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Association between EU guidelines and vaccination in Germany between 2011 and 2017

How healthcare legislation of the EU has influenced access to vaccination for senior citizens in Germany since 2011

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Association between EU policies and vaccination in Germany between 2011 and 2017

How the EU Health policies influenced vaccination access for senior citizens in Germany since 2011

Every fourth citizen in the European Union (EU) is over 65 years old [15]. Due to better healthcare access and treatment provided by the healthcare system, life expectancy is increasing and people have the opportunity to age healthier and reach much higher ages. With a growing demand for political action towards demographic change, the EU started to consider steps to review the impact of the aging society on the sustainability of healthcare systems. In 2000, the EU started to consider steps to counteract the challenges stemming from demographic change. Other consequences of high age are the possibility to effectively counteract previously fatal diseases. For a variety of infectious diseases, effective vaccines are available that prevent diseases by immunization of the patients. The cooperation in vaccination coverage on a global level and regionally is important to effectively provide herd immunization. Within the EU context, the European Commission (Commission) in 2006 requested the European Medicines Agency (EMA) to release the Geriatric Medicines Strategy (GMS) in 2011. This strategy focussed on assuring that new medicines are sufficiently tested, safer for older patients and address their healthcare risk. Despite the fact that this strategy focuses on medicinal product development, it marked the first commitment at EU level to engage with the senior citizens. This strategy further aims to increase senior citizens access to vaccinations. Given the indispensable need for a harmonized approach on vaccination supply on the EU level, it seems interesting to outline in which way the EU acted to increase vaccination access on the MS level despite its limited competences. In this respect, Germany represents an interesting case to investigate as it includes the biggest aging population in Europe. This paper therefore addresses the research question on how EU health policies influenced vaccination access for senior citizens in Germany since 2011.

This study contributes to the academic debate of processes and mechanisms of Europeanization, by exemplifying EU healthcare policy influence on one MS. Moreover, the study bears societal relevance as demographic change represents

Abbreviations

ALOHA	Active & Healthy Ageing Academy
BMG	Federal Ministry of Health
CHMP	Committee for Medicinal Products for Human Use
CJEU	Court of Justice of the European Union
Commission	European Commission
ECDC	European Centre for Disease Prevention and Control
EIP on AHA	European Innovation Partnership on Active and Healthy Ageing
EMA	European Medicines Agency
EU	European Union
EUGMS	European Union Geriatric Medicine Society
GMS	Geriatric Medicines Strategy
HSC	Health Security Committee
ICH	International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use
IMI	Innovative Medicines Initiative
MS	Member State
PEI	Paul-Ehrlich-Institut, Bundesinstitut für Impfstoffe und biomedizinische Arzneimittel
STIKO	Ständige Impfkommission

Table 1 Selected EU policies

Year[a]	EU health policies since 2011	Institutions involved
2011	Geriatric Medicines Strategy (CHMP/137793/2011)	EC, EMA
2013	Decision on cross-border threats (1082/2013)	EP, Council of the EU
2013	Regulation establishing Horizon 2020 [19] (1291/2013)	EP, Council of the EU
2014	Regulation on clinical trials	EP, Council of the EU

EC European Commission, *EMA* European Medicines Agency, *EP* European Parliament, *Council of the EU* Council of the European Union
[a]The policy publication year

one of the major challenges for current and future generations.

Status quo of academic debate and healthcare in the EU

A group of scholars are focusing on the EU and its influence on legislation in its member states: that is the influence by the Court of Justice of the European Union (CJEU) [17, 18, 27] and by single market policies [16, 21, 22]. Greer [17] argued on the EU as "one of the formative influences in health policy" (p. 134). The author proves this by arguing on the CJEU and EU pressuring the MS to adapt their healthcare systems to internal market settings, which include "contract employees, purchase goods, finance services, and organize themselves" (p. 134).

When it comes to impact assessments of EU policies on older people and vaccination access for senior citizens, scholarly debate is rather silent [4]. Baeyens [4] outlined the development of the EMA bringing the senior patient on their agenda. He stresses the development of the senior patients as a focus group from 2006 to the development of the GMS in 2011. According to his point of view, there has to be more motivation to integrate senior patients into EU agenda settings. Scholars are not covering vaccination-related policies sufficiently regardless their importance. Scholars emphasize older patients as a risk group in research and legislation is commonly neglected [4]. National actors do not sufficiently raise awareness for the vaccination supply for older patients. There are studies with specific country focus [3, 23, 24]; however, a case study on EU policy influence on vaccination access for senior citizens is lacking.

The EU does not have a unified healthcare system. It is laid down in the Lisbon Treaty, that the EU "shall respect the responsibilities of the member states for the definition of their health policy and for the organization and delivery of their health services" (Art. 168 (7), TFEU). The EU operates on providing surveillance and guidance in medicinal supply. The EU has shared regulatory competences in partial sectors of healthcare. When it comes to the market authorization of pharmaceutical products on EU level, the EU founded the European Medicines Agency (EMA) in 1995. In 2011, the EMA published a strategy in response to a request by the Commission in 2006 to increase access and information for the older population: the GMS. The vision of the strategy is to provide older patients with appropriate drug therapies and sufficient access to medicines. Furthermore, the strategy aims to improve prescription and medicine usages for older patients. The EMA established a Geriatric Expert Group (GEG) in May 2011, which focuses on the clinical and medical needs of older patients.

Theoretical approach: material and methods

Germany provides an interesting case for further investigation: besides the fact that it is the largest MS in the EU, it also has one of the top four most aged populations. Besides these significant characteristics, all interviewees agreed on Germany as being an excellent case, because of its large senior population. In comparison to the other EU MS, only Italy has a higher proportion of senior citizens; however, this only accounts for 1% and Italy has 20 million less citizens compared to Germany. Additionally, when it comes to the EU policy relevance, funding by Horizon 2020 was the highest for Germany compared to the other MSs [19]. Several keyword searches within the Eur-lex database in the time frame of 1 February 2011 until 1 May 2017 were collected. From those searching methods, the relevant policies were selected (**Table 1**).

A total of four interviews with key stakeholders were conducted: a senior scientific officer of the EMA (interviewee A), a physician and executive director with global function for one of the largest pharmaceutical companies (interviewee B), a head physician of a clinical department in one of the biggest and oldest hospital holders in Germany (interviewee C) and a professor for patient centric drug development and scientific expert for the EMA (interviewee D). Each interview was conducted during 1.5 h. The questions that the interviewees received were focused on the topics of senior citizens, characteristics as a risk group, demographic change, vaccination and senior citizens and the communication between the EU and national member states, especially Germany. Due to the specialized expertise backgrounds (regulatory, German physician practices, industry, geriatric medicinal research), the questions were adapted depending to the specific interviewee. The output of these interviews was then applied to the analysis of the findings to gain practical insights of the EU policy impact on senior citizens and vaccination regulation in Germany.

Discussion: EU policies on vaccine access for older patients in Germany

In 2011, the GMS was introduced. The focus on senior patients as a special patient group in market authorization for medical products outlined the first step to sufficiently engage with the aging population in Europe. This was the year where the BMG started the first federal conference on promoting health issues and "discuss(ed) central issues that need further attention" [7]. It was the first conference with a topical focus on aging populations in Germany and its timing significantly correlated with the EU campaign for healthy aging and policies

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Association between EU guidelines and vaccination in Germany between 2011 and 2017. How healthcare legislation of the EU has influenced access to vaccination for senior citizens in Germany since 2011

Abstract

Background. Every fourth citizen within the 28 European Union (EU) member states is over the age of 65 years. In connection with the increasing numbers of senior citizens, vaccinations have become even more important as preventive measures. Vaccines are an established preventive measure and help to ensure that many diseases no longer have a fatal outcome. With respect to the health economic as well as preventive advantages of vaccines, there is possibly a considerable benefit for the EU to support the vaccination program for older patients within the framework of the demographic shift. Since 2011 the EU addresses the demographic change and has thereby placed the possible chances and risks on the agenda.
Objective. By focussing on Germany as an EU member state, the question whether the EU guidelines had an influence on vaccination access for senior citizens in the years 2011–2017 was analyzed. It is discussed if a healthcare policy influence was pursued, regardless of not having a unified EU healthcare system.
Material and methods. The EUR-lex database was searched for relevant EU policies regarding vaccination and older patients between February 2011 and May 2017. Results were then discussed within four expert interviews, which were from industry, academia, politics and physician practice.
Results. Overall, four relevant EU policies since 2011 were selected. The discussion resolves that the initiative of the EU to promote the healthcare of senior citizens (EMA Geriatric Medicines Strategy) and the Clinical trials – Regulation EU from 2014 had a significant impact on vaccination access. Due to the EU national policies in Germany were initiated, which had an effect on national level to this specific risk group and vaccination access.
Conclusion. Other than expected, the EU has a passive influence on the healthcare policy transformation on a national level; however, it should be noted that initiatives in politics are always influenced by several impulses. Hereby, a deeper analysis should be considered, which includes the policy action campaigns by multinational stakeholders.

Keywords

Vaccination policies · Vaccination rates · European Union healthcare · Demographic change · Older patients

Zusammenhang zwischen EU-Richtlinien und Impfungen in Deutschland zwischen 2011 und 2017. Wie die gesundheitlichen Richtlinien der EU den Zugang zu Impfungen für ältere Bürger in Deutschland seit 2011 beeinflusst haben

Zusammenfassung

Hintergrund. Jeder 4. Bürger innerhalb der 28 EU-Mitgliedstaaten ist über 65 Jahre alt. Im Zusammenhang mit der wachsenden Zahl der älteren Bevölkerung sind Impfungen eine wichtige Präventionsmaßnahme. Sie gelten als etablierte Präventionsmaßnahme und tragen dazu bei, dass viele Krankheiten nicht mehr tödlich enden müssen. Bei der Betrachtung von gesundheitsökonomischen sowie präventiven Vorteilen von Impfungen, besteht möglicherweise ein Nutzen für die EU, die Impfversorgung für ältere Patienten im Rahmen des demografischen Wandels zu unterstützen. Seit 2011 thematisiert die EU den demografischen Wandel und hat somit die möglichen Chancen und Risiken auf die Agenda gesetzt.
Ziel der Arbeit. Mit dem Fokus auf Deutschland wird untersucht, inwiefern EU-Richtlinien einen Einfluss auf den Impfzugang für ältere Patienten in den Jahren 2011–2017 hatten. Es soll erörtert werden, ob ein gesundheitspolitischer Einfluss genommen wurde, obwohl kein einheitlich europäisches Gesundheitssystem besteht.
Material und Methoden. Es wurde in der *EUR-Lex*-Datenbank zwischen Februar 2011 und Mai 2017 nach relevanten EU-Richtlinien gesucht. Diese Ergebnisse wurden mit 4 Experteninterviews und deren Erfahrungsberichten aus Industrie, Wissenschaft, Politik und Ärzteschaft abgeglichen.
Ergebnisse. Insgesamt wurden 4 maßgebliche EU-Richtlinien seit 2011 ausgewählt. Es ist zu erkennen, dass die Initiative der EU zur Förderung der Gesundheit älterer Patienten (EMA Geriatric Medicines Strategy) und die Richtlinie für klinische Studien (Clinical trials – Regulation EU from 2014) den größten Einfluss auf den Impfzugang hatten. Durch die EU wurden Richtlinien auf nationaler Ebene angestoßen, welche wiederum einen Effekt auf die Versorgungsqualität von Impfungen für ältere Patienten haben konnten.
Schlussfolgerung. Anders als vermutet, hat die EU passiven Einfluss auf gesundheitspolitische Umsetzungen auf der nationalen Ebene. Jedoch zeigte sich, dass Initiativen auf politischer Ebene von verschiedensten Impulsen gesetzt werden können. Weitere Untersuchungen können dabei die globale Vernetzung der Themen Impfungen und Risikopatientengruppen näher beleuchten.

Schlüsselwörter

Impfpolitik · Demografischer Wandel · EU-Gesundheitspolitik · Ältere Patienten · Impfquoten

targeted at demographic change. Essentially, the EU campaign prescribed the national agenda of the BMG, which led to an appearance of the topic of healthy aging as a priority item also on the national level.

a. The decision on cross-border threats aims to improve health security in the EU. Important to identify is that this decision incorporated four goals: "preparedness planning for a crisis, improve risk assessment and management of cross-border health threats, joint procurement facilities and give the Health Security Committee a solid framework" [14]. The decision was binding for the MS of the EU. Especially important are the last three tasks. The improvement of risk assessment incorporates that the "expertise from the relevant EU and international bodies" are shared and that advisory bodies such as the ECDC gain significant share of assessing risks in the emerging crisis at national levels. This includes if vaccination coverage rates are low the ECDC ensures the risk assessment of missing coverages [14]. The ECDC is the contact point for the STIKO at EU level. Therefore, the STIKO has to adapt to cooperate even more, when coverage rates are getting low (interviewee B, 2017).

Another important task of the decision is the joint procurement for the EU: "For the first time (with this decision), the EU itself can trigger its pharmaceutical legislation to accelerate the provision of vaccines and medicines in the event of any health emergency" (EC cross-border threats, 2017). This is a crucial improvement for vaccination access for senior citizens, since, "in case of shortages in vaccination product production, the EU can still counteract the shortages by collective purchase elsewhere" (interviewee D, 2017). Although the Lisbon Treaty sets out only supportive competence, this decision gave the EU an active role in health regulation. This includes how to react to a crisis, such as low vaccination coverage in senior groups and to manage purchases when medicinal supply is scarce, including vaccinations. The Europeanization of vaccination access is promoted in terms of pharmaceutical provision within the joint procurement and the ECDC is deepening its interactions with national authorities. The *Bundesrat* published a statement in 2012, stating that it "support the proposal of the decision on cross-border threats and the Commission's willingness to support the healthcare regulation in the EU member states" [8]; however, the decision did not change the structure of the German healthcare system or promote specific German regulations, yet had effect on agenda setting and vaccine access. The process of how the individual MS interacts with health threats occurring, including vaccine coverage for risk groups, was Europeanized with two changes made with this decision. Important is that this decision ensures that the MS can meet the measure set out in 2009 by the Council, that "by the winter 2014/2015 … 75% of the at risk groups (including senior citizens) against seasonal flu each year" have to be vaccinated [10]. Furthermore, there is also another dimension: it ensures that herd immunization is implemented to have sufficient benefits for risk groups such as senior citizens. "The ECDC estimates that influenza results in 38,500 deaths, many avoidable, each (non-pandemic) year in Europe" [11]. The EU stepped in to ensure the compliance with this maxim throughout the EU (Cross Border Health Threats, 2017).

The last task created the legal framework for the Health Security Committee (HSC), which is a health security authority. The HSC is a networking platform for the MS to exchange on vaccination strategies. A variety of health regulators from MS exchange practices in health provision, crisis responses and expertise exchange (EC cross-border threats, 2017). Among its members is Germany, represented by the BMG. The HSC cooperates with the ECDC and EMA in respect to health threats.

b. The regulation on establishing Horizon 2020 promotes research and innovation for the EU. The EU aims to invest 2 billion euros in the first objective of societal challenges: health, demographic change and well-being. This maintains "economically sustainable care systems; focus(ing) on disease prevention through the development of effective preventive tools (e.g. vaccines)" [19]. Under Part III it is stated that "drug and vaccine development processes are becoming more expansive and less effective." "Efforts to increase the success of drug and vaccine development include alternative methods to replace classical safety and effectiveness testing" (Regulation 1291, 2013). The Horizon 2020 regulation "supports older persons to remain active and healthy and test and demonstrate new models and tools for health …", whereby vaccinations are contributing to as cost-reduction and prevention tool [25]. "It aims to keep older people active and independent for longer and supports the development of new …" vaccinations [13].

The sector on demographic changes received 7.4 billion euros on funding for the new Horizon 2020 program period 2014–2020. This aims on "Promotion of health, active aging, well-being and disease prevention also depend on effective preventive tools, such as vaccines" [25]. The research field of Horizon 2020 aims to "improve our ability to monitor health and to prevent, detect, treat and manage disease", including vaccination usages. Horizon 2020 is giving coordination support to EU initiatives, such as the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) and others. The EIP on AHA further established an Active & Healthy Ageing Academy (ALOHA), in which Germany is also participating [1]. This Academy "… aims to become the European trusted referent source in health promotion of preventative interventions against infectious diseases for the healthy ageing" [1]. It is contributing to the education of the senior citizens on how to communicate with the physicians and on self-education with respect to the necessity of having vaccination coverage. This is important, since "the high specialized geriatric physicians in Germany are networking amongst each other to have the aim for identifying best practices in their daily

work with the senior citizens" (interviewee C, 2017).

In 2014–2015 by Horizon 2020 a large funding of 1638 billion euros was given to the Innovative Medicines Initiative (IMI) [20], which is a platform by the EU and the European pharmaceutical industry "to improve health by speeding up the development of, and patient access to, innovative medicines", including vaccinations. In the governance board of the IMI all MS of the EU, including Germany, are represented by the national contact points, which were established by the Horizon 2020 regulation. The scientific committee, incorporated within the governance board of the IMI, includes the PEI's Head of Division Microbiology. Germany had to create a national contact point to be conforming to this regulation [19]. It is integrated into the Federal Ministry of Education and the Federal Ministry of Energy. In 2017, the *Bundestag* presented Germany's beneficial stance with this regulation, as being "the highest beneficiary (3.46 billion euros) from the Horizon 2020 project in the early phase". Germany will "continue to actively support Horizon 2020" [14]. As Interviewee C outlined, the geriatrician network in Germany is highly interconnected, whereby the EU further promoted this interconnectivity to a supranational level. The IMI and ALOHA are presenting this increased interconnectivity between Germany and the EU in following the EU agenda of Horizon 2020.

c. The regulation on clinical trials aims to increase safety and quality of medicinal products for patients, the promotion of multinational clinical trials and transparency. In Germany, it entered into force [2]. It ensures that the clinical trials incorporate all population groups and cooperation among the MS within the trial [16]. Within this step is the creation of an EU portal and EU data exchange for clinical trials to establish a communication platform among the MS. It promotes the EU-harmonization with respect to the operation of trials and their assessment quality. Moreover, this regulation made the timeline for trials and regulators' decision making process more effective. In March 1994, the EMA published its 'ICH Topic E7: Geriatrics', calling out for including older patients in clinical trials. It can be argued that the streamlining of involving older patients in the clinical trials took that long due to the missing acknowledgement at EU-level to specifically adapt to the growing population of senior citizens (Interviewee D, 2017).

What the regulation did not provide was a central authority assessing the clinical trial. This was what was hoped for in Germany [5]. Several changes are relevant for the risk group of senior citizens. "Article 6 of the regulation requires a justification for the gender and age allocation of subjects and, if a specific gender or age group is excluded from or underrepresented in the clinical trials, an explanation of the reasons and justification for these exclusion criteria" [11]. This stipulates that MS need to assess whether "the groups of subjects participating in the clinical trial represent the population to be treated" [12]. Changes made in Article 31 require new, highly defined explanations on including non-consent giving patients for the clinical trial. This is especially relevant in light of the rising number of older patients: how do we ensure that these senior patients are willing to participate in the trial, if they are not able to communicate that (Interviewee D, 2017)? Furthermre, the regulation established a European Network to exchange outcomes of clinical data and to exchange good clinical practices [9]. This streamlines the exchange of clinical data in the EU, which has an effect on vaccination access for the senior citizens: the data have to be sufficiently representative and of high quality to prevent negative externalities for the patients, especially of those with higher risks and multimorbidity as older patients (Interviewee C, 2017).

This regulation promotes an essential harmonization: "From this regulation onwards, for a clinical study in the EU, only one central registration is needed. That was different previously …. Patients will receive therapeutic innovations faster" [26]. The BMG adapted it's legislation to the EU regulation on clinical trials. In 2016, the German Bundestag "adopt(ed) the Fourth Act amending legislation on medicinal products" focusing on adapting to the "now laid down rules for the approval, implementation and monitoring of clinical trials across Europe" [6]. Medicinal access significantly increased due to the faster assessment procedure. The regulation results in sharing tasks among MS and their clinical trials, resulting in a faster application of the clinical trial. As the EMA stressed in its GMS in 2011 that the senior citizens have to be taken into account within the health sector in the EU, this regulation builds on this aim. According to the PEI, this new regulation has a "severe change": in the case of application for a clinical trial the PEI has to cooperate with other specific authorities in other MS. Previously, the MS authorities were able to work on the applications nationally. This results in a coherent and safer outcome for the patients and the senior citizens.

It led to a downloading of the agenda setting and implementation in Germany: The BMG adapted its own legislative change to this EU regulation on clinical trials. Crucial is that clinical trials represent a highly nationally independent tool to access drugs (Interviewee C, 2017). The EU promoted, with the shadow of health security motivations, a significant harmonization in Germany's regulation. The EU gains influence in the operation of clinical trials and compared to the previous framework of only national clinical trials, establishes a more coherent harmonization on EU levels. Europeanization in a top-down approach happened through the "back door": harmonization of clinical trial approaches is a significant inference in the national healthcare regulatory setting. That was achieved by the EU framing the change of clinical trial approaches with the aim of safety and quality for medicinal products.

Conclusion

In this analysis, the decision on cross-border threats, the regulation establishing Horizon 2020 and the regulations on clinical trials are selected and discussed with respect to their influence on Ger-

many and senior citizens. As a starting point of senior citizens on the EU agenda, the GMS of 2011 was taken, the first EU commitment of involving the senior citizens more in healthcare regulation.

This study claimed that in the field of vaccination policies, EU level initiatives have resulted in a process of downloading as well as procedural and institutional adaptation at the German regulatory level. Essentially, the regulation in 2014 on clinical trials had the most significant impact on accelerating the access of vaccination products for senior citizens and extending the agenda setting of this risk group in Germany. Regardless, the other two policies also impacted Germany, however mainly on the agenda setting stage.

Firstly, decision on cross-border threats in 2013 streamlined the EU MS on how to react to crisis. This ensured that the senior citizens get a secure supply for vaccinations, specifically in winter months [11]. In these months vaccinations can become scarce. Therefore, the EU enacted a joint procurement for medicines for this type of crisis; however, this decision influenced the agenda setting dynamics within Germany's health sector. Secondly, with the regulation on establishing Horizon 2020, the EU brought the senior citizens on the agenda for research and innovation and gave the highest funding to Germany in 2014–2015. Germany was obliged to create a national contact point. For the senior citizens, this regulation creates future benefits in terms of new and innovative medicinal products, including vaccinations, and acknowledgement of vaccinations as preventive tools. Also, the ALOHA networking platform ensured that the cooperation among the geriatricians is extended, impacting the best practices and vaccination supply (Interviewee C, 2017). Nevertheless, this policy focused on agenda setting from EU level, rather than implementation. Thirdly, the regulation on clinical trials in 2014 promoted inclusion of the entire population range in those trials, including the senior citizens. As well, the trials were made faster, technologically advanced in terms of data exchange and extended regarding the cooperation of national regulatory authorities, including the PEI. Germany promoted legislative changes to cooperate with the EU regulation with its "Fourth Act amending legislation on medicinal products" [6]. The PEI had to adapt to the new regulation and the BMG adapted its legislation, which shows a significant Europeanization top-down change, whereby national policies and institutions were adjusted to fit the EU framework. Clinical trials were made faster, the EU extended the cooperation among the MS and older patients were incorporated within the trials. Essentially, this regulation influenced vaccination access of making the supply more secure, ensuring faster access of innovative products and ensuring an EU-wide trials system.

Although the EU seemed to have a limited competence in healthcare regulation, it was outlined that EU policies had significant impact on the German senior citizens. This is specifically shown with the clinical trials regulation in 2014. Future research will focus even more on this important population group, as demographic change will continue to be a challenge, but also opportunity for society. As Interviewee A outlined: senior citizens also represent an important group for politicians at voting polls (2017). Since one limitation of this paper is that it focuses on a national case and its EU influence, future research would be called covering the impact of EU policies in other MS. This will be beneficial, since stakeholders from various academic, professional and national backgrounds are increasingly aiming to find solutions for older patients. As an essential medication, vaccinations can and will prevent future costs, deaths and crises, especially for risk groups but only with the political willingness to act.

Practical conclusion

With the Geriatric Medicine Strategy in 2011 initiated, the first EU initiative to create a focus on health issues directly related to older patients. Although there is no common healthcare system among EU nation states, there was a significant improvement of vaccine access for the elderly due to EU policies.

- **In the situation of vast international movement and an international environment, collaboration especially in healthcare access is essential. The EU healthcare supply and pharmaceutical access is more frequent and possibilities for patients to be vaccinated are increased. Due to demographic change, affecting many societies in different countries and on continents, collaboration is even more crucial.**
- **In the future, the EU and its fellow neighbors shall continue to encourage joint procurement, joint action plans towards societal changes and jointly promoted vaccination (especially for risk groups such as older patients).**

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Compliance with ethical guidelines

Conflict of interest B. Azadi declares that he has no competing interests.

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