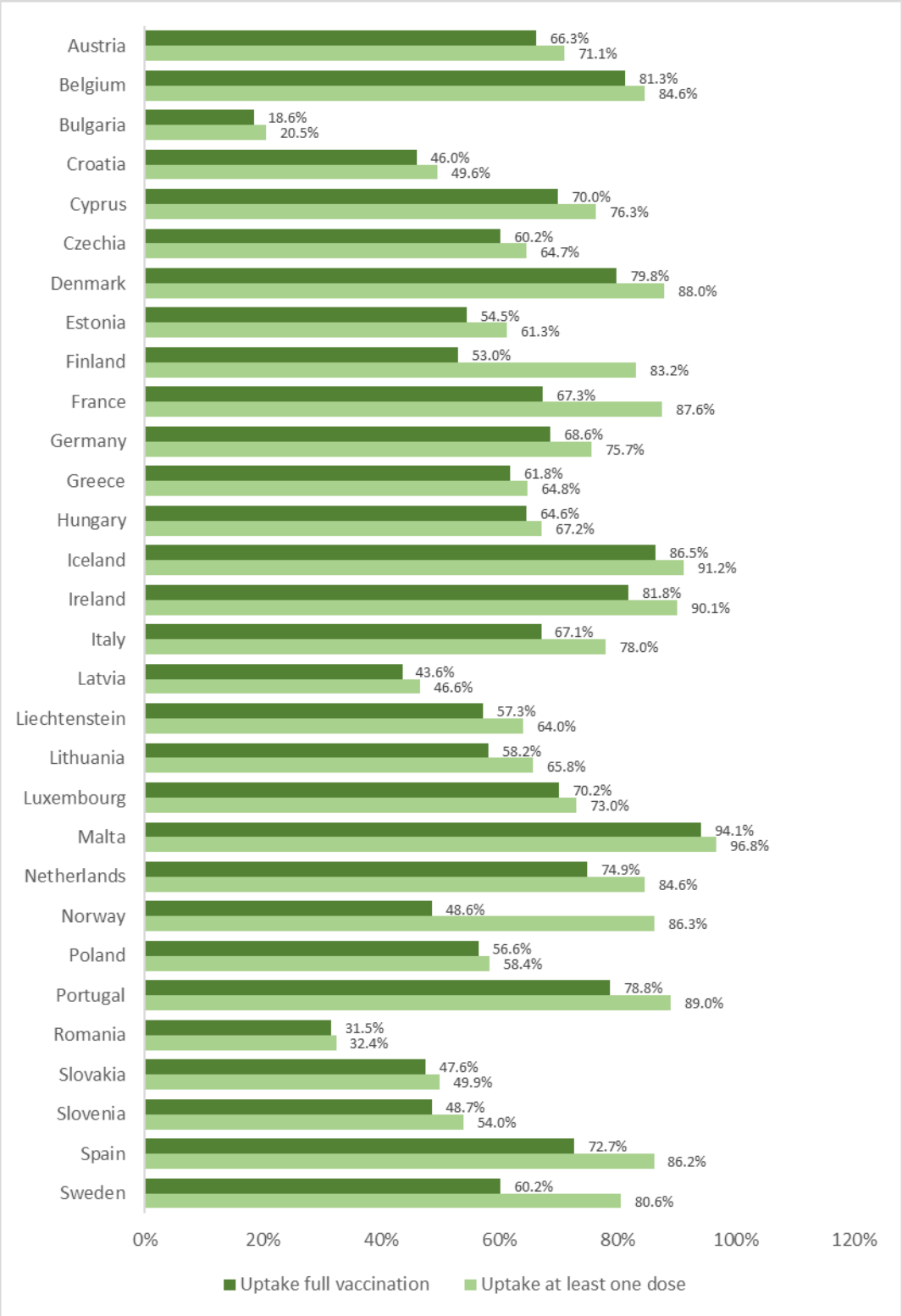
** Updates on vaccines in use and date of first vaccine administration gathered from ISAA reports from 7 June through 6 September 2021; missing data complemented with data reported by EU/EEA countries to TESSy (e.g. vaccine products and reporting week of first administration of doses for each product); updates received from HSC members on 17 September 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.*

**** Slovakia started using Sputnik V (Gamaleya) in week 23 2021.*

Annex 2

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



**Source: TESSy; data reported as of 11 September 2021; uptakes are based on data reported up to week 36, 2021 for Norway; week 22, 2021 for Denmark, Germany, Iceland, Latvia, Liechtenstein, Malta, Romania, and Slovenia; and partial data for week 23, 2021 for all remaining EU/EEA countries.*

Annex 3

Table 19. Overview of strategies that countries have put in place to address insufficient uptake of COVID-19 vaccines in the general population

Countries	Strategies for increasing vaccination uptake in the general population
Austria	Stakeholder communication measures are being rolled out on the basis of elaborate interdisciplinary needs assessments, with a strong focus on vulnerable groups (i.e. groups affected by language barriers or disabilities or groups less likely to be reached by the governmental information campaign or nationwide media outlets). This includes social media campaigns, outreach via mediators, community leaders and other multipliers within communities. Measures to increase uptake aside from communication measures mostly focus on easing access to the service (drop-in events without need for prior registration, sometimes accompanied by music events, vaccination services in heavily frequented locations such as outdoor swimming facilities, etc). The experience is particularly positive when low-threshold vaccinations are offered. Specifically, if you go directly to the individual communities or enable pop-up vaccinations without prior registration.
Belgium	Using several different strategies, including: - Working with community-based organisations - Active involvement of primary care physicians but also pharmacists and other close-contact professions - Pop-up vaccination sites - Pop-up desks to help with vaccine appointment reservations (e.g. in markets) - Mobile vaccination teams for vaccination of undocumented people, homeless, sex-workers, etc. - Mobile vaccination teams for vaccination at home for bed-ridden people - Free transport to vaccine centres - Working with religious leaders for communication and outreach - Toolboxes with information on vaccination (flyers, posters, presentations), translated into multiple languages In parallel with the vaccination information, sensitization and campaign, they have a working group working on achieving the coverage goals stated in the COVID-19 vaccination plan and coming up with new solutions.
Czechia	Strategies being used include: - Media campaign - Social media - Vaccination without prior reservation - Vaccination at transport hubs, shopping centres - COVID-19 vaccine certificate application
Denmark	They send reminders to individuals who are eligible to be vaccinated. They have also launched advertisements to remind people they can get vaccinated. Health authorities have put practices in place that focus on reaching young people to ensure high uptake in this group. These practices include advertisement campaigns on social media platforms, in public transport and streaming sites to motivate youths to be vaccinated and to remind them they are eligible now. They have also created posters, etc. to share on social media and have involved influencers in the strategy. Denmark is also focusing on appealing to parents, to remind their adolescent children to check if they received vaccination invitation and remind them to be vaccinated. This is again by social media, but also by advertisements in local papers, etc. In addition, Denmark has a strategy in place that focuses on improving vaccination uptake in regions and municipalities with lower vaccination uptake compared to the country's average. The strategy focuses on breaking some of the barriers that are the potential causes of low uptake. This includes language barriers, reading difficulties, distance, etc.
Estonia	They have launched a communication campaign and in addition they have tried to facilitate access to vaccination as much as possible by bringing vaccination sites closer to the places that people visit. There are mobile teams that provide vaccination in the markets, also at some events. With the elderly population the GP´s make personal phone calls to those over 80 years of age, calls are also made to those over 60-79 years old using automated messages or volunteers. It is possible to book appointments online and also by phone. In some regions that had lower coverage among the elderly, they initiated a so called 1+1 campaign (a young person had a possibility to come for vaccination with an older person). Also, they have provided vaccinations at home for those who have difficulties reaching the vaccination centres and provide vaccination on-site for bigger companies. It is also currently possible to get vaccinated on the ferry from Tallinn to Helsinki, etc. Mobile teams also visit very small villages providing vaccinations, and vaccination is also provided in workplaces. Employers are being provided information about the coverage among their staff to motivate those companies with lower coverage to invite vaccination teams into their workplaces. They have also set up an SMS or email notifications with vaccination reminders to the general population.

Countries	Strategies for increasing vaccination uptake in the general population
	Up-to-date information about vaccination sites in different regions (where, who is vaccinating, which vaccine, how many available booking times, etc) is provided through a central website.
Finland	They have initiated campaigns in the media, including social media and interviews of experts in different media.
France	They have launched a public communication campaign using celebrity ambassadors, peer communication, TV promotions, etc. They have set up mobile vaccination units (for example at the Tour de France). Initiated incentives to be vaccinated through the giving access to many 'recreational' public venues, events, etc. to people with a full vaccination certificate, starting from July 21st.
Germany	They have been rolling out communication activities since the beginning of 2021 at the same time as the rollout of the vaccination campaign. Activities have included, among others, posters, TV promotions, a vaccination booklet, a broad range of information materials, activities on social media, townhall meetings for different target groups with the Ministry of Health and other guests. In September 2021, a special campaign week on vaccination against COVID-19 has been conducted. Vaccination services are available in vaccination centres, and through private practices, occupational physicians, and vaccination teams that access long-term care facilities. Other local initiatives go beyond these. Relevant studies show a high level of willingness to be vaccinated and vaccine hesitancy is not considered the challenge but access to vaccination have been identified as a barrier. With the deployment of mobile teams, these barriers will be reduced in the next few weeks. These activities are supported by the government's public relations work with targeted information in different languages directly in the community.
Greece	In They are offering vouchers for younger populations to get vaccinated (18-25 years old). They have introduced mandatory vaccination of healthcare workers and personnel in LTCFs. Mobile vaccination units have been deployed to reach residents in remote areas.
Hungary	Hungary has initiated communication campaigns. They also encourage GPs to address their patients older than 60 years and try to persuade them of the advantages and the necessity of vaccination.
Ireland	They have set up a national programme of vaccinations for socially vulnerable groups including for people who are homeless, travelling communities and prisoners.
Italy	Several Q&As have been developed: - The Ministry of Health has provided most common Q&As on COVID-19 vaccines - The Italian Medicines Agency (AIFA) has provided specific Q&A on mRNA vaccines (Comirnaty and Spikevax) and on viral vector vaccines (Vaxzevria and COVID-19 Vaccine Janssen) - The Italian Institute of Health (ISS) provides Q&A on COVID-19 vaccines The Ministry of Health and the Italian Institute of Health are trying to counteract fake news. In Italy, COVID-19 vaccination is mandatory for healthcare workers. According to national data, about 2% of them refuse vaccination, but values can vary depending on regions.
Latvia	Communication measures are targeted towards different audiences. At the start of the vaccination rollout the communication campaigns were aimed towards explaining the vaccination process, as well as vaccination of priority groups. Now the emphasis in communication is on addressing different groups of society (e.g. elderly, teachers). Additionally, a new campaign has been launched targeting the population that is undecided about whether to get vaccinated. A special approach has been put in place to target the elderly - personal calls are made to try and persuade elderly individuals to get vaccinated, special hours in vaccination centres without previous appointment are provided for elderly, the vaccination of elderly is prioritised among family doctors and medical institutions. An approach to make vaccinations more easily accessible has started, with mobile and pop-up vaccination points now being provided in shopping centres, market fairs, events and other gathering places. Home vaccination is also being offered to those who are elderly and have mobility difficulties. In collaboration with other Ministries, motivation programmes are being developed, as well as a plan to provide additional support for family doctors to persuade people to vaccinate.
Liechtenstein	There is cooperation with organisations working with migrants to improve communication. There are also specific days where walk-in vaccination can be provided without prior appointments.
Lithuania	A communication programme has been developed and information is disseminated through various channels. Public consultations are being held, and questions asked by the population are being answered. Vaccination buses are placed in areas frequently visited by the population (such as at supermarkets). There are incentives put in place to get vaccinated such as participating in lotteries and in some municipalities vaccinated residents receive coupons to visit restaurants.
The Netherlands	Pop-up vaccination sites are stationed in lower socio-economic status areas in cities and specific neighbourhoods with lower uptake. They have started a communication campaign using local influencers.

Countries	Strategies for increasing vaccination uptake in the general population
Norway	They have put in place targeted information campaigns to increase vaccine uptake tailored to each priority group and groups with lower vaccine uptake, via traditional communication channels as well as social media throughout the vaccination rollout. There are also other activities to increase uptake, including: - telephone hotlines for healthcare staff and the public; - cooperation with regional vaccine coordinators; - information material for healthcare workers (including training material for vaccination); - targeted information for immigrant population (translated into 45 languages); and - a series of well-attended webinars for community physicians and healthcare workers to answer frequent questions related to COVID-19 vaccines and vaccination.
Portugal	They have communication and behavioural science campaigns and ensured easy access to vaccination centres.
Slovenia	They organise vaccination sites close to the people (in public spaces and through the use of vaccination buses). People can be vaccinated at GP offices, in hospitals, and vulnerable groups can also be vaccinated at home. Mobile teams are in place to reach those in remote areas. They engage local communities, civil society, and NGOs to promote vaccination. The business community is also taking part in addressing the vaccination in workplaces.
Spain	There are communication campaigns in place and resources to facilitate vaccination appointments (calls, text messages, etc).
Sweden	Many of these activities are being carried out at the regional level, where they have the best knowledge about the local communities and how to approach them. At the national level, Sweden has a project on Tailoring Immunisation Program (TIP) methodology.

Table 20. Overview of strategies to increase vaccination uptake healthcare workers and/or workers in long-term care facilities

Countries	Strategies for increasing vaccination in healthcare workers and/or workers in long-term care facilities
Austria	Healthcare workers working in long-term care facilities that are fully vaccinated are freed from mandatory regular testing. Vaccination uptake is discussed in regular meetings with mutual stakeholders and specific information and expertise are provided.
Belgium	Motivation campaigns will be relaunched coupled with measurements of quality indicators (vaccination coverage) by institution and by professional group. If this action is insufficient to increase the vaccination coverage, mandatory vaccination could be considered. In Belgium they are working with representatives of professional groups to try to increase uptake, including general practitioners and medical specialists, pharmacists, nurses, midwives and physiotherapists. All the associations of Belgian hospitals (umbrella organisations) and the nursing home sector are involved in the vaccination campaign for healthcare professionals and have advocated for mandatory vaccination of healthcare workers.
Estonia	There is promotion of vaccination by the healthcare institution or the local government or the managers of the elderly care home. There have been restrictions applied especially by hospitals to staff who are not vaccinated (they are not allowed to work in certain departments, etc). Hospitals and medical associations have organised awareness-raising campaigns among their staff and awareness-raising workshops (in the case of family doctors). Specific trainings were organised centrally for vaccinators about every vaccine that received an EU Marketing Authorisation (later available online). There have also been shorter ad-hoc trainings for healthcare personnel to increase the number of vaccinators. The awareness raising and promotion of vaccination among healthcare workers has mainly been done by the healthcare institutions themselves (like hospitals) or by the medical associations (Estonian Association of Family Doctors, etc). The Health Insurance Fund in Estonia has collaborated in coordinating the communication of COVID-19 vaccination with the healthcare institutions and long-term care facilities. They have, for example, contacted every individual long-term care facility to ask about COVID-19 vaccination uptake and slowly the coverage has been rising.
France	There have been communication campaigns, discussions with workers representatives, syndicates and professional associations. It is planned that vaccination may become mandatory from Sept 15th for all healthcare workers, including plans for control measures, restrictions, and penalties for non-vaccinated staff.
Germany	Information material has been sent to the healthcare workers and workers in long-term care facilities of the care network and there is a regular information exchange.
Greece	Vaccination of HCWs of public and private sector (hospital, clinics, diagnostic centres, etc.) is now mandatory and at least one dose of vaccines must have been administered until the 1st of September 2021. There has been collaboration between the involved authorities and the medical associations to some extent.
Hungary	The vaccination of healthcare workers will be mandatory.

Countries	Strategies for increasing vaccination in healthcare workers and/or workers in long-term care facilities
Ireland	Although they don't have insufficient uptake, they have an active communication programme which uses targeting of age groups due to be invited for vaccination and information campaigns to inform decision making. There is education, communication of evidence regarding safety/efficacy and, where feasible, a discussion of concerns.
Italy	Healthcare workers' associations are involved in the decision-making process and its implementation.
Latvia	Informative seminars have been organised for healthcare workers about the different vaccines. Healthcare workers have been informed about the application process for vaccination and vaccinations for healthcare workers have been made easily accessible e.g. in hospitals. Different information channels were used to reach healthcare workers, such as through medical institutions, contacts of associations, as well as public media. For workers in long-term care facilities, information was provided (including through informative seminars) about vaccinations and their importance; there were surveys on willingness to vaccinate; online checklists were created to follow the speed of vaccination of LTCFs' staff. There has been collaboration with associations of family doctors (including in remote areas), as well as healthcare employers' associations. The health agency is supporting physicians/doctors to increase their competence regarding questions about vaccination.
Lithuania	There have been various meetings with medical administrations, healthcare institutions, and long-term care institutions to encourage vaccination and provide science-based information.
Norway	There has been close cooperation with labour unions for healthcare workers throughout the entire vaccination campaign.
Portugal	There has been a close relationship between the health and social security sectors.
Slovenia	They are mainly using communication tools. They engage the leadership in healthcare and LTCFs and try to provide as much information as possible through various channels. They also have regular meetings with professional associations to increase activities for increasing vaccination uptake.
Spain	Vaccination is provided in all hospitals, healthcare services and LTCFs. There is coordination with primary care associations, public health specialists, nurses' associations, sociologists, and bioethics professionals.

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