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Mandatory vaccinations, the segregation of citizens and promotion of inequality in the modern democracy of Greece. Is science allowed to "enforce" or silently back-up such policies?

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Abstract

During the COVID-19 pandemic, Greek authorities enforced a vaccination mandate for healthcare workers (HCWs), and "social occlusion" of the unvaccinated citizens. At the same instant, multiple concerns have been raised about the epidemiological profile of Greece, the condition of public health, the ethical status of segregation policies and the role that the expert panel should play. We discuss how the policy of putting unvaccinated HCWs on unpaid suspension, the inequality and the segregation of citizens could harm social, physical, and mental healthcare in civilized societies. We would also like to provide an open invitation for a broader discussion to the scientific community, promoting critical debate based on the questions raised.

Introduction

Undoubtedly COVID-19 is one of the most important health issues with more than 6,000,000 deaths worldwide to date. Each country's government was tasked with taking several measures to protect public health, without causing direct or indirect harm, either in the short or the long term, to its citizens. It is the responsibility of science to provide without any bias or partiality the direction to ensure the maintenance of public health at the least cost. The Medline database contains over 240,000 articles on COVID-19 and about 2,000 related meta-analyses. As we are still in a period of "learning", during which a massive amount of medical data is constantly added on a daily basis, implementing guidelines could be a paramount challenge. The Greek government has enforced a COVID-19 vaccination mandate for healthcare workers (HCWs) and medical-nursing students, which has placed the unvaccinated and non-recently convalescent HCWs in unpaid suspension since 1-9-2021. In addition, under the current law in Greece, for six months now, there is an ongoing "social occlusion" of the unvaccinated citizens in general, who cannot eat indoors in a restaurant, cannot attend a cinema, cannot enter a stadium, and cannot visit a shopping mall or bar even with a negative PCR or rapid test, despite the global relaxation of preventive measures. This practically constitutes a continuous lockdown affecting only the unvaccinated individuals. Moreover, the green pass of convalescent patients was valid for 3 months only until recently. As a controversy, unvaccinated citizens over 60 years old had to pay a fine of 100 euros every month, starting on 15-1-2022, a measure which was however temporarily paused recently. During the pandemic, the government discusses decisions with a multidisciplinary committee of experts. Our purpose is to demonstrate that vaccine mandates in HCWs could harm healthcare from a holistic point of view (social, physical, mental and spiritual). Also, we would like to underline that medicine should be individualized, and based on transparency in order not to stray from the ultimate goal of humanity's progress. Lastly, we raise queries carrying critical concern in regards current COVID-19 vaccinations, providing an open invitation to a critical debate within the scientific community.

Discussion

The proportionate degree of the measures against the pandemic, which can include the use of masks, COVID passes, lockdowns, fines, and mandatory vaccination, varies considerably from country to country. However, the global trends tend to merge on the fact that transparency in the conveying of information and the promotion of educated self-choice provide more rational, humane and effective management of the pandemic[1]. The opinion of experts as displayed on television and the media carries the least degree of scientific credibility and recommendation, as defined in evidence-based medicine. In contrast to that, we present the serious degree of evidence that form the basis of the large study by Subramanian et. al, where it was shown that vaccination for COVID-19 cannot control its spread regardless of the level of vaccination coverage, with data from 68 countries and 2,947 counties in the US[2]. According to it, initial data from phase 3 clinical trials showed that the number needed to vaccinate (NNTV) to prevent one case of COVID-19 was about 119 and especially to prevent severe disease, about 2,380 (Figure 1)[3]. By definition, medical guidelines apply recommendations, regardless of the level of evidence. Two major limitations in the development of guidelines are the consideration of patients' co-morbidities and also potential conflicts of interest in members of the panel of experts. The inability to provide individualized guidance is probably associated with serious drug-related adverse in a patient with multiple co-morbidities [4]. Also, it has been estimated that in a panel of experts approximately half of the members may have a conflict of interest [4].

Efficacy End Point	BNT162b2		Placebo		Vaccine Efficacy, % (95% Credible Interval)‡	Posterior Probability (Vaccine Efficacy >30%)§
	No. of Cases	Surveillance Time (n)†	No. of Cases	Surveillance Time (n)†		
	(N=18,198)		(N=18,325)			
Covid-19 occurrence at least 7 days after the second dose in participants without evidence of infection	8	2.214 (17,411)	162	2.222 (17,511)	95.0 (90.3–97.6)	>0.9999
	(N=19,965)		(N=20,172)			
Covid-19 occurrence at least 7 days after the second dose in participants with and those without evidence of infection	9	2.332 (18,559)	169	2.345 (18,708)	94.6 (89.9–97.3)	>0.9999

A) 162/18325 = 0.0088 , B) 8/18198 = 0.0004 Γ) 0.0088-0.0004 = 0.0084 Δ) 1/0.0084 = 119

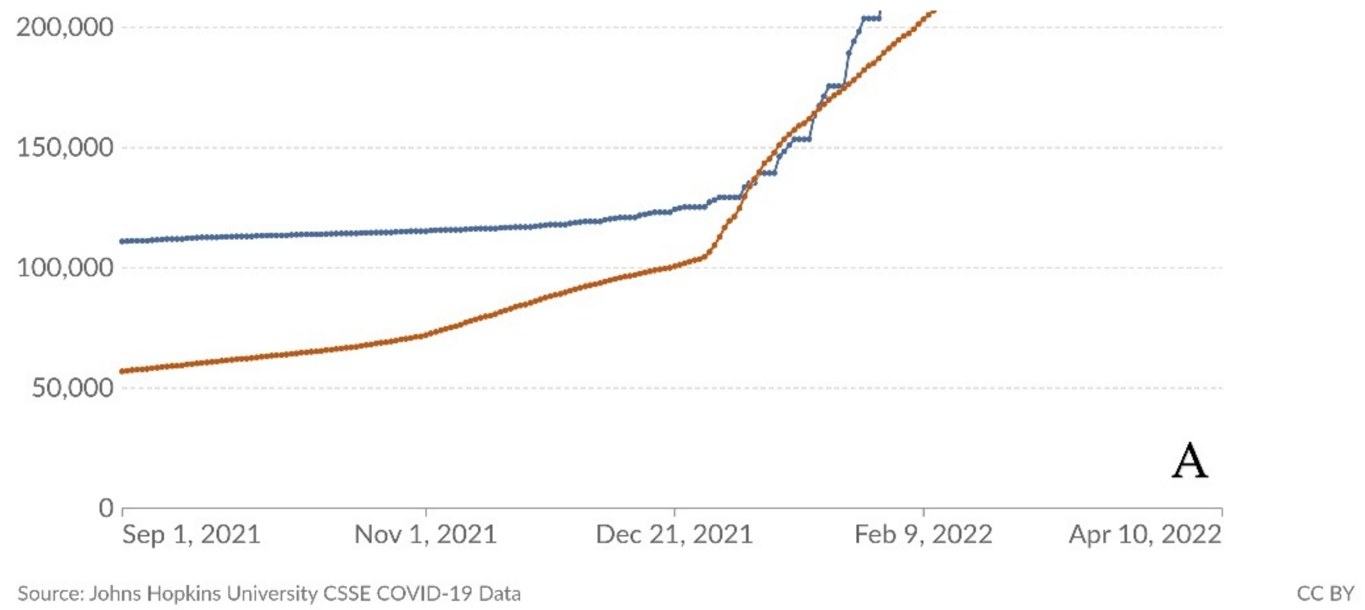
	BNT162b2 (30 μg) (N^a=21669)		Placebo (N^a=21686)			
Efficacy Endpoint Subgroup	$n1^b$	Surveillance Time^c ($n2^d$)	$n1^b$	Surveillance Time^c ($n2^d$)	VE (%)	(95% CI^e)
Severe COVID-19 occurrence after Dose 1	1	4.021 (21314)	9	4.006 (21259)	88.9	(20.1, 99.7)
After Dose 1 to before Dose 2	0		4		100.0	(-51.5, 100.0)
Dose 2 to 7 days after Dose 2	0		1		100.0	(-3800.0, 100.0)
≥7 Days after Dose 2	1		4		75.0	(-152.6, 99.5)

A) 9/21686=0.00046 , B) 1/21669=0.00004 Γ) 0.00046-0.00004=0.00042 Δ) 1/0.00042=2,380

Figure 1. Calculation of the Number Needed to Vaccinate (NNTV) for covid-19 occurrence (first table) and for severe illness (second table). Data from phase 3 clinical trial of BNT16b2[3].

The aforementioned facts have probably not been taken into consideration when issuing vaccine mandates in HCWs. It is well known that vaccinated HCWs are known to transmit COVID-19 [5-9]. After the 4th dose, although there is still a high efficacy of the vaccine against symptomatic COVID-19 disease, there is unfortunately significantly reduced efficacy against preventing the infection with SARS-CoV-2, with the virus being still well transmitted to and from HCWs[10]. A careful review of the weekly COVID-19 Vaccine Surveillance Reports of the UK Health Security Agency (UKHSA), beginning from Week 37 of 2021[11], which is based on data from 18-8-2021 – 3-9-2021 and moving on, unfortunately displays a constant and repeating pattern, which is that in the age groups from 30-80 years old, after the prevalence of the delta strain, the new COVID-19 cases per 100,000 of the respective population (case rate) are invariably more in the fully vaccinated individuals compared to the unvaccinated. The case rate among vaccinated individuals was also increased in the remaining age groups, with the exception of <30 and >80 years old. One can verify this pattern by running through the following weekly reports: Week 37 (p.13), Week 38 (p.13), Week 39 (p.14), Week 40 (p.13), Week 41 (p.13), Week 42 (p.13), Week 43 (p.19), Week 44 (p.20), Week 45 (p.22), Week 46 (p.23), Week 47 (p.33), Week 48 (p.44), Week 49 (p.35), Week 50 (p.39), Week 51 (p.40)[11,12]. As far as we know, there was never a lockdown affecting only the unvaccinated in the UK, as compared to Greece. Beginning at Week 3 2022 (p.38), the UKHSA started to produce these tables by counting only on people who had undergone booster vaccination, 3 doses in total, in the vaccinated group, and still the same pattern is observed. Unfortunately, moving forward to the most recent reports in 2022, Week 9 (p.45), Week 10 (p.45), Week 11 (p.45), the pattern seems to become worse, since the case rate among booster-vaccinated individuals in the aforementioned age groups climbs to three or even four times more than among the unvaccinated[12]. The aforementioned tables correctly point out that the proportionate rate of ER admissions and deaths are definitely lower in the vaccinated group compared to the unvaccinated, progressively increasing in proportion with age, although this difference has blunted considerably and has even gotten to almost even terms in younger age groups with the prevalence of the omicron strain. Consequently, by taking all facts in consideration, vaccination against COVID-19 seems to be an individual protective measure, and not a collective one. In accordance with this, reports from Robert Koch Institute (RKI) in Germany mentioned that breakthrough infections are possible also among vaccinated staff at a similar viral load[13]. Data of the last month from RKI underline that vaccinated were 66% out of new cases [14], although vaccine effectiveness against hospitalization and ICU-treatment was preserved. In Israel, a new in-hospital outbreak has recently occurred where the source was a fully vaccinated patient with COVID-19[15]. The US Centers for Disease Control and Prevention (CDC) announced four of the top five counties with the highest percentage of fully vaccinated population (84.3 - 99.9%) as "high" transmission counties[15]. Consequently a published correspondence noted that, “stigmatizing unvaccinated people is unjustified” according to the cumulative data of the pandemic[16].

Regarding mandatory HCWs vaccination against COVID-19, a House of Lords committee refused to acknowledge the need for a mandate, since it is not economically, scientifically and morally confirmed[17]. This has led to the total revoking of the measures of mandatory HCWs vaccination and the vaccination-as-condition-of-deployment (VCOD) in the UK, as officially stated in the Government resolution of 1-3-2022[18]. Consequently, the UK has not suspended a single HCW in the NHS, during the massive winter outbreak. The same rationale was followed by other western countries, such as Sweden and other Scandinavia, that have not applied mandatory vaccinations in HCWs or other population groups, and they have managed to keep the pandemic’s toll to a better level than in Greece (Figure 2)[19].


200,000
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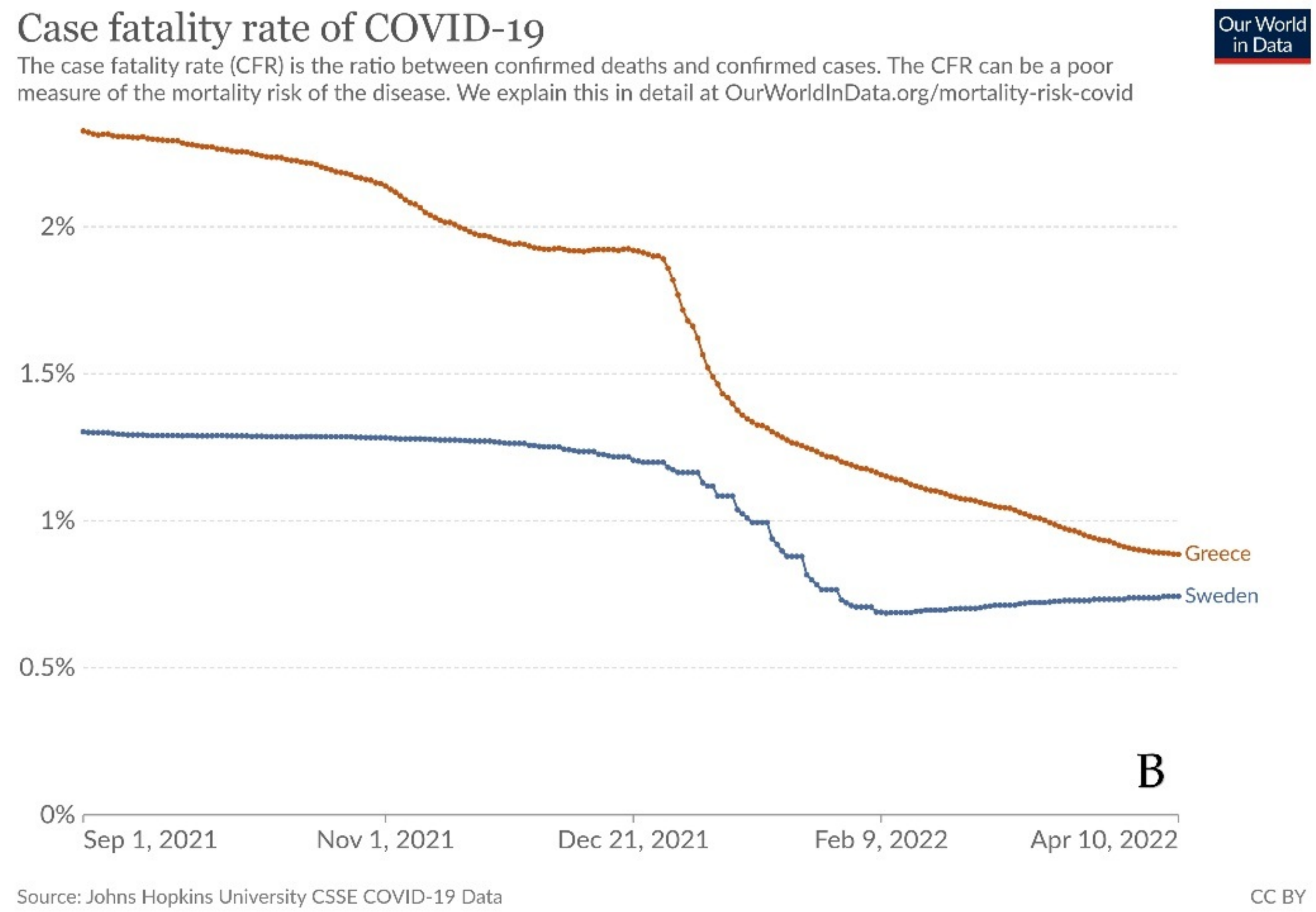
Source: Johns Hopkins University CSSE COVID-19 Data
CC BY


Case fatality rate of COVID-19
The case fatality rate (CFR) is the ratio between confirmed deaths and confirmed cases. The CFR can be a poor measure of the mortality risk of the disease. We explain this in detail at OurWorldInData.org/mortality-risk-covid
Our World in Data
2%
1.5%
1%
0.5%
0%
Greece
Sweden
B
Sep 1, 2021
Nov 1, 2021
Dec 21, 2021
Feb 9, 2022
Apr 10, 2022
Source: Johns Hopkins University CSSE COVID-19 Data
CC BY


Cumulative confirmed COVID-19 deaths, excess mortality per million people
Excess mortality: the cumulative difference between the reported number of all-cause deaths since 1 January 2020 and the projected number of deaths for the same period based on previous years.
Our World in Data
Greece
Sweden
Total COVID-19 deaths (per 1M)

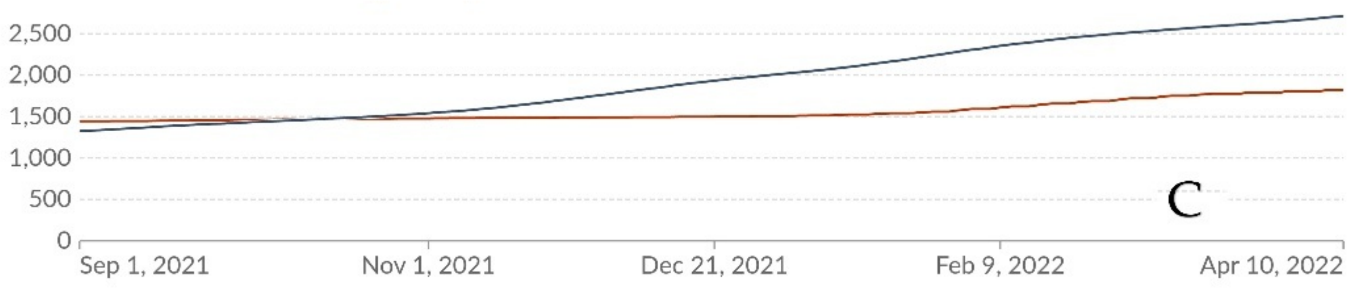


Figure 2. Comparative charts between Sweden and Greece (1-9-2021 to 10-4-2022). A) Comparison of the cumulative COVID-19 cases per million people; B) Comparison of the case fatality ratio; C) Comparison of the cumulative COVID-19 deaths per million people[19].

The green pass of convalescent patients in Greece was valid for 3 months, although the duration of naturally-acquired immunity has been demonstrated to last much longer. In a recent report from CDC [20], by studying the 18% of the population of the United States, it has been shown that naturally-acquired immunity was more potent, up to 5 times, and longer-lasting compared to vaccine-acquired immunity against delta variant. The systematic review and meta-analysis by Chivese T. et al. in a total of 18 countries and 12,011,447 patients showed strong immune memory in COVID-19 patients for at least 8 months, with a 0.2% probability of reinfection[21], and there are studies showing protection against reinfection for 1.5-2 years, as well as protection for severe infection for many years, even in asymptomatic COVID-19 infected individuals[22,23]. The hesitancy to acknowledge the duration and quality of naturally-acquired immunity seems out of alignment with evidence-based studies[24]. The same applies to the more benign epidemiologic course of the omicron variant, which seems to increase the hazard ratio of breakthrough infection among vaccinated [20]. Moreover, relying solely on mass vaccination, without controlling the horizontal and vertical transmission of the infection disease, potentially carries significant public health issues, negating any expected benefits [25,26].

An important factor when considering mass vaccination of the population, and particularly the mandatory vaccination of a particular social or professional group, such as the HCWs, without any individualization e.g. in regards to age, comorbidities etc, is the fact that the molecular and physiological mechanisms of action of the currently available vaccines are still under continuous investigation. The translation product of the new vaccine technologies, spike protein (S) alone, appears to modify the normal function of ACE2 receptors and trigger several molecular mechanisms via signal transduction pathways. It can be briefly summarized that the S protein alone could cause either impairing of the DNA repair mechanism, inducing dysfunction of the tumor suppressor proteins, p53 and BRCA1, or downregulation of ACE2 receptor and inhibition of mitochondrial function resulting in serious damages of vascular endothelial cells [27-29]. In addition, it appears that other pathways of cellular signaling are activated, such as MEK and ERK, which are known for their involvement in key molecular mechanisms of cell growth [30,31]. Improper activation of such pathways in combination with the presence of mutations or polymorphisms and in combination with possible damage to the DNA repair system, increases the chances of tumorigenesis given the diversity of the genetic profile in the general population. In addition some reports showed that S protein could migrate and circulate for at least 4 months after vaccination [32], and maybe at higher levels than severely ill COVID-19 patients [33]. As regards mRNA, a recent study[34], showed the presence of DNA as a product of reverse transcription, as well as up-regulation of endogenous reverse transcriptase LINE-1 (long interspersed nuclear element-1) gene, in a hepatic cellular line as early as 6 hours after vaccination. Although the probability of this phenomenon is very low, it is generally known that through the nuclear pore complexes, molecules are transported to and from the nucleus. In particular, transport of various proteins and RNAs can take place through binding with importin-b[35]. Furthermore, since vaccine mRNA could be detected up to 60 days post vaccination in lymph nodes [33], there are multiple questions arising in regards to accuracy, quantity and quality of the ongoing mRNA translation. During the pandemic, the antibody-dependent enhancement (ADE) of infection is a possible crucial factor since the present strains are different from the original, with potential unfavorable consequences[36]. Although ADE and antibody-enhanced disease (AED) are theoretically rare phenomena for genetic vaccines, they should be studied more extensively[37]. Since Vaccine-Associated Enhanced Disease (VAED) was observed in the SARS-CoV-1 pandemic, the same trials to investigate VAED should be repeated for the current SARS-CoV-2 pandemic as well[37]. Additionally, the fact of the increased hospital and ICU admission rates in the fully vaccinated patients, is a cause for concern, as according to Munoz FM et. Al., the criteria with a possible diagnostic certainty for VAED are met [38]. In the meantime, myocarditis, predominantly in young males, due to direct toxic effects[39], detection of unusual thrombotic events such as cerebral sinus thrombosis (implicating blood-brain barrier penetration) [40], cardiovascular deaths, including sudden cardiac deaths attributed to the particular pathophysiology of the well-described Kounis syndrome[41], as well as miscellaneous other adverse events with common feature, the activated inflammatory and thrombogenic process[42], compose a dynamic profile of vaccines requiring a continuous alert of safety[43]. The questions that arise need to be clarified transparently by properly structured randomized clinical trials and meta-analysis, with the investigation of molecular pathways in more samples. Along with this, the deadlines for the completion of studies by pharmaceutical companies are 2023 and 2024[44].

A major issue, arising from the reduction in available number of HCWs in countries where mandatory vaccinations are implemented, is the quantitative and qualitative understaffing of health care units. The availability and lack of training, and specialization of health personnel, are definitive factors in increasing mortality [45,46]. Department understaffing could result in an increase in mortality for each inpatient by 3% daily [47]. On the contrary, countries which invested in the steady improvement of medical services achieved a reduction in ICU mortality over time [48]. The number of substantive medical staff shortages in Greek hospitals was estimated at 5,000 doctors, without including the suspended staff, but the actual urgent demands are counted to be higher[49]. The respective shortages in other healthcare professions (nursing, etc) are estimated to be even worse, ranging to about 30,000[50]. In addition, as departmental understaffing worsens, with hundreds of quarantined HCWs due to COVID-19 breakthrough infections[51], we have unfortunately seen some ICUs or departments closed[52].

Stigmatization and segregation are unacceptable in civilized societies, as they can lead by themselves to further major public health and social issues [53]. There has already been an increase in domestic violence and suicide attempts among young people [54,55]. Also, in Greece, for more than seven months unpaid HCWs have been facing serious issues with survival and there have been HCWs on an ongoing hunger strike. The expert committee’s role should be to express recommendations, and to provide a background of concepts that constitute the framework under which specific policy decisions will be discussed and implemented[56]. Ideally, misguided political decisions could be avoided through properly structured and continuous discussions with the expert group[56]. The experts should be always on the alert to adapt their guidance in accordance to the fluctuations of the pandemic's course, but also to the results of the measures taken. Moreover, they should be open to complementary advice or criticism from external experts, even from the international community. In this way, the proper political choices could be adopted to improve citizens' lives[56]. Segregation and inequality create a strong oxymoron in Greece, the country that gave birth to democracy 2500 years ago. It is important to research additional pharmacological and non-pharmacological prevention options to establish health and social equilibrium, to avoid the nightmare that is setting in, with the public's confidence in medicine constantly declining[57]. Authorities should be flexible in renewing guidelines and adapting new concepts about COVID-19[58]. They should also be aware of the outcomes of major legal actions against vaccine mandates, in order to review their nation's policies. Foremost amongst them is the decision of the U. S. District Courts for the Western District of Louisiana and the Eastern District of Missouri, which both found the HCWs mandatory vaccination rule in the USA defective and entered preliminary injunctions against its enforcement. [Louisiana v. Becerra, 2021 WL 5609846 (Nov. 30, 2021); Missouri v. Biden, 2021 WL 5564501 (Nov. 29, 2021)]. In each case, the Government moved for a stay of the injunction from the relevant Court of Appeals, which was dismissed by the Supreme Court of the USA on 13 January 2022 [Nos. 21A240 and 21A241, Cite as 595 U. S. ____ (2022)].

Conclusions

Politics is completely different from medicine. Transparency does not reduce the intention to vaccinate, so there is no need to use extreme pressures measures. Evidence-based Medicine exists through transparent dialogue, and use of reliable methods, under the rationale of proposing rather than imposing solutions. The policy of putting unvaccinated HCWs on suspension failed to improve the pandemic's outcomes and produced a shortage of experienced staff, that could have contributed to increased inpatient mortality, as well as leading the remaining HCWs to physical and emotional exhaustion. The fight against any health crisis, current or future, regardless of its source, should revolve about multidimensional healthcare.

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