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Brief Report

How Were European GPS/FPS Involved in the COVID Vaccination-Campaign? A European Questionnaire Study about the Experiences of the Vaccinations in 2021

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Abstract: *Background.* The SARS-CoV-2pandemic has become the greatest public health challenge worldwide. Intensive research started to develop vaccines and by the late 2020 vaccination campaign started. *Objective.* Collecting information from European countries, how and in what extent were family physicians/general practitioners/FPs/GPs involved in the vaccinations-campaign in 2021 and how was it organized at national level. *Method.* A short questionnaire was distributed through the secretariats of *WONCA-Europe* and the *European Forum for Primary Care*. *Results.* In most of the countries participation of FPs/GPs was compulsory. The vaccination was usually centrally organized by governmental authorities. At the beginning (web-based) registration of patients was required, mainly at national level. By the mid of 2021, vaccination on walk in basis became available in almost every country for the first and for the booster injections. The remunerations of GPs/FPs were differed, in some countries without extra payment. The Pfizer's vaccine was used in all countries; while in 9 countries not EMA approved vaccines were also used in primary care settings and at vaccination centres. In some countries, professional homepages helped the GPs. The involvement of PHC providers did not correlate to the vaccination coverage of the entire population of the respective countries. It was the highest in the more developed countries with higher living standard, where participation of GPs was voluntary and appropriate financial incentives were offered for them. *Conclusion.* The vaccination campaign was a professional and logistic challenge and an excellent performance of PC providers. Experiences gained could be used in the future to manage similar pandemic challenges.

Keywords: COVID pandemic; Europe; family medicine; primary care; vaccination

INTRODUCTION

The pandemic of 2020, caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is the greatest public health challenge worldwide. Practically none of the health care system was prepared to manage the pandemic, treating thousands of infected persons, facing high mortality rates even in the most developed countries. After the outbreak, different restrictions were introduced in most of the countries, based on physical distance-keeping, obligatory usage of face-masks, often combined with curfews.

It became clear for the scientific community and also for governments, that appropriate vaccinations would be the best solution. Pharmaceutical companies started intensive research to develop vaccines alongside enormous expansion of manufacturing capacities. Vaccines are a core strategy to reduce the transmission of SARS-CoV-2 and the severity of disease resulting from SARS-CoV-2 infection [1]. Several vaccines have been available to the public since late 2020 [2]. However their success at the population level depends largely on whether countries can quickly achieve high vaccination coverage rates. Equitable distribution of and easy access to vaccines both among and within countries are crucial to avoid severe COVID-19 and to slow the development of potentially dangerous variants, for "no one is safe until everyone is safe"[3].

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Since late 2020, vaccination campaign started in many developed countries (North America and the European Union) after getting the permissions from the professional agencies or governmental authorities. The following vaccines were authorised for use in the European Union: *Comirnaty* (BNT162b2, manufactured by BioNTech and Pfizer), *Nuvaxovid* (Novavax), *Spikevax* (mRNA-1273,Moderna), *Vaxzevria* (AZD1222, AstraZeneca) *COVID-19 Vaccine Janssen*. Others are still currently under rolling review: *Sputnik V* (Gam-COVID-Vac, Gamaleya Institute), *Vero Cell* COVID-19 Vaccine (HB02, Inactivated, Sinopharm), *Vidprevtyn* (Sanofi Pasteur), *VLA2001* (Valneva). Except Janssen vaccine, all required a booster vaccination (3-5 weeks) after the first shot [4]. For the majority of the European population vaccinations started at the beginning of 2021, and in the second half of the year the third (booster) vaccines were offered by the health authorities.

Primary care providers/family physicians, general practitioners (PCP/FPs/GPs) are working in the closest settings to the population; they have the most information on health needs and socio-economic conditions of their patients. Although the structure of primary care is different by countries, they can play a vital role in improving access to vaccines against SARS-CoV-2 and their equitable distribution within individual countries [5]. Indeed, in most jurisdictions, GPs provide lower-barrier care than that offered by specialists and have a closer relationship to their patients than do many other providers. Thus they can build trust in the vaccine and help overcome vaccine hesitancy [6]. A number of countries have explored options to mobilise PCPs for this purpose. Germany, for example, included PCPs in its vaccination campaign in April 2021 and managed to double its daily vaccination rate within a day [7]. That same month, the *US Department of Health and Human Services and the Centers for Disease Control and Prevention* recommended that the jurisdictions should increase the proportion of vaccines allocated to primary care providers, with at least 60% of that proportion going to providers in socially vulnerable communities [8]. Most of the European countries had a priority list for their citizens, preferably for the older populations and for patients with multi-morbid conditions or malignancies.

Upon surveying of the international professional platforms and actual correspondences of FPs/GPs (including social-media) it becomes clear that primary care providers of the European countries were involved differently in the vaccination-campaign. We did not find relevant paper about it even in the most prestigious databases. The campaign itself was not among the topics of selected primary care publications [9].European primary care organizations seem to be an appropriate source of information. *WONCA-Europe* (*W-E*) has 51 national member societies [10], the *European Forum for Primary Care* (*EFPC*) has many institutional members in all countries of the continent [11].

OBJECTIVE

Our aim was to provide an overview how the primary care was involved in the covid-vaccination campaign carried out in Europe, focusing to 2021 as the first year of vaccination.

METHOD

Surveying is one of the most frequently used research method in primary care. It works, if the number of questions is limited and does not require much time to be completed; therefore a short and easy-to-manage questionnaire -see **Appendix 1**.-was compiled by the authors and distributed through the secretariats of *WONCA-Europe* (*W-E*) and the *European Forum for Primary Care* (*EFPC*) in January 2022. They provided it to the leaders (chairperson or secretary) of the affiliated PC organization. The questions focused on the involvement of GPs in their respective national campaigns, on the main executors of vaccination, the venues of provision, on the required registrations of patients, on the remunerations of GPs, on the type of vaccines they used and the presence of national web-pages focusing to the vaccination in PC settings.

RESULTS

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Fifty-one questionnaires were returned from 21 EU (out of 28) member states and from 10 other countries, often more than one (Albania, Georgia, Israel, Kirgiz Republic, Norway, Serbia, Switzerland, Tajikistan, the UK and 3 from Turkey). The EU-responders were: Austria (4), Belgium (2), Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany (7), Greece, Hungary, Italy, Malta, The Netherlands (2), Poland, Portugal, Romania, Slovakia, Slovenia (3), Spain, and Sweden (2). Answers are presented according to the Questionnaire.

1. *Participation*. Participation of GPs was compulsory in Croatia, Czech Republic, and Georgia, in Greece (for the public salaried GPs only), in Hungary, Serbia, Slovenia, Tajikistan, Turkey and the UK. In addition to vaccinations, prioritization list of high-risk patients were expected in The Netherlands and Norway. In Kirgizstan, public communication of the rationale for vaccination was also the duty of GP. In fact, some level of activity in public communication and patient's recruitment was required in almost every country.

GPs participated on voluntary basis in Switzerland, Sweden, and Italy with differences between regions (counties/cantons). Voluntary participation - often with high rates of uptake - was characteristic in Austria, Denmark, Bulgaria, Belgium, Czech Republic, Finland France, Germany, Malta, Poland, Romania, and Slovakia. In Israel, GPs have to inform and mobilize their patients toward vaccination centres.

Albanian and Portuguese GPs were expected to contribute in the vaccinations points, established only for this purpose.

Injections were administered by nurses in Finland, Portugal, Spain and Sweden; while in other countries both doctors and nurses were authorized to give the shots. Nurses, performing vaccination were supervised usually by the GP.

2. *Main executors*. In most of the countries the location for vaccinations were mainly the vaccinations' points (hubs, lines, busses), dedicated only to this purpose. Drive-through centres were operated in Romania. The main executors were the doctors (contracted or ordered to work here), often the FPs themselves. In some countries hospitals served also as vaccination points (Austria, Greece, Hungary). Otherwise, GPs performed the vaccination mostly at their offices. In Israel, the Health Maintenance Organisations organised and executed the vaccinations with their staff.

3. *Level of organization.* All of the countries paid priority attention to the campaign; therefore it has been centralized by the governments. In some countries regional coordination operated, mainly where federative state-systems are existing (Bundesländern/cantons: Austria, Germany, Switzerland) and Belgium, Finland, Poland, Romania, Sweden, Spain. In Poland and Romania wider autonomy of regions and high level of local/ city autonomy was reported. The logistic of vaccines also differed. There were governmental delivery or GPs had to be ordered by the local pharmacy.

4. *Registration's requirement.* At the time when the vaccination of population started registration of patients at (web-based) national level was required in Albania, Belgium, Bulgaria, Czech Republic, Denmark, Greece, Italy, Kirgizstan, Poland, Serbia, Slovakia, Slovenia, Tajikistan, Turkey and Hungary, where the name, address, social security number, phone number and email-address of patients were collected by the government. Hungarian GPs had an enormous task to allocate their patients to the hospital based vaccination points. In all countries, priority list, setting up by the GPs considered age of the patients, co-morbidities and other risk-factors.

In many countries (Austria, Belgium, Finland, France, Germany), patients had to register only locally to the nearby vaccination points/hubs/busses which were advertised for them. GPs were expected to facilitate their patients for registration. Later on, by the mid of 2021, vaccination on walk in basis become available in almost every countries for the first and for the booster injections as well.

5. *Involvement in respective national coverage.* In most of the countries the GPs and their nurses carried out the vaccinations, and they estimated their achievements in the vaccination of the entire populations within a wide range. The self-reporting of the involvement of PHC providers in the vaccination was the highest in Serbia (closely to 100%), Slovenia (95%), and Greece (80%). Between 40-60% was estimated in Austria, Bulgaria, Georgia, Germany, Hungary, Italy, Kirgizstan, and Turkey. Around 20-25% was calculated in the Czech Republic, Slovakia and Romania where the injections administered by GPs at the vaccination points was estimated as 50%. In The Netherlands

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and in Sweden 5-10 % was calculated, while practically none (1%) in Belgium and Israel. Wide differences between cantons were reported in Switzerland (5-30%).

6. *Reimbursement*. The remunerations of GPs/FPs differed. No extra payment was reported in Albania, Belgium, Finland, Israel, Kirgizstan, Portugal, Spain, Sweden and Tajikistan. In Malta, only the private GPs got financing. GPs in the UK got their regular reimbursement for vaccination. The self reported vaccinations' fees are listed in the **Table 1.**

Table 1. Remuneration of GPs for vaccination at their office or working at vaccination centres.

Country	**for each injection [€]**	**working at vaccination centres [€] per hours**
Austria	20-25	150-160
Bulgaria	5	
Croatia	1.30	
Czech	10	
Denmark	20	
France	regular consultation fee	440 /half day
Georgia	0.5-1.2	
Germany	28 +8 on Saturday,+35 if done at home visits, +2-6 issuing a certificate.	120/day
Hungary		210 only on whole weekend days, including fee for nurses
Italy	9-10, 25 at home	31
Netherlands	21, 90 at home, selection work: 2/patients,	
Norway	20	
Poland	15	
Romania	8	18
Serbia		90 once
Slovenia	14	
Switzerland	24-45 (differs between cantons)	
Turkey		200/ monthly, for 3 months

7. *Vaccines used*. In most of the EU countries only EMA approved vaccines were used in primary care settings and at the vaccination centres. There were 9 countries where vaccines not approved by EMA were also used. The preferences of vaccines changed during the campaign in 2021. **Table 2** gives an overview about the vaccine-consumptions. Only the Pfizer's vaccine was used in all countries.

Table 2. Vaccines used in primary care settings or in vaccination centres.

Country	**Manufacturer**						
	Astra Zeneca	Jansen	Moderna	Pfizer	Sinofarm	Sputnik	other
ALBANIA	**X**			**X**	**X**	**X**	
AUSTRIA	**X**	**X**	**X**	**X**			
BULGARIA	**X**	**X**	**X**	**X**			

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CROATIA	X at the beginning only	X	X	X			
CZECH R.	X	X	X	X			
DENMARK			X	X			
FRANCE	X at the beginning	X limited	X	X			
GEORGIA				X	X		
GERMANY	X	X	X	X			
GREECE	X		X	X			
HUNGARY	X	X	X	X	X	X	X only at centres
ITALY			X	X			
KYRGYZ R	X	X	X	X	X	X	
MALTA	X mainly	X	X	X	X		
NETHERLANDS	X			X			
NORWAY			X	X			
POLAND	X	X	X	X			
PORTUGALIA	X	X	X	X			
ROMANIA	X	X	X	X	X		
SERBIA	X		X	X	X		
SLOVAKIA				X			
SLOVENIA	X	X	X	X			
SWEDEN	X at the beginning only		X	X			
SWISS			X	X			
TAJIKISTAN	X		X	X		X	
TURKEY				X	X		Turkovac
UK	X		X	X			

8. *Available professional websites.* In many countries official websites were established or previously existing platforms were updated with information for PHC providers. This was not a case in every country and GPs were not always notified of them. **Table 3**. presents these homepages, in the format provided by the responders, in alphabetic orders of the countries.

Table 3. Official homepages for GPs with information on the respective national vaccination-campaign.

COUNTRY	Homepage

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Albania	shendetesia.gov.al/qendrat-e-vaksinimit-te-hapur
Austria	infogesundheitsministerium.gv.at
	www.salzburg.gv.atwww.impfen
	steiermark.at/cms/ziel/162879324/DE/
	coronainfo.ktn.gv.at/EN/Corona-Impfung-K°%c3%a4rnten
Belgium	www-laatjevaccineren.be
	https://www.sciensano.be/en
Bulgaria	https://www.info-coronavirus.be/nl/coronavirus.bg
Croatia	https://cijepise.zdravlje.hr
France	www.gouvernement.fr/info-coronavirus/carte-et-donnees
Germany	www.moh.gove.ge; https://rki.de
	www.kbv.de/html/covid-19-impfung.php;
	https://www.degam.de/files/Inhalte/Leitlinien
	hausaerzteverbung.de
	kbv.de/html/coronavirus.php
Kirgizistan	www.med.kg ; www.vc.emed.gov.kg
Netherlands	www.thuisarts.nl/corona
	www.lhv.nl/actueel/nieuwberichten/coronablog corona.nhg.org/covid19-vaccinatie
	rivm.nl/covid-19-vaccinatie/professionals
	snpg.nl/covid-19-vaccinatie
Norway	www.fhi.no/en/id/vaccines/coronavirus-immunisation programme
Portugal	covid19.min-saude.pt-pedido-de-agendamanto
	www.sns.gov.pt-vacinacaocovid19
Romania	www.snmf.ro
	formaremedica.ro
	vaccine-covid.gov.ro
	www.snmf.ro
	formaremedica.ro
	vaccine-covid.gov.ro
Slovakia	www.health.gov.sk/?Ambulantne-ockovanie=ministry of health-
Slovenia	www.nijz.si/sl/cepljenje-covid
Spain	www.vacunacovid.gob.es
	coronavirus.sergas.gal/contidos/Vacinacion-COVID_profesionais
Sweden	www.1177.se/en/Orebrolan/other-languages/covid-19/
	www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/
Turkey	hsgm.saglik.gov.tr
	covid19asi.saglik.gov.tr

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DISCUSSION

The COVID-19 outbreak has significantly changed all aspects of general practice in Europe. There were many changes in hospitals, to isolate and care a huge number of infected persons as well. There were changes also in the medical education and the pandemic challenged doctors' safety and well-being [12,13].

European primary care workforces were deployed differently in the vaccination-campaign. In most of the countries majority of injections were administered by PHC providers, while in other countries governments' fond different solution. The preferred vaccines often changed by countries during the campaign. After some unwanted side-effects of the Astra-Zeneca vaccine were reported, its usage decreased in many countries [14]. It political/governmental decision which vaccines to use in the campaign. Those countries that are closely linked economically or politically to Russia and China used vaccines originating from these countries despite these vaccine were not approved by the EMA [15]. The different levels of involvement of PHC providers in the vaccination campaign were decided by health policy makers, and were based on the capacities of the respective health care system. The same considerations apply to the assignment of vaccination points. The establishment of a registration system helped to plan the vaccination, although in Hungary many personal data were collected by the government.

There were differences in the vaccination-protocols and organizations within countries having federal state systems (Austria, Germany, Switzerland). It means both autonomy and responsibility.

The public communications about the need of vaccination was an important duty of PHC providers. An additional task was the compilation of priority list on the basis of individual risk factors of patients. At a later time pressure diminished as vaccination became available on "walk in basis".

Involvement of PC and delegation of new tasks requires more payment [17]. Not all of the government or insurance companies offered extra remuneration for this during the campaign, otherwise incomes of PHC providers differ between European countries [18].

The involvement of PHC providers did not correlate with the vaccination coverage of the entire population of the respective countries. In those, where participation of GPs was mandatory these figures were: Serbia (47%), Tajikistan (51%), Turkey (60%), Croatia (67%), Slovenia (68%), Hungary (73%) [19–21]. The countries that could achieve the highest population coverage, where those where the participation of GPs was voluntary and appropriate financial incentives were offered.

It looked, countries having better economic situation (higher GDP and living standard) could achieve higher population coverage during the campaign (Finland 90%, France and Denmark 92%, Norway 93%), although it was almost 100% in Portugal and only 69% in Switzerland [19,21].

The vaccination campaign was a professional and logistic challenge for PHC providers in all countries. It was really an excellent performance worldwide [22]. The lessons learned will inform governments and public health authorities what are likely to become regular national COVID-19 vaccination campaigns in the future. How to reach priority populations, how to track vaccination status and how to ensure coverage at regional and national levels are all key questions that will inform us about the nature of public health and primary care/family medicine cooperation [23]. Lessons learned in 2021 would be useful for the future as well. This infection will not disappear in the upcoming years and could return after genetic modifications [24]. Covid-infections already got less attention in 2022, although in some Eastern and African countries had to face with. In 2023 WHO chief declared end to COVID-19 as a global health emergency [25].

However there was another problem arisen. Because of the covid-issues, patients with other morbidities were neglected by the providers and often by themselves as well. We all have to fill this gap shortly, supported by the other players of the health care system.

Limitations

Unfortunately not all the EU member states were involved. We did not get feedback from the Baltic countries and Cyprus.

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The ratio of vaccinated persons in PC settings are based mainly only estimation. We did not have access to official/governmental data, therefore had to trust the answers. Only whole national coverage was presented on reliable websites.

Different answers from countries with federal structure were not inconsistent, they reflected alteration between regions.

The protocols changed in many countries, when the 3rd and 4th shots were introduced, often with different type of vaccine.

Some of the questions could have a different meaning in the countries involved. Although we are grateful for the contribution of colleagues, some questions often remained unanswered.

Our aim was only to provide an overview for colleagues interesting for this topic and did not want to compare national "*White books*" that may provide more in deep information.

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Appendix A

Your country.....

1. Were GPs/FPs in your country involved in the covid vaccination?

Yes fully/partially No

How were GPs/FPs involved? on voluntary basis, obligation, other, please specify.....

2. Who were the main providers/executors of vaccination?

Hospitals, Health Centres, Ad'hoc vaccination points established only for this task

Other, please specify .. ..

3. On what level was organized the campaign? national, regional, county, city, or walk in by patients

4. Did the vaccination process require any type of registration from the patients?

Nothing, walk in basis, Yes national/regional registration Yes, please specify.....

5.How do you mean, approx. what ratio of vaccines were injected by GPs/FPs?..... %

6. Did GPs/FPs got any reimbursement or fee for injection?

No If yes, how much? ..... EUR/injection fixed amount, other.....

7.Which of the vaccines were used by GPs/FPs

ASTRA ZENECA Covid-19 vaccine JANSEN Covid-19 vaccine

MODERNA Covid-19mRNA vaccine PFIZER Comirnaty

SINOFARM Verocell other.....

8. Could you recommend a national website dealing with the involvement of GPs/FPs?

Thanks for the contribution

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