

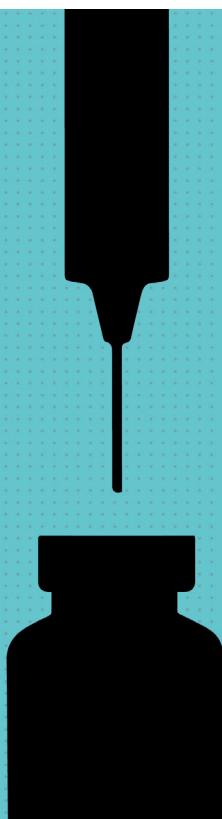
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E-PAPER

# Global perspectives on Covid-19 vaccination

## COVID-19 vaccination in Chile



BY JUAN JORGE FAUNDES PEÑAFIEL,  
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Published by the Heinrich-Böll-Stiftung European Union, Brussels  
and the Heinrich-Böll-Stiftung Washington, DC, June 2021

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# CHILE



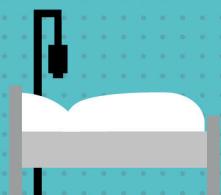
GDP per capita in USD  
**22,767 \$**  
(2017)

Population fully vaccinated  
2021, June 15th

**48.34 %** 

Population at least partially vaccinated  
2021, June 15th

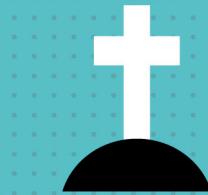
**61.90 %** 



Covid-19 cases

**1,500,000**

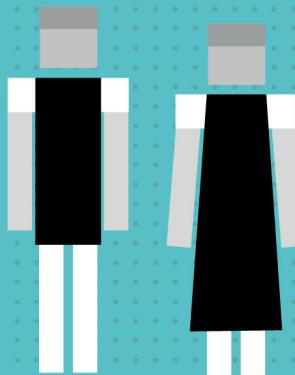
2021, June 17th



Covid-19 deaths

**31,140**

2021, June 17th



Overall population

**18,952,038**  
(2019)



Doses allocated

**818,400**

AstraZeneca

# **Background**

**The illness identified as SARS-CoV-2, known also as the coronavirus or COVID-19, has become Chile's most consequential public health challenge in a century.**

**The country had its first case on 3 March 2020, and by the following 13 March the government was announcing measures to face the emerging health crisis,<sup>1</sup> just as the World Health Organization declared it a pandemic, in conformity with the International Health Regulations.<sup>2</sup> Chile's measures included guidance regarding, among other items, education, health (sick leaves, diagnoses, hospital capacity, partial and spatially targeted lockdowns), mass events, border controls, supply and transportation.**

Since then, the evolution of the disease in the country has been similar to that of other countries around the world, with periods when cases increased followed by periods when cases declined, yet without ever declining to a point when one would assume the emergency was over. In order to understand the process Chile has been going through, first it is necessary to review the country's sociopolitical and institutional contexts, as they have been highly influential in bringing about the results achieved to this date.

## **Sociopolitical context**

Over the last decades, Chile has increased its gross domestic product (GDP) sustainably thanks to its opening-up to the international markets and to economic policies based on the export of such commodities as copper, timber and food. An example thereof is that between 1990 and 2015 Chile's GDP rose by 237%, while extraction of its natural resources grew by 256% over the same period.<sup>3</sup>

However, there is also evidence that the inequality issue has not been solved yet. Chile is one of the countries with the highest levels of wealth concentration in the OECD, higher than neighboring countries Argentina, Peru and Bolivia,<sup>4</sup> which is reflected, for example, in the fact that 33% of the income generated by its economy is captured by the wealthiest 1%.<sup>5</sup> So, despite the economic boom the country experienced, the model adopted after the Augusto Pinochet dictatorship started to exhibit cracks, affecting first education, pensions, environment and other key issues, and culminating in 2019 with widespread social unrest triggered, in particular, by a rise in public transportation fares.<sup>6,7</sup>

The demonstrations that began in Santiago on 18 October 2019 unleashed a wave of protests across the country, some of them violent, that led to a declaration of a state of emergency and to curfews,<sup>8</sup> the deployment of the military in the streets, and reports of several human rights violations.<sup>9,10</sup> A temporary solution to the crisis came with a cross-cutting agreement, involving the majority of the traditional government and opposition political actors, that established an agenda for drafting a new Constitution, a process that is still being conducted, as there have been several delays due to the pandemic.

This process included a national referendum held on 25 October 2020 (at the height of the pandemic, thus putting to the test health authorities in charge of implementing emergency health measures),<sup>11</sup> together with approval of the constitutional change and a Constitutional Convention. This situation has forced the authorities to adopt measures designed to produce a complex balance between health prevention measures, especially movement restriction, confinement measures and control of public order, and the dramatic social impact of these restrictions on an already lackluster economy owing to the aforementioned social crisis.

Moreover, this social crisis also meant an economic contraction of 2.1% over the last quarter of 2019,<sup>12</sup> with a greater impact on the country's largest cities, where the protests forced businesses to shut their doors, including in Santiago, Valparaíso, Concepción and La Serena.

Therefore, Chile's first COVID-19 cases appeared in a still unstable political context, with great social unrest, a battered economy and a government highly questioned by the citizenry because of the response to the outbreak.<sup>13</sup>

## **Institutional context**

Another aspect to be considered in order to understand the executive's strategies in handling the pandemic is the institutional context regarding management of health issues. The Ministry of Health (MINSAL) is the competent authority for the management of public health services and, as such, has led the information campaign and measures taken in a centralized manner, which is easier in a unitary state such as Chile.<sup>14</sup>

Furthermore, the Chilean health system is a mixed-care system comprised of a public insurance system or National Health Fund (FONASA, in Spanish) and a private insurance system, managed by Welfare Health Institutions (ISAPREs, in Spanish). Every citizen compulsorily contributes at least 7% of their wages to one of these two insurance systems, at their discretion. Affiliation with FONASA has no requirements and each member is classified according to income brackets that, in turn, establish each person's coverage. Private health insurance ISAPREs, in turn, can refuse affiliations without any justification, as the private health system is guided by the principle of free contracting,<sup>15</sup> even as over the last months restrictions on the basis of age or gender established in health insurance plans have been eased.

According to the Medical College of Chile, the system's funding is characterized by its inequity, because while FONASA operates as a solidarity-based fund where workers' mandatory contributions make up a fund that is distributed on the basis of the system's needs,<sup>16</sup> the ISAPREs are ruled by the principle of individual insurance and therefore disregard any form of joint ownership of its members' contributions or any connection with the public health insurance system.<sup>17</sup> This is relevant because even though 77% of the population is enrolled with FONASA,<sup>18</sup> 68% of the country's highest income decile is enrolled with ISAPRE<sup>19</sup> and 47% of the ISAPRE membership earn a taxable monthly

income of over CLP 1,500,000;<sup>20</sup> 92% of the population's lowest income decile, however, is enrolled with FONASA, while 58% of FONASA members are indigent people, pensioners and workers earning a monthly taxable income of less than CLP 250,000.<sup>20</sup> In other words, the resources available for public and private health care in the country are unequal, especially as regards the quality of the services afforded and the saturation of health care establishments. This has been a major challenge in tackling the pandemic, as the health care system is segregated and highly differentiated. In this sense, the centralization of the pandemic's management and the unified control of intensive care beds by the Health Authority were highly instrumental in addressing the existing inequities, ultimately resulting in a single provision of public and private health care concerning COVID-19 hospitalizations. Still, the most serious impacts are expected to affect "elective" care (specialist appointments and "scheduled" and "non-urgent" surgeries<sup>21</sup>).

## The pandemic in Chile

### Evolution of indicators

In Chile, the first COVID-19 cases reported involved travelers returning from Europe in early March 2020, when different countries of the northern hemisphere were already reporting a dramatic increase in cases and implementing quarantines and other isolation strategies. Once the first case was reported, on 3 March 2020, contagion rose rapidly, exceeding 1,000 cases in about a month and reaching a peak of 6,938 cases on 14 June 2020, with a second peak on 22 January 2021, with 4,956 cases, and a third peak on the 9 April, with 9,171 cases. Since then, the seven-day rolling average of new daily cases has stabilized between 5,000 and 7,000 cases (Figure 1).

The first death caused by COVID-19 in Chile happened on 21 March, involving an 82-year-old woman who had several other underlying pathologies.<sup>22</sup> Later on, reported deaths spiked on 13 June 2020, with 195 deaths, a number that has not been surpassed until now, despite the 141 deaths reported on 13 April 2021, amid the third peak in daily cases (Figure 2).

Finally, case positivity rates followed a trend similar to that of deaths, with a positivity rate peak of 39% on 10 June 2020, which has not been beaten so far, but has, however, constantly surpassed the 10-percent barrier since March 2021, reaching 15% on 7 April (Figure 3).

Cantidad de casos confirmados por día junto a la media móvil de casos nuevos.

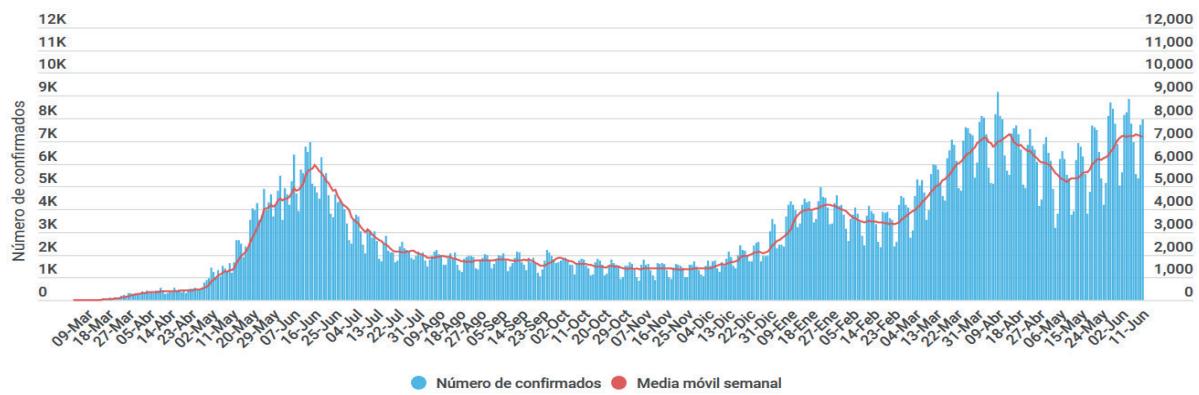


Figure 1. Evolution of the number of confirmed cases per day; seven-day rolling average of new cases.

Source: MINSAL, 2021<sup>23</sup>

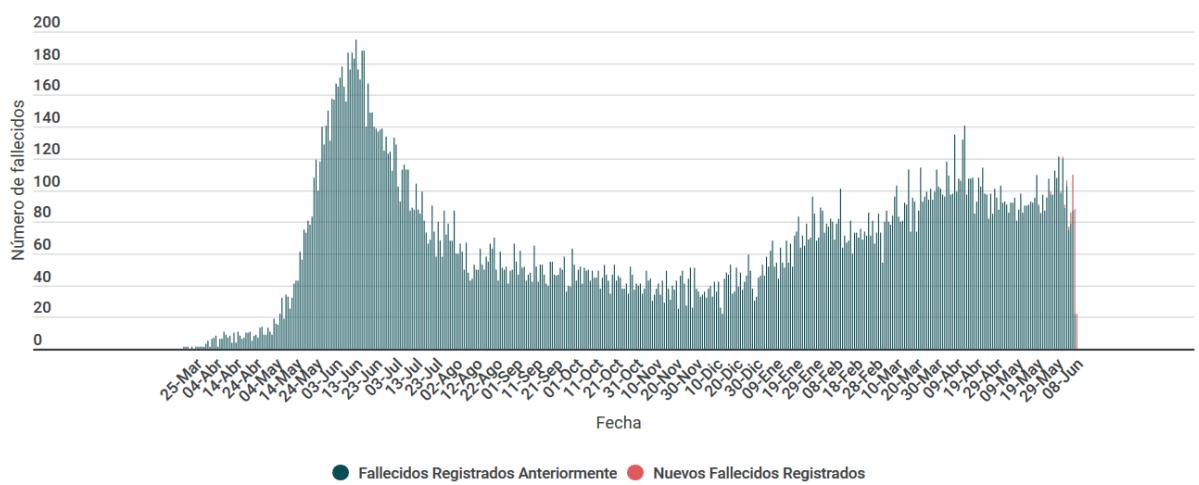


Figure 2. Evolution of the number of COVID-19 deaths according to data by the Department of Health Statistics and Information of the Ministry of Health (MINSAL) (DEIS). Source: MINSAL, 2021<sup>23</sup>

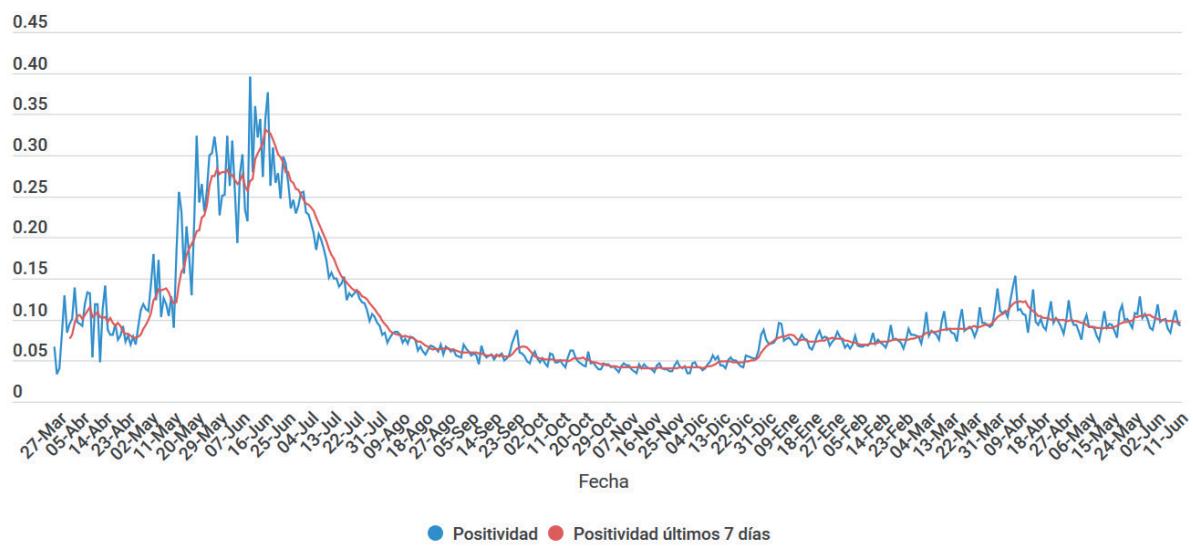


Figure 3. Evolution of positivity rate based on daily PCR tests administered during previous seven days.  
Source: MINSAL, 2021<sup>23</sup>

## Measures

As with many countries around the world, the emergence of the virus posed an unprecedented challenge to the Chilean government and the population. The adoption of measures throughout the process has been characterized by a series of statements and their reversals, and countless rights and wrongs generally reviewed in this article (although some measures have been left out of the review, given the complexity of the phenomenon).

On 28 January 2020, the government began to manage the pandemic with a Plan of Action that, in the first phase, focused on strengthening the epidemiological surveillance network and virus diagnostic capacity, as well as protocols of action for the health care system's treatment of patients and public health measures concerning personnel working in air and sea terminals;<sup>24</sup> yet rigorous border control was not implemented, nor were flights from countries with high contagion levels restricted.

On 18 March, in response to a sharp increase in the number of cases, the President of the Republic decreed a State of Constitutional Exception of Catastrophe,<sup>25</sup> granting the executive powers to restrict freedom of movement, freedom of gathering and ownership rights.<sup>26</sup> The state of catastrophe was extended three times by the National Congress and has been in effect to this date, including a nationwide curfew.

For interinstitutional coordination, an Intersectoral Committee was set up, comprising the Ministers of Health, Education, and Labor and Social Security, that started working on 5 March 2020. Together with them, regional governors have carried out implementation of some of the measures. Moreover, municipalities and (administratively autonomous) mayors are responsible, together with the central policy coordination, for the Primary Health Care (APS, in the Spanish acronym) response, which usually includes the National Vaccination Plan. As a result, in the process of implementing the various measures regarding both clinical response to the coronavirus and vaccination, tensions built up between the political and administrative leadership,<sup>27</sup> including between the central, regional and local municipal executive officers.<sup>28</sup>

Additionally, a COVID-19 Scientific Advisory Council was created,<sup>29</sup> headed by the Ministry of Science, Technology, Knowledge and Innovation, bringing together researchers, consultants and industry representatives. The COVID-19 Social Committee was also created,<sup>30</sup> comprised of health specialists, the municipalities and scholars, and in which the Medical College played a key role. Both bodies have followed the Ministry of Health's management of the process, with different levels of involvement and decision-making. For example, the Ministry of Science and the Scientific Advisory Council have been of the utmost importance for the vaccination strategy and information management, while the Social Committee has been highly relevant in strengthening communication of risk, despite also having been critical of certain government decisions and declarations.<sup>31</sup>

Concerning the availability of information, and despite inconsistencies in 2020 over the number of deaths caused by COVID-19 reported by the Ministry of Health in its daily report and those reported by the Department of Health Statistics and Information (DEIS,

in Spanish),<sup>32</sup> the government's strategy has been guided by transparency and broad availability of data provided by the various spheres involved in the pandemic, such as: daily updates (on contagion, patients recovered, deaths, ICU beds); epidemiological updates (with data updated every three days); weekly testing, contact tracing, and isolation reports; and daily updates on the vaccination process. All this information can be easily viewed in the Ministry of Health's website portals,<sup>23</sup> while the Ministry of Science maintains a COVID-19 Data Website Portal, where data can be downloaded by scientists and civil society.<sup>33</sup>

Another foundation on which the health emergency management has rested in Chile has been its Test, Trace and Isolate (TTI) strategy, which has been under constant improvement since the crisis began. Initially, traceability was incumbent upon the Regional Ministerial Health Departments (SEREMIs), until early June, when it was officially announced that Primary Health Care (APS) centers would also perform this task, on account of their outreach and territorial knowledge of the municipalities. Then, in July 2020, there was the publication of the Test, Trace and Isolation protocol,<sup>34</sup> which was updated to include duties and roles in March 2021. Although the strategy worked adequately, given the heterogeneity of municipal health care services, it was found that 37.5% of the APS centers were not tracing suspicious cases, an increase that raised serious concerns when compared with the 9% reported in early 2021,<sup>35</sup> jeopardizing the effort to reduce community transmission cases.<sup>36</sup>

In spite of all that, one of the lowest points in the government's management of the pandemic has been its communication of risk. At the beginning of the crisis, it seemed that the government would follow a "herd immunity" strategy by seeking to expose the population to the virus, yet it changed course and adopted middle-of-the-road measures, with episodic and gradual confinement and intermittent closure of borders, which were first adopted in mid-March 2020, initially with good results. However, excessive optimism by the authorities resulted in confusing messages to the population with regard to the risk of the pandemic as shown by, for instance, the seventh report of the National Monitoring of COVID-19 Symptoms and Practices in Chile (MOVID-19),<sup>37</sup> which demonstrated that during April 2020 an increase in recreational outdoor activities by the population was reported that may have been related to a government call to a "new normality", including a plan for the return of public employees, a declaration about the harmlessness of social gatherings, and the reopening of a famous shopping mall. This resulted in a dramatic increase in the number of new cases during the month of May 2020, leading to a strict quarantine in the greater Santiago area on 14 May and the adoption of more stringent measures in June and July. Moreover, the implementation of a vacation permit in late 2020 was also called into question, since it was related to a record number of cases reported during the month of January 2021, especially in the country's beach resorts.<sup>38</sup> Similarly, implementation of a "mobility pass" for vaccinated people is also drawing criticism,<sup>39</sup> as it seeks to foster vaccination of younger people or those who have fallen behind, which would have the effect of increasing viral transmission amid a third contagion spike, bigger even than that of April 2021.<sup>40</sup>

From the point of view of health care management, the Ministry of Health assumed control of the use, prioritization and distribution of the country's beds in Intensive Care Units (ICUs), setting in place a single national system for their use and distribution, and coordinating the transfer of patients centrally on the basis of availability of beds nationwide, which, so far, has allowed the country to avoid the "last bed" dilemma in those regions where full capacity has been reached.<sup>41</sup> This has been of great importance in addressing some of the health care system's underlying inequities.

This was complemented by boosting the supply of ICU "critical-beds" or "high-complexity ICU beds" through the acquisition of ICU ventilators, and the "conversion" of beds designed for other purposes –hospital emergency cubicles, pediatric ICUs and surgical wards, as well as temporary enlargements or adaptations of non-hospital facilities. Even though this last strategy made it possible to increase the number of critical-beds, it has been criticized because these conversions do not always meet minimum requirements for the delivery of optimal services; for example, sometimes they lack specialized staff to conduct artificial ventilation or to provide patients with the most basic care procedures, ultimately leading to stressed-out medical teams and poorer quality care, especially in public facilities.<sup>42</sup>

Lastly, another critical issue regarding the crisis management has been how to maintain the social security of the country's population, in an economy that had already been reeling from the effects of Chile's "social outbreak". As noted by the Central Bank of Chile in its Monetary Policy Report of March 2021, as a consequence of the adoption of movement restriction measures, the halting of economic activities across the country caused GDP to fall by 13% during the second quarter of 2020. By the end of the year, the country's GDP had contracted by 5.8%, according to the Central Bank of Chile in 2021, with the easing of restrictions on movement, a situation that meant a dramatic drop in the country's household incomes.

Moreover, the Coronavirus National Plan of Action establishes that access to coronavirus-related health care should be universal and free.<sup>43</sup> It was stipulated that such health care should be funded by each respective welfare health care institution, publicly (FONASA) or privately (ISAPRE), that is entitled to the benefits of Law 19,779 (and connected regulations), which provides that health care fees are not to be charged in case of "catastrophic" diseases, and to be subsidized by the State.<sup>44</sup>

Nevertheless, at the beginning the government was reluctant to increase fiscal spending in order to fund programs that would ensure an income to those people affected by the crisis. On the one hand, an option was made to fall back on the already existing unemployment insurance to cover the wages of those workers whose activities were suspended due to the health restrictions; however, the unemployment fund is primarily funded by the workers' own savings, thus jeopardizing their future welfare. On the other hand, throughout 2020 boxes of food were handed out to the whole of the population and government financial aid provided to the most vulnerable, based, however, on highly focused selection criteria and with several barriers designed to ultimately reduce the number of beneficiaries.<sup>45</sup>

These barriers further increased the population's unease and worsened the vulnerability of those households that were not eligible for the benefits, which was made evident, for example, by the mushrooming of soup kitchens all over the country.<sup>46,47</sup> Given the prolonged duration of the crisis and widespread unease, fiscal spending began to be gradually increased, for the benefit of the country's households. By February 2021, 30 laws had been passed in support of households and national companies, either by mitigating the economic effects of the crisis or by jump-starting specific industries,<sup>48</sup> and in April, with new restriction measures in place, eligibility criteria for stimulus checks were eased and their payment coverage increased.

The economic effects of the pandemic have varied according to each economic sector's particular adaptive capacity, as their health protocols and logistic capacity improve, and they adopt new ways of running their businesses, as well as distance working, with retail and the manufacturing industry standing out.<sup>49</sup> Having said that, the number of jobs lost across the various economic sectors is still higher than that reported before the coronavirus, nearing 10.3% in March 2021, with the effects of the stricter restriction measures of April 2021 still to be assessed.

Still, projections by the International Monetary Fund estimate that the various economic stimulus packages adopted by the country's authorities, together with the massive vaccination campaign, should allow the Chilean economy to grow by 5.5% in 2021, reaching pre-pandemic levels in 2022.<sup>50</sup> The Central Bank of Chile confirmed this and even reviewed this projection upwards, with a growth between 8.5% and 9% of Chile's forecast GDP<sup>51</sup>

## The Chilean vaccination strategy

### Vaccine supply

An important part of the government's strategy to face the virus has been guided by the Committee of Scientific Advisors. Building on the Committee's support, a COVID-19 Vaccines National Strategy was developed, as the Committee collaborated to find reliable vaccines with which to start clinical trials. Chile lacks the technology and infrastructure needed to develop and produce new vaccines, yet a "vaccine diplomacy" was adopted that has made it possible to secure vaccines developed by international laboratories. The strategy has mainly consisted of, on the one hand, early and active participation in clinical trials for the local administration of the vaccine, and, on the other, in the signing of multiple agreements to ensure supply. This strategy has established the following principles:<sup>52</sup>

- Expeditiousness and efficacy.
- Association of national research institutions.

- National and international cooperation between public and private institutions.
- Coordination across state bodies.
- Good use of public resources.

The national policy for the procurement and supply of vaccines has been guided by a broad and pragmatic criterion. Procurement has been mainly focused not on epidemiological or clinical aspects, but rather on availability and supply capacity, and diversified supply, including by negotiating vaccines in early development stages, provided they complied with all the necessary and internationally approved testing, plus a national test prior to their administration. This policy has succeeded in ensuring vaccine supply for the whole of the Chilean population, with more than 40,000,000 doses (Table 1. Agreements for the supply of vaccines entered into by the government of Chile.). As most of the COVID-19 vaccines require two shots to provide immunization, the doses acquired so far are more than enough for a country with a population of 17,574,003 people.<sup>53</sup>

*Table 1. Agreements for the supply of vaccines entered into by the government of Chile.*

Laboratory	Date of agreement	Purpose	N° of doses
Oxford-AstraZeneca <sup>54</sup>	19 Nov 2020 <sup>55</sup>	Procurement	4,000,000
Pfizer-BioNTech <sup>56</sup>	01 Dec 2020	Procurement	10,100,025
Sinovac (CoronaVac vaccine) <sup>57</sup>	10 Dec 2020	Supplies (procurement)	14,098,000 <sup>58</sup>
Janssen	No information <sup>59</sup>	Supplies (reserve)	4,000,000
COVAX Mechanism	18 Sept 2020	Optional procurement	7,646,400
CanSino-Saval <sup>60</sup>	No information <sup>61</sup>	Supplies (procurement)	1,800,000
Gamaleya Institute	No information	Supplies (procurement)	4,000,000
Serum Institute and Sinopharm; Gamaleya (Sputnik); Bharat Biotech (Covaxin) <sup>62</sup>	No information	Being negotiated	

In this strategy, the liberalization of the Chilean economy has been a strength, since Chilean trade negotiators are experienced, have a wide array of international contacts and are accustomed to facing unknown terrains.<sup>63</sup> Accordingly, Chile's diversification strategy resulted in the choice of Chinese company Sinovac as its main supplier, unlike the majority of European countries, which have only chosen western vaccines (in June 2021, the WHO validated the Sinovac-CoronaVac vaccine).

Another positive point has been the use of scientific agreements in the negotiations by offering clinical trials in exchange for doses. This was the case of AstraZeneca, Johnson & Johnson, Sinovac and CanSino, all of which held phase 3 clinical trials in the country, a measure considered as a strict regulatory protection for participants. The internationalization of Chilean universities also played a major role through their countless agreements with other universities, institutes, clinical centers, and public and private hospitals, which contributed with both scientific and clinical studies.<sup>64</sup> The massive administration of the CoronaVac vaccine has also enabled studies of its effectiveness, delivering key insights for the future development of vaccines.<sup>65</sup>

Additionally, amid the health crisis, negotiations began between the Austral University of Chile (14K Innovation Center, Faculty of Engineering Sciences) and the Max Planck Society of Germany, with the aim of designing a project for the creation of a “Laboratory for cell culture-based vaccines and biosensors” in southern Chile. As Chile currently lacks installed capacity to produce human vaccines, the project would facilitate “the transfer of technology from Germany for the installation of laboratories capable of conducting research into and development and production of human viral vaccines in Chile”.<sup>66</sup>

What's more, the University of Concepción and the Chilean Army have announced the signing of a Specific Academic-Assistance Collaboration Agreement for the development of a national vaccine against SARS-CoV-2, the causative agent of COVID-19. The vaccine is based on recombinant protein technology and is focused on the new virus variants. The agreement includes, among other aspects, resources and the participation of members of the army as clinical trial volunteers.<sup>67</sup>

## **Vaccination campaign**

The National COVID-19 Vaccination Plan entails a progressive, voluntary and cost-free vaccination process for all the population. The concept of cost-free must be viewed from two perspectives: first, because, as mentioned earlier, the Coronavirus National Plan of Action has included universal access at no cost in case of coronavirus-related health problems; and second, because throughout its history the National Vaccination Plan has been free for the target population of each respective vaccine. Thus, vaccines against the coronavirus, which are part of the National Vaccination Plan, are also free.

### **Vaccination timetable and target population**

The vaccines have been made progressively available for all Chileans and foreign residents, including those in the process of regularizing their situation, and for that reason, priorities were established depending on the risk of developing serious symptomatology. Accordingly, as a first step those individuals in high-risk groups were vaccinated, and then other groups as established by the authorities. The process is also reviewed depending on the number of available doses and the pace at which the vaccines arrive in the country. In order to organize this information, every week a vaccination schedule is released guiding the population as to when their turn to be vaccinated is.

The goal established by the government is to immunize 80% of the target population (which only excludes minors under 16 years of age) by the end of the first semester of 2021. By 20 May 2021, 9,582,096 people had been vaccinated, 7,689,742 of whom with two doses, which represents 50.2% of the target population vaccinated with two doses. The goal is still considered achievable, even as vaccination numbers fell in April, which, according to the Ministry of Health, was due to a temporary drop in the available stock of vaccines and the need to ensure the second doses.<sup>68</sup> The first problem was corrected with the arrival of new Pfizer vaccine doses in late April and additional procurement of four million CoronaVac vaccine doses. Additionally, an announcement was made

that the Oxford AstraZeneca vaccine had been approved for males aged 18 years and above, and that an agreement for the CanSino-Saval vaccine had been signed.

In Chile, vaccination of pregnant women was not recommended at first. The first international reports did not have enough data on pregnant women and, therefore, did not consider them a high-risk group, which is why they were not included in the vaccination process. Yet, on 18 April 2021 the Ministry of Health released the first segregated data on the number of pregnant women who had been infected, hospitalized, admitted to ICUs or died of COVID-19-related causes. Faced with that, the government scheduled the vaccination of pregnant women to begin in May 2021. Likewise, on 21 June the country began vaccination of boys, girls and adolescents aged 12 and above, who had initially been excluded for lack of evidence regarding the safety of the vaccines for this age group, a situation that was reversed by authorization of the Institute for Public Health (ISP), specifically for the vaccine produced by pharmaceutical company Pfizer,<sup>69</sup> prioritizing socially vulnerable boys, girls and adolescents, or those with underlying comorbidities.

Lastly, as this report was being finished, Pfizer announced the likely need for a third dose within six months of vaccination to ensure immunization. That will surely mean calendar adjustments because so far Pfizer is the second most inoculated vaccine in Chile. The Ministry of Health stated that it had received no official information by that time, but its scientific advisors were being consulted.

### **Social acceptance of vaccine and citizen perception of the vaccination**

Vaccination against the coronavirus is not mandatory in Chile, thus citizen perception weighs heavily on the inoculation process in general.

The total number of vaccinated people descends according to the age factor. As important as availability is, other aspects related to the social perceptions of the population also exert some influence. In this regard, in December 2020 the Central University of Chile prepared a survey to measure citizen perception of the level of confidence in the COVID-19 vaccines.<sup>70</sup> According to the survey, 91.1% of the respondents were in favor of vaccination, yet with varying degrees of support depending on the timing of the vaccination process and the laboratory developing the vaccine. Of the two vaccines approved in the country at the time of the survey, 38.8% trusted BioNTech, whereas 9.7% trusted CoronaVac. Only 8.8% of the respondents stated they would never get vaccinated.

Public opinion pollster Data Inflye added that 58% of those interviewed favored mandatory vaccination.<sup>71</sup> Their poll also showed that with the arrival of the first doses of the Pfizer vaccine, the number of individuals willing to get vaccinated immediately rose. Furthermore, 35% would do so as soon as possible (rising 10 points, month over month), another 35% said they would rather wait for a more effective vaccine (a 9-percentage-point drop in comparison with the previous month), while the percentage of those respondents who answered they would not get vaccinated fell by 3 percentage points to 12%. In short, based on a quick interpretation of the data, it may be inferred that there is more confidence in the Pfizer vaccine (which can be justified by the 94% efficacy reported by Israel).

Finally, the study conducted in Chile<sup>65</sup> on the effectiveness of the CoronaVac vaccine indicates that 14 days after the second shot, CoronaVac's effectiveness in preventing COVID-19 symptoms is 67%, 85% in preventing hospitalization, 89% in preventing ICU admissions, and 80% in preventing death. Though the report showed the vaccination's high efficacy as regards reducing hospital stress levels and, therefore, the strain the health system is under, it also reveals that the vaccination, at least in the stage that precedes "herd immunity", and in spite of the two doses, does not prevent contagion, while there persists the risk of serious disease, and even death. The impact of this data on the population's perception has not been measured yet.

In practical terms, although the rate and pace of vaccination is lower in younger age brackets,<sup>72</sup> such reluctance cannot necessarily be explained by vaccine mistrust, but rather by the hours immunization is being carried out (work days and hours), which makes it more difficult for those working regularly to get vaccinated, as employers are not obliged to allow their workers to do so, and self-employed workers cannot stop working during highly-productive hours. This is why the authorities are beginning to implement mechanisms to offer vaccines on weekends, a further strain on a health system already operating at full capacity.

In this respect, the vaccination problem poses at least two communication challenges. First is the uncertainty about the effectiveness of the vaccines, as well as the opinions people have on the origin of the laboratories developing them, aspects that, despite their great magnitude in late 2020 and early 2021, seem to have been left behind, since the population is getting vaccinated according to the calendar established by the government, notwithstanding the need to ensure vaccination sites are open during a variety of hours, including on weekends, for the actively working population to get vaccinated.

The second challenge is to avoid increased risk compensation,<sup>73</sup> namely overestimating the effectiveness of prevention measures and adopting riskier behavior. This is particularly the case more than a year after the virus appeared in the country, and in face of a diminished perception of the threat it entails, and the Peltzman effect.<sup>74</sup> Thus, even as the vaccines reduce the possibility of contagion and developing serious symptoms, they do not eliminate these risks altogether, particularly the CoronaVac vaccine, which is the most used in Chile. Therefore, it is imperative to keep other precautionary measures, such as mask wearing and social distancing, and for the state not to neglect risk communication, TTI strategies, border controls and other measures.

## New variants

In spite of the successful acquisition of vaccines and swift inoculation of the population, numbers regarding newly infected people, positivity and ICU beds used keep rising. However, what is particularly striking about the contagion trend is a sharp increase in the viral load indicator, with spikes of more than 40 new cases per 100,000 inhabitants, which is, in fact, higher than during the most critical periods reported in the winter of 2020 (Figure 4).

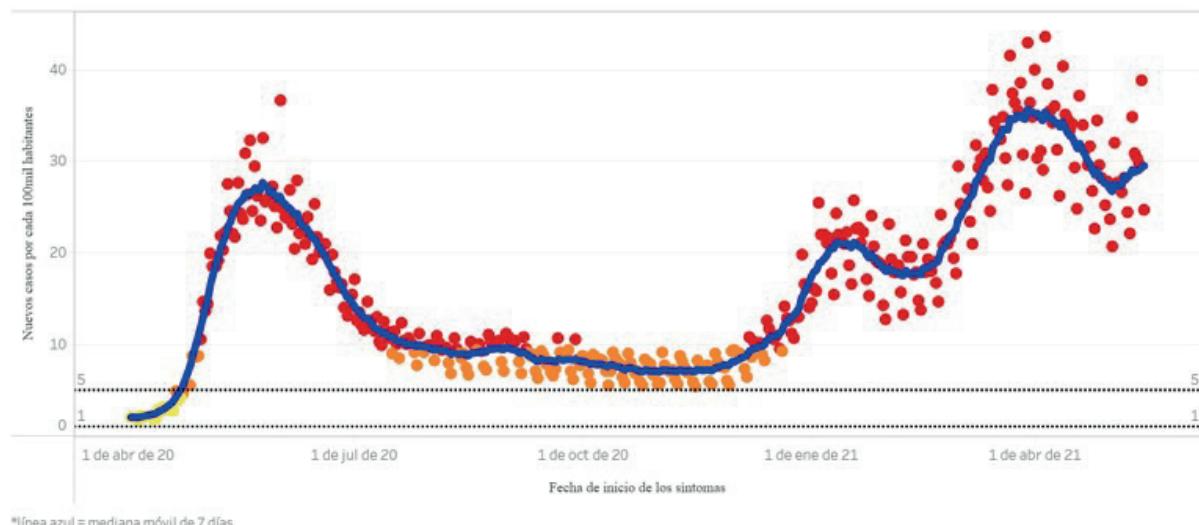


Figure 4. Indicator of infected people (daily incidence rate for last seven days per 100,000 inhabitants). The goal is to reduce the number of new cases to less than one case per 100,000 inhabitants).  
Source: iCOVID Chile<sup>75</sup>

Part of this phenomenon is accounted for by increased risky behavior and a decrease in the effectiveness of the restriction measures set in place by the government since late March. Moreover, another cause of concern is the emergence of four new variants circulating in Chile (B.1.1.1, P.1, B.1.525 and B.1.429),<sup>76</sup> which “can influence diagnostic methods, therapeutic response capacity, ineffectiveness rate and disease load, [and] severity reflected in hospitalizations or deaths”. Additionally, new mutations may weaken or even evade the immune response produced by the vaccines, potentially jeopardizing the vaccination efforts made in Chile. Despite a lack of conclusive studies in this regard, Chile must continue genomic surveillance of the variants that are spreading in the country and continue strengthening the measures adopted to face COVID-19 on every front.

# Conclusions

One of Chile's strongest points in managing the pandemic has been its vaccination strategy, from several points of view: procurement strategy, transportation and distribution logistics, and the massive and quick vaccination processes, only temporarily slowed down by a drop in vaccine flows. Nonetheless, a new boost is in progress.

In this regard, two key factors can be highlighted. The first one is that Chile, despite the initial disadvantage of not having installed capacity to develop and produce vaccines on a mass scale, managed to secure early access to a significant number of vaccines by means of cutting-edge research and international scientific cooperation, especially the two most inoculated in the country, CoronaVac and Pfizer. And a few months later, just as international pressure for vaccines was starting to affect their availability levels, other agreements were made to meet Chilean demand.

The second factor is the fact that Chile diversified its vaccine suppliers, systematically negotiating with the various laboratories in order to secure other options that have so far allowed the country to have an availability of vaccines, unlike other countries in the region. In this regard, Chile's early trade agreements, namely entering into agreements and pre-agreements with laboratories that were still in experimental phases, without any ideological or geopolitical biases, allowed Chile to secure a vaccine supply that, despite potential setbacks, will allow it to achieve the goal of immunizing 80% of its population by 30 June 2021 (age 18 and above) and even scale it up by beginning to vaccinate all underage persons.<sup>77</sup>

Additionally, it is worth considering that by reaching a high level of vaccination, and assuming that the new variants do not reduce the efficacy of the vaccines available, not only would greater health security be achieved, but also the possibility increases of recovering economic stability in the short- and medium-term, which, in turn, is the basis for achieving better social indicators. Nonetheless, it is necessary to consider that Chile is going through a complex sociopolitical period, amid a constitution-drafting process during which the country will discuss its institutional redesign, thus a period rife with uncertainty. Therefore, the country's short-term stability does not depend solely on how successful the vaccination is in defeating the pandemic, but that will certainly be a major factor thereto.

Notwithstanding the progress made, the success of the vaccination strategy has not led to a consistent reduction of new cases. And even though a short-term reduction is expected (associated with mass vaccination or the "herd effect", expected to be reached in June 2021), given the spread of the new variants inside the country and increased risk-taking behavior by the population in general, management of the pandemic neither can nor should rely entirely on the vaccination campaign. Chile must engage in a multidimensional fight that includes testing, tracing and isolating, border control, genomic surveillance, social distancing measures, information transparency, social security for the population, and, in particular, accurate and assertive risk communication, which is effective only if it manages to modify the conduct of the population.

In parallel, there seems to be high citizen mistrust of public management and of the reliability of the information released by the government, which, notwithstanding some serious mistakes, has adopted a number of adequate measures that seem to be underestimated by public opinion, including transparent government information, social security infrastructure management and the vaccination plan. One cannot separate the current health crisis from the sociopolitical context that preceded it; therefore, no matter how effective and transparent public management of the health crisis may be, including widespread vaccination of the population, citizen perception will only change insofar as management of the pandemic unfolds harmoniously with the structural transformation processes the country is simultaneously experiencing.

Lastly, assessment of the Chilean case should also be viewed from an international perspective. Thus, over and above the COVAX Mechanism as a cooperation strategy that has been extremely important for countries in critical situation for lack of vaccines, the Chilean experience successfully shows the impact of international cooperation that goes beyond humanitarian aid, as the country engaged in international scientific cooperation with high levels of reciprocity. From this prism, international cooperation is of critical importance toward transfer of technology between countries of the “global north” and countries of the “global south” in order to boost vaccine development and production globally. In this sense, even if countries like Chile are not currently vaccine producers, they may provide key support, because they exhibit enough installed capacity to join a decentralized production plan.

Thus, a plan that meets global justice criteria should aim at overcoming structural deficits and steadily building technological capacities toward the development and production of vaccines on a global scale, complemented by humanitarian cooperation, especially for those countries lacking the purchasing capacity or the capabilities to develop vaccines in the short- and medium-term. This should also consider waiving patents to allow emerging markets to build the production capacity they so urgently need and, thus, make sure vaccines are made available quickly, cost-effectively and fairly. Accordingly, in light of Article 3 of the International Health Regulations, it is necessary to move forward in the realization of such principles as universal (without prejudice to priorities established for each target population) and free access, and the search for a balance between scientific advisory councils and the leadership in centrally coordinating all measures.

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## **Imprint**

Heinrich-Böll-Stiftung European Union, Brussels, Rue du Luxembourg 47-51,  
1050 Brussels, Belgium

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Place of publication: <https://us.boell.org/> | <http://eu.boell.org>

Release date: June 2021

Editor: Chris Meikle, Brussels

Illustrations: Pia Danner, p\*zwe, Hannover

Layout: Micheline Gutman, Brussels

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