



Vaccine policies in France and Europe[☆]

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This review outlines the outcome of the COVID-19 vaccination campaign in France and assesses the respective roles of information and coercion in its overall success. These data are then put into perspective of the evolution of vaccination acceptance in France.

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Lessons from the COVID-19 vaccination campaign

Vaccination has been at the forefront of the COVID-19 campaign. In an astonishingly short amount of time, less than one year, vaccines originating from different platforms were designed, tested, and produced. More than 13 billion doses were administered to roughly half of humanity. This is a remarkable success, given the very high efficacy/safety profile of most of these vaccines,

despite their highly unequal distribution worldwide. It has been estimated that 20 million people had their lives spared in 2021 by COVID-19 vaccination [1•,2,3] and that there was a strong correlation between vaccination rate and recovery of life expectancy losses in 2021 [4]. Very high rates of vaccination were achieved in some countries, mostly those with a tradition of trust and compliance in vaccination, such as Scandinavia, Canada, and Spain. Nevertheless, widely diffused vaccination campaigns did not always meet their objectives.

In this regard, it is interesting to analyze how it proceeded in France and to take lessons for the future. Within the European Union, RNA-based and adenovirus platform-based vaccines became available in late December 2020. At this time, based on population surveys, it was estimated that less than 50% of French adult citizens expressed some hesitation toward vaccination, despite the many casualties from COVID and the restrictions on daily life (e.g. lockdown, curfew, masks) experienced during the previous year [5–7]. Many questions were raised about safety, given the speed with which these vaccines were developed and the novelty of the RNA (and adenovirus-based) vaccines. There was thus a concern about the coverage that could be eventually achieved. It turned out that vaccination implementation was initially restricted by the number of doses available. Thus, as elsewhere, a priority list was established, and individuals at higher risk — elderly people — were vaccinated first, starting, not without logistic difficulty, in aged care homes. The time required to achieve access to doses in a quantity big enough to recommend vaccination to the adult population was approximately 5 months. Interestingly, it turned out that trust in COVID-19 vaccination gradually increased to reach close to 80% of people who were convinced to receive the vaccine at that time [5]. It is likely that the gain (from 50% to 80%) is linked to the progressive steps rather than an immediate ‘en masse’ program as foreseen in 2009 for the H1N1 pandemic that deeply failed in France [8•].

Progressively enlarged circles of vaccinees had a positive impact on relatives, friends, and work colleagues, helping to convince them to get vaccinated. Another aspect was that, unlike the 2009 flu campaign that was organized by the military with very little reliance on medical doctors, health care workers (HCWs) were, this

☆ In this review, we first focus on the COVID-19 vaccination campaign in France and then widen the scope to acceptance of vaccination in general in the country.

time, more heavily involved in the campaign either as individual practitioners or within large vaccination centers. This decision had a positive impact on multiplying contact between the population and medical doctors (including their own GP), pharmacists, ... knowing, as shown previously, that people tend to ask advice primarily to their doctor or pharmacist [9]. Nevertheless, the vaccination campaign then reached a plateau around 75% of vaccinees, as also observed in most neighboring countries [10•]. At that time, it was clear that this coverage would not be sufficient to abate the pandemic. This was also the time when it became apparent that immunized people had a lower chance of transmitting the virus and thus could resume some social activities (in France, a series of decrees had been adopted limiting public gatherings and meetings, shutting down bars, restaurants, movie theaters, sports clubs, etc.). Based on these grounds, in order to increase vaccination coverage, the French President decided (early July 2021) to implement a 'partial' obligation status for vaccination. Practically, in order to take part to collective activities, people had to be vaccinated or show a negative viral test performed during the last 24 h. Other countries like Germany and Italy also adopted similar measures. Compulsory vaccination has been a matter of long debate over the twentieth century. In France, an extension of the number of compulsory vaccines for children below the age of 2 years was implemented in 2018 in a context where vaccine coverage against many diseases was very unsatisfactory [11]. This decision elicited little debate and vaccine-critical mobilizations. It resulted in a clear improvement in vaccine coverage, even for some vaccines not covered by the mandate. It has to be said that it was accompanied by a nationwide information campaign promoting vaccination and the commitment of a number of HCWs, including pediatricians at the frontline, to implement this measure.

This is likely because of its previous experience, that the sanitary pass was implemented in France. Strikingly, the announcement by the President of France that the pass would be set up was followed, within hours, by a massive rebound in vaccination. Eventually, it is estimated that 13% of the adult population went on to vaccinate because of this decision [12•]. Success was not as spectacular in Germany and Italy, but it was still observed. One step further was required to achieve full coverage of vaccination of HCW. Compulsory vaccination was established, which again led to virtually all HCWs being vaccinated (as the penalty was job loss: only 15 000 out of 2 million chose to quit their job). Overall, the vaccination campaign can be considered a success: it reduced significantly the mortality/morbidity of COVID-19 in 2021 [4].

Nevertheless, limitations, notably, in comparison with southern European countries, have to be noticed. Approximately 10% of people over 80 could not be

vaccinated, whereas in Spain, Portugal, or Italy, coverage of this extremely vulnerable population reached close to 100%. How to explain this? In France, it appears that nonvaccinated elderly people were mostly isolated persons who were difficult to reach and sometimes expressed some kind of complacency toward vaccination, as they considered they had a short life expectancy and a poor quality of life. Efforts were made to reach out to these people but were met with limited success, given the heavy investment required to efficiently reach them. In contrast, in Spain, for instance, two factors have likely been the basis for success: 1) the population, of all ages and conditions, is used to being contacted by a medical center in order to receive a vaccine, so the proposal of the COVID-19 vaccine did not come as a surprise; and 2) families in Southern countries are living in a much more collective way, which is largely intergenerational, so that there are less lonely people. Item 2 will be difficult to modify rapidly, but item 1 could (should) be implemented!

Socioeconomic inequities also resulted in a lower chance of vaccination despite some outreach efforts toward part of the most precarious population [13].

Another failure of vaccination was observed in overseas territories, such as the French Caribbean and Guyana, where vaccination rates did not exceed 40%. This can be explained at least partly by complicated relationships with state institutions, grounded in a historical underinvestment in these territories, distrust of the Government exacerbated in the years before the pandemic, as well as a generalized impression that health deciders did not adapt their handling of the epidemic to the local context [5]. This will require further in-depth analysis and development of adapted preventive measures based on local cultural forces.

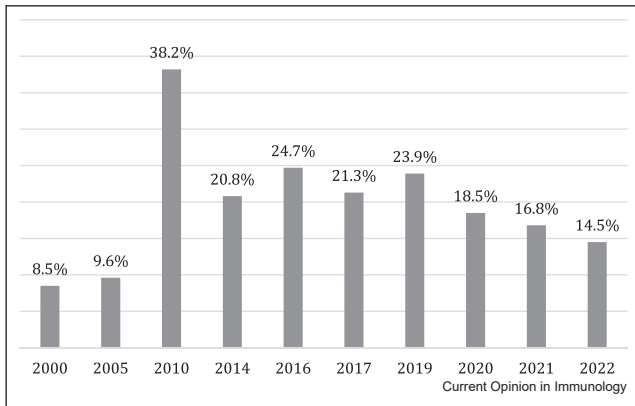
Vaccination acceptance in France

We first describe how attitudes toward vaccination in general have changed in France during the last two decades. Then, we illustrate how these trends illustrate the importance of shifting the gaze from radical opposition to vaccination in general to more qualified forms of doubts ('vaccine hesitancy' [VH]). Finally, we address this issue for health care providers (HCPs). Finally, we speculate on the extent to which the COVID-19 vaccination campaign may impact vaccination acceptance in France.

The decline of confidence in vaccines

A decade ago, many public health experts warned against the waning of public confidence in vaccines [14–16]. This was a worldwide phenomenon, but it was especially prevalent in France: a large comparative survey conducted in 2015 across 67 countries found that 41% of French adults disagreed that vaccines are safe, compared to a global average of 13% [17]. Since the

Figure 1



Proportion of respondents unfavorable to vaccination in general since 2000 (France, Health barometers, adults aged 18–75, N = 15 000–30 000). Health barometers are national surveys of representative samples of the general population. Credit: Santé Publique France [6].

1990s, France experienced a number of vaccine-related controversies, including scares surrounding an alleged link between the hepatitis B vaccine and multiple sclerosis, debates about the use of aluminum-based adjuvants, and very unsatisfactory vaccination coverage, to the point that the French government organized in 2016 a ‘citizen consultation’ designed to restore public trust in vaccination, and decided a year later to extend mandatory vaccination from 3 to 11 childhood vaccines [11].

National surveys carried out by *Santé Publique France* monitored the attitudes of the population toward

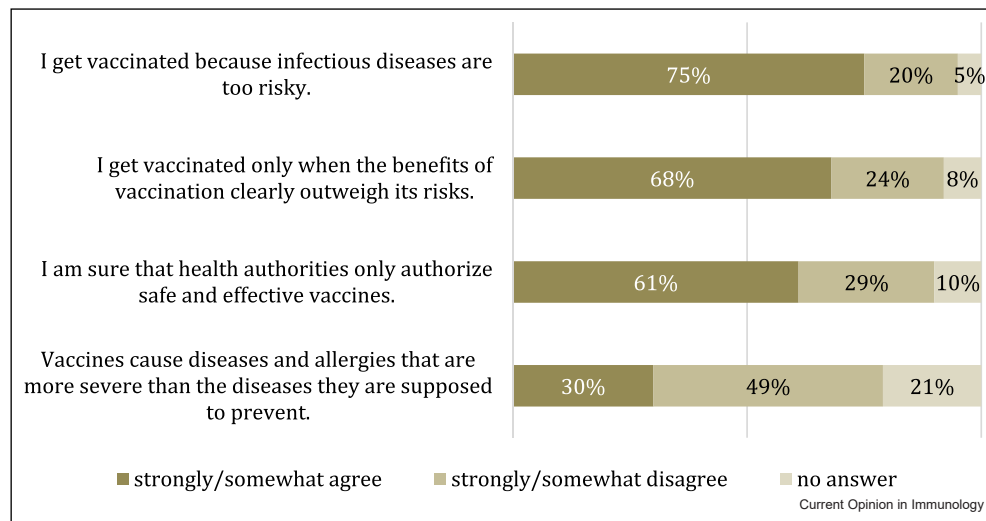
vaccination since 2000 (see Figure 1): among French people aged 18–75, the proportion who reported being unfavorable to vaccination in general was under 10% in 2000 and 2005, then skyrocketed to almost 40% in 2010, before stabilizing at a high level (2014–2019) and then slowly decreased [18]. The controversies over the H1N1 flu vaccination campaign in 2009–2010 clearly contributed to the 2010 sharp rise [19].

From vaccine opposition to vaccine hesitancy

Researchers investigating this confidence gap have moved away from terms such as ‘vaccine rejection’ or ‘vaccine denial’, which point toward the most radical forms of refusal, and have proposed the concept of VH. According to the Working Group on Vaccine Hesitancy appointed by the World Health Organization, VH “refers to delay in acceptance or refusal of vaccines despite availability of vaccination services”, and this phenomenon “is complex and context specific varying across time, place and vaccines” [20]. The concept of VH draws attention to the less radical and much more prevalent forms of doubts and critique. VH may depend on many factors, especially trust in health authorities, perceived risks associated with vaccine-preventable diseases, and perceived risks and benefits of vaccination [21].

A recent online survey illustrates some of these aspects (see Figure 2): in 2022, 20% of French adults disagreed that infectious diseases are risky enough to vaccinate against, 29% disagreed that health authorities only authorize safe and effective vaccines, and 30% supported the claim that vaccines cause diseases and allergies that are more severe than the diseases they are supposed to prevent. A corollary of this VH approach is that vaccine

Figure 2



Attitudes toward vaccination among French adults, 2022 (France, SLAVACO 4, adults 18+ years, N = 2053). SLAVACO is a series of online surveys dedicated to vaccination-related issues, conducted in 2021–2022 among representative samples of the general population aged 18+. See Ref. [10].

acceptance depends on the vaccine considered. For example, in the same online survey, 83% of respondents had a good opinion on the measles vaccine, compared to 62%, 63%, and 69% for the human papillomavirus (HPV), seasonal influenza, and hepatitis B vaccines, respectively.

Vaccination acceptance among health care providers

The VH approach also focuses on vaccination-related attitudes among HCPs, as a significant proportion of them, including those who administer vaccines, are personally and professionally vaccine-hesitant [9]. HCPs are sensitive to controversy and misinformation, just like laypeople, and they may share doubts about the benefits and safety of some vaccines. Their VH is mainly driven by inadequate training in the field of vaccination and their lack of trust in the health authorities and the pharmaceutical industry [9].

This issue is well-documented for French general practitioners (GPs), who play a key role in promoting vaccination among the general population [22,23]. In 2014, in a national representative survey, 19% of GPs did not trust the reliability of the information provided by official sources about vaccination, 26% agreed that some of the vaccines recommended by authorities are not useful, 20% agreed that children are vaccinated against too many diseases, and 33% considered that vaccines containing adjuvant may induce long-term complications [22]. In the same survey, regarding GPs' recommendations to their patients, only 60% would always recommend vaccination against measles, mumps, and rubella for nonimmune adolescents and young adults, 46% would always recommend the HPV vaccine for girls aged 11–14%, and 34% would always recommend hepatitis B vaccination for nonvaccinated adolescents. VH was even more significant among French nurses [24,25].

What about the COVID-19 vaccination campaign?

During the Summer of 2021, French authorities implemented a health pass, requiring everyone aged 12 and older to present proof of vaccination or a negative test to access a wide array of public spaces. In the short term, the introduction of this health pass markedly increased vaccination coverage, but it also resulted in a significant proportion of vaccinated people who expressed doubts, regrets, and even anger toward their vaccination, and in the long term, it may damage public confidence in vaccination [26]. Of course, such distant consequences remain uncertain, but in 2022, 28% of French adults reported that the COVID-19 vaccination campaign decreased their confidence in vaccination in general, while 13% stated that the campaign improved their confidence [27].

Conclusion

The COVID-19 vaccination campaign was the biggest vaccination campaign in history. What has been its

impact on attitudes to vaccines in general? As we have seen, the introduction of the health pass markedly increased vaccination coverage, but it also resulted in a significant proportion of vaccinated people who expressed doubts, regrets, and even anger toward their vaccination, which could damage public confidence in vaccination in the long term [26]. Of course, such distant consequences remain uncertain, but in 2022, 28% of French adults reported that the COVID-19 vaccination campaign decreased their confidence in vaccination in general, while 13% stated that the campaign improved their confidence [27]. However, surveys monitoring attitudes to vaccines in general suggest that, overall, attitudes to vaccines slightly improved rather than deteriorate in France during this period [18,28•,29]. It might be that the legacy of the COVID-19 vaccination might be a polarization of attitudes toward vaccines, with the reticent becoming more strongly reluctant, while those already favorable become stark pro-vaccine advocates. The polarization could also be generational, opposing the young and the old, as some data have started to suggest [28•]. Fully assessing the impact of the COVID-19 vaccination campaign on the public's attitudes to vaccines will of course require many years and attention to subtle transformations that go beyond the opposition between acceptance and refusal of vaccines. A continuous investment of the research community in monitoring attitudes toward vaccines is necessary, as well as a greater understanding of the difficulties faced by each vaccination campaign in the national and even local context [30].

Data Availability

No data were used for the research described in the article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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