

TECHNICAL REPORT



Seasonal influenza vaccination recommendations and coverage rates in EU/EEA Member States

An overview of vaccination recommendations for 2021–22 and
coverage rates for the 2018–19 to 2020–21 influenza seasons

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Abbreviations

ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
HCWs	Healthcare workers
NITAG	National Immunisation Technical Advisory Group
ILI	Influenza-like illness
VENICE	Vaccine European New Integrated Collaboration Effort
VCR	Vaccination coverage rates
WHO	World Health Organization

Short summary

In 2009, the Recommendation by the Council of the European Union set an objective for EU Member States to achieve a 75% vaccination coverage rate (VCR) with the seasonal influenza vaccine by the 2014–15 influenza season in key target groups, such as older individuals, and those at risk of more severe disease [1]. The recommendation also encouraged Member States to improve VCRs among healthcare workers.

The main objective of the ECDC-funded network 'Vaccine European New Integrated Collaboration Effort' (VENICE) that ran between 2006 and 2017 was to strengthen best practices related to vaccination and support the dissemination of knowledge in vaccination programmes. During the period 2008–2018, several studies were undertaken by the VENICE network on the description of influenza vaccination policies and the monitoring of influenza vaccination coverage [2-3].

Using and adapting the annual influenza vaccination coverage survey previously conducted under the ECDC-funded VENICE project, our aim was to describe specific-country recommendations during the 2021–22 influenza season, identify changes compared to the 2017–18 season, and describe trends in influenza VCRs during the 2018–19, 2019–20 and 2020–21 influenza seasons. The idea was to provide an update on seasonal influenza vaccination programmes in EU/EEA countries, and to assess the extent to which the COVID-19 pandemic might have had an impact on uptake of seasonal influenza vaccines. Of the 30 EU/EEA countries invited to participate in the survey, 26 completed the questionnaire. We performed a desk review of national public health agency websites for the four missing countries.

In summary, during the 2021–22 season, several EU/EEA countries expanded their influenza vaccine recommendations to include additional age groups compared to previous seasons, particularly children/adolescents. Some countries also lowered the age limit in elderly adults compared to 2017–18. Austria, Bulgaria, Cyprus, Czechia, Denmark, Finland, Ireland, Italy, Latvia, Malta, Poland, Romania, Slovakia and Slovenia (n=14) had age group recommendations in children and/or adolescents, irrespective of chronic medical conditions and all countries had age-based recommendations in adults with Austria, Bulgaria and Estonia recommending vaccination of all adults aged 18 years and above. Although all countries had recommendations in place for adults with underlying medical conditions, the conditions covered by the recommendation varied and these recommendations, as well as the administration of the vaccine, were not funded or only partially funded in Austria, Bulgaria, Estonia, Latvia, Liechtenstein, Luxembourg, Norway, Slovenia and Sweden. Most countries, including Belgium, Croatia, Cyprus, Czechia, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Poland, Portugal, Romania, Slovakia, Slovenia and Spain (n=22) had influenza vaccine recommendations for pregnant women, irrespective of their medical condition or pregnancy trimester. Finally, Austria, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Lithuania, Malta, The Netherlands Poland, Portugal, Romania, Slovenia and Spain (n=23) had recommendations in place for all healthcare workers to be vaccinated during the 2021–22 influenza season, although this was not necessarily funded.

In general, overall VCRs increased in all target groups during the 2020–21 season after several years of stagnant or declining uptake for this vaccine across the European Union. The COVID-19 pandemic may have encouraged more individuals to get vaccinated against influenza, protecting themselves and those around them most at risk of a severe outcome or death. However, in those countries with data available, the VCR was still below the 75% VCR target set up by the European Union for recommended target groups, such as elderly individuals, healthcare workers and those with underlying conditions. Seasonal influenza vaccination remains a critical public health intervention, and it is imperative that targeted and context-specific strategies are put in place to increase uptake and address underlying issues of acceptance or access to the vaccine.

Key findings

Recommendations for seasonal influenza vaccination in 2020–21

- Recommendations in most countries broadly comply with the 2009 Council Recommendation and the 2012 WHO Strategic Advisory Group of Experts on Immunization (SAGE) recommendations [1,4].
- A total of 14 countries had age-based recommendation for children/adolescents including Austria, Bulgaria, Cyprus, Czechia, Denmark, Finland, Ireland, Italy, Latvia, Malta, Poland, Romania, Slovakia and Slovenia. This represented an additional nine countries compared to the 2017–18 season when there were only five (Finland, Latvia, Malta, Slovakia and Slovenia). The recommendation was partially or fully funded in all countries apart from Bulgaria and Poland.
- During the 2020–21 season, and compared to 2017–18 recommendations, there were no major changes in the age-based adult recommendations that had been in place in all countries, albeit with some differences (Austria, Bulgaria and Estonia recommended the vaccine in all adults ≥ 18 years). Otherwise, most countries recommended the vaccine in those aged ≥ 65 years. Italy lowered the age limit to 60 years, as did Germany, Greece, Hungary, Iceland and the Netherlands; and Poland offered influenza vaccination free of charge to all adults (although not necessarily fully funded). Liechtenstein was the only country where the recommendation was not funded.
- All countries had recommendations in place for individuals with specific underlying medical conditions. The conditions covered by the recommendations varied from country to country, however, all of them included chronic pulmonary diseases, cardiovascular diseases, renal diseases, metabolic diseases, and immunosuppression. Only 18 countries had recommendations for individuals taking aspirin on a long-term basis and 21 countries had recommendations for individuals with morbid obesity. The recommendation was not funded or partially funded in nine countries including Austria, Bulgaria, Estonia, Latvia, Liechtenstein, Luxembourg, Norway, Slovenia and Sweden.
- With the exception of Bulgaria, all EU/EEA countries adopted national recommendations for influenza vaccination in pregnancy, irrespective of high-risk conditions. Compared to the 2017–18 season, Belgium, Croatia and Cyprus extended their recommendation to cover all pregnant women, irrespective of their pregnancy term.
- Austria, Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Liechtenstein, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia and Spain (n=23) recommended the influenza vaccine to all healthcare workers, irrespective of whether they had contact with patients. All other countries had recommendations which depended on the activities of the healthcare workers. Compared to 2017–18 influenza season, Denmark had introduced recommendations targeting staff in close contacts with patients. None of the countries with recommendations targeting healthcare workers had extended them to cover a wider group of healthcare workers.

Vaccination coverage rates during the 2018–19, 2019–20 and 2020–21 influenza seasons

- Norway, Italy, Denmark, Iceland, Sweden, Slovenia, Luxembourg, Lithuania and Czechia (n=9) reported VCR data for the adult population aged ≥ 18 years. During the 2020–2021 season, the VCR trend increased in all countries compared to the 2017–18 season. For the 2020–21 season, the median VCR was 20% and ranged from 6.4% (Czechia) to 27% (Norway).
- Although all countries surveyed recommend vaccination in older individuals (mostly those aged ≥ 65 years), only 19 countries reported VCR data: Croatia, Denmark, France, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. Denmark was the only country that met the targeted coverage of 75% during the 2020–21 season. In all countries except Latvia and Slovakia, VCRs increased during the 2020–21 season compared to the previous two documented seasons. The median VCR was 59% in 2020–21 and ranged from 4.5% (Latvia) to 75% (Denmark), compared to 51% during the 2018–19 season, ranging from 8.1 (Latvia) to 68.5% (Ireland).
- VCR data for adults with chronic medical conditions were very scarce – only Norway, the Netherlands, Portugal and France reported. Although comparison was difficult as data were provided for different age groups, the level of coverage was about 75% in all countries except France during the 2020–21 season.
- Hungary, Lithuania, Slovenia and Spain reported vaccination coverage in pregnant women, although there was a recommendation in place in almost all countries; VCRs varied between 1.7% and 61% for 2020–21.
- Croatia, Greece, Ireland, Italy, Lithuania, Malta, Norway, Romania, Portugal and Spain (n=10) reported influenza VCRs in healthcare workers each season. All reported an increased in the VCRs for the 2020–21 season that ranged from 40.5% to 71% compared to 15.9–53.2% for the 2018–19 season.
- Ireland and Portugal reported VCR data for residents of long-term care facilities where the level reached 93.6% and 94% respectively in 2020–21.

Type of vaccines in use

- In children, the predominant product used in almost all countries during the 2020–21 influenza season was the quadrivalent inactivated vaccine (IIV4). Six countries also reported the use of the live attenuated influenza vaccines in children aged ≥ 24 months.
- In adults, the predominant vaccine product used during the 2020–21 season was the quadrivalent inactivated vaccine (IIV4).
- In a limited number of countries (Austria, Denmark, France, Germany, Ireland, Italy, Spain, Sweden (n=8)), the adjuvanted trivalent influenza vaccine; adjuvanted quadrivalent influenza vaccine, cell-derived inactivated quadrivalent influenza vaccine, high-dose quadrivalent influenza vaccine and recombinant quadrivalent influenza vaccine may be recommended in elderly individuals.

Background

Each year, seasonal influenza viruses cause an estimated 40–50 million known symptomatic infections in the European Union (EU)/European Economic Area (EEA) and 15 000–70 000 European citizens die prematurely of influenza-related causes [5]. Although EU/EEA countries usually suffer a lower burden compared to other regions around the globe [6], more effective seasonal influenza vaccination campaigns could further reduce the circulation of influenza viruses and their impact on severe health outcomes, as well as pressure on the healthcare system during the winter season [7]. The World Health Organization (WHO) recommends that healthcare workers and people who are most at risk of developing serious complications from influenza infection (pregnant women, individuals >6 months of age with certain chronic diseases, older individuals, residents of institutions for the elderly and the disabled, children aged 6–59-month and healthcare workers) be vaccinated every year before the beginning of the winter season [4].

ECDC's work on the monitoring and evaluation of vaccination programmes has been guided by several EU policy and legislative instruments adopted in recent years. In 2009, the EU Council Recommendation set the objective of having a 75% vaccination coverage rate in key target groups such as older individuals and individuals at risk of more severe disease by the 2014–15 influenza season [1]. The 2009 Recommendation also encouraged Member States to improve VCRs among healthcare workers. In June 2011, a Council Conclusion on childhood immunisation invited the Commission to cooperate with ECDC, taking into account the work already done by WHO, to find options for identifying commonly agreed methodologies for monitoring and assessing VCRs [8]. The 2018 Council Recommendation on strengthened cooperation against vaccine-preventable diseases required ECDC to design EU methodologies and develop guidance on data requirements for better monitoring of VCRs across all age groups, including healthcare workers, in cooperation with WHO, collecting and sharing such data at EU level [9].

ECDC used to monitor the influenza vaccination policies and VCRs across the EU/EEA countries through national seasonal influenza vaccination surveys within the ECDC-funded Vaccine European New Integrated Collaboration Effort (VENICE) project [2-3,10] that ran between 2006 and 2017. Several surveys were undertaken on the documentation of influenza vaccine policies and the collection of seasonal influenza vaccination coverage data, both before and after the 2009 Council Recommendation was issued [1]. The last results published by VENICE for the 2017–18 season highlighted 1) the national heterogeneity of influenza vaccine recommendations; 2) the fact that only a limited number of countries had a system in place for monitoring vaccination uptake, such as a national immunisation information system, and 3) that when data were available, the level of uptake in most countries remained far below the EU objective of 75% in the key target groups, with wide differences observed across countries [3].

Using an adapted version of the VENICE questionnaire, this report aims to document changes in influenza vaccine recommendations for the 2021–22 season and describe the trends in VCRs observed between the 2018–19 and 2020–21 influenza season.

Survey objectives

- To describe changes in the specific country vaccine recommendations during the 2021-22 influenza season compared to the 2017–18 season [3].
- To describe trends in influenza VCRs across over the 2018–19, 2019–20 and 2020–21 influenza seasons.

Specific objectives

- Identify changes in policy recommendations and funding schemes for the 2020–21 seasonal influenza vaccination for different targeted groups, based on age, chronic medical conditions and occupation, compared to the 2017–18 season.
- Collect the 2018–19, 2019–20 and 2020–21 (if available at the time of survey) influenza VCRs for the above target groups with influenza vaccine recommendations and describe how the coverage varied during the 2020–21 season.
- Collect information on payment mechanisms used for seasonal influenza vaccination and vaccine products recommended for each target group during the 2021–22 influenza season.

Methodology

Study design

ECDC sent a retrospective survey questionnaire by email to the national experts for influenza nominated in each EU/EEA country or, where no influenza operational contact point had been appointed, to the national focal points [11].

This survey built on those previously conducted through the ECDC-funded VENICE project [2-3].

Data collection

The standardised questionnaire, using predominantly close-ended questions, had to be completed by 7 January 2022. The period for data collection had been extended to the end of January for late-responding countries. Information was collected for the different target groups recommended for influenza vaccination (aged-based recommendation in children, adolescents and adults, adults with chronic medical conditions, pregnant women, and healthcare workers) based on the national influenza vaccination policy document available in each country for the 2021–22 season.

VCR in recommended groups was collected by data source used to assess the VCR (e.g. survey, administrative medical database, vaccination registry, etc.)

Non-responding countries

For non-responding countries, a desk review was performed, and most up-to date influenza vaccine recommendations and VCR data were extracted from official websites – e.g. from the national public health institute website or the Ministry of Health. Links to data sources are provided in the Results section where applicable.

Data analysis

A descriptive analysis was carried out, summarising the total number of countries with influenza vaccine recommendations and policies in place for the different population target groups. Trends in VCRs between the 2018–19 and 2020–21 influenza seasons were described. Where relevant (data available for harmonised age groups across countries), median VCRs were calculated and compared across the 2018–19 and 2020–21 seasons in each vaccine target group.

Data validation

A draft report containing preliminary data was circulated among the national experts who had completed the questionnaire. Experts were asked to validate their data and make changes, as necessary. Official websites from the national public health institute or the Ministry of Health may have been consulted for clarification purposes and where this was the case, a link is provided.

Results

Response rate

Of 30 EU/EEA countries invited to participate, 26 responded to the survey. Estonia, Finland, Germany and Poland did not reply.

Non-responding countries

The following website have been consulted for non-responding countries:

Estonia: https://ta.vaktsineeri.ee/sites/default/files/inline-files/immuniseerimiskava_rakendusjuhis_10.01.2022.pdf

Finland: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/information-about-vaccinations/vaccination-programme-for-children-and-adults>

Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?__blob=publicationFile

Poland: <https://szczepienia.pzh.gov.pl/kalendarz-szczepien-2022-2/>

Seasonal influenza vaccine recommendations

Age-based recommendations in children/adolescents

During the 2021–22 influenza season, 14 of 30 EU/EEA countries had age group recommendations for children and/or adolescents irrespective of chronic medical conditions: Austria, Bulgaria, Cyprus, Czechia, Denmark, Finland, Ireland, Italy, Latvia, Malta, Poland, Romania, Slovakia and Slovenia (Table 1). This was nine countries more than during the 2017–2018 season when only five had a recommendation in place (Finland, Latvia, Malta, Slovakia and Slovenia).

The recommendations targeted different age groups across countries: a wide age range of six months to <18-years in Austria, Bulgaria and Poland, 24 months to 17 years in Ireland, six months to 15 years in Cyprus and six months to 12 years in Slovakia. Other countries had recommendations that targeted young children up to primary-school age (e.g. individuals from six month to 5-7 years in Czechia, Denmark, Finland, Italy, Malta and Romania). Latvia and Slovenia were the two countries where the recommendation covered children of the youngest age – between six and 23 months.

The Live Attenuated Influenza Vaccine (LAIV) was recommended in eight countries (Austria, Czechia, Denmark, Finland, Ireland, Italy, Poland and Slovakia).

The recommendation was partially or fully funded in all countries apart from Bulgaria and Poland.

Table 1. Recommendation for seasonal influenza vaccination in children and/or adolescents, funding scheme and vaccines product used, EU/EEA countries (n=30), 2021–22 influenza season

Country	≥6–23 months	≥6 months - 5 years	≥6 months - 6 years	24 months - 7 years	≥ 6 months - 12 years	≥6 months - 15 years	≥6 months - <18 years	≥24 months - <18 years	Funding of the vaccine/administration	Recommended vaccine product
Austria ^a							R		F/F	IIV4/LAIV
Belgium										
Bulgaria ^b							R		NF/NF	IIV4
Croatia										
Cyprus						R			F/F	IIV4
Czechia		R								IIV4/LAIV
Denmark				R					F/F	LAIV
Estonia ^c										
Finland ^d			R						F/F	IIV4/LAIV
France										
Germany ^e										
Greece										
Hungary										
Iceland										
Ireland								R	F/F	LAIV
Italy			R						F/F	IIV4/LAIV/cIIV4
Latvia ^f	R								F/F	IIV4
Liechtenstein										
Lithuania										
Luxembourg										
Malta		R							F/F	IIV4
The Netherlands										
Norway										
Poland ^g							R		NF/NF	IIV4/LAIV
Portugal										
Romania		R							F/F	IIV4
Slovakia					R				F/F	IIV4/LAIV
Slovenia ^h	R								F/F	IIV4
Spain										IIV4, cIIV4
Sweden										

R: Recommended. Recommended vaccination is defined as the existence of a written recommendation in an official policy document, stating that a particular population group should receive seasonal influenza vaccine. F: Funded. NF: not funded. F/F: Funding of the vaccine/Funding of the administration of the vaccine. IIV4: Quadrivalent inactivated influenza vaccine; LAIV: Live Attenuated Influenza Vaccine. cIIV4: cell derived inactivated quadrivalent influenza vaccine.

a. Austria: Recommended in all individuals, fully funded for those aged 6 months to 15 years.

b. Bulgaria: National programme for improvement of seasonal flu vaccine prophylaxis, 2019–2022 (in Bulgarian): <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1275>

*c. Estonia: <https://ta.vaktsineeri.ee/et/haigused-ja-vaktsiinid/vaktsineerimine-eestis/riiklik-immuniseerimiskava;>
[https://ta.vaktsineeri.ee/sites/default/files/inline-files/immuniseerimiskava_rakendusjuhik_10.01.2022.pdf;](https://ta.vaktsineeri.ee/sites/default/files/inline-files/immuniseerimiskava_rakendusjuhik_10.01.2022.pdf)*

[https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf;](https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf)

d. Finland: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/information-about-vaccinations/vaccination-programme-for-children-and-adults;>

e. Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?__blob=publicationFile

f. Latvia: <https://www.vmnvd.gov.lv/lv/media/10148/download>

g. In Poland influenza vaccination is recommended – i.e. not financed by the Ministry of Health budget. More information available from: <https://szczepienia.pzh.gov.pl/szczepionki/grypa/?strona=8#szczepionka-przeciw-grypie-w-programie-szczepien-ochronnych>

h. Slovenia: vaccination against influenza is recommended for everyone >6 months, but especially recommended and funded for the groups mentioned (children 6–23-months, pregnant women, chronic patients, older individuals aged 65 years and above)

i. Spain: cIIV4 in two regions and in one of these only in children aged >2 years.

Data source: Influenza survey, 2021, except for Estonia, Germany, Finland and Poland where information was reviewed and extracted from their national public health institute website or other websites on national immunisation policies, as indicated in the footnotes. For other countries, additional information may be provided and the source may be acknowledged in the footnotes.

Age-based recommendations in adults

Three countries had recommendations for all adults aged ≥ 18 years (Austria, Bulgaria and Estonia). In Bulgaria, this was implemented as a temporary recommendation which was to be reassessed by the end of 2022. Most countries had recommendations in adults aged ≥ 65 years ($n=16$). Four countries had recommendations for the slightly younger age groups: those aged ≥ 60 years (Table 2). In Czechia and Belgium, the recommendations applied to different age groups in adults, depending on vaccine product availability in Belgium and the expert group issuing the recommendation in Czechia. Liechtenstein was the only country where the recommendation was not funded. Compared to the 2017–18 influenza season recommendations, age-based recommendations were lower in Italy (reduced to 60 years) and Poland offered influenza vaccination free of charge for all adults (although not necessarily fully funded).

Table 2. Recommendation for seasonal influenza vaccination in adults, EU/EEA countries (n=30), 2021–22 influenza season

Country	≥18 years	≥50 years	≥55 years	≥59 years	≥60 years	≥65 years	Funding of the vaccine/ administration	Recommended vaccine product
Austria ^a	R						F/F	IIV4, aIIV4, QIV-HD
Belgium ^b		R				R	F/F ^b	IIV3, IIV4
Bulgaria ^c	R						F/F	IIV4
Croatia						R	F/F	IIV4
Cyprus						R	F/F	aIIV4
Czechia ^d		R				R	F/F	IIV4
Denmark ^e						R	F/F	IIV4, QIV-HD
Estonia ^f	R						F/F	IIV4
Finland ^g						R	F/F	IIV4
France ^h						R	F/F	IIV4, QIV-HD
Germany ⁱ					R			IIV4, QIV-HD
Greece					R		F/F	IIV4
Hungary					R		F/F	IIV3
Iceland					R		F/F	IIV4
Ireland ^j		R						IIV4, aIIV4
Italy ^k					R		F/F	IIV4, aIIV4, cIIV4, rIIV4, QIV-HD
Latvia ^l						R	F/F	IIV4
Liechtenstein						R	NF/NF	IIV4
Lithuania ^m						R	F/F	IIV4
Luxembourg						R	F/F	IIV4
Malta ⁿ			R				F/F	IIV4
The Netherlands					R		F/F	IIV4
Norway ^o						R	F/F	IIV4
Poland ^p			R				F/F	IIV4
Portugal						R	F/F	IIV4
Romania						R	F/F	IIV4
Slovakia				R			F/F	IIV4
Slovenia ^q						R	F/F	IIV4
Spain						R	F/F	IIV4, aIIV3, aIIV4, cIIV4, QIV-HD
Sweden ^r						R	F/F	IIV4, QIV-HD

R: Recommended. Recommended vaccination is defined as the existence of a written recommendation in an official policy document stating that a particular population should receive seasonal influenza vaccine. F: Funded. NF: not funded. F/F: Funding of the vaccine/Funding of the administration of the vaccine. IIV3: Trivalent inactivated influenza vaccine; IIV4: Quadrivalent inactivated influenza vaccine; aIIV3: adjuvanted trivalent influenza vaccine; aIIV4: adjuvanted quadrivalent influenza vaccine; cIIV4: cell-derived inactivated quadrivalent influenza vaccine; QIV-HD: high-dose quadrivalent influenza vaccine. rIIV4: recombinant quadrivalent influenza vaccine.

a. Austria: Recommended in all individuals, fully funded in those aged 6 months-15 years, in individuals living in retirement homes and long-term care facilities, in those aged ≥60 years. Some healthcare insurers and employers offer (partly) funded influenza vaccination programmes.

b. Belgium: The vaccination is recommended in individuals aged ≥65 years which is the priority group. Depending on vaccine availability, the recommendation also applied to healthy individuals aged ≥50 years. Depending on the age group and risk group, funding may be partial or total.

c. Bulgaria: National programme for improvement of seasonal flu vaccine prophylaxis, 2019-2022 (in Bulgarian): <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1275> Free of charge in those aged 65 years and above until the 2021-22 influenza season.

d. Czechia: The Czech Vaccine Society recommends the vaccine in all adults over 50 years while the Czech National Immunisation Technical Advisory Group recommends the vaccine in all adults over 65 years.

e. Denmark: QIV-HD recommended in adults aged ≥82 years.

f. Estonia: funded in those aged ≥65 years. <https://ta.vaktsineeri.ee/et/haigused-ja-vaktsiinid/vaktsineerimine-eesist/niklik-immuniseerimiskava>,

<https://ta.vaktsineeri.ee/et/taiskasvanutele/mille-vastu-saab-vaktsineerida>; https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf. All adults (especially those aged ≥65 years) should be vaccinated against seasonal influenza: https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf

g. Finland: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/information-about-vaccinations/vaccination-programme-for-children-and-adults>; Vaccines available during the 2021-22 season: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/vaccines-a-to-z/influenza-vaccine#where>

h. France: QIV-HD only in those aged ≥65 years

i. Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?__blob=publicationFile;

QIV-HD in those aged 60 years and over.

j. Ireland: The National Immunisation Technical Advisory Group has recommended vaccination for all people aged ≥50 years for a number of years, but the national influenza programme specified only those aged ≥65 years, until change in national policy was announced in December 2021.

k. Italy: aIIV4 and QIV-HD in those aged ≥65 years.

l. Latvia: <https://www.spkc.gov.lv/lv/media/5827/download>

m. Lithuania: Vaccine and its administration partially funded.

n. Malta: <https://deputyprimeminister.gov.mt/en/phc/pchyhi/Pages/Vaccines.aspx>

o. Norway: Vaccine is fully funded for adults aged >65 years and all at-risk groups. If vaccine is administered by the municipality, the administration is fully funded. If administered at a GP's office, the administration is partly funded unless the patient has an exemption card for public health services in which case it is fully funded.

p. Poland: source: <https://szczepienia.pzh.gov.pl/kalendarz-szczepien-2022-2/>; <https://szczepienia.pzh.gov.pl/bezplatne-szczepienia-przeciw-grypie-dla-doroslych/>; Funding and vaccines: <https://szczepienia.pzh.gov.pl/faq/komu-przysluguje-bezplatna-lub-refundowana-szczepionka-przeciw-grypie/>, <https://szczepienia.pzh.gov.pl/bezplatne-szczepienia-przeciw-grypie-dla-doroslych/>. Vaccine and its administration are partially funded (50%).

q. Slovenia: vaccination against influenza is recommended for everyone >6 months, but especially recommended and funded for the specific groups mentioned (children aged 6-23 months, pregnant women, chronic patients, older individuals aged 65 years and above).

r. Sweden: High-dose vaccine quadrivalent recommended for residents in long-term care facilities.

Data source: Influenza survey, 2021, except for Estonia, Germany, Finland and Poland where information was reviewed and extracted from national public health institute websites or other websites detailing national immunisation policies, as indicated in the footnotes. Additional information may be provided and the source may be acknowledged in the footnotes.

Individuals with chronic medical conditions

During the 2021–2022 season, all countries had recommendations for individuals with chronic pulmonary diseases, cardiovascular diseases, renal diseases, metabolic disorders and for those who were immunosuppressed. HIV was not an indication in Denmark and Hungary. Fewer countries had recommendations in place for hepatic chronic diseases (n=27), individuals with compromised respiratory function (n=26), chronic neurological diseases (n=23), morbid obesity (n=21) and those taking aspirin on a long-term basis (n=18) (Table 3). The recommendation was not funded or partially funded in nine countries (Austria, Bulgaria, Estonia, Latvia, Liechtenstein, Luxembourg, Norway, Slovenia and Sweden). Compared to the 2017–18 influenza season recommendations, Denmark, France, Liechtenstein, the Netherlands, Romania and Slovenia had included morbid obesity as an additional underlying condition covered by the recommendation.

Table 3. Recommendation for seasonal influenza vaccination in adults with specific medical chronic condition, EU/EEA countries (n=30), 2021–22 influenza season

Country	Chronic pulmonary	Chronic neurological condition	Cardiovascular	Renal	Hepatic	Haematological	Metabolic	Immuno-suppression	HIV/AIDS	Compromised respiratory function	Long-term aspirin use	Morbid obesity	Funding of the vaccine/administration
Austria ^a	R	R	R	R	R	R	R	R	R	R	R	R	NF/NF
Belgium ^b	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Bulgaria	R	NR	R	R	R	R	R	R	R	R	NR	NR	NF/NF
Croatia	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Cyprus	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Czechia	R	R	R	R	R	NR	R	R	R	R	NR	NR	F/F
Denmark	R	NR	R	R	R	NR	R	R	NR	R	NR	R ^b	F/F
Estonia ^d	R	R	R	R	R	R	R	R	R	R	R	R	NF/NF
Finland ^e	R	R	R	R	R	R	R	R	R	R	R	R	F/F
France ^f	R	R	R	R	R	R	R	R	R	R	NR	R	F/F
Germany ^g	R	R	R	R	R	R	R	R	R	R	NR	NR	F/F
Greece	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Hungary	R	R	R	R	R	R	R	R	NR	R	R	R	F/F
Iceland ^h	R	NR	R	R	R	NR	R	R	R	R	R	NR	F/F
Ireland	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Italy	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Latvia ⁱ	R	NR ^h	R	R	NR	NR	R	R	R	NR	R	NR	F/NF
Liechtenstein	R	R	R	R	R	R	R	R	R	NR	NR	R	NF/NF
Lithuania	R	NR	R	R	R	R	R	R	R	R	NR	NR	F/F
Luxembourg	R	R	R	R	NR	R	R	R	R	R	R	NR	F/NF
Malta	R	R	R	R	R	R	R	R	R	R	NR	NR	F/F
Netherlands ^j	R	R	R	R	NR	R	R	R	R	R	R ⁱ	R	F/F
Norway ^k	R	R	R	R	R	NR	R	R	R	NR	NR	R	NF/NF
Poland ^l	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Portugal	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Romania	R	R	R	R	R	R	R	R	R	R	NR	R	F/F
Slovakia	R	NR	R	R	R	R	R	R	R	R	NR	NR	F/F
Slovenia ^m	R	R	R	R	R	R	R	R	R	R	R ^l	R	F/NF
Spain	R	R	R	R	R	R	R	R	R	R	R	R	F/F
Sweden	R	R	R	R	R	R	R	R	R	R	NR	R	NF/NF

R: Recommended. Recommended vaccination is defined as the existence of a written recommendation in an official policy document stating that a particular population group should receive seasonal influenza vaccine.

NR: Not recommended. F: Funded. NF: not funded. F/F: Funding of the vaccine/Funding of the administration of the vaccine.

a. Austria: Some healthcare insurers and employers may partly fund influenza vaccination programmes.

b. Belgium: partially funded.

c. Denmark: BMI >35.

d. Estonia: <https://ta.vaktsineeri.ee/et/haigused-ja-vaktsiinid/vaktsineerimine-eestis/riiklik-immuniseerimiskava>;

https://ta.vaktsineeri.ee/sites/default/files/inline-files/immuniseerimiskava_rakendusjuhivis_10.01.2022.pdf;

<https://www.terviseamet.ee/sites/default/files/content->

[editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf](https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaigused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf);

e. Finland: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/information-about-vaccinations/vaccination-programme-for-children-and-adults>;

f. France: Other recommendations now valid for healthcare professionals or any professional with regular and prolonged contact with at-risk persons and cruise ships and commercial aircraft personnel and any personnel from the travel industry accompanying groups of travellers.

g. Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?__blob=publicationFile

h. Iceland: recommendation does not mean that they receive the vaccine free of charge, as the decision to charge the vaccinated person is in the hands of the healthcare provider who recommends and administers the vaccination.

i. Latvia: Underlying mental disease.

j. Netherlands: in children up to 18 years of age.

k. Norway: vaccine is fully funded for all at-risk groups. If vaccine is administered by the municipality, the administration is fully funded. If administered at a GP's office, the administration is partly funded unless the patient has an exemption card for public health services, in which case it is fully funded.

l. Poland: <https://szczepienia.pzh.gov.pl/kalendarz-szczepien-2022-2/>

m. Slovenia: in pre-school children.

Data source: Influenza survey, 2021, except for Estonia, Germany, Finland and Poland where information was reviewed and extracted from national public health institute websites or other websites on national immunisation policies. Additional sources of information may be provided, and these sources may be acknowledged in the footnotes above.

Pregnant women

Twenty nine EU/EEA countries had national recommendations for influenza vaccination during pregnancy, with the exception of Bulgaria (Table 4). A majority (n=22) recommended influenza vaccination for all pregnant women, irrespective of pregnancy trimester or underlying medical condition. Denmark, Germany, Malta, and Norway recommended vaccination for all pregnant women in the second and third trimester, although vaccination during the first trimester was only recommended in individuals with medical chronic conditions. Compared to the 2017–18 season, Belgium, Croatia and Cyprus extended their recommendation to cover all pregnant women, during any trimester of the pregnancy.

Table 4. Recommendation for seasonal influenza vaccination in pregnant women, EU/EEA countries, 2021–22 influenza season

Countries	Any pregnant women, any trimester	Healthy women during second or third trimesters, or pregnant women with chronic medical conditions during any trimester
Austria ^a		R
Belgium	R	
Bulgaria	NR	NR
Croatia	R	
Cyprus	R	
Czechia	R	
Denmark		R
Estonia ^b	R	
Finland ^c	R	
France	R	
Germany ^d		R
Greece	R	
Hungary	R	
Iceland	R	
Ireland	R	
Italy	R	
Latvia	R	
Liechtenstein	R	
Lithuania	R	
Luxembourg	R	
Malta ^e		R
The Netherlands ^f		R
Norway		R
Poland ^g	R	
Portugal	R	
Romania	R	
Slovakia ^h	R	
Slovenia	R	
Spain	R	
Sweden ⁱ		R

R: Recommended defined as the existence of a written recommendation in an official policy document stating that a particular population group should receive seasonal influenza vaccine. NR: Not recommended.

a. Austria: influenza vaccination is highly recommended in the second and third trimester, but can also be administered in the first trimester, if an influenza wave is expected.

b. Estonia: <https://ta.vaktsineeri.ee/et/haiqused-ja-vaktsiinid/vaktsineerimine-eestis/riiklik-immuniseerimiskava>;
https://ta.vaktsineeri.ee/sites/default/files/inline-files/immuniseerimiskava_rakendusjuhised_10.01.2022.pdf;

https://www.terviseamet.ee/sites/default/files/content-editor/vanaveeb/Nakkushaiqused/immunoprof/Lisa_2_vaktsiinid_ja_sihtruehmad.pdf;

c. Finland: <https://thl.fi/en/web/infectious-diseases-and-vaccinations/information-about-vaccinations/vaccination-programme-for-children-and-adults>;

d. Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?blob=publicationFile

e. Malta: [Vaccines \(gov.mt\)](https://www.vaccines.gov.mt)

f. The Netherlands: recommendations to vaccinate all pregnant women from 22 weeks of pregnancy were published in September 2021. Work is ongoing to implement the recommendation in 2023.

g. Poland: <https://szczepienia.pzh.gov.pl/kalendarz-szczepien-2022-2/>

h. Slovakia: https://www.health.gov.sk/Zdroje/Sources/dokumenty/SDTP/standardy/1-10-2021/8_2

i. Sweden: vaccination is recommended for all women starting from gestational week 16.

Data source: Influenza survey, 2021 except for Estonia, Germany, Finland and Poland where information was reviewed and extracted from national public health institute websites or other websites detailing national immunisation policies: For all countries, see <https://www.sciencedirect.com/science/article/pii/S0264410X21011221?via%3Dihub>.

Healthcare workers

A total of 23 EU/EEA countries had recommendations for all healthcare workers during the 2021–22 influenza season (Table 5). In seven countries (Belgium, Denmark, Latvia, Luxembourg, Norway, Slovakia and Sweden), the recommendation targeted specific groups of healthcare workers. The recommendation was new in Denmark compared to the 2017–18 season. In Luxembourg, the recommendation was reclassified as 'Staff in close contact with patients'. None of the countries with targeted recommendations extended their recommendations to a wider group of healthcare workers. In all responding countries, the vaccination of healthcare workers is voluntary which, in this document, is defined as individual free-will (choice) when deciding on seasonal influenza vaccination. There is also no penalty for not being vaccinated. Recommendations may in some cases only be funded by employers.

Table 5. Recommendation for seasonal influenza vaccination in healthcare workers, EU/EEA countries, 2021–22 influenza season

Countries	All healthcare workers	Staff in close contacts with patients	Staff having no contact with patients, but contact with potentially contaminated materials	Staff having no close contact with patients or contaminated materials	Funding of the vaccine/administration
Austria ^a	R				F/F
Belgium ^b		R	R	R	F/F
Bulgaria	R				NF/NF
Croatia	R				F/F
Cyprus	R				F/F
Czechia ^c	R				NF/NF
Denmark		R			F/F
Estonia ^d	R				NA
Finland	R				NA
France	R				F/F
Germany ^e	R				NA
Greece	R				F/F
Hungary	R				F/F
Iceland	R				F/F
Ireland	R				F/F
Italy	R				F/F
Latvia ^f		R			F/F
Liechtenstein	R				NF/NF
Lithuania	R				F/F
Luxembourg ^g		R			F/F
Malta	R				F/F
The Netherlands ^h	R				F/F
Norway ⁱ		R	R		F/F
Poland ^j	R				NA/NA
Portugal	R				F/F
Romania	R				F/F
Slovakia ^k		R	R		F/F
Slovenia	R				F/F
Spain	R				F/F
Sweden ^l		R			F/F

R: 'Recommended' is defined as the existence of a written recommendation in an official policy document stating that a particular population group should receive seasonal influenza vaccine. F: Funded. NF: not funded. F/F: Funding of the vaccine/Funding of the administration of the vaccine. NA: Information not available.

a. Austria: Usually paid by employers.

b. Belgium: Partly funded.

c. Czechia: May be funded by some employers.

d. Estonia: <https://ta.vaktsineeri.ee/en/diseases-and-vaccines>

e. Germany: https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2022/Ausgaben/04_22.pdf?_blob=publicationFile

f. Latvia: funded for some healthcare workers.

g. Luxembourg: https://sante.public.lu/dam-assets/fr/espace-professionnel/recommandations/conseil-maladies-infectieuses/grippe-saisonniere/2020-grippe-recommandations-vaccination_FR.pdf

h. The Netherlands: vaccine and administration are funded by employers.

i. Norway: vaccine and administration are fully funded by employers.

j. Poland: <https://szczepienia.pzh.gov.pl/dla-lekarzy/szczepienia-zalecane-dla-ochrony-zdrowia/#o-ktorych-szczepieniach-powinni-pamietac-pracownicy-ochrony-zdrowia>

k. Slovakia: including staff in social care facilities.

l. Sweden: vaccines were fully funded regionally for all at-risk groups, including those aged 65 years and above, during the 2021-2022 season.

Data source: Influenza survey, 2021, except for Estonia, Germany, Finland and Poland where information was reviewed and extracted from national public health institute websites or other websites on national immunisation policies. Additional sources of information may be provided and sources may be acknowledged in the footnotes above.

Vaccination coverage rates

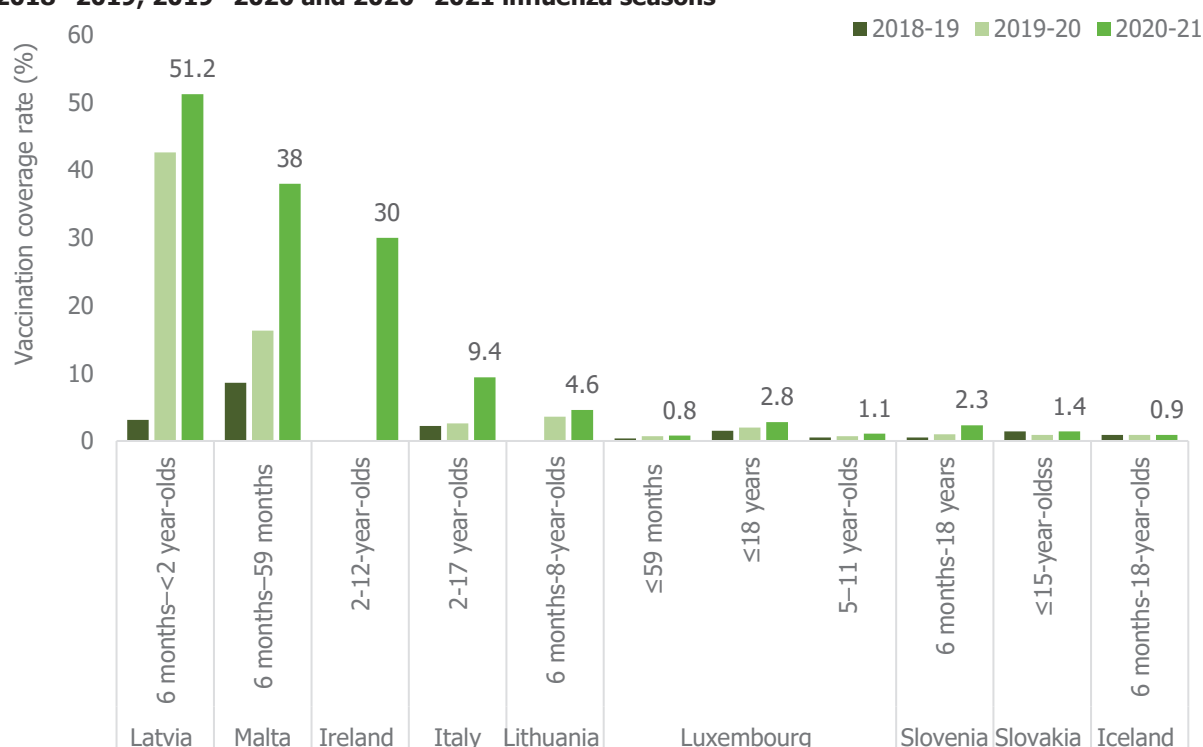
Children/adolescents

For each season between 2018–19 and 2020–21 a total of nine countries reported VCRs in children/adolescents, albeit in various age groups. Ireland, Italy, Malta and Latvia reported data for the age group targeted by the recommendations, while Slovakia and Slovenia reported VCR data for a wider age group. The level of coverage during the 2020–21 season varied between 9.4% (Italy) and 51% (Latvia). In Latvia and Malta there was a sharp increase in VCRs compared to the 2018–19 season. The level of coverage reported in Slovakia and Slovenia was low (<2%) and did not reflect adherence to the recommendation for the targeted age groups.

Overall, an increasing trend was observed in Latvia, Malta, Italy (albeit with a very low level of VCR), Luxembourg and Slovenia during the 2020–21 season compared to the 2018–19 season, and in Lithuania compared to the 2019–20 season.

In Ireland, the VCR reached 30% in 2020–21. In Italy the VCR was 9.2%, however 2020–21 was the first season during which the vaccine recommendation was implemented. Given the heterogeneity of age groups for which data was available, no median VCR was calculated.

Figure 1. Seasonal influenza vaccination coverage rates in children, EU/EEA countries (n=9), 2018–2019; 2019–2020 and 2020–2021 influenza seasons

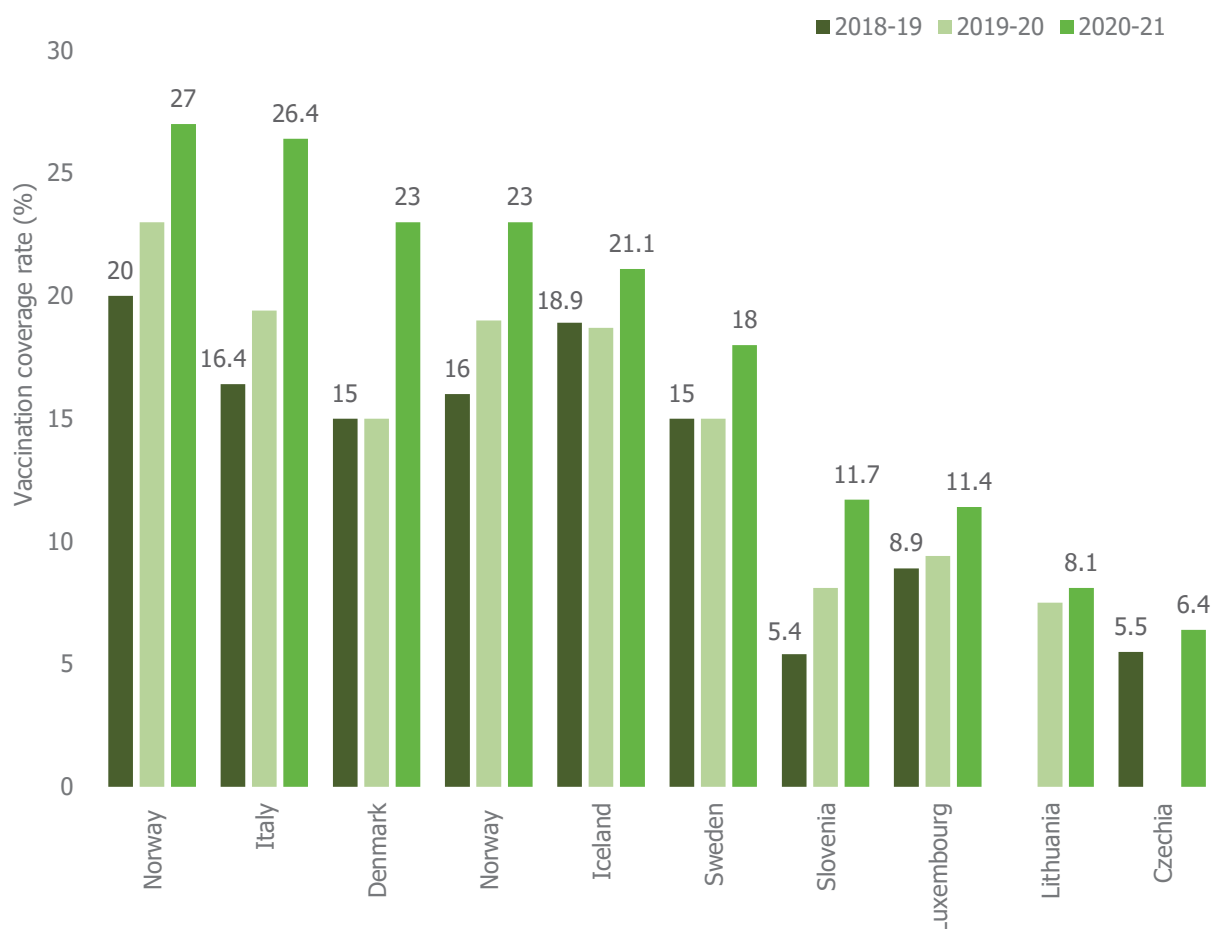


Source: 2021 ECDC influenza survey in EU/EEA countries. Source of VCR data was administrative in Latvia, Lithuania, Malta, Italy, Slovakia, Slovenia and Luxembourg; immunisation registry in Iceland; survey in Ireland.

Adults aged ≥18-year-olds

Nine countries reported VCRs in the adult population (≥18-year-olds) for the 2020–21 season: Norway, Italy, Denmark, Iceland, Sweden, Slovenia, Luxembourg, Lithuania and Czechia. Eight of them provided data for all three influenza seasons, and Czechia and Lithuania reported only two seasons (Figure 2). For the 2020–21 season median VCR was 20% and ranged between 6.4% (Czechia) and 27% (Norway) compared to 15% during the 2018–19 season and a range of 5.4% (Slovenia) to 20% (Norway). The level of VCR increased in all countries during the 2020–21 season compared to previous seasons. Norway was the country reporting the highest VCRs for the three seasons (20% in 2018–19 to 27% in 2020–21). In Sweden, Slovenia, Luxembourg, Lithuania and Czechia, the level of VCR remained under 20% across the three seasons.

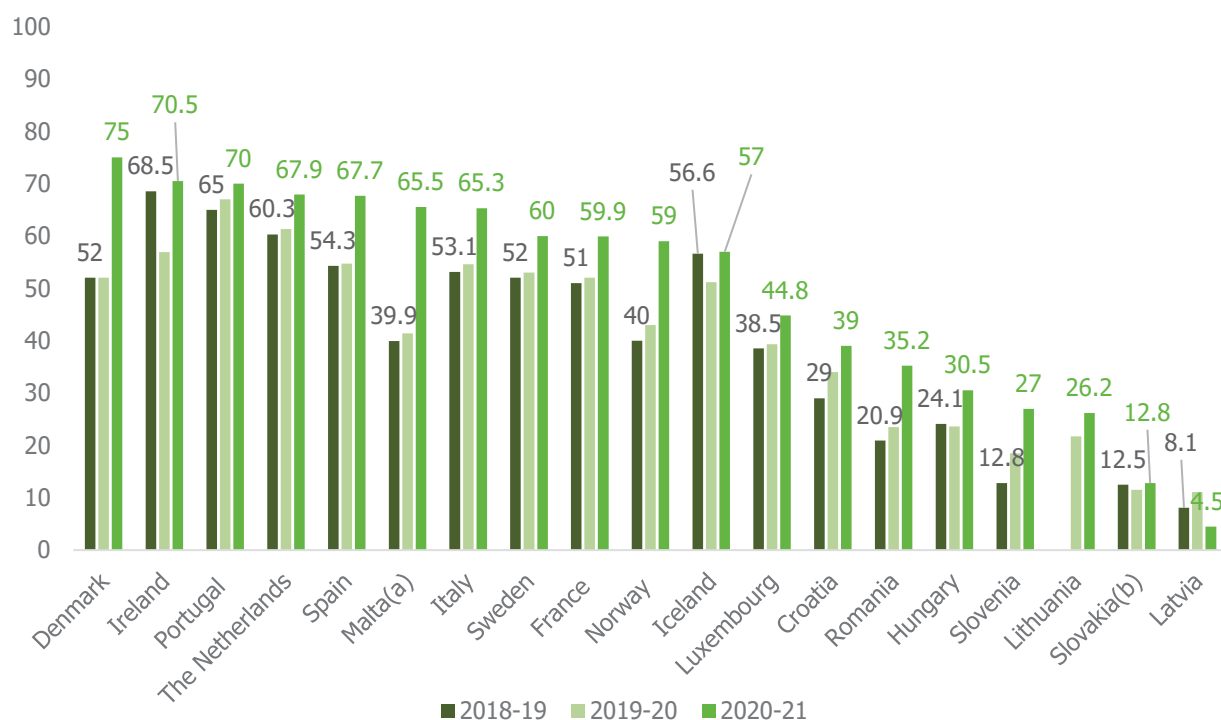
Figure 2. Seasonal influenza vaccination coverage rates in adults ≥ 18 -year-olds, EU/EEA countries (n=10), 2018–2019, 2019–2020 and 2020–2021 influenza seasons



Source: 2021 ECDC Influenza Survey in EU/EEA countries. Source of VCR data was administrative for Croatia, Czechia, Denmark, France, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden; immunisation registry for Iceland and Norway; Norway reported two sets of data from their national registries and from a survey. Source of data was a survey in Ireland. Estimates from Sweden are based on data from all counties, using a variety of methods including surveys, regional vaccination registries, patient record systems, and financial systems. Data from Denmark were estimates for those aged 15 years and above. Data from Czechia were estimates for the whole population provided by the regional public health authorities using administrative methods. Lithuanian data were for those aged 18–64 years.

Adults aged ≥ 65 years

A total of 19 countries reported VCRs in older individuals, mostly those aged ≥ 65 years, except for Malta (≥ 55 -years) and Slovakia (≥ 59 years) (Figure 3). Median VCR was 59% in 2020–21 and ranged between 4.5% (Latvia) and 75% (Denmark) compared to 51% during 2018–19 season with a range of 8.1 (Latvia) to 68.5% (Ireland). The VCR increased in all countries during the 2020–21 influenza season compared to the 2018–19 influenza season (and 2019–20 season for Lithuania), with the exception of Latvia where it decreased and Slovakia where it levelled off. It is worth noting that Denmark was the only country to reach a 75% VCR, which happened in 2020–21 after a sharp increase compared to the previous two seasons (52%).

Figure 3. Seasonal influenza vaccination coverage rates in older adult age groups, EU/EEA countries (n=19), 2018–2019, 2019–2020 and 2020–2021 influenza seasons

Source: 2021 ECDC Influenza Survey in EU/EEA countries. Source of VCR data was administrative for Croatia, Czechia, Denmark, France, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden; immunisation registry for Iceland and Norway; Norway reported two sets of data from their national registries and from a survey. Source of data was a survey in Ireland. Estimates from Sweden are based on data from all counties, using a variety of methods including surveys, regional vaccination registries, patient record systems, and financial systems. Data for France were extracted from <https://www.santepubliquefrance.fr/determinants-de-sante/vaccination/articles/donnees-regionales-de-couverture-vaccinale-grippe-par-saison-et-dans-chaque-groupe-d-age>. Data for Denmark were estimates for those aged 15 years and above. Data from Czechia were estimates for the whole population provided by the regional public health authorities using administrative methods. Lithuanian data were for those aged 18–64 years.

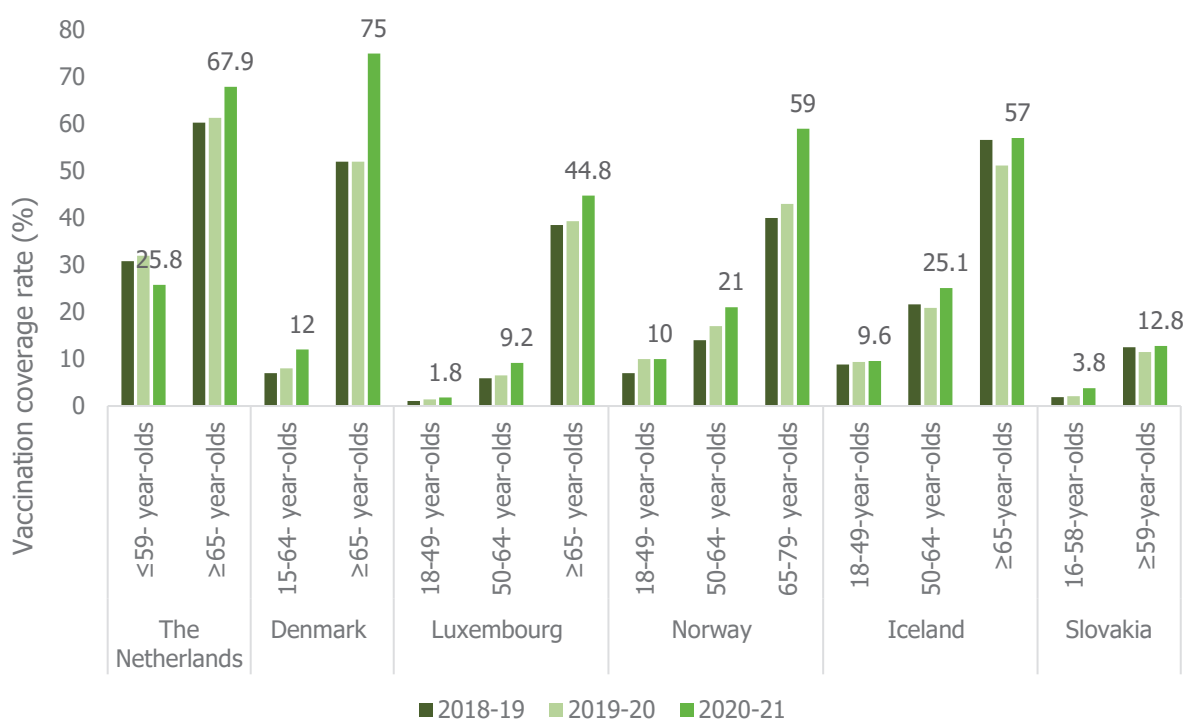
a. Malta: data for those aged 55 years and above.

b. Slovakia: data for those aged 59 years and above.

Adults in other age groups

A total of six countries reported detailed VCRs for adults from different age groups. The VCR remained higher for older adults (Figure 4) than for younger individuals, varying between 9.2% (Luxembourg) and 25.1% (Iceland) in those aged 50–64 year. In the age group 18–49 years around 10% of individuals were vaccinated in the reporting countries (Luxembourg, Norway and Iceland). During the 2020–21 season, an increasing trend was observed in all age groups except those aged 0–59 years in the Netherlands. Since the age cut off varied considerably across reporting countries, the median VCR by age group was not calculated.

Figure 4. Seasonal influenza vaccination coverage rates in adults by other age groups, EU/EEA countries (n=6), 2018–2019, 2019–2020 and 2020–2021 influenza seasons

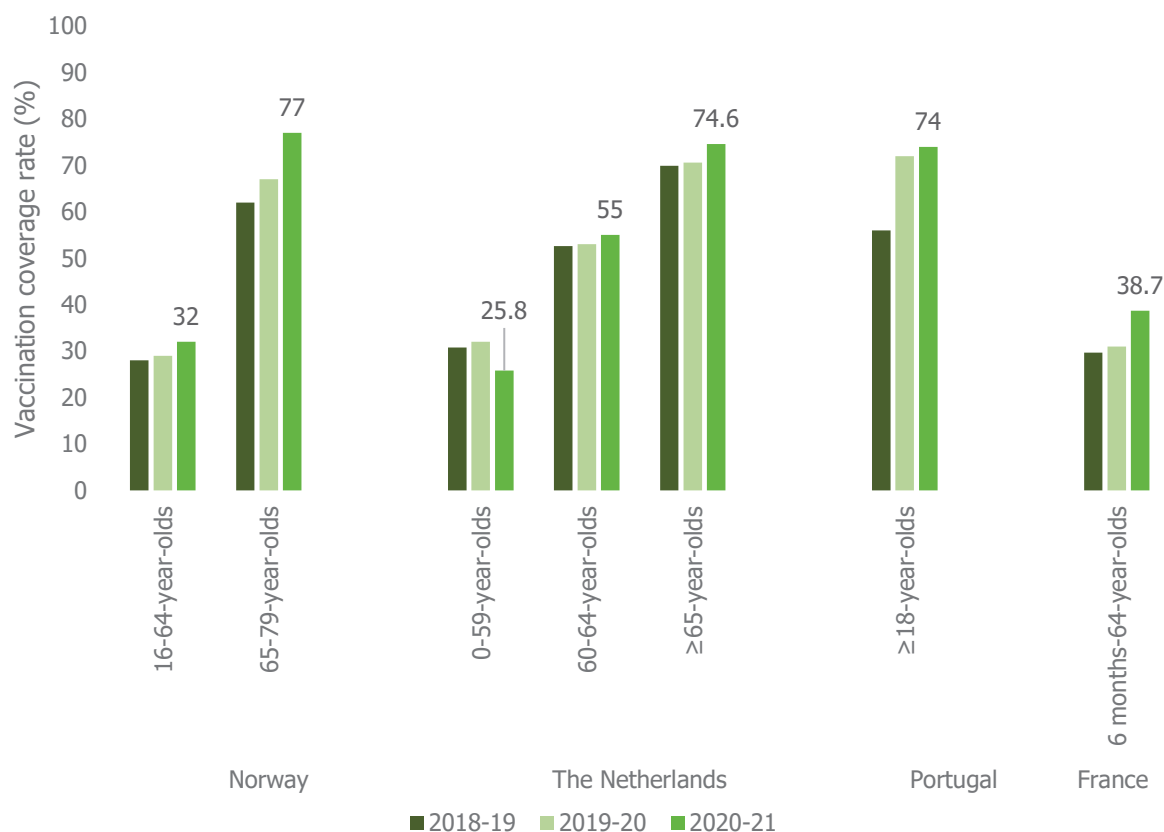


Source: 2021 ECDC Influenza Survey in EU/EEA countries. Source of VCR data was administrative for Croatia, Czechia, Denmark, France, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden; immunisation registry for Iceland and Norway; Norway reported two sets of data from their national registries and from a survey. Source of data was a survey in Ireland. Estimates from Sweden are based on data from all counties, using a variety of methods including surveys, regional vaccination registries, patient record systems and financial systems. Data from France were extracted from <https://www.santepubliquefrance.fr/determinants-de-sante/vaccination/articles/donnees-regionales-de-couverture-vaccinale-grippe-par-saison-et-dans-chaque-groupe-d-age>. Data from Denmark were estimates for those aged 15 years and above. Data from Czechia were estimates for the whole population provided by the regional public health authorities using administrative methods. Lithuanian data were for those aged 18–64 years.

Adults with chronic medical conditions

Four countries reported VCRs for individuals with chronic medical conditions (France, the Netherlands, Norway and Portugal), albeit reporting data for different age groups depending on the country (Figure 5). In all four countries, the highest level of VCR was observed during the 2020–21 season.

Figure 3. Seasonal influenza vaccination coverage rates among individuals with chronic medical conditions in various age groups, EU/EEA countries (n=4), influenza seasons 2018–2019; 2019–2020 and 2020–2021



Source: 2021 ECDC Influenza survey in EU/EEA countries. Source of VCR data was administrative in the Netherlands and France; immunisation registry in Norway and Portugal. Norway reported two sets of data: from their national registries and from a survey.

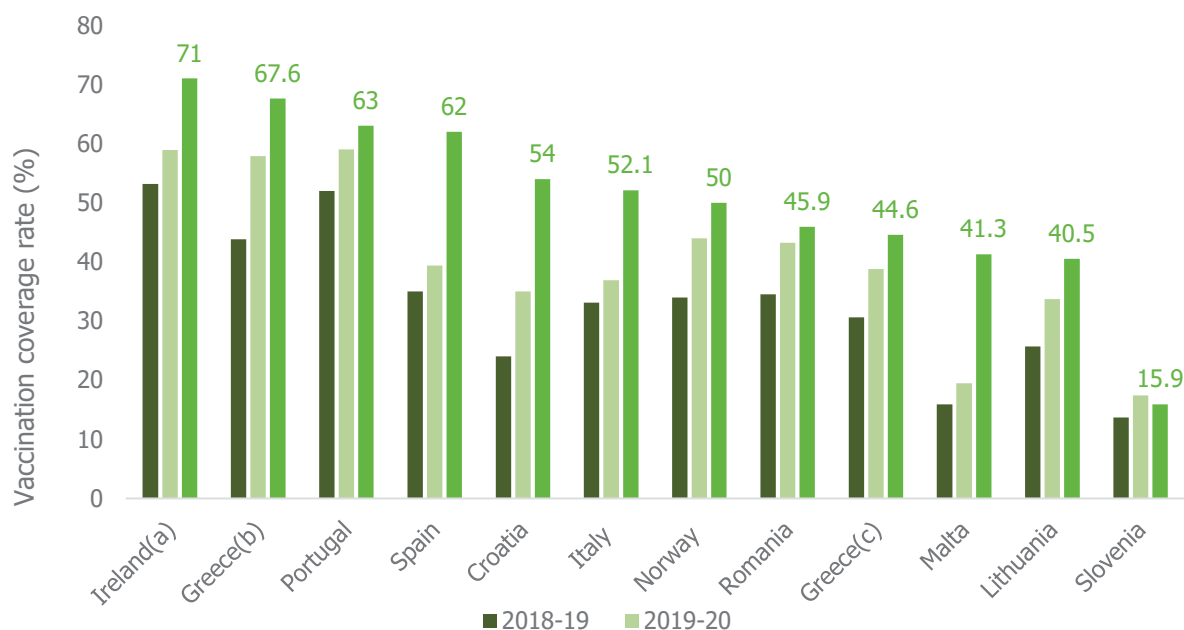
Pregnant women

Spain reported the highest level of VCR in pregnant women (40.6%, 50% and 61.9%) in the 2018–19, 2019–20 and 2020–21 seasons respectively. In the other three countries (Hungary, Lithuania and Slovenia), the rate varied between 1.7% and 61% for the 2020–21 season.

Healthcare workers

Croatia, Greece, Ireland, Italy, Lithuania, Malta, Norway, Romania, Portugal and Spain (n=10) reported influenza VCRs in healthcare workers for each season (Figure 6). Greece reported separated VCRs in in-patient and out-patient settings. Median VCR in 2020–21 was 52% (range=15.9–71%) compared to 33% in 2018–19. All countries reported an increase in VCRs for the 2020–21 season.

Figure 6. Seasonal influenza vaccination coverage rates among healthcare workers in EU/EEA countries (n=10), influenza seasons 2018–2019; 2019–2020; 2020–2021



a. Ireland: Public in-patient hospitals

b. Greece: Data are for healthcare workers in out-patient healthcare settings.

c. Greece: Data are for healthcare workers in in-patient healthcare settings.

Source of data is administrative for all reporting countries.

Data source: 2021 ECDC Influenza survey in EU/EEA countries.

Residents of long-term care facilities

Ireland and Portugal reported VCRs among workers and residents of long-term care facilities. In this specific setting, the VCR increased for healthcare workers from 41.9% to 66.3% for Ireland and from 26% to 67% for Portugal between the 2018–19 and 2020–21 seasons.

In residents, the VCR increased from 89% to 93.6% for Ireland and from 91% to 94% for Portugal between the 2018–19 and 2020–21 seasons. Slovakia reported lower VCRs in residents for 2020–21 (66.1%) than for the 2018–19 season (74.3%). During the 2020–21 season, Belgium reported a VCR of 71% for staff compared to 93.4% for France. VCR was 55.2% in residents of long-term care facilities in France.

Strengths

Since 2007, the ECDC-funded VENICE project has been conducting annual surveys to follow up changes and identify compliance with the 2009 Council Recommendation to achieve the EU goal of 75% vaccination coverage in older age groups and risk groups by 2014–15. Up until the 2017–18 influenza season, ECDC-supported VENICE surveys were identified as the most effective way of monitoring the implementation of the 2009 Council Recommendation, particularly since several surveys had already been conducted before the Council Recommendation was issued. National focal points for vaccine-preventable diseases received the survey and data reported were individually checked with and validated by each of the responding countries.

Limitations

Comparison of VCRs across countries and with past VENICE surveys [2,3] should be made carefully because EU/EEA countries use different methods and data sources to calculate coverage estimates. For some specific target groups, stratification may vary with data reported in different age groups. Within a given Member State, comparisons across years may be difficult if methods (administrative versus survey) or response rates differ from year to year.

No information was collected on the way in which denominator data (numbers of those eligible for vaccination) is assessed. In addition, for some specific target groups, information on the denominators may be limited or approximate – e.g. for individuals with chronic medical conditions or healthcare workers. This reflects a lack of information systems (disease registers) or other standardised methodologies for collecting the data. Data linkage to health outcome data and immunisation registers could overcome this limitation.

There are also limitations related to verifying the number of people vaccinated (numerator data) because countries may choose to use data from administrative records, immunisation registries or surveys and these data have their own limitations.

VCRs were collected as proportions (the number of vaccinated individuals (numerator) divided by the number of individuals in each population group targeted for vaccination (denominator), calculated in each EU/EEA Member State that responded to the survey).

Some countries reported using population surveys to estimate the number of individuals at risk. Again, it has been difficult to compare the number of individuals at risk between countries because of the wide range of methodologies (e.g. household surveys, mail, face-to-face interviews, telephone interviews).

The reasons for low or high VCRs in EU/EEA countries are beyond the scope of this survey. However, trends observed have been discussed in light of the SARS-Cov-2 virus circulating during the 2020–21 season. Additional qualitative surveys are required to understand the contextual factors associated with the fluctuation of influenza VCRs during the COVID-19 pandemic.

Conclusions

During the 2021–22 influenza season, several EU/EEA countries expanded their influenza vaccine recommendations to additional age groups compared to previous seasons [3], particularly for children/adolescents and/or elderly adults by reducing the lower age limit for immunisation.

In children, extension of the recommendation in several countries was justified on the basis of growing evidence of reduced disease following vaccination, albeit with little evidence of reduced transmission [12]. Slight changes were observed in recommendations for pregnant women: Italy and Belgium moved to a recommendation to vaccinate pregnant women during any trimester while Malta and the Netherlands recommended the vaccine in pregnant women as of the second trimester. All such adjustments are in accordance with WHO's consideration of pregnant women as a high-risk priority group for influenza vaccination and the decade-long call by the European Union to improve influenza vaccine uptake among high-risk groups, including pregnant women [4]. Nonetheless, the pandemic may have also led countries to adjust their policies to reduce, as much as possible, the burden of respiratory diseases in all age groups at a time when healthcare systems were already under pressure. Expanding influenza vaccine recommendations to additional age groups helps to ensure that the most vulnerable groups are protected against severe influenza-related health outcomes, as well as limiting the risk of concomitant or successive infections by the two viruses (influenza and SARS-Cov-2 viruses) [13-14].

The reasons for the differences in vaccination schedules are well-known (e.g. pragmatic considerations, cost effectiveness assessments, specific epidemiological context, burden of disease observed in the recommended age groups, attitude of the population towards vaccines). Yet, in spite of these differences, the highest priority is still the need to achieve high coverage rates in the recommended population groups. There is certainly an overall need at European level to significantly strengthen seasonal influenza vaccination programmes in the interests of individual and public health protection, but also as a key preparedness measure against cross-border threats from infectious diseases [15].

The analysed VCRs revealed an increase in uptake levels compared to previous seasons for all target groups. The increase was observed for older age groups, for which most data are available, individuals with chronic conditions and healthcare workers where countries were able to report data. This increase is observed following nearly a decade of stagnating or declining VCRs against seasonal influenza for all the aforementioned target groups [6-8]. The increase observed for the 2020–21 influenza season may be attributed to the COVID-19 pandemic context, particularly the first part of the season, prior to the availability of a COVID-19 vaccine [16-17]. During the first wave of the COVID-19 pandemic, the implementation of non-pharmaceutical intervention measures and strict lockdown measures had a significant impact on the circulation of various infectious pathogens, including a reduced circulation of influenza viruses and a reduced duration of the influenza season. During the 2020–21 season, an increase in influenza activity was anticipated as these measures had been progressively lifted. In this context, concerns were raised about a possible concomitant circulation of SARS-CoV-2 and influenza viruses [16-17]. In the event of concomitant circulation of the SARS-CoV-2 virus and influenza viruses, models highlighted the significant impact of high influenza VCRs, in particular safeguarding overwhelmed healthcare systems, and protecting healthcare workers [14,18-19]. Efforts to increase access to vaccines increased significantly (including measures such as fully funded vaccination programmes with no cost for citizens, awareness-raising campaigns, and concomitant administration of influenza vaccines with COVID-19 vaccine doses) [20]. At the same time, preventive healthcare-seeking behaviour by members of the public, particularly those at risk of more severe disease from influenza and COVID-19, may have been improved by the pandemic, in attempt to maximise opportunities for individual protection. It remains to be seen whether the increases in coverage described in this report will be sustained during subsequent influenza seasons. In addition, vaccination coverage rates against respiratory diseases may have followed a different trend to those for other vaccines in the national immunisation programmes. Significant reductions in VCRs among children were documented across the globe and in some EU/EEA countries during the pandemic, mainly due to the disruption in the delivery of preventive care [21].

Despite the notable increase in coverage, and a limited number of countries achieving coverage rates at or close to target rates for the EU, the overall levels of uptake remain sub-optimal and well below public health targets (75% coverage for older age groups and individuals with medical chronic conditions) set by the 2009 Council Recommendation for EU Member States [4]. Further factors that may have impaired the roll-out include lack of vaccine doses, lack of storage capacity, lockdowns and restricted movement of the population, as well as influenza vaccine acceptance, and the more traditional complacency and confidence issues towards seasonal influenza vaccines that the EU has been faced with for over a decade. It is worth noting that a higher level of VCRs was reported for children and adolescents in those countries where recommendations were in place (Malta, Latvia) than in countries with new recommendations (Ireland, Italy) or none.

Comparisons of VCR data both across seasons and countries (and even across seasons within a specific country) should be interpreted carefully as these data were extracted from various data sources (registries, surveys, administrative databases) the specific characteristics and limitations of which were not documented in the survey. Any action taken to improve monitoring systems should be part of a holistic strategy to improve influenza vaccination uptake. Strengthening the development of population-based vaccination registries in EU/EEA countries is crucial for timely and accurate monitoring data on VCRs. Further efforts are therefore required by some countries or for specific groups where data on VCRs were lacking. Better individual and population-level vaccination monitoring systems are necessary to inform action to achieve higher influenza vaccine uptakes [22]. In specific target groups, there is need for health registries, collecting accurate information on individuals with chronic medical conditions or pregnancy status. Data on residents in long-term care facilities were also sparse, highlighting the lack of proper monitoring systems. Similarly, the difficulty in obtaining accurate VCR estimates for healthcare workers is well known and classification of healthcare workers also varies considerably from country to country. The COVID-19 pandemic provided a significant opportunity to develop or upgrade powerful ad hoc systems to strengthen the monitoring of COVID-19 vaccine roll-out in almost real time. Such efforts should be leveraged and expanded to additional vaccines, including seasonal influenza vaccines.

For many decades, only trivalent influenza vaccines (including two influenza A strains and one influenza B strain) have been available. In recent years, quadrivalent vaccines (two influenza A strains and two influenza B strains) have been authorised and are increasingly available [23]. Traditional influenza vaccines have limitations in terms of immune response, and the substrate used during manufacturing can reduce overall effectiveness. Newer and enhanced influenza vaccines have been developed, both in trivalent and quadrivalent forms, in an attempt to counteract these limitations [24]. High effectiveness and safety profile are a public health imperative to improve individual and population-level protection.

In conclusion, during the 2020–2021 influenza season, right in the middle of the COVID-19 pandemic, although seasonal influenza VCRs increased compared to previous seasons, overall they remain sub-optimal for ensuring public health and individual protection. This is worrying, as each year seasonal influenza continues to bear a heavy burden on individual and public health, placing pressure on strained healthcare systems during the autumn and winter seasons, and possibly adding to the burden of COVID-19. Efforts to bolster uptake of seasonal influenza vaccines and develop a new generation of safe and more effective influenza vaccines must be increased. It is evident that despite the availability of communications tools and an established infrastructure for the roll-out of seasonal influenza vaccination campaigns, each year uptake remains below desirable EU targets. It is critical that targeted and context-specific strategies be put in place to increase demand for seasonal influenza vaccination. Moreover, investment should be made in evaluation efforts to inform future strategies and maximise the use of public health resources. At the same time, investments to improve access to vaccines and convenience for those being vaccinated must continue and/or be put in place where necessary. Healthcare workers continue to play a critical role in increasing uptake of vaccines in general and they should be encouraged to lead by example, as well as supporting members of the public to make informed choices about seasonal influenza vaccination. Improvements to existing seasonal influenza vaccines are also critical, and dialogue should continue with manufacturers at global level to foster a new generation of vaccines with higher effectiveness profiles. This, in turn, may also help to increase levels of uptake and change deeply-rooted, complacent attitudes to the seasonal influenza vaccine.

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