Useless & Dangerous

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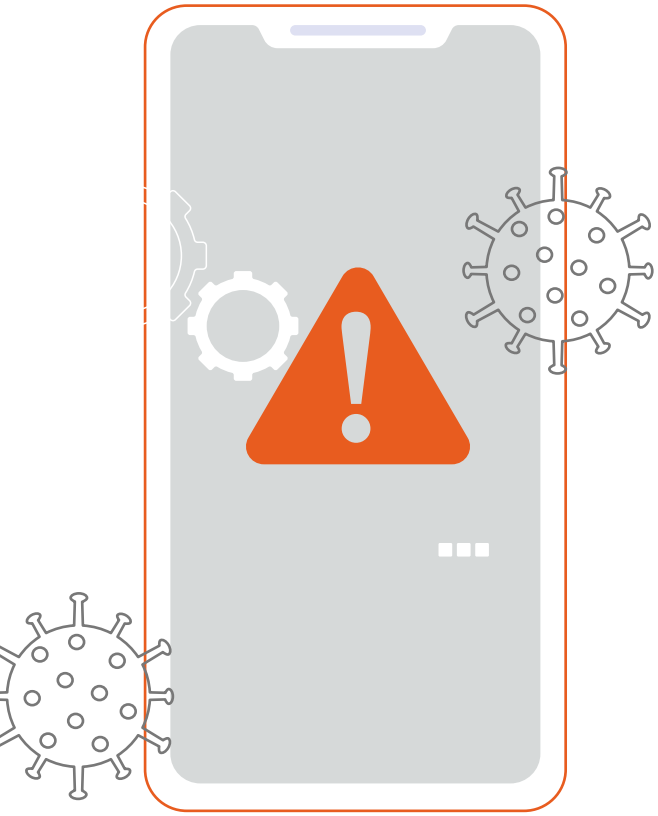
5 May, 2021

Fundación Karisma



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Content

Introduction

The first positive case of Covid-19 in Colombia was registered in the National Public Health Surveillance System on March 6, 2020 (Ministerio de Salud y Protección Social, 2020a). The National Institute of Health (NIH) activated its Public Health Emergencies Operation Center soon after and began working on containing the epidemic, while the national government implemented measures to prevent infection and the overcrowding of medical services in the country (INS, 2020c). Among the measures taken was the declaration of mandatory preventive isolation throughout the country from March 25 to September 1, 2020 (Decreto 1076, 2020). Mandatory isolation measures and curfews by local governments complemented the national policies.

On March 7, the President announced that the following day everyone could access to "CoronApp Colombia", an application that would allow Colombians to have first-hand information regarding the evolution of the pandemic and the preventive measures established (Ministerio de Salud y Protección Social, 2020b). Despite the fact that Colombia is a unitary state, several local governments decided to deploy their own apps to mitigate the possible effects of Covid-19 in the territories under their jurisdiction, using their recognized autonomy (Constitución Política de Colombia, 1991, art. 287). Thus, the Department of Valle Del Cauca announced on March 24 the launch of the app "Cali Valle Corona" (Redacción El País, 2020), later renamed "Valle Corona"; Medellín launched the "Medellín Me Cuida" (Medellín Takes Care of Me) platform on April 5 (Alcaldía de Medellín, 2020d) and Bogotá launched the "Bogotá Cuidadora" (Bogotá Caretaker) website (Febres, 2020).

Despite the initial enthusiasm of the national government and local authorities, the lack of coordination between state entities and the disconnection from the national health system became evident with the consolidation of these systems. On the one hand, although these apps had the support of health institutions, they were developed or tailored by government entities from the technology sector or by private entities focused on developing technological solutions. Therefore, these solutions were driven by excessive technological enthusiasm that did not respond to the needs of the health system. For example, although the CoronApp was owned by the NIH, the National Digital Agency (NDA) (AND, 2020a) adapted and developed its functionalities. Likewise, the Valle Corona app was developed by the company Help People and was later given to the Government of Valle del Cauca (Departamento de TIC de la Gobernación del Valle del Cauca, 2020b). On the other hand, the lack of coordination between the state entities at the central and local levels implementing these strategies and in the comprehensive management of the Covid-19 pandemic in the country beca-

me evident. Although these alternatives were presented as strategies to control the effects of Covid-19, their operating formats and connection to much broader health strategies or to each other were not very clear.

Colombia had one of the longest lockdowns worldwide, including extending the mandatory preventive isolation measures (Taylor, 2020). This lockdown generated serious limitations on fundamental rights and extended the powers of the police authorities to control people's movements. Over time, the applications began to expand their functionalities and to link up with police strategies that facilitated the exercise of violence against people. This situation changed the dynamic of epidemiological surveillance based on tracking the disease to one of surveillance of citizens' everyday life. This surveillance is an exercise in collecting individuals' personal data in order to manage them (Lyon, 2001).

Especially vulnerable communities were the most affected. There were cases of police violence, the militarization of vulnerable neighborhoods, restrictions on social protests, the exclusion of some communities from social benefits, and discrimination against the informal sector. This kind of violence is not something episodic but rather an example of structural violence. It is grounded in and exercised from and through a particular power structure that affects individuals in unequal and impersonal ways, preventing them from developing their capacities to their full potential (Gupta, 2012).

This report analyzes these dynamics and exposes some problems with the functioning of the applications, their possible impacts on certain communities and on the exercise of human rights, and how they relate to the public health guidelines implemented in the country. The main objective is to understand how these apps were designed and implemented and how they relate to, interact with, and have an impact on public health, human rights, and vulnerable communities during the pandemic caused by Covid-19.

The report addresses three key elements. The first explores the connection between these apps and the Colombian health system and the coordination problems between state entities. The second presents an analysis of the restrictions placed on fundamental rights and the exercise of violence through these apps, which focus on surveillance and controlling people's behavior.

Finally, the third element shows how the deployment of these apps, together with the alternative measures introduced to manage the pandemic, has had strong impacts on the most vulnerable groups. For informal vendors and people living in poverty particularly, the result of these combined actions has been to exacerbate the structural violence they face.

Methodology

This report is based on a qualitative analysis of the technological alternatives designed in Colombia in the framework of the Covid-19 pandemic, their relationship with other measures implemented at different levels, and their impact on vulnerable communities and human rights.

To carry out this research, discourse analysis was conducted using the following primary sources: i) the public health guidelines designed by the health authorities; ii) the local and national regulations issued during the state of emergency; iii) the documents issued by the entities in charge of managing the operation of these apps and data processing; iv) the requirements made by oversight bodies and the legislative branch concerning the apps; v) the national and international press; vi) semi-structured interviews with experts in public health and data analytics; vii) technical analysis of the apps by the digital security and privacy laboratory of the Karisma Foundation; and viii) requests for public information disclosure made by Karisma Foundation

First, a codification of sources, such as manuals and guidelines developed by the National Institute of Health and the guidelines issued by the Ministry of Health and Social Protection for the management, prevention, and mitigation of Covid-19 in Colombia, was conducted for this research. In addition, documents related to the operation of the apps were analyzed, such as manuals, terms and conditions of the services and privacy policies.

Likewise, several requests for information were analyzed. These requests were made by oversight bodies such as the Data Protection Delegation of the Superintendency of Industry and Commerce and by legislative bodies in Medellín and at the national level, to national and local authorities in charge of the apps. The main goal was to understand the ways in which the apps developed in Colombia to manage Covid-19 are related to the epidemiological surveillance strategies deployed in the country, and how their data are integrated into existing health surveillance systems.

Second, to conduct the legal analysis, all the resolutions, decrees, external circulars, terms and conditions related to the CoronApp, Medellín Me Cuida, Bogotá Cuidadora, and Valle Corona apps were reviewed, along with the alternative measures rolled out to manage the

pandemic at the national level, in the cities of Bogotá and Medellín, and in the Department of Valle del Cauca. The goal was to understand the existing rules and regulations, their ambiguities or lack of clarity, the allocation of functions to national and local entities, and the effects associated with these regulations.

Third, to conduct a press analysis, a search was carried out in national and local media for reports on the implementation of CoronApp, Medellín Me Cuida, Bogotá Cuidadora, Valle Corona, and Cali Valle Corona. Our goal was to understand the reasons that led to the deployment of these apps, their features and functionalities, and the main problems, concerns, or consequences that they generated for the public. In particular, we focused on their effects on vulnerable communities.

Fourth, semi-structured interviews were conducted with two public health experts in order to understand the advantages, topics to be reassessed, and disadvantages exhibited by these apps, their deployment, and their use in the Colombian context from a public health perspective. Additionally, an interview was conducted with an academic expert working on data analysis for contagion management. Likewise, the digital security and privacy laboratory of Fundación Karisma (K + Lab) made a technical analysis of the CoronApp, Medellín Me Cuida and Valle Corona apps, and analyzed some of the permits and characteristics of these applications (Castellanos et al., 2020; Labarthe et al., 2020).

Finally, twelve information requests made by Fundación Karisma to national and local authorities in Bogotá, Medellín, Cali and Valle del Cauca were analyzed. These entities are responsible for operating and deploying the apps, or exercising control over them. The goal of these requests and the analysis of their responses was to correct information gaps that were found after the previous analysis exercises. The entities addressed in those requests were: the Superintendency of Industry and Commerce; the Delegate Attorney for the Defense of Public Heritage, Transparency and Integrity; the National Institute of Health; the National Digital Agency; the Mayor's Office of Bogotá and Medellín, and the government of Valle del Cauca.

Pillar I. Effectiveness of the applications from a public health perspective

1. The applications and their functionalities

1.1 Applications

For this research, we analyzed CoronApp, which is the only national app, and three regional apps: Valle Corona App (Government of Valle del Cauca), Medellín Me Cuida (the Mayor's Office of Medellín), and Bogotá Cuidadora (Mayor's Office of Bogotá).

1.2 Functionalities

Functionality	CoronApp Colombia	Medellín MeCuida Vencer es Posible	Valle Corona #UnidosContraCovid19	BOGOTÁ Cuidadora
Self-reporting of symptoms	X	X	X	X
Digital contact tracing	X			
Analysis of movement patterns and crowded spaces	X	X	X	
Mobility passports	X	X	X	X
Location-based alerts		X	X	X

Functionality	CoronApp Colombia	Medellín MeCuida Vencer es Posible	Valle Corona #UnidosContraCovid19	BOGOTÁ Cuidadora
Quarantine monitoring and control		X	X	X
Communication channel			X	X
Telemedicine			X	
Allocation of operating permits to companies, educational institutions, and businesses		X		X
Allocation of social assistance		X		X
Identity authentication		X	X	
Application for volunteer work		X	X	

Source: Compiled by the authors based on documentary analysis

The apps that we analyzed share the following functions related to public health surveillance:

1. Self-reporting of symptoms and risk profiles
2. Analysis of movement patterns
3. Digital contact tracing
4. Mobility passports

Self-reporting of symptoms and risk profiles

All the apps used in Colombia have the function of reporting symptoms and risk profiles to quickly detect a probable case of Covid-19 from the information generated by citizens. Based on these symptoms, a risk profile is constructed that determines the probability that a person is infected with the virus. Based on this profile, the case can be confirmed by conducting a Covid-19 test, followed by isolating the person to avoid spread (Budd et al., 2020).

Analysis of movement patterns and gatherings

The main apps developed in Colombia can georeference possible cases of infection. In CoronApp Colombia and Valle Corona, the devices collect geolocation data through GPS and Wi-Fi networks. In the case of Medellín Me Cuida, the Mayor's Office collects movement data through third-party reports including companies, businesses, and educational institutions. The justification for collecting and analyzing these data is that health system stakeholders can determine possible sources of infection in public spaces and take measures to contain them.

Digital contact tracing

In Colombia, the only official app that currently has a digital contact tracing system is CoronApp Colombia. In April, the Government of Valle del Cauca tried to implement a digital contact tracing system with the Valle Corona App but quickly removed it.

Digital contact tracing is a system that allows entities to automate the contact tracing process with such scale and speed that it cannot be compared to manual tracing. However, these types of systems had never been used on this scale and with this purpose. Therefore, there is little data on its effectiveness and its use has generated strong criticism regarding the violation of the right to privacy (Budd et al., 2020).

Mobility passports

Through the immunity passport functionality, people can prove to the authorities that they are authorized to move around the city, use a public transportation system, or enter public places.

Some of the conditions that the application managers have included are: to provide an updated symptom report and to have a symptom report that implies a low risk of being infected with Covid-19 (CoronApp Colombia and Valle Corona), being registered as a user performing an activity exempt from quarantine measures (CoronApp Colombia, Valle Corona, Medellín Me Cuida and Bogotá Cuidadora), not being a confirmed case of Covid-19 (Valle Corona), or being a user of the platforms (Medellín Me Cuida, CoronApp Colombia and Valle Corona).

2. The epidemiological surveillance system in Colombia

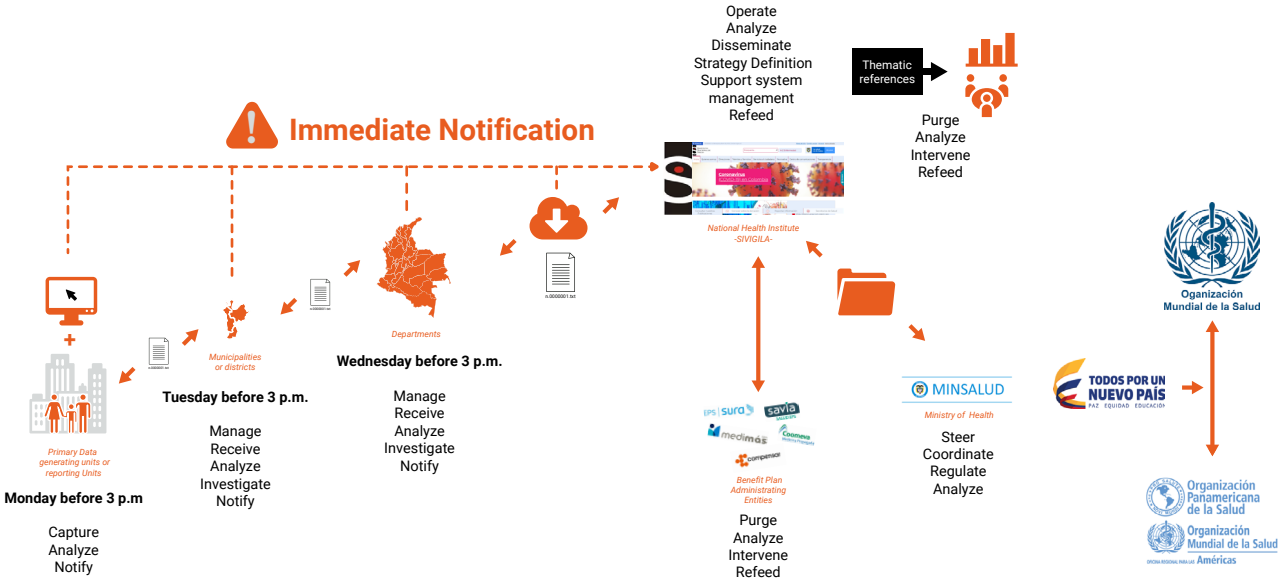
2.1 Health system information platforms

The institution in charge of epidemiological surveillance in Colombia is the National Institute of Health (NIH). To address the 2020 Covid-19 pandemic, the NIH added the disease to the consolidated public health surveillance system for acute respiratory infections (INS, 2020c). Therefore, health authorities responded by using the existing capabilities of the NIH, which included collaboration with all stakeholders in the health system.

Before the onset of the pandemic, the NIH already had a data-gathering system for epidemiological surveillance: the National Public Health Surveillance System (SIVIGILA). And with the onset of the Covid-19 pandemic, a system called the National Registry of Patients and Results (SISMUESTRAS) was implemented. On the one hand, SIVIGILA is the system that provides information on public health events in Colombia and helps the different health system stakeholders respond to these events. On the other hand, SISMUESTRAS only registers the test results of confirmed cases of Covid-19 (INS, 2020c).

Information gathering for the epidemiological surveillance system begins with data collection by the Primary Data Generating Units (UPGD) or the Reporting Units (UI), which are the health service providers that collect the patient's data on the specific event that occurs. The municipalities or districts receive this information and then it is sent to the departments. Finally, the NIH consolidates and analyzes these data through SIVIGILA and then provides feedback to the municipal or departmental entities (INS, 2020b).

Figure 1: Information flow between public health surveillance system stakeholders



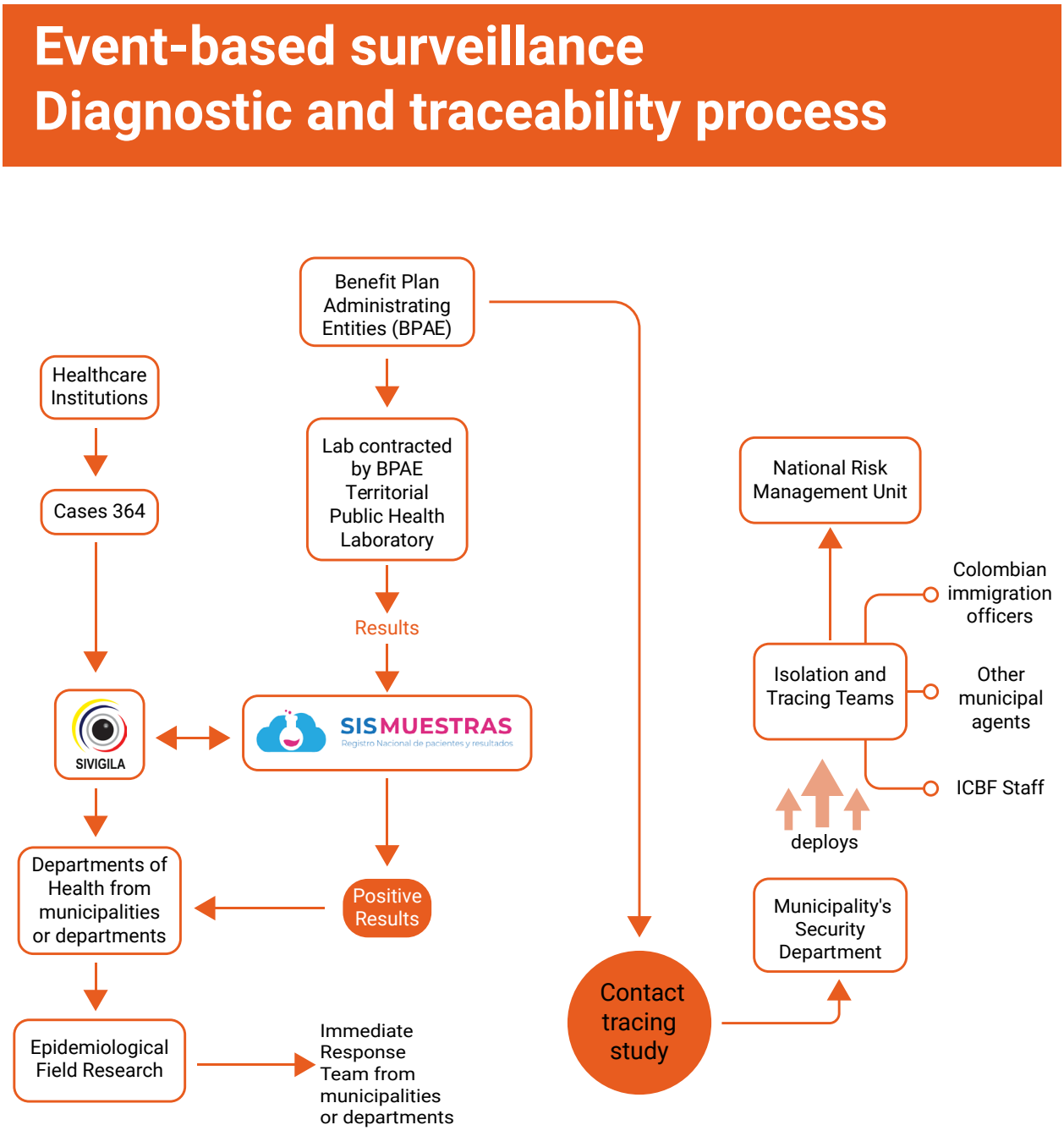
Source: (INS, 2020b, p. 22)

2.2. Public health surveillance strategy for the pandemic

The main strategy to contain the pandemic is event-based surveillance that collects and analyzes unstructured data and multiple data sources related to a public health event (WHO, 2014, p. 13). This type of surveillance is mandatory and includes passive surveillance carried out by healthcare providers when people seek medical attention and active surveillance, which uses field epidemiological investigation teams to carry out contact tracing of confirmed Covid-19 cases (INS, 2020c).

Contact tracing in Colombia is a mainly manual process that uses report cards (Cod. 346) to collect personal data necessary for contact tracing, such as the date of onset of symptoms, events such as consultation, hospitalization or death, address, possible contacts and location of reported contacts. Field research teams carry out the tracing, fill out the form manually and deliver it to the UIs or UPGDs so that they can digitize the data and begin the process of consolidation, analysis, and health system response (INS, 2020c, p. 11).

Figure 2: Covid-19 event-based surveillance model



Source: (INS, 2020c, p. 11)

However, due to the speed of transmission of Covid-19, the strategy also included a so-called digital contact tracing system, which uses a team of trained people who interview people – either by using a digital channel or by a telephone call – and collect the information required in form 346, including the telephone numbers of possible contacts to continue the study of contact chains (INS, 2020i, p. 22). This system, parallel to manual tracing, works in the same way as other public health surveillance events and is how data are consolidated from the local level to the national level using the SIVIGILA system.

3. The lack of connection between the applications and the health system

3.1 Disconnect between applications and the public health response

3.1.1 CoronApp Colombia

The history of the official app used by Colombia's national government to deal with Covid-19 is a clear example of the disconnect between the health system and this type of technological innovation. The app appeared long before the emergence of Covid-19 with the name "Guardianes de la Salud" to "reinforce the vigilance of possible health risks in mass influx events" during the Pope's visit to Colombia (INS, 2017). The app was an adaptation of a development made by the Brazilian Ministry of Health and the Skoll Foundation for the 2016 Olympic Games in Rio de Janeiro. The app had the main functionality of "monitoring the symptoms" of the people who attended these massive events to determine possible public health warning signs. The results of its implementation were 936 reports, none of which was a case of a public health event (Osorio-Arango et al., 2017).

On March 6, 2020, in the midst of the Covid-19 pandemic, the NIH published a new version of Guardianes de la Salud" renamed "CoronApp" that maintained the characteristics of the original design by monitoring other diseases and collecting data that were no longer useful. That same day, the NIH signed a memorandum of understanding with the National Digital Agency (NDA), an entity administered by the Ministry of Information Technologies, for the "continuous improvement" of the CoronApp application (AND, 2020b). On

March 10, the NIH delivered to the NDA the source code of the app, the credentials to the application stores, and the management permissions of CoronApp information (AND & INS, 2020). Since then, the NDA has coordinated the application and development of new functionalities according to the "requests made by the NIH and the national government" (AND, 2020a, p. 5).

With the change of administration, the app changed definitively due to the requirements of the President's office team. The first change was to the logo and graphic design of the application to match with the presidency's graphic identity (Figure 3). At a technical level, at the beginning of April, the app went from requiring 9 permissions to 19, including access to the exact geolocation, contacts, Bluetooth, available Wi-Fi networks, alerts, and calls (Labarthe et al., 2020: Velasquez et al., 2020). These permissions were included due to the arrival of new functionalities such as georeferencing, digital contact tracing, the mobility passport feature, and contact channels with the authorities. Likewise, the NDA and the NIH began to develop new functionalities inspired by comparisons with the applications of other countries such as Singapore, South Korea, and the United States (Consejo presidencial para la innovación y la transformación digital, 2020).

Figure 3: CoronApp Colombia interface design of the NIH version (left) and the NDA version (right)

Source: Screenshots of the applications taken by the authors

Despite these new features, the regulatory and logistical developments to make these functionalities useful did not arrive until months later. Decree 614 of 2020 issued by the Ministry of ICT included CoronApp as the official application for reporting information on Covid-19. This regulation was drawn up by the government's technology sector, not by the public health sector, and was based on this Ministry's function of adopting measures for the so-called "digital transformation of the state" (Decreto 614, 2020). On May 5, 2020, the first version of the Data Treatment Policy was issued, including new functions for the app, which went from being a reporting and communication channel, as described in Decree 614, to a digital contact tracing, digital passport, and individual georeferencing application (INS, 2020h).

CoronApp was not included in the public health surveillance protocols issued by the NIH until July 23, 2020, when it was presented as a tool of "innovative surveillance" that is not mandatory or part of event-based surveillance procedures (INS, 2020c). However, far from what the government was expecting, the NIH implemented CoronApp with a single symptom reporting function and as an additional "layer" of data to locate the areas of possible outbreaks to administer tests. Thus, the app became part of the participatory surveillance strategies in which citizens voluntarily help to collect relevant data for public health surveillance. Likewise, the reporting of data and use by health stakeholders is not mandatory (INS, 2020c).

Including CoronApp in the NIH public health surveillance protocols did not mean that the app's data were part of the country's public health response. According to the reported symptoms, the app creates a risk profile for the user. If the user has many symptoms related to Covid-19, it generates an alert that the NIH receives. According to the public health surveillance protocol, this alert must be cross-checked with SIVIGILA's data to determine whether the person is already in the system and if they have already received medical attention. Alerts that do not appear in SIVIGILA's records are transmitted to reporting units at the departmental or district level. Then, this alert should be transmitted to the municipal authorities or healthcare providers (INS, 2020c, p. 49). The information reported in CoronApp also goes through a prior analysis by the NDA to generate three dashboards on the geographical control of the symptom reports, the control of alerts, and control of the registered person (AND, 2020a, p. 9).

As this shows, the gap between alert reporting and the public health response is pronounced. The first fact behind this gap is that the CoronApp strategy works contrary to the public health surveillance strategy used by the NIH. This problem not only concerns alerts but all the information that the NIH obtains for public health surveillance from CoronApp. It is not part of the strategy to send this to municipal entities and some never received their data (Z. Cucunubá, personal communication, 2020; Secretaría de Salud de Medellín, 2020b, p. 4). The second reason is that the CoronApp design introduces the NDA as a new and alien

stakeholder in the already established public health surveillance system. The third reason is that the app's design and the amount of data it collects do not take into account the infrastructure and personnel capacity of the territorial entities (Z. Cucunubá, personal communication, 2020). This fact may explain why only 22% of the thousands of alerts issued by the app between June and September were monitored (INS, 2020a) and just 61,059 users that tested positive have used the symptoms reporting system (INS, 2020j).

What the health system needed: CoronApp Medicos

Unlike CoronApp Colombia, the CoronApp Medicos application requested by the NIH and developed by the NDA had a better impact and less interference from the government sector in charge of technology policies. As the epidemiologist Zulma Cucunubá mentioned, most of the contact tracing is done manually with a form (code 346) filled out so a data entry clerk in the reporting unit can transcribe the data afterwards: it is then consolidated in SIVIGILA. Since contact reporting by this method takes valuable time, the NIH requested the development of an app to replace form 346. Only health professionals authorized by a Primary Data Generating Unit to carry out contact tracing can use the app. Some advantages of CoronApp Medicos are that it is a web app so it does not require installation and does not have operating system restrictions. In addition, it works without an internet connection and uploads the data as soon as the device connects to the internet (INS & SIVIGILA, 2020).

Despite urgency being the main reason for the rapid implementation and addition of functionalities in CoronApp Colombia, CoronApp Medicos was only implemented in July 2020. In August 2020, with the end of the quarantine, the Ministry of Health created the Sustainable Selective Testing, Tracing and Isolation Program (PRASS, in Spanish) to track Covid-19 cases and contacts as a mandatory strategy to slow down the spread of Covid-19 and break the transmission chains (Decreto 1109, 2020). The decree left the CoronApp Colombia app out of the PRASS, but assigned a role in the active search for Covid-19 cases to CoronApp Medicos or "CoronApp Pro" as the regulation calls it (Decreto 1109, 2020, para. 1, art. 6). Thus, a more adequate application to modernize epidemiological surveillance did not arrive until months after the start of the pandemic, while the technology initiative enthusiastically promoted by the Presidency and some sectors of the government was left outside the health system and without functions related to stakeholders in the consolidated public health surveillance system.

3.1.2. Valle Corona App

Development by the private technology sector

Valle Corona App was implemented by the Department of Valle del Cauca at the end of March, as a joint strategy between the private sector and its ICT Department. The app was developed by a local cloud services company called Help People SA and was delivered free of charge to the Government of Valle del Cauca (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020). In fact, Help People was left in charge of data processing for all the personal information collected by Valle Corona App for the Government of Valle del Cauca (Secretaría de Tecnologías de la Información y las Comunicaciones de la Gobernación del Valle del Cauca, 2020, p. 6). In that sense, the app was not designed considering the needs and capacities of the health system, but rather the logics of private stakeholders who had never worked in the health sector.

Once the company had delivered the app to the Government of Valle del Cauca, the new functionalities continued to be developed by Help People (Cámara de Comercio de Cali, 2020) regardless of whether they were consistent with the department's epidemiological surveillance strategy or whether the government had the capacity to use them. Likewise, this app was promoted by a Public-Private Committee of Health Experts convened by the Government of Valle del Cauca (COPESA). It is worth noting that the director of this Committee was Dilian Francisca Toro, former governor of Valle del Cauca and political ally of the current governor (Gobernación del Valle del Cauca, 2020b). Furthermore, the announcements related to the app and its functionalities were not made through official government channels but rather were disseminated through the communication networks of the former governor.

The lack of connection between the technology sector and public health

Despite the fact that Help People and the Government of Valle del Cauca developed several functionalities for the app, its main function in terms of public health surveillance is to monitor positive cases of Covid-19. However, the data collected and the design of this function do not seem to respond to the interests of the Department of Health of Valle del Cauca, but rather to the technological enthusiasm of the local ICT Department.

The government asks people who have confirmed Covid-19 to install the Valle Corona app to collect data on their geolocation and physical activities. These data are used to monitor compliance with the mandatory quarantine of positive cases (Secretaría de Tecnologías de la Información y las Comunicaciones de la Gobernación del Valle del Cauca, 2020) through a system called "geofence" built by the ICT Department. This system verifies compliance

with the quarantine by creating a 50-meter geographic delimitation around the person's residence (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020).

The development of the "geofence" functionality did not have significant support from the department's health sector but was instead a technological solution based on the regulations issued by the national government that requested the mandatory isolation of positive cases of Covid-19 (Departamento de TIC de la Gobernación del Valle del Cauca, 2020a, pp. 12–13). According to the Department of Health of Valle del Cauca (2020), for public health surveillance they "exclusively" use the official sources of case reports determined by health authorities at the national level, which include SIVIGILA, SISMUESTRAS, and SEGCOVID (pp. 1-2). Likewise, the Ministry of Health only delivers the database of confirmed cases extracted from SISMUESTRAS to the ICT Department which is in charge of creating the "geofences" and updating the information in Valle Corona app's database, which is then shared with the municipalities in Valle del Cauca (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020, p. 3). Response actions in cases of non-compliance with quarantine after the report of the ICT Department are the responsibility of each municipality (Secretaría de Salud del Valle del Cauca, 2020a, p. 4).

In addition, the development of the app and its functionalities responded to the logics of the private sector headed by an important political figure in the region. The lack of connection between this technological development and the health sector became evident with the procedures used to manage the Valle Corona database by the ICT Department. The Department of Health only delivered the list of positive cases, and the development of functionalities to limit the mobility of these people was left to the ICT Department and the company Help People. Among these functionalities was the use of the app to verify that confirmed Covid-19 cases did not move more than 50 meters from their residence and if they refused to comply with this order, a report was sent to the police and municipalities.

3.2. The problems of coordination between national and local authorities

3.2.1. Many applications and little utility

Despite the fact that the Colombian government had adopted CoronApp Colombia as the "only official application" for reporting information about Covid-19 (Decreto 614, 2020), the lack of inter-institutional coordination and flaws in the design of the strategy behind the app led to the emergence of local government apps. In a documentary analysis, we found 11 apps used by local governments that do not have interoperability with CoronApp and are not systematically integrated with the health surveillance model (Table 2). This count did not include the apps used by other actors such as Occupational Risk Insurers (ARLs), Health Promotion Entities (EPS), Health Provider Institutions (IPS), and businesses required by the national government to generate health reports on their employees. In fact, local government apps are used in four of the five most populous cities in Colombia (Bogotá, Medellín, Cali, and Cartagena). For this reason, the diversity of apps and the number of people living in cities or departments using their own apps has a direct impact on the effectiveness of CoronApp and its symptom reporting function.

Table 2: Local government applications in Colombia

Territorial entity	Application
The Mayor's Office of Bogotá	Bogotá Cuidadora / GABO APP
Government of Boyacá	COVID 19 Boyacá
Government of Caldas	Esperanzapp
The Mayor's Office of Cartagena	Cuidémonos App
Government of Casanare	CoronApp Casanare
The Mayor's Office of Medellín	Medellín Me Cuida
The Mayor's Office of Montería	Montería-Covid-19
Government of Risaralda	Esperanzapp
The Mayor's Office of San Gil	Medisan
Government of Valle del Cauca	Valle Corona / Ruta de la Vida
The Mayor's Office of Valledupar	Salud en orden

Source: Compiled by the authors based on documentary analysis

The reasons for this lack of inter-institutional coordination include flaws in the design of the app and Colombia's epidemiological surveillance model, political differences between local governments and the national government, and the failure to respond to the needs of local governments.

Despite the fact that CoronApp had been announced as "the official data reporting application" for the Covid-19 pandemic by the Ministry of ICT (Decreto 614, 2020), local authorities interpreted the regulation differently based on their constitutional autonomy and the decentralized design of the Colombian public health system. In this case, the national government, instead of establishing a dialogue with local authorities and analyzing the needs of their territories and their public health authorities, tried to establish CoronApp as the national app through the ability of the Ministry of ICT to define technological standards. Moreover, the Ministry of ICT used its capabilities to establish zero-rating[1] apps, to offer incentives for connectivity and to promote the app in multiple media outlets.

One example of this lack of coordination is the Valle del Cauca case. According to the Government of Valle del Cauca, local governments have the administrative autonomy to "satisfy their own needs" (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020, p. 6) and, therefore, they can take their own measures for the preservation of public health. Similarly, this department's government (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020) saw Decree 614 as an incentive to "take advantage of all kinds of data" to "preserve the health and lives of the inhabitants", but according to their interpretation it was not mandatory to use the app designated by the national government for these purposes. Likewise, the Government of Valle del Cauca interpreted the phrase "CoronApp, or the one that takes its place, is the only official mobile application" as a possibility for each territorial entity to create its official mobile app (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020, p. 7). Beyond the legal perspective of this interpretation, what this dispute between the local government and the national government shows was the lack of dialogue and coordination to turn CoronApp into a source of data that could work throughout the country.

For example, Bogotá Mayor's Office integrated the functionality of symptoms reporting into the Bogotá Cuidadora app, which originally sought to "provide information about the social support provided by the Mayor's Office to mitigate the effects of the health emergency"

1. Zero rating is the practice, authorized by the regulator, of mobile network operators not charging for certain data depending on its source or content. In Colombia they are allowed to offer data plans including access to services such as WhatsApp, Facebook or Waze for free.

(2020, p. 2). According to the government of Bogotá, the reporting functionality allowed the local Health Department to manage and receive reports directly "and in real-time by the responsible entity with the benefits that this entails for a more timely reaction" (Alcaldía de Bogotá, 2020, p. 2). Likewise, according to the Medellín Mayor's Office (2020b), until the end of November they had not received any CoronApp alerts, so they are using the alert system of their Medellín Me Cuida app.

Apart from the lack of inter-institutional coordination to adopt CoronApp and receive alerts from it, the different apps to collect information are not interoperable with each other, so neither local nor national health authorities can use the collected data (Alcaldía de Bogotá, 2020; INS, 2020e; Secretaría de Tecnologías de la Información y las Comunicaciones, 2020; Subsecretaría de tecnología y gestión de la información, 2020).

Another limitation is that the information that citizens provide on the different local platforms is not integrated into SIVIGILA. This shows a disconnection between the national and local levels and that the data collected by the national government apps do not have any impact on the decisions taken by the local authorities, and the data collected by the local apps are not used in Colombia's national epidemiological strategy.

This lack of interoperability and integration with the health system compromises the effectiveness of these applications as complementary tools in public health surveillance. These technologies cannot work in isolation without being integrated into existing public health systems (Budd et al., 2020). Furthermore, design problems and a lack of coordination between entities at the local and national level generated fragmented responses with multiple reporting systems in the same country.

3.2.2 Medellín Me Cuida

When the lockdown was decreed by the national government (Decreto 457, 2020), the Mayor of Medellín presented Medellín Me Cuida "Familias", a web application whose main objective was profiling families in the city to assign social benefits and thus guarantee the subsistence of families in a vulnerable situation (Alcaldía de Medellín, 2020c). The app collected data on health, housing, geolocation, profession, and socioeconomic status to identify these families, in the health section the app collected information that was also collected by CoronApp, including a symptoms and comorbidities report. In addition, the app used the contract number of the Medellín Public Services Company to locate each family unit. The design of this system was not compatible with that of CoronApp and the collected data was not sent to the NIH to be included in SIVIGILA (Subsecretaría de tecnología y gestión de la información, 2020, p. 19).

The design of Medellín Me Cuida ignored the functionality of reporting symptoms and comorbidities of CoronApp developed by the NIH. This lack of coordination is explained by the design problems affecting CoronApp, and also by political differences with the national government and the technological perspective of the Mayor's Office. Daniel Quintero, current Mayor of Medellín, was the Vice-Minister of Information Technologies in the previous government. From his perspective, the pandemic presented an opportunity to implement a "specific approach and show the conviction that the current local government has, which is its commitment to technology as a means to solve major city problems and public challenges" (Secretaría de Salud de Medellín, 2020c, p. 2). Furthermore, the Mayor of Medellín ran as a candidate in opposition to the Centro Democrático party that currently controls the national government and the majority of the Congress (La Silla Vacía, 2020). Therefore, the local administration had political motives to depart from the national government's measures and tools while maintaining the enthusiastic view of technology that the mayor has championed since his tenure in the ICT Ministry.

After the implementation of Medellín Me Cuida "Familias", the local administration decided to create a second form to collect data on companies and their employees to process mobility permits (Alcaldía de Medellín, 2020a). The Medellín Me Cuida app became a data system that included a mobility passport function in which the people who were allowed to move around the city during mandatory lockdowns were those who had registered in the family section, reported their symptoms, and had been registered by a formal business with permission to operate.

With the reopening of business establishments, the Medellín Mayor's Office created a specific platform to collect data on biosafety protocols of each business, their visitors, and their status within the system. Once Medellín Me Cuida was modified to become a data system, the local administration began to use it for public health surveillance without providing feedback to the NIH on the data collected through the platform, and without coordinating with the national application CoronApp (INS, 2020e; Subsecretaría de tecnología y gestión de la información, 2020).

To carry out the epidemiological surveillance, the Mayor's Office of Medellín cross-checked all the system's data to monitor the movement patterns of people from a family unit, employees, and consumers. To achieve this, SISMUESTRAS and SIVIGILA systems were used to search for positive cases of Covid-19 and locate them in a family, a neighborhood, and a company. Following this analysis, actions were taken such as closing companies for 14 days and introducing epidemiological fences in some neighborhoods (Secretaría de Salud de Medellín, 2020a, p. 2; Subsecretaría de tecnología y gestión de la información, 2020, pp. 6–7).

The Medellín Me Cuida system was designed as an initiative to allocate social benefits but ended up including a symptom reporting function that was not related to this objective and that did not interoperate with the NIH CoronApp application. By creating a system that includes data from more than 3.4 million people living in Medellín and nearby municipalities (Subsecretaría de tecnología y gestión de la información, 2020, p. 1), the Department of Health used it to geolocate confirmed cases and determine their relationship with other cases in the area or inside the person's workplace in order to take quarantine measures.

3.3 Technological promises without clear objectives

3.3.1 The disconnect between functionalities in CoronApp and epidemiological surveillance

When the NIH implemented CoronApp, the application was conceived as a way to complement epidemiological surveillance with the voluntary contribution of data from citizens about their symptoms. However, the intervention of the President's office and the technology sector on the application led to an explosion of functionalities and technical experiments that were not related to public health surveillance actions. The two main added functionalities were the mobility passport and digital contact tracing.

The mobility passport was a functionality included by the NDA to certify the mobility authorizations of people involved in jobs or duties exempted by the quarantine decrees. To achieve this, the app collected data on the types of activities that people carried out on a daily basis and the symptoms report to generate a QR code that informed any authority that could require it about the exemption that covered that person moving around the city and their level of risk of being infected with Covid-19 according to their symptom report.

When the lockdown ended, the government implemented the mobility passport function in the biosafety protocols for national and international flights. Even though the regulation states that it "recommends" the use of CoronApp, the government advertises the app as mandatory (Botero, 2020). For this reason, in October 2020, 65% of the people reporting symptoms were forced by the authorities to download the app in order to board a flight. While only 17% of the 1.8 million active users of the app reported symptoms (AND, 2020c), these people faced the possibility of not being allowed to travel due to symptoms related to Covid-19. Indeed, the mobility status feature did not have any function within the public health surveillance system, but instead, it fell within the system for verifying compliance with quarantine measures by police authorities.

The case of the digital contact tracing functionality is another example of the disconnect between public health authorities and the government's technology sector. The enthusiasm

of the Presidency and the Ministry of ICT led Colombia to quickly implement a digital contact tracing system in the app from its version 1.30 on March 27, 2020 (Velasquez & Fundación Karisma, 2020). The application began to use a system patented by the Portuguese company Hyperlabs. However, this system was discontinued only days later as it began to generate errors including problems with iPhone devices and unnecessary alerts that did not represent contact events (Dave & Nellis, 2020). Therefore, the government decided to integrate the decentralized solution offered by Google and Apple (Dave & Nellis, 2020; Velasquez & Fundación Karisma, 2020)., but it prove unavailable, so the government implemented the BlueTrace protocol used in Singapore. According to the Presidency's Department of Digital Transformation (2020), "the Google-Apple technology was not available for use, so they had to act with diligence to prevent and save lives as promptly as possible" (p. 4).

Despite the urgency, that was used as a justification for the inclusion of this digital contact tracing functionality, the director of the NIH reported in a debate in the National Congress on June 16, 2020 that the NIH did not have access to the data from the digital contact tracing functionality. On the other hand, the Presidency's Department of Digital Transformation (2020) reported in June that the function was already "implemented in CoronApp and is one more strategy to break the chains of contagion" (p. 11). In November 2020, the NDA (2020a) reported that the functionality is working but had been in trial runs since May and the data are managed by the NIH. At the same time, the NIH reported that the functionality was "out of production" because of its "low authorization among users" and "low effectiveness" in trials (INS, 2020j). Therefore, the NIH stated that the functionality "has not been and is not being managed or used by the NIH" (INS, 2020j, p. 2). Again, there is a disconnect between the government tech sector's enthusiasm about high tech solutions and the health sector's focus on established forms of epidemiological surveillance.

The situation of CoronApp and the data collected from multiple functionalities reveal the problem of transparency and clarity about the purpose of this information. The application, pushed by the NDA and the Presidency, is collecting a huge amount of personal data arguing that it is needed to "save lives" but the institutions in charge of the public health response do not receive this information. Thus, there is no transparency about the use of that data and it appears the NDA is collecting data about the contacts of the users of CoronApp without a public health objective.

3.3.2. Valle Corona App

The application with the most functionalities and broad objectives is Valle Corona. The objective of the app is "to contribute to the public authorities' efforts to protect and safeguard an essential interest for people's lives" (Gobernación del Valle del Cauca, 2020a, p. 1). Thus, the app was provided for any authority to collect and exploit any type of data when considered necessary to "protect lives".

Initially, Valle Corona App had the functionality of self-reporting of symptoms similar to that of CoronApp Colombia. This resulted in a risk profile that could be used to allow a person to move around or enter a certain location (Secretaría de Tecnologías de la Información y las Comunicaciones de la Gobernación del Valle del Cauca, 2020). With the consolidation of the full lockdown, the app was enhanced with several functionalities such as mobility permit control, volunteer applications, digital contact tracing, alerts about areas with confirmed Covid-19 cases, and telemedicine and psychological assistance (Secretaría de Tecnologías de la Información y las Comunicaciones de la Gobernación del Valle del Cauca, 2020). By November 2020, the app had withdrawn the functionalities of mobility permits, volunteering, the digital tracing of contacts known as "Route of Life", and the alerts regarding areas with positive cases known as "Bubble of Life".

"Route of Life" is an independent application developed by the LidaRit company that used a device's GPS to collect data on a person's movements and analyze their contacts during the previous 14 days. Based on the symptoms report functionality, the person's contacts were reconstructed and alerted about possible infection. In this case, the Government of Valle del Cauca tried to implement a centralized digital contact tracing model where the databases of people's movements were stored and analyzed by a private company (Gobernación del Valle del Cauca, 2020c). This application was only promoted for a few days in April by the Government and COPESA. In an update released on May 5, the Route of Life application included its own symptom reporting system and began promoting itself to companies (Ruta de Vida Website).

Valle Corona's functionalities were developed by a technology company and promoted by a public-private committee. The two technological tools supported by the Government of Valle del Cauca proved to be open opportunities to conduct experiments with people's lives, which ended up consolidating the interests of the companies that developed them. For example, Help People ended up managing and analyzing the data from Valle Corona, and LidaRit, with the endorsement of the Government of Valle del Cauca, began to offer its services to companies. Thus, functionalities and interconnections with other apps were promoted as "experiments" by private individuals with no experience in public health.

Pillar II. Applications and the deviation of functionalities to enforce social control

1. Limitations on fundamental rights

Two declarations of state of emergency were issued by the President in 2020 to tackle the Covid-19 crisis. Once the state of emergency is declared following the requirements set out in the Constitution, the President can issue decrees that have the same hierarchy as laws, and they should be used only to take measures against the crisis that produced the state of emergency. More than 100 decrees were issued during the state of emergency (Corte Constitucional de Colombia, 2020). The Constitutional Court reviews both the initial declaration and any decrees issued by the President under the emergency (Constitución Política de Colombia, 1991, art. 215).

In spite of the number of decrees, national lockdowns were imposed by ordinary decrees based on the President's prerogatives to preserve public order (Ley 1801, 2016, art. 199; Constitución Política de Colombia, 1991, art. 189-4, 303, 315). The first national lockdown order echoed the already established restrictions on movement introduced in cities such as Bogotá and Cúcuta, or whole regions such as Norte de Santander, Valle del Cauca and Antioquia (Decreto 457, 2020). Both the first order and subsequent presidential lockdown orders asserted that no fundamental right is absolute, and that public order is also a citizen right that must be protected, thus locating their legitimacy in police powers granted by the Constitution and the law instead of the response to the pandemic. In other words, lockdowns were presented as police measures instead of public health strategies. They were also imposed by decrees that were not legally related to the emergency declaration, which meant that they escaped review by the Constitutional Court.

The impact of the framing of lockdown measures as a matter of public order is thoroughly explored in Pillar III when we present cases of police violence, pervasive surveillance, militarization and stigmatization of communities.

The core measures established by the lockdown decrees were the limitation of the right to free movement, except for a complex list of activities to be carried out by people with the proper authorization[2], and the closure of national borders and air space for domestic flights. The national lockdown measures remained in place from March 22 to September 1, although they were lifted for a few days in late May and July.

National and local authorities issued a series of decrees and resolutions to implement measures with the aim of contributing to mitigating, preventing, and slowing down the spread of the virus. Although these measures were implemented at different times and scales, they could be classified into six large groups: limitations on privacy, restriction of events, establishment and enforcement of biosafety protocols, enhancement of police functions[3] establishment of public health guidelines, and restriction of movement throughout the country. Other measures imposed at the local level included a mandatory lockdown for the elderly, the closure of markets and non-essential businesses, the cancellation of public events, sectoral lockdowns and curfews at night and weekends, and shopping being limited to one person per family (SISCOVID, 2020b). While each of these groups of measures is described below, particular emphasis is placed on measures aimed at limiting movement and privacy.

Biosafety protocols were implemented and aimed at the entire population once the state of emergency was declared. These protocols, established by the Ministry of Health and Social Protection, consist of regular hand washing, social distancing, disinfection of surfaces, and the implementation of remote work, among others (Resolución 666, 2020). The entire country decreed the immediate restriction of all kinds of events that might involve the agglomeration of large groups of people in one place. Therefore, not only were several spaces and activities like cinemas, theater shows or religious activities prohibited but non-essential commercial activities were also restricted (Decreto 081, 2020; Decreto 169, 2020; Decreto 207, 2020; Decreto 420, 2020; Decreto 990, 2020). Subsequently, through a series of decrees, the police were put in charge of verifying compliance with these measures and protocols and given the authority to impose the corresponding sanctions on offenders[4].

The right to free movement was the first to be restricted. At the national level, this was enforced through mandatory isolation (Decreto 457, 2020; Decreto 531, 2020; Decreto 593, 2020; Decreto 636, 2020; Decreto 689, 2020; Decreto 749, 2020; Decreto 878, 2020;

2. For example, see Decree 457, "Paragraph 1. The people who carry out the aforementioned activities must be accredited and identified in the exercise of their functions."

3. Although the new functions assigned to police are mentioned here, these will be discussed in Section III point 2, "The securitization of health and the new functions of the Police".

4. For a more detailed overview of this situation, see Section III point 2

Decreto 990, 2020; Decreto 1076, 2020), while at the local level this was supported and complemented by selective isolations – according to sources of contagion or age group[5] – in cities such as Bogotá (Decreto 121, 2020; Decreto 169, 2020; Decreto 189, 2020) and Medellín (Decreto 0706, 2020). Despite lasting a long time, these restrictions became more flexible over the months to allow the movement of people to obtain supplies and for financial, legal or medical procedures, among others. In Bogotá, for example, a schedule for people to leave their houses based on their gender (Pico y género)[6] was decreed (Decreto 106, 2020), which was later replaced by a measure adopted in Medellín and some cities of Valle del Cauca: a schedule based on the last digit of the person's ID number (Pico y cédula) (Decreto 169, 2020; Decreto No. 4112.010.20.1304 de 2020, 2020; Decreto 0544, 2020)[7].

Later on, Decree 749 of 2020 established new exemptions so that people could leave their homes. However, as these exemptions were intended for certain economic sectors and their employees, movement authorization processes related to work were developed at the local level in these sectors. Therefore, in order to carry out productive activities in Bogotá and Medellín, it was necessary to be registered in Bogotá Cuidadora or in GABO App[8] (Decreto 131, 2020)[9] and Medellín Me Cuida (Alcaldía de Medellín, 2020a; Decreto 0573, 2020; Decreto 0596, 2020), respectively. With prior authorization from the local authority, these applications issued a permit that allowed the person free transit through the city on days other than those already assigned by the special schedule based on ID numbers (Pico y cédula).

5. The isolation by age group was ordered by the national government following the recommendation of the Ministry of Health and Social Protection. Thus, for example, the national orders that mandated the isolation of people over 60 or 70 years old were Resolution 464, 2020; Resolution 470, 2020; and Resolution 844, 2020; while the one which restricted the movement of children and adolescents was Decree 1076, 2020. These measures were maintained in the local lockdown decrees.

6. Despite the fact that the mayor's office highlights the success of this measure, several sources that are explored later in this report show the discrimination, violence and the denial of gender identity that the implementation of this measure in the city entailed.

7. The "pico y cédula" establishes a restricted schedule or days to go out to certain establishments and shops. It is based on whether the last digit of the ID is odd or even, or in some cities, depending on the last two digits of the ID.

8. GABO App is the Bogotá open government application. Although the platform developed specifically for the management of certain aspects caused by the Covid-19 pandemic was Bogotá Cuidadora, in many of the rules issued by the Mayor's Office of Bogotá regarding the mobility register, it is normal to find GABO App as an alternative to the register in Bogotá Cuidadora.

9. This decree, which establishes the mandatory nature of registration in GABO App or in Bogotá Cuidadora, was subsequently modified by Decree 134 of 2020 issued by the Bogotá Mayor's Office to indicate the voluntary nature of the registration.

Data protection weakened

A few days into the first national lockdown, the Superintendency of Industry and Commerce, an oversight body in charge of competition, consumers and data protection, issued an administrative order, Circular 001, in which it authorized businesses, and particularly mobile network operators, to share their clients' data with authorities. The head of the Superintendency of Industry and Commerce, an agency that includes the Data Protection Authority, asserted that the order was only established to contact beneficiaries of state aid and the only entity allowed to use the data was the National Development Office, which was in charge of the aid program (Zuluaga, 2020).

However, the administrative order's actual language does not prevent any authority from demanding client data from mobile operators and businesses. The order states first that "according to" the Data Protection Law, in a medical or public health emergency or when requested by authorities, it is not necessary to have authorization from data subjects for the collection or use of their personal data. It also states that businesses and mobile network operators are authorized to share client data with the National Development Office "and other authorities" (SIC, 2020a).

Civil society groups observed that this is a broad interpretation of the law that does not comply with standards set by the Constitutional Court (Dejusticia, 2020) since the medical or health emergency is understood to be in operation whenever data subjects are not able to consent due to the emergency. The interpretation made by the Superintendency of Industry and Commerce does fills neither the requirements of urgency and nor the ability to consent (Sentencia C-748, 2011).

There are other reasons for concern. First, the order can be interpreted loosely regarding the authorities' power to collect and use personal data without authorization since it does not impose any conditions or requirements to maintain data protection during the emergency. Second, the scope of the order goes beyond subscriber data and extends to any private entity or business responsible for personal data.

The history of abuse of surveillance powers by law enforcement and intelligence services in Colombia makes these broad authorizations all the more worrying. Since 2014, there have been frequent investigations about misuse of technical equipment for the interception of communications and usually the victims are journalists, opposition leaders, judges, and human rights activists. The current legal framework states that interception of communications can only be carried out when ordered by the National Prosecutor's Office or its

delegates and should only operate during crime investigation. The order and the evidence gathered is authorized by a judge under special procedures (Código de Procedimiento Penal Colombiano, 2004, art. 235; Constitución Política de Colombia, 1991, art. 250). Intelligence authorities are not authorized to intercept private communications. Access to subscriber data is granted for the same purposes although its practice is less restricted by the legal framework and it can be requested by the Prosecutor's Office regardless of the accusation or its importance for the investigation, and is not subject to judicial control (Castañeda, 2016). In this context, Circular 001 seems to shrink the already weak protections for subscriber data.

The broad scope of the administrative order and the lack of protection given to subscriber metadata led a coalition of civil society organizations to protest the order and demand better protections for personal data during the Covid-19 crisis (Fundación Karisma, 2020).

Another noteworthy exception to data protection measures made during the state of emergency and the pandemic potentially exposed census data that every person in Colombia is obliged by law to give. Decree 458 (2020) issued by the Ministry of Finance creates an exception to the protection of the confidential information gathered by the National Statistics Department (DANE). The current legal framework (Ley 79, 1993) obliges every individual to provide information to DANE for statistical and census purposes and protects that information by allowing DANE to share aggregated data only. Decree 458 eliminated that protection during the state of emergency (on June 4) and ordered DANE to share its information with authorities responsible for taking measures to control and mitigate the spread of Covid-19. Those authorities were made responsible for the protection of the information initially held by DANE. Commentators pointed out that there is a risk of unlawful exposure of information collected by DANE without that being necessary in all cases, together with the failure to specify the authorities that could receive DANE's data (Vargas, 2020).

Regarding the changes introduced by the Data Protection Authority and the President, the Office of the Inspector General issued a warning to all public servants and asked for a better protection of personal data during the pandemic. The recommendations included the analysis of legality, necessity and proportionality when demanding personal data and better digital security (Procuraduría General de la Nación, 2020).

2. Surveillance by local governments through Covid-19 apps

2.1 Medellín Me Cuida and the surveillance of daily life

One of the technological alternatives with the greatest reach in the country and that has covered more dimensions of people's social life is the Medellín Me Cuida application. Despite the fact that this app was initially developed to identify the vulnerability of family groups in the city, with the advance of the pandemic and the measures taken at the national level, new forms and features began to emerge aimed at companies, businesses, and educational institutions. Overall, the expansion of this app to include additional stakeholders, the interconnection between its different modules[10] and data flow between them, meant that it became a data-intensive system that monitors multiple spheres of people's daily lives.

Surveillance of daily life is "the collection and processing of personal data – anonymized or not – with the aim of influencing or managing those individuals from whom the data was obtained" (Lyon, 2001, p. 2), or classifying them in certain groups. The difference between this type of surveillance and others is that since it is linked to "daily" activities, it is not necessary for the individual to have committed any transgression, crime, or suspicious action in order to implement it. On the contrary, it is an exercise that is imposed on all citizens and different dimensions of their life, because these elements are considered as relevant or as a focus of attention by an agency or organization (Lyon, 2009). In this case, for example, the deployment of the Medellín Me Cuida app and its different modules was not due to an assumption by the municipal authority that all the people in the city would test positive for Covid-19, but rather that all could be at risk of infection. In other words, as the public health expert Sandra Agudelo mentioned about other cases, it is a system created to monitor people and not to monitor the evolution of the pandemic.

At the beginning of April 2020, in the middle of the lockdown decreed by the national government, the Mayor's Office of Medellín presented Medellín Me Cuida as an app designed

10. When we talk about the modules of the Medellín Me Cuida platform, we refer specifically to each of its applications aimed at specific segments: Medellín Me Cuida Family module, Medellín Me Cuida Corporate module, Medellín Me Cuida Shops module and Medellín Me Cuida Education module.

to fulfill three objectives: 1) categorize the city's family groups, 2) establish which of these groups required special attention, and 3) manage and mitigate the possible effects generated by the pandemic (See, Alcaldía de Medellín, 2020c, p. 2). For this purpose, a form was enabled on the website of the Mayor's Office through which people had to register in order to be beneficiaries of the municipality's economic assistance for vulnerable people. For each of the members of a family unit, the form requested identification, health, family, and public services data, among others (table 4). Likewise, the form required people to provide their public utilities contract number with Empresas Públicas de Medellín (EPM), which allowed the geolocation of each family unit. By April 2020, a digital security analysis of the Medellín Me Cuida form found a vulnerability that potentially exposed personal data including ID number, GPS coordinates and socioeconomic level, through a simple query to their servers (Labarthe et al., 2020).

With this, the Medellín Me Cuida web app built a system that made it possible to identify an individual, associate them with a household group, locate them, and categorize their level of vulnerability.

Table 3: Data requested by one of the first versions of the form "Medellín Me Cuida - Families" (April 17, 2020)

Sections of the questionnaire	Data requested
Personal details	1. Type and number of the identity document 2. Name and surname 3. Address and city 4. Mobile phone number 5. Landline number 6. Occupation 7. Email 8. Nationality
EPM service	1. Is your EPM service prepaid? (yes or no) 2. EPM contract number

Sections of the questionnaire	Data requested
Tell us if you present one of the following	1. Hypertension 2. Dialysis 3. Heart disease 4. Obesity or overweight 5. Smoke or have smoked 6. Cook or have cooked with wood 7. Cancer 8. Steroid use 9. Diabetes 10. COPD 11. High cholesterol 12. Orphan or rare disease diagnosed **The person had to select all the boxes that applied to their case*
Have you had one or more of these symptoms?	1. Cough 2. Fever above 38ºC 3. Sore throat 4. General discomfort 5. Difficulty breathing 6. None **The person had to select all the boxes that applied to their case*
With whom do you live?	1. Type and number of the identity document 2. Name and surname 3. Age 4. Mobile phone number 5. Kinship 6. Action **The person had to introduce all the data of the family members living in their household*

Source: Compiled by the authors based on (Alcaldía de Medellín, 2020e)

Medellín Me Cuida - Family module

There were two ways to register using the Medellín Me Cuida - Families form: if the household group was already registered in the application, people had to register as part of it. Otherwise, the person had to register as head of the household and enter the data corresponding to his/her family group. This type of registration allowed the data collected to be organized through its association with an individual (who provided the data), but also with a specific household group. Also, the use of data such as the household's public utility contract number allowed the georeferencing of the place of residence of the person and their family group. Consequently, as shown in Table 5, in addition to associating the data with a specific person and from there to a group, the contract number made it possible to relate that group with location coordinates, a district, a neighborhood, and a specific address.

Table 4: Sections of registry database in which personal information about family heads is stored and corresponding data points

Database section	Database subsection	Data requested	
Registry	Columns	1. ID 2. Full name 3. Type of document 4. ID number 5. Mobile phone number 6. Locality or municipality 7. Neighborhood 8. Address 9. Date of registration 10. IP address 11. Number of people 12. Nationality 13. E-mail 14. Vulnerability 15. Contract number 16. Family role 17. Last Name 18. Age	19. 20. Diseases 21. Symptoms 22. Occupation 23. City 24. Location 25. Category description 26. Stratum description 27. Measurer 28. Type of EPM contract 29. Registered by 30. Date of modification 31. Heart rate 32. Saturation 33. Temperature 34. Healthcare provider's ID 35. Origin 36. District 37. Gender

Source: Compiled by the authors based on Secretaría de tecnología y gestión de la información, 2020: 1

Table 5: Sections of the beneficiary database where family members' information is stored and corresponding data points

Database section	Database subsection	Subsection data
Beneficiary	Columns	1. ID 2. Type of document 3. ID number 4. Full Name 5. Surname 6. Mobile phone number 7. Email 8. Family role 9. Date of registration 10. ID of beneficiary 11. Age 12. Diseases 13. Symptoms 14. Occupation 15. User modification 16. Heart rate 17. Saturation 18. Temperature 19. ID of healthcare provider 20. Date of modification 21. Gender

Source: Compiled by the authors based on Subsecretaría de tecnología y gestión de la información, 2020, p. 2

However, these were not the only pairings made possible by the implementation of Medellín Me Cuida. Once the person completed the registration process, the municipal government cross-referenced the data registered by the user with the information held in different databases at both national and local levels such as the System of Possible Beneficiaries of Social Programs (SISBEN), the National Identity File and various national and local social programs (See, Debate Medellín me cuida-Familias, 2020; Secretaría de Tecnologías de la Información y las Comunicaciones, 2020). This cross-check of data enabled the verification of information reported by people to the platform and the determination of which of them

were not receiving any social benefits at the national or local level, as well as complementing the socioeconomic categorization that was carried out with the application (See, Debate Medellín me cuida-Familias, 2020).

Medellín Me Cuida - Corporate module

Decree 749 of 2020 allowed certain economic sectors to keep operating. This led to the creation of the corporate module in Medellín's system. In this application, companies had to be registered in order to operate and their employees' data had to be registered on it. However, employees had to be registered in Medellín Me Cuida - Families beforehand (Alcaldía de Medellín, 2020f) and thus to be registered in Medellín Me Cuida became a requirement[11] for people to receive the necessary authorizations to move around the city during mandatory isolation (Ospina, 2020). Likewise, the Mayor's Office forced people who lived in the municipalities near Medellín and who worked in the city to register on the platform. With the reopening of shops, a module was created for this type of establishment. Using this module, businesses had to verify that each person who entered the establishment was registered in Medellín Me Cuida - Families (See, Alcaldía de Medellín, 2020b, p. 3). In this way, the administration expanded the application's functionalities to include the mobility passport, identity verification and registration of business customers, and the assignment of operating permits for companies.

According to the Mayor's Office, the idea behind the corporate module was to identify the people going to work and generate permits to avoid breaking the mandatory lockdown that applied to everyone not covered by exemptions (Radicado 05 001 40 09 045 2020- 00107, 2020). Likewise, the local government connected Medellín Me Cuida to another app used by the police to check citizens' criminal records (Vahos, 2020b). Thus, the local administration developed another functionality that had no direct relationship with the health system and instead sought to control citizens.

The creation of this module generated public criticism because of the personal data collected, its mandatory nature, and the lack of a clear objective for the information. For example, in May, a citizen filed a lawsuit against the local administration arguing a violation of her rights to privacy, to work, and to freedom of movement. The judge in the lower court approved the lawsuit and ordered the Mayor's Office to only require data related to the public health objective of the application (Radicado 05 001 40 09 045 2020- 00107,

11. Although in a similar way to what is mentioned below regarding CoronApp, the voluntary use of this application and its different versions is assumed in the terms and conditions, we maintain that it was a requirement because people had to be registered in this module in order to carry out activities such as: moving around the city on days other than those assigned by the ID number restriction, without being fined; being registered by their companies in order to resume their work; and for independent businesses to be able to operate.

2020). The local government appealed the decision, resulting in a decision favorable to the Mayor's Office and the overturning of the requirement set by the first judge (El Tiempo, 2020h).

Likewise, a group of human rights defenders filed a lawsuit against the local administration and the Mayor Daniel Quintero Calle, arguing a violation of people's right to privacy and outlining how many fundamental rights including work and the living wage were affected when registration was not possible or desired (Comunicaciones (CJL), 2020).

Although the lawsuit filed by these defenders was declared inadmissible by a judge, the process highlighted some serious concerns regarding the Mayor's decisions, particularly because, after the ruling, the Mayor of Medellín tweeted screenshots of the lawsuit, disseminating the names and ID numbers of the people who had filed it. For the plaintiffs the Mayor's actions implied the publishing of documents not yet available to the public (Comunicaciones (CJL), 2020) and amounted to a violation of the defenders' right to privacy. Moreover, the Mayor had used social media to stigmatize them as people who wanted to shut down Medellín Me Cuida (Comunicaciones (CJL), 2020).

At the same time, the Data Protection Authority opened an investigation and ordered the Mayor's Office to implement digital security measures, change the terms and conditions to bring them in line with the law, and implement the accountability principle (SIC, 2020b). Moreover, the Office of the Inspector General initiated proceedings against the Mayor's Office because of the platform's implementation (Procuradora Delegada para la Defensa del Patrimonio Público, la Transparencia y la Integridad, 2020). Finally, the Council of Medellín organized a debate that criticized the local government because of Medellín Me Cuida (Debate Medellín Me Cuida -Familias, 2020).

At this point, the Medellín Me Cuida web application, designed for the allocation of social benefits, became a system based on personal data with a policing function. The connection between different platforms and the requirement to be registered in one in order to access the others generated two specific scenarios. In the first place, with each data cross-check it became possible for authorities to obtain much more information on each individual that in turn allowed them to associate individuals with a job, a place of employment, and shops they had visited. Secondly, with this system, the legal identity of a person was connected with different spheres of their life such as family life, home location, socio-economic conditions, state of health, job, and consumer behavior.

Unlike an epidemiological strategy that collects data from confirmed cases and their possible contacts, the Medellín Department of Health opted for a system that collects data from everyone and all spheres of their daily lives to determine their risk of being infected with Covid-19. The city's Department of Health uses SISMUESTRAS to search for confirmed cases and uses the Medellín Me Cuida platform to locate them and track risk factors in their

family, their community, their work, and places they have visited (Secretaría de Salud de Medellín, 2020b). In this way, they could locate outbreaks, defined as more than two infected people in a single space, and "identify people as employees or authorized, and based on this and the registered contact information, take preventive actions once risk infection areas have been identified" (Subsecretaría de tecnología y gestión de la información, 2020, p. 16).

Secondly, this data cross-check procedure contributed to developing control mechanisms in the city and verifying their compliance. For example, by pairing information from both versions of Medellín Me Cuida (Family and Corporate) it was much easier for the municipal authority to establish who was authorized to move around the city during obligatory isolation periods. This information was used to allow access to the public transportation system for authorized people only, by blocking unauthorized citizens' transportation cards (Decreto 0509, 2020). It also allowed the blocking of these cards in the case of people who, although exempted by Decree 749 of 2020, were in areas that were part of the epidemiological fences established by the Medellín Department of Health (Decreto 0509, 2020).

Another case that highlights the policing nature of Medellín Me Cuida and its violence against citizens[12] was the system used to validate exemptions during strict lockdown. To check whether a person was properly authorized to move around the city, the Mayor's Office modified some devices used by the National Police to verify criminal records and the authenticity of the identity document. With this modification, the police could scan the mechanical code of the person's ID card and determine whether they were authorized to move according to the Medellín Me Cuida records. If the person was not authorized, the police could impose the corresponding sanctions (Vahos, 2020a, 2020b).

2.2 Valle Corona App and punishment mechanisms

The Valle Corona app was another system heavily focused on surveillance[13]. Although the app operates throughout the Department of Valle del Cauca, this section focuses on the implementation of some of its functions in the city of Santiago de Cali for two main reasons.

12. Some cases of violence by the police generated by this need for authorization to move around the city are explored in greater depth in Pillar III: Applications and the impact on equal access and participation of vulnerable communities.

13. Previously, this application was called "Cali Valle Corona" and the Cali Mayor's Office was in charge of its deployment. However, as a result of the expansion of Covid-19, it was taken over by the Government of Valle del Cauca, which saw it as a useful tool to achieve greater coverage at the departmental level and work together with the municipalities on the response to the pandemic (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020, p. 2), and its name was changed to Valle Corona.

First of all, the deployment of the app began in this city and a series of larger actions and strategies for the mitigation of Covid-19 and its effects were tried here. Secondly, because it is the largest city in Valle del Cauca, much of the information about the consequences that its deployment has had on the civilian population refers to circumstances that are still happening in this city.

The Valle Corona app was launched with the aim of "having real-time information on possible positive Covid-19 cases, carrying out demographic monitoring in real-time of cases registered as positive throughout the territory of the Department of Valle del Cauca" (Secretaría de Tecnologías de la Información y las Comunicaciones, 2020, p. 4). To achieve these goals, the app requested access to a range of information and permits on the device where it was installed[14] and collected some personal data for its operation, some of which began to generate concern, such as geolocation data on people and their physical activities. A security analysis conducted in late April 2020 found that the app requested 35 different permits on the device and "compulsively" sent GPS information to the system (Botero et al., 2020).

In the process of finding new ways to track and trace people who break the mandatory isolation rules, multiple control and surveillance mechanisms were developed. One of these is satellite monitoring of offenders, which has made it possible to replace the need for constant physical surveillance of people by a much more automated and constant tracking of people's movements and daily routines in a defined space in real-time (Nellis, 2008). However, these forms of surveillance are frequently abusive, as in the case of the use of geolocation that Valle Corona exploits to verify that people diagnosed with Covid-19 or with probable cases of Covid-19 were sheltered in place or that citizens complied with established geofences during strict lockdowns (Redacción El Pais, 2020b).

The Valle Corona app stands out because of the way it intended to control the spread of the virus. By tracking daily movements and routes registered by the device, authorities establish whether the person breaks or complies with the isolation measures and enable them to punish disobedient citizens. In addition, patients infected with Covid-19, "must confirm several times a day to a communications center that they are at home, using a photo" (Redacción El Pais, 2020b).

When a person moved outside their home, an alarm was activated (Redacción El Pais,

14. See Section I, point 1: The applications and their functionalities.

2020b), alerting the "Covid Hunter" team, a group "made up of the Secretaries of Security and Justice, Emergency and Disaster Risk Management and Public Health, with the support of the National Police" (Cardona, 2020) tasked to monitoring people diagnosed with Covid-19. On April 20, for example, a team from the Cali Department of Health, supported by the Covid Hunter group, followed a suspected patient with Covid-19 who had violated quarantine (Noticiero 90 minutos, 2020). Alerted by the application and following the GPS location of the cell phone, the team reached the spot indicated by their system and confirmed that the person had left his house. Once they found the person, they explained why they should stay isolated, and then impose punishment, which can range from fines to much more severe restrictions on their movement. In one case, the person found by the Covid Hunter team was taken "in a police car to a hotel, which had been transformed into a recovery center, where he must comply with strict confinement [and, in addition,] (...) the Prosecutor's Office could impose criminal charges" (Redacción Blu Radio, 2020b).

In addition, the local government used official social media accounts to broadcast the chase live as a way to deter people from breaking the mandatory isolation. This mechanism is imposing degrading treatment on the patient community and it is infringing the fundamental rights of dignity, privacy, and non-discrimination. These punitive and violent ways of imposing discipline on the public negatively affected the capabilities of the public health surveillance system as it depends mainly on the collaboration of the community (See, Alcaldía de Cali, 2020; El Tiempo, 2020c).

To sum up, as a result of this data gathering by the application and its use in strategies such as the "Covid Hunter" team operation, Valle Corona began to serve as a mechanism to control and punish the population, particularly those with a positive diagnosis of Covid-19, due to the refocusing of the strategy, from individual surveillance to citizen movements and the conversion of the devices that we use on a daily basis into surveillance mechanisms (Nellis, 2008).

Through the study of cases like Medellín Me Cuida and Valle Corona, it is possible to highlight that restrictions on movement and work outside the home, which were the apps' goals made them tools for surveillance and control or for surveillance and punishment of the population.

2.3 Use of geolocalization data from data brokers

Although not publicly acknowledged as part of the Covid-19 strategy, local governments used data services to track the spread and serve as a basis for decisions regarding public health measures. Servinformación is a Colombian provider of business intelligence services that rely on localization data produced by cell phones. Through one of their products, Servihuella, it was allegedly possible to "monitor the situation in high concentration zones (...), track people's behavior and identify how many people have been, even without knowing it, close to someone infected by the virus" (Technocio, 2020). According to the company, Servihuella was used in Antioquia, Valle del Cauca, Cali and Bogotá.

Cali reported that the databases used to follow up on the development of the pandemic and the control measures taken by the city were, among others, "mobility data" from Google through Servinformación products. The data is presented as heat maps that show the concentration of people in different areas of the city. Using this information, the city of Cali could "identify zones with greater concentration of people and analyze mobility trends in time" (Secretaría de Salud Pública Alcaldía de Santiago de Cali, 2020, p. 1).

Bogotá was less open about the use of these data and reported only that "different sources of information allow us to strengthen the search for the greatest number of active cases possible" (Secretaría de Salud Alcaldía de Bogotá, 2020). At the national level, the NIH reported that it does not use mobility data from Google but acknowledges that "other agencies use mobility data, a lot of it from Google" (INS, 2020e).

Apart from Servinformación's products, academic groups collaborated with governments to produce insights based on data acquired through Facebook and Google services. The Siscovid group from Universidad de los Andes used Facebook's GeoInsights and Telefonica's LUCA products (SISCOVID, 2020a). Data Lama, a group from Universidad del Rosario that works on the use of data to manage and monitor crises, also relied on GeoInsights and data from Servinformación to run analysis on the spread of the virus. Through their work, they identified contact networks and "superspreaders", or nodes in the network that are responsible for the majority of secondary infections.

How exactly data from Servihuella and the insights offered by academic groups were used by governments is less clear. The lack of explicit acknowledgement of this information as part of the strategies employed to reduce infection and the apparent lack of interest by governments in paying attention to academics' findings (A. Feged, personal communication, 2020) makes it difficult to assess the impact of data exploitation on authorities' decisions.

3. False voluntariness and accountability of the individual

Rather than being a solution per se, the CoronApp app "is a digital surveillance technology strategy that gives support to the public health response process in the face of the Covid-19 Emergency" (INS, 2020g, p. 4). Both Data Protection Policies and NIH responses during the parliamentary oversight debate in Congress[15] on the application mention that personal data are provided voluntarily. However, other regulations and orders issued by national authorities call this voluntariness into question.

Resolution 666 of 2020 of the Ministry of Health and Social Protection established a series of biosafety protocols that all businesses and other sectors of the economy had to comply with and implement to minimize the factors that could generate the transmission of Covid-19. Among several recommendations, it was suggested that workers "who have smartphones should be encouraged to use the CoronApp application to register their health status" (Resolución 666, 2020, p. art. 3.1.10). However, in the manual attached to the resolution, the use and reporting of symptoms in Corona App is no longer a recommendation but an obligation for employees. It is even established that they must report the health status of their family group (Resolución 666, 2020, p. 23, sub. 5.1), and in case of a suspected or confirmed diagnosis they must also report the person's close contacts, who should in turn register their symptoms using CoronApp (Resolución 666, 2020, p. 24, sub. 6).

A similar situation occurs in air transportation. In the Resolution 1054 annex manual[16] it is urged that the use of the application should be "recommended", while the general director of Migration Colombia and the Ministry of Health remind citizens that it is mandatory to use CoronApp Colombia, to report symptoms through it, and present it at the airport (Eje 21, 2020; Ministerio de Salud y Protección Social, 2020c).

These two cases contradict the idea that using CoronApp Colombia is voluntary -as stated in the application's terms and conditions[17]-. It is clear that using the app and reporting

15. Parliamentary oversight debate on the effectiveness and privacy of the CoronApp application conducted by the Congressional Committee, cited by Representative Juanita Goebertus and Representative Juan Fernando Reyes Kury.

16. Resolution issued by the Ministry of Health and Social Protection, establishing the biosafety protocols for the airport sector.

17. "The use of CoronApp is voluntary and the citizen will be free to use this application. No right will be subjected to the citizen installing CoronApp" (INS, 2020g, p. 1). Likewise, CoronApp Colombia's treatment policy states that "The use of CoronApp is voluntary and the citizen will be free to download, use or uninstall this application (...)" (INS, 2020d, p. 4).

symptoms are not voluntary for the worker or traveler, since it is required to be able to work, enter airports, or to visit the country. Anecdotal accounts by people consulted for this research reported that CoronApp Colombia was required for travelers and failure to show proper registration could result in them being denied entrance to the airport.

The case of Bogotá contrasts with CoronApp and the other local apps. When the economic reactivation began, it became necessary to determine under what conditions people could be released from lockdown. Decree 131 issued on May 31 stated that "all persons exempted from the mandatory isolation measure and who must travel, will register through the form provided" by the Mayor's Office. Doubts about the obligatory nature of the registration provoked a series of criticisms that led the Bogotá Mayor's Office to modify Decree 131 a few days later. In this modification (Decreto 134, 2020) it is clarified that people can use their registration in Bogotá Cuidadora to prove that their activity is one of those that are exempt from compliance with isolation and that the registration is simply to facilitate that accreditation. In addition, it was made clear that providing data through the application is voluntary. As an example of the close relationship between the creation of exemptions from isolation and the risk of abuse by the police when verifying these exemptions, the amendment also emphasized that police work should focus on checking that people, establishments, and means of transport comply with biosafety protocols. Even though the national government's Decree 749 and Decree 131 itself stated that people had to prove they were covered by any of the exemptions, in Bogotá this could be proven by other means besides the national application.

Requiring reporting symptoms in order to work and board a flight hampers the app's main objective of participatory public health surveillance Thus, the punitive features behind the reporting of symptoms generate a negative incentive that could undermine the quality of the information reported and the spirit of the original app design.

Pillar III. Applications and the impact on equal access and participation of vulnerable communities

1. The securitization of health and the new police powers

During the mandatory lockdowns, the police were tasked with verifying compliance not only with quarantines but also with biosafety measures, such as wearing a mask, social distancing, and the proper use of public transportation (Decreto 121, 2020; Decreto 132, 2020; Decreto 134, 2020; Decreto 0509, 2020).

As part of the lockdown strategy, only people who met certain conditions were authorized to move freely about the country and resume their work[18]. However, this permission to move was not just made conditional on the performance of an exempted activity. In some cities and departments, individuals also had to be registered in the apps deployed by the local and national authorities. In this scenario, the police could verify that the person was authorized and possessed the required accreditation. For example, in Bogotá and Medellín, the police had the power to verify at any time that the person was registered in Bogotá Cuidadora[19] or Medellín Me Cuida, respectively (Decreto 121, 2020; Decreto 0509, 2020).

18. Work could be resumed only if it was classified among the exceptions established by the government in Decree 749 of 2020 of the Presidency of the Republic of Colombia.

19. Despite the fact that the power of the police to verify this and the obligation to be registered in GABO App or Bogotá Cuidadora established in Decree 131 of 2020 was repealed in Bogotá through Decree 134 of 2020, in Decree 132 of 2020 that regulated selective isolation in the low income district of Kennedy, this was maintained together with the need for people to be registered at http://www.bogota.gov.co/bogota-cuidadora (cf. Decreto 132, 2020, art. 2 parágrafo 2).

In Valle del Cauca, for example, people who did not comply with quarantine measures were reported so the authorities could help with "the respective processing of this person to enforce isolation and avoid more infections" (Gobernación del Valle del Cauca, 2020d, p. 30). Likewise, they could impose the corresponding sanctions when the requirements to be considered exempt were not proven.

The police were sent to enforce these measures, sometimes with discriminatory consequences. The Police Code (Ley 1801, 2016) was part of the basis for creating and enforcing the lockdown measures. It is widely considered that some powers granted by the Police Code lack proper limitations (Jiménez Ospina, 2019) and complaints are frequently raised about systematic abuses by the police when dealing with public order issues (Human Rights Watch, 2020). The Police Code was subject to numerous constitutional challenges, particularly because of the discriminatory treatment of homeless people (Sentencia C-281, 2017), lack of control of certain police procedures that limited fundamental rights (Sentencia C-212, 2017), and the control of protests and public demonstrations (Sentencia C-223, 2017), among others. Colombia's police force is defined in the Constitution as a civil entity but it is governed by the Ministry of Defense and, as civil society organizations note, has deeply rooted practices of profiling and discrimination against young people, homeless people, LGBTQ+ communities, and students. In the three years following the approval of the aforementioned Police Code alone, 289 people have been killed, 39,613 people were injured and there are 102 reports of sexual assault by police officers (Temblores ONG, 2021).

The consolidation of violence using the new powers and surveillance mechanisms

To guarantee and verify that businesses complied with biosafety protocols, Medellín resorted to various surveillance strategies. One required that any independent businesses that wanted to reactivate their activity had to be "interconnected with the camera system administered by the Urban Security Company (ESU) and the municipal government" (Decreto 0573, 2020, parágrafo 1), all with the aim of "monitoring compliance with the protection measures and biosafety protocols" (Decreto 0573, 2020, art. 1.6).

The surveillance mechanisms explained in Section II were legitimized and entrenched by the symbolic authority and abuse of force by the police, which brought severe consequences for the population, especially for those who were not complying with biosafety measures. For example, in Cúcuta a man was grabbed by the neck by a police officer for not wearing a mask or having ID. In this incident, after complaints by the community and the pleas of the man's son, the police released him and told him: "the use of the mask is mandatory, you have to learn to respect the police, we are telling you in a decent way to leave because you can't be here" (El Tiempo, 2020g).

Although abuses were constant, those were not the police actions with the most unfortunate consequences. During the mandatory lockdown in Colombia nine people were murdered by the police (Cerosetenta, 2020), and about three of these murders were related to the breaching of biosafety measures. One of the people murdered by the police was Anderson Arboleda, a 19-year-old man who was brutally beaten to death by police outside his home for breaching mandatory quarantine in Puerto Tejada, Cauca (BBC, 2020; Cerosetenta, 2020). A similar case was that of Kevin Ávila, a 23-year-old man who was shot dead by the police in Bogotá, after a confrontation arose between a group of people and the police, when the officers tried to fine several people for breaking the quarantine (Cerosetenta, 2020). Finally, a 21-year-old man, still unidentified, was shot dead by the police in Cali (Cerosetenta, 2020).

Additional concerns were also expressed about the consequences of such measures for the population and their data after the pandemic is considered finished. In the case of Medellín particularly, this concern has developed around the use of the data collected by surveillance cameras of independent businesses, the video surveillance system administered by the Urban Security Company (ESU) and the municipal government. The concerns about this interconnection have been expressed on several occasions by the "Partido Verde" councilor Daniel Duque. According to the councilor, the ties between ESU and the Mayor's Office and the closeness of a deputy director of the planning department with a polling firm suggest the potential for corruption and sufficient motives for abuse of data for which there are no safeguards in place (Tettay de Fex, 2020).

Although the councilor does not state that this is currently happening, it is raised as a possibility due to the lack of clear communication, by official and timely means, about the objectives, use and management of the data collected not only by the cameras but by the Medellín Me Cuida platform in general (Tettay de Fex, 2020).

Considering that these actions are based on the symbolic and physical authority of the police, and on surveillance, they entail a number of problems and concerns for the public. First, they favor an increase in violence and abuse of authority by the police, which, while currently a short-term consequence, may continue in the long term. Second, the interconnectedness of these systems raises questions about how the data collected could potentially be used in a post-pandemic scenario.

2. Structural discrimination against the informal sector

Several economic sectors experienced losses due to the restrictions placed on social, economic, cultural and commercial activities by the mandatory lockdown (Decreto 457, 2020). One of the groups most affected by the lockdown and its prolongation is the informal sector.

These measures affected street vendors because they earn their sustenance every day through their work. Groups of street vendors such as "La Familia de la Calle" were worried "about the situation of many street vendors who had to go out to work every day because the government's aid did not reach them or was not enough to support their families" (La Familia de la Calle, 2020). Thus, they were afraid of living with uncertainty, because, as they explain: "we do not know what we fear more, the virus or hunger, we feel that we are between a rock and a hard place" (La Familia de la Calle, 2020).

After the national government authorized some economic sectors to function, the decrees structurally excluded some parts of the informal sector (Decreto 749, 2020), especially street vendors. For example, the Mayor's Office of Medellín established that the people[20] who carried out the activities exempted by the Decree needed to certify their authorization in the Medellín Me Cuida platform. To enforce the measure, the Medellín Mayor's Office urged people whose activity was exempted to register and wait to be authorized. The Mayor's Office sanctioned the police to verify whether the people who were circulating were among the exceptions and if they had already received authorization (Decreto 0509, 2020).

In order to be authorized, people had to meet several criteria. First, the person had to register on the Medellín Me Cuida platform by providing their personal data. Then, they had to be registered by their employer in Medellín Me Cuida - Corporate. This last step could only be done by the employer (Ospina, 2020). Likewise, the registration could only be carried out by the company with the number and password used in the tax platform or, if they were not from Medellín, with the company's ID (Noreña, 2020). Once this procedure was completed, the employee was notified whether or not they met the requirements to be authorized.

20. In this section, when we talk about mobility permits, mobility passports, or permits to move around the city, we refer to authorizations to move around the city on days other than the schedules established based on ID number allowing people to work.

In this context, street vendors were not included in the exemptions decreed by the national government or the Medellín Mayor's Office. By design, all those people who do not belong to a formal sector of the economy had difficulties obtaining authorization to circulate. Despite the fact that many street vendors sell essential supplies, they could not receive an authorization because there was no legally established company that would do the necessary registration.

In the case of informal vendors, two situations arise from this. First, they show the structural violence that is exerted towards vulnerable communities, which is aggravated by factors such as inequality in movement around the city and in access to jobs and the ability to work. Second, they show how, through the idea of taking care of the population, the structural violence against vulnerable people and communities is exacerbated.

Structural violence is defined as "any situation in which some people cannot develop their capacities to their full potential, and almost certainly cannot do so to the same extent as others" (Gupta, 2012, p. 20). This violence is structural because it is not possible to identify a specific actor who exercises it, since it is grounded and exercised from/through a particular power structure that affects individuals unequally and impersonally (Gupta, 2012). Additionally, this violence, which is constantly perpetrated against certain individuals, helps to provide the social actors who experience it with a particular kind of knowledge of their circumstances. For example, "that there is very little capacity to absorb risk at the same time that one is forced to carry out high-risk activities" (Gupta, 2012, pp. 20–21).

In the case of informal vendors, particularly those in poor or precarious conditions, structural violence arises in all settings, including institutional and administrative decisions. Thus, for example, these people are affected by difficulties accessing education, formal employment, and secure jobs, while the institutional measures include actions focused on the recovery of space, which involve evictions, confiscations, harassment by the police and even the systematic exercise of physical violence. They particularly mention the difficulties they have in complying with lockdown measures and regarding to absorb the risk caused by the Covid-19 pandemic.

In Medellín, this inability to absorb risk was clear. As a vendor in downtown Medellín mentioned: "out of obligation, you go out to work, but business is very bad, we don't know what we're going to do for food and rent. They don't even lend us money because, how are we going to pay it back?" (Ramírez, 2020). Obviously, street vendors do not have the income stability necessary to cope with a quarantine without facing short-term economic complications. Seeking daily sustenance forces them to go out to continue their work despite

not having an authorization and to face the risk of being abused by the authorities and, of course, infection on a daily basis. In practice, street vendors are forced to choose between falling ill with an infection that can be fatal and maintaining their basic subsistence. This represents a clear situation that reinforces violence against this population.

Even the design of applications may have consequences. In the case of Medellín, the combination of these with other measures designed to mitigate the effects of the pandemic generated negative and unequal effects on communities such as street vendors. We will show how lockdown measures with exemptions, the requirements for economic reactivation and the authorization of movement through the Medellín Me Cuida platform came together to accentuate and deepen the structural violence suffered by the city's street vendors.

3. Police violence against street vendors

The exclusion of certain groups of people from the design of the apps, together with the new powers granted to the police and the restrictions on movement, resulted in a deepening of structural violence and an increase of police violence against informal vendors in both Bogotá and Medellín. In Medellín, this meant that the police verified that people were registered in the applications (Molina, 2020; Noticias Caracol, 2020b). In Bogotá, the verification of the exemptions through the application was voluntary (Decreto 131, 2020). In the case of informal vendors, as we have already mentioned, the lockdown measures together with the authorizations deepened the structural violence to which these people are subjected in their daily lives. However, this was not the only violence that was generated in the process.

In Bogotá, as in Medellín, the movement of informal vendors around the city was not allowed. Therefore, although registration in Bogotá Cuidadora was voluntary, informal vendors could not be registered or authorized to carry out their work. This need for authorization was related to episodes of abuse and aggression by police officers when vendors were discovered breaking the mandatory lockdown. One case that generated outrage in Bogotá was the case of Néstor, an older person who was beaten by the police in Bogotá.

Néstor was an informal vendor selling his products during the mandatory lockdown when he was approached by the police. A video that circulated on social media showed a police

officer choking Néstor who then is seen bleeding and clinging to his belongings while the onlookers request restraint from the officers (El Tiempo, 2020e).

Likewise, in Medellín, a coffee seller from Parque Berrío decided to take her own life due to the constant harassment perpetrated against her by the police. According to her colleagues, the woman was worn out by the situation because "she had continuous problems with the police and [they also mentioned] that she was pressured, and somewhat abused" (Pulzo, 2020). She experienced this pressure and harassment when she came out to work after two months of being locked up in her home.

Similarly, several coffee sellers in the city of Medellín reveal that they faced harassment and abuse from the police. They mentioned how, in addition to issuing fines for breaching lockdown, police officers take away their work tools, transfer them to the police station and mistreat them, and even retain their identity documents (Red de Apoyo Popular (RAP), 2020; TeleAntioquia, 2020).

4. The militarization of vulnerable communities' lives

The public health measures have been accompanied by a militaristic rhetoric in which Covid-19 is an enemy against whom a war is being waged for the benefit of the community (Ramalc Colombia et al., 2020). This rhetoric paved the way for the deployment of military and police measures to ensure compliance with the biosafety guidelines. Some of these measures assigned new powers to police in the lockdown scenarios, while others led to the militarization of several territories, cities, and neighborhoods.

Militarization was a measure implemented by the government in Cundinamarca, Leticia, Medellín, Boyacá and other regions to strengthen and monitor compliance with health guidelines (El Espectador, 2020a; El Tiempo, 2020f; Presidencia de la República, 2020a; Redacción Blu Radio, 2020a), and mainly affected the most vulnerable communities. Although the government deployed militarization in several parts of the country, we will discuss the militarization of Leticia (Amazonas) and district 2 of Medellín.

In the case of Leticia, we argue that the military response restricted the right of the inhabitants to move around, particularly increasing the vulnerability of indigenous communities.

Second, in the case of Medellín we demonstrate how the militarization of the region together with the biosafety guidelines affected the communities' right to work and freedom of movement. Also, we demonstrate that people living in these territories developed a fear of being stigmatized.

On April 17 the first case of Covid-19 was reported in Leticia, the capital of the Department of Amazonas. After a month, infection rates in the city had grown exponentially, to the point where there were 1,007 reported cases (Fernández & Suárez, 2020). The advance of Covid-19 exposed the lack of trained medical staff, medical supplies, and intensive care units, and, in general, revealed an inadequate health infrastructure (Paz, 2020). Leticia ranked fourth in the cities of Colombia with the highest number of deaths from Covid-19 (El Tiempo, 2020d) and the cemeteries exceeded their capacity (Fernández & Suárez, 2020). With the confirmation of the first case of Covid-19, nearly 30 doctors resigned from the departmental public hospital San Rafael de Leticia, reporting that they did not have sufficient personal protection equipment to care for the infected or adequate facilities to provide good care (El Tiempo, 2020a).

One of the explanations given for the rise in the infection rates was the dependency between the communities of Leticia and Tabatinga (Brazil). The indigenous governor of the Ticuna-uitoto community of Jusy Monilla, Elver Vienna, reports that people from both communities move daily between the two cities to work, acquire supplies and visit their families, among other reasons (Ávila, 2020). Although through the CoronApp alert notification system the Field Epidemiology Training Program (FETP) was able to locate a group of people suspected of having Covid-19, visit the communities, perform tests to confirm or reject the suspicion, trace contacts and isolate the people who tested positive (CDC, 2020), the speed of the spread exceeded the capacity of the health services available in the department.

Faced with this situation, President Iván Duque ordered the militarization of the triple border (Brazil, Colombia, Peru) (El Espectador, 2020b). Additionally, the local and the national government ordered a total restriction on movement from 3 pm to 6 am, and a constant patrol of the river borders and ports by the National Navy (Presidencia de la República, 2020b).

The restriction on movement and the militarization of the border had negative consequences for the indigenous population and other inhabitants of Leticia. Given the dependency between Leticia and Tabatinga, especially for tourism and trade, indigenous people "who have turned towards that market" (La liga contra el silencio, 2020) now found these markets closed or restricted, which made them more vulnerable (La liga contra el silencio, 2020). Additionally, indigenous communities that previously acquired some products on

the market faced the necessity to move long distances and between populations to grow crops or acquire goods, movement that increased their risk of infection due to the spread of the virus in Leticia.

As in the case of Leticia, the militarization of Sinaí, a neighborhood in the Santa Cruz District of Medellín, had several negative consequences. By June 2020, local authorities claimed, using the Medellín Me Cuida platform, they had identified that this area accounted for 12% of the city's total number of infections (Colombia Informa, 2020), and had a "particularly serious outbreak, the only major one in the city" (El Tiempo, 2020f). As a result, the city's mayor imposed a targeted mandatory lockdown on the neighborhood, in which the inhabitants were isolated and could not move to other parts of the city, unless they had permission. Also, he requested military and police action to block off the zone. As the mayor stated, the aim of these actions was "that [the people in the neighborhood] do not leave" (Arbeláez, 2020), and to prevent the spread of infection.

The Santa Cruz District is located in the northeastern area of Medellín and is considered one of the most densely populated areas of the city. It is composed of several neighborhoods, including Sinaí which is inhabited mainly by displaced people from the Urabá Antioqueño and the Pacific Coast (El Mundo, 2020). The majority of its inhabitants rely on work in the informal economy and the neighborhood, as with many of the poorest districts of Medellín[21], has been marked by unemployment, low levels of education, overcrowding, violence by illegal groups, and police and military violence to remove people from the neighborhood[22] (Loaiza, 2011; Saldarriaga, 2020).

This process of enclosure by the military forces had immediate consequences for the population. First, it created an atmosphere of fear due to the presence of military officers and police in a neighborhood that had previously endured army violence (Saldarriaga, 2020). As local resident Lucía stated, it was not clear why the presence of these army personnel

21. Other districts that have a history marked by poverty, unemployment, and violence by the state and armed groups include districts 1, 13, 16, and 7. One of the most emblematic cases of violence by the state and illegal groups perpetrated in these neighborhoods is perhaps that of District 13 and Operación Orion, in which – as stated by the former paramilitary leader Don Berna – "paramilitaries who had previously carried out intelligence work (...) accompanied the security forces in their search for and capture of alleged guerrilla collaborators" (CNMH, 2015).

22. Clashes with police and ESMAD occurred when an attempt was made in 2010 to evict people from the neighborhood. On evictions see Loaiza, 2011.

was necessary if it was a medical and public health issue. Also, she felt terrorized because, as she stated, "since they arrived, they all seemed ready to attack [the community]" (Saldarriaga, 2020).

These actions generated other consequences for the local community such as restrictions on the right to work and the right to freedom of movement, which was immediately restricted and controlled. Inhabitants of Sinaí could not move in or out of the neighborhood unless they were involved in the provision of health services, work in essential activities, the supply of essential goods, or medical emergencies, among other exemptions[23]. The restrictions on movement were so severe that people stated that they felt as if they were in jail because they could not "go out to recharge their phones, or to buy food" (Saldarriaga, 2020).

Also, as Lucía states, they could not buy food, even when they did not have any at home or had not received aid from the local authorities (Saldarriaga, 2020). Likewise, for those engaged in an authorized activity, movement was not easy either. Those carrying out these activities had to be registered in Medellín Me Cuida (El Tiempo, 2020f). Also, they had to have evidence that they were going to perform an exempted activity (El Mundo, 2020; El Tiempo, 2020f). Finally, they had to undergo a temperature and symptoms check by personnel from the local health department (El Mundo, 2020).

The measures affected the right to work of the most vulnerable inhabitants of Sinaí because the exemptions set out in Decrees 689 and 749 of 2020 did not include people who are part of the informal economy. This exclusion meant that they were unable to present the work authorizations that the police requested to let them leave the neighborhood. As a result, many saw the militarization as a punishment, which made it more difficult for them to comply with the mandatory lockdown, during which they did not receive enough financial support or food from the local government (El Mundo, 2020; Saldarriaga, 2020).

Finally, the actions and declarations of the local government created a fear of being stigmatized in the community. When the plan to enclose District 2 of Medellín became public, some journalists asked the mayor why he had decided to lock down an entire community. He mentioned that this decision was made because "the infected people in Comuna Popular refused to give out contact information [sic] because they were told that this has po-

23. The exempted activities were those established by the national government in Decrees 684 and 749, and some established by the local government of Medellín, such as: healthcare and service delivery and its supply chain, medicines and pharmaceuticals, medical mission work, emergency service activities, and public service activities (El Tiempo, 2020f).

litical objectives. [In consequence] the epidemiological encirclement could not be carried out" (Saldarriaga, 2020).

This statement generated fear in Sinaí. These actions helped to draw attention to a neighborhood that had hitherto been invisible, through a social stigma related to Covid-19 (Mi Comuna 2, 2020). Hector Medina, a representative of the citizens' oversight committee of Sinaí, said that he was outraged and scared by the stigmatization of Sinaí. As he stated, although the militarization was imposed upon the whole of District 2, "in the news [they only mention] Sinaí, Sinaí, Sinaí, as if every one of us was infected (...) [additionally] they [the local government] are isolating us as if we were the dross of Medellín" (Mi Comuna 2, 2020). The generalization is one of the main concerns not just for Hector but also for other inhabitants, who "cross the border of their neighborhood with their temperature just taken [and the desire to stop being identified as inhabitants of Sinaí] so that [people] do not point them out as covidosos[24]" (Universo Centro, 2020), now that their neighborhood has been marked as "the main focus of contagion in the city" (Universo Centro, 2020).

5. The limitation of social protest through police abuse and its legitimation

The lack of social assistance for vulnerable communities

Multiple strategies were proposed to identify people in a vulnerable situation and deliver resources and assistance. At the national level, there were extraordinary cash transfers by programs such as "Families in Action" and benefits for older adults (Presidencia de la República, 2020c). The local authorities in Bogotá and Medellín also introduced non-conditional cash transfers. In Bogotá, the local government used sociodemographic data and the System of Possible Beneficiaries of Social Programs (SISBEN), the fourth version of which had been collecting information since 2017 (Alcaldía de Bogotá, 2020).
In Medellín, the Mayor's Office decided to create their database with Medellín Me Cuida to target 250,000 cash transfers. Vulnerable citizens of Medellín had to enroll and provide personal data on the Medellín Me Cuida website. After that, the Mayor's Office evaluated

24. This is an informal expression to refer to a person who has Covid-19. In this context, the expression carries a strong stigma, where the patient with Covid-19 is seen as undesirable.

the profiles to allocate the cash transfers to selected beneficiaries who received a text message to either receive the money in their bank account or, if they did not have one, to collect their money at a certain location (Noticias Caracol, 2020a). In other words, the local government expected to create a database as an alternative to SISBEN, which is administered by the national government. The Mayor's Office assumed that people in vulnerable situations had access to an internet connection, the digital literacy to use the platform, and a cellphone to receive the information.

Despite these efforts, the aid provided was insufficient to alleviate the hunger faced by vulnerable communities during the lockdowns. Also, in different parts of the country, several communities began to protest because they did not have the technological resources required to register on the platforms, or the benefits were not delivered to them even though they were beneficiaries (Redacción Blu Radio, 2020c). These situations made it even more difficult for families to cope with mandatory lockdown and to ensure that they had enough to eat. Therefore, in several cities, families began to hang red rags on the windows and doors of their houses to indicate the need for financial support or food (El Tiempo, 2020b; Fitzgerald, 2020; France 24, 2020; Lluvia de Orión, 2020).

Communities also started to protest in several parts of the country to demand solutions and actions from national and local governments to tackle the crisis. At the same time, they expressed their dissatisfaction with the lack of assistance provided to enable them to comply with the lockdown measures. Some of these protests took place in low-income neighborhoods in the cities of Medellín, Bogotá, and Cali (France 24, 2020), where people had the greatest difficulty maintaining their family's livelihood.

The violent response against protesters

The right of vulnerable communities to protest was limited by police authorities who disbanded these protests through the use of violence and the deployment of assaults and threats against protesters. We argue that in cities like Medellín and Bogotá, the limitation of the right to protest by the police was endorsed by the authorities. Likewise, we demonstrate that there is a delegitimization of protest, while those participating in it are blamed for the spread of the virus.

In Bogotá, protests, cacerolazos (banging together of pots and pans), and demonstrations were constant in several suburbs of the city during the month of April 2020. In the locality of Ciudad Bolívar, people decided to break the mandatory lockdown to demand assistance from the Mayor's Office and to emphasize that the people facing difficulties were mostly children, sick people and older people (Revista Semana, 2020).

Although the protests in this neighborhood were taking place peacefully, the response of the district administration was to send in the Riot Squad (ESMAD). This deployment led to the use of tear gas, but also – as several members of the community reported – to the excessive use of force against the demonstrators and multiple cases of abuse of authority. For example, as the councilor of Ciudad Bolívar reported (Revista Semana, 2020), the police "electrocuted a pregnant woman and shot a young man twice, injuring him and leaving him in a critical condition" (Nodal, 2020).

This situation was repeated in Villa Diana, a neighborhood in the locality of Usme. Here, the community protested peacefully to demand government aid. However, "when the police arrived, they were very rude and aggressive. They even hit those who were protesting" (Fitzgerald, 2020). As recounted by neighborhood resident María Mercedes, the situation escalated so quickly that she had to leave because they began to threaten them with violence (Fitzgerald, 2020). After the protests, the Mayor of Bogotá argued that some persons were organizing the protesters to "jump the line" for social benefits and that they will not distribute the assistance because of "violent protests and burning tires" (RCN Radio, 2020).

Similarly, in Medellín the restriction of the right to protest was achieved through the escalation of violence that caused serious consequences for local people. Here, however, this way of limiting protest was legitimized by the city's mayor, who defended the actions of the police and blamed the protestors. One case that illustrates this situation was the protest that took place in the city on June 15, when people protested against corruption (aggravated by the Covid-19 pandemic), the national government, the management of the pandemic, and the lack of food aid to face the consequences of the Covid-19 crisis (Lluvia de Orión, 2020).

In this case, the police officers sent to deal with the situation acted with disproportionate force against the protesters, the journalists covering the event, and human rights defenders who were present (Lluvia de Orión, 2020). As several people documented in videos and photos posted on social media, the police beat protesters in the head, arrested them indiscriminately, and seriously wounded several people (AquiNoticias, 2020b, 2020a). For example, a young member of the opposition party reported how he was chased by the police and beaten up in Parque Berrío, knocking out several of his teeth. The officers also seized the phone on which he had recorded how the protest had unfolded (AquiNoticias, 2020b; Lluvia de Orión, 2020).

This escalation of violence was described as directly contradicting the Medellín Me Cuida program to protect and take care of the community. As Lluvia de Orion states:

> *"Medellín takes care of you if you stay locked in your house and only go out to work, buy a few things to eat and reactivate the economy (and even do some sport), but if you go out to protest, Medellín no longer takes care of you, instead it breaks your head and sends you to the hospital" (2020, par. 7).*

However, this point of view did not spread just because of the police's actions. At the same time, a drive to discredit social protest was taking place, led by the city's mayor. In a series of statements, he alleged that the actions of the police were in response to the failure of protesters to comply with biosafety measures, as well as acts of vandalism (Las dos Orillas, 2020). He described the protests not as a response to the measures for managing the pandemic and the lack of aid from the national or local government, but as a strategy to "(...) make mayors look bad (...) [at the cost of] helping spread a pandemic that could kill (...) [the protesters'] parents and grandparents" (Lluvia de Orión, 2020).

The mayor's statements support two dubious narratives. First, they delegitimize the demands of communities who do not have the means to cope with lockdown, by ignoring the reasons for the protests. Second, the government blamed the people protesting against hunger for the infection and possible death of their loved ones. The protests were presented by the mayor as an illegitimate means of expressing grievance and as an unnecessary activity because the mayor's work represents an adequate response.

This narrative was also used in the way national government officials referred to an indigenous Minga in the month of October 2020. A group of indigenous organizations and collectives from the southwestern part of the country traveled to Bogotá, demanding solutions to the escalation of violence and the impoverishment in their territories. The protestors left the Department of Cauca in buses and made stops at strategic points in several of the country's departments. As this mobilization unfolded and during the protest, the narrative about the unsuitability of the protest from a public health perspective, the blaming of indigenous people for the rise in infections, and the protest as a means to destabilize the government were all present.

For example, when the mobilization started, the Health Ministry stated that they had "evidence of people infected among the organizers of these events and people whose contacts have not been analyzed, which can be very important factors in propagation" (Mendoza, 2020), and that combined with the lack of protocols for transportation this posed a high risk of infection (Mendoza, 2020). Additionally, after the Minga the Deputy Health Minister insinuated that it had generated an increase in cases of Covid-19 (Roa, 2020). As in the case of Medellín, the narrative against social protest was based on the alleged risk this posed to public health, the democratic state and social order from the government's perspective.

Conclusions

Pillar I

The applications and data-intensive systems developed to deal with the effects of the Covid-19 pandemic in Colombia are disconnected from public health responses. The authorities in charge of technology policy developed their designs by imposing a perspective that uses simple technological solutions to tackle complex problems. Thus, both the national and local governments ended up using technological tools that did not align with the conditions in the public health system. Additionally, the authorities designed those mechanisms using the logic of private actors without considering the needs of the public health system.

The data-driven systems point to a lack of coordination between local and national authorities. The national government adopted a strategy of imposition instead of active collaboration with local authorities to generate coordinated responses. Therefore, different local governments developed multiple apps with similar functions, but with no way to interoperate. The disconnection between the apps was due to problems in the national government strategies and political differences. Likewise, this disconnection goes against the design of the epidemiological surveillance system based on coordination between local and national actors, where data collection begins at the local level and culminates in consolidation and analysis at the national level. Consequently, the information collected at the national level does not reach the local authorities or arrives very late, while data collected by the local authorities do not filter through to the national level.

The national and local governments developed many functions for their apps that were not framed in public health objectives and did not meet the requirements of transparency in the public sector. For example, CoronApp's digital contact tracing features bypassed the epidemiological investigation systems used in the field by health authorities. This development did not consider the lack of technological and personnel capacities of the health system actors in charge of contact tracing. Likewise, the epidemiological surveillance sys-

tem did not include the digital contact tracing function. Hence, that function ended up as a pilot that did not work and whose data were not collected or used by the NIH but remained in the NDA, an entity dependent on the Ministry of ICT. At the moment, this function continues to collect sensitive data whose destination or purpose is not publicly known.

Pillar II

The limitation of certain fundamental rights was established by legal instruments that were not directly related to the declared state of emergency. Although there was a significant number of decrees with the status of law issued under the state of emergency powers, the limitation of the right to free movement and other limitations on personal data protection came from ordinary decrees and administrative orders. The acceptance of these limitations by means of legal instruments low down in the hierarchy sets a harmful precedent.

One such questionable change is the weakening of personal data protection allowed by the Data Protection Authority. By asking mobile network operators to share users' data with authorities, Colombia took a step back in the protection of peoples' privacy in favor of the perceived need to access this data urgently. These decisions also shaped the current status of data protection since they allowed exceptions in Colombia's data protection law that bypass authorizations and other safeguards, and ultimately prioritize the state's requirements over human rights.

Strategies to reduce the spread of Covid-19 quickly became surveillance measures that focused on people's daily lives instead of being limited to public health needs. The same platforms served widely different objectives such as health status reporting, the allocation of social benefits and the authorization of work during lockdown. Police actions came to be the standard way of enforcing official measures based on the protection of public order instead of health, as evidenced in Section III.

The range of these surveillance measures is wide. In Medellín it is practically equivalent to an official register that allows authorities to link individuals to their home address. The system there linked three levels of information: intimate information about a person's health, family information and work information. It also connected information about an individual in different systems, including through surveillance cameras. In Cali, technical information served to swiftly locate individuals and determine whether they had left quarantine areas. The surveillance there had the clear purpose of disciplining people through the abuse of GPS capabilities in phones with the official apps installed, as well as stigmatizing those who dared disobey the technologically enforced lockdown.

Although the apps and platforms were presented as compliant with data protection standards and allegedly totally voluntary, the language in certain legal provisions and how they were presented by public officials sent mixed messages. In practice, their installation and use was mandatory and negative consequences derived from non-compliance.

Finally, the use of data from data brokers was limited and not an official part of national and local strategies to contain the spread of the virus; it was primarily driven by academia and the private sector. More research is needed about the actual impact of the use of this data and how the importance of data is perceived differently by academics, government officials and the private sector.

Pillar III

In Section III we described some of the cases when vulnerable people suffered the consequences of the deployment of technological applications to manage the spread of Covid-19. Based on the information and analysis in this section, two main conclusions can be drawn.

In Colombia, the non-pharmacological measures established by the government to manage the pandemic have been intertwined with police measures to control the population right from the start. Specifically, national and local governments have given priority to the use of authority and force to ensure compliance with biosafety guidelines instead of developing processes to share information with the community about these guidelines. In several cities, the combination of police action and measures to restrict movement gave rise to fear and lack of understanding of the measures. Also, these situations were propitious for abuses of authority and the use of excessive violence against communities that have historically been the target of the police and that did not have the necessary safeguards and means to comply with the restrictions.

Moreover, this relationship cast public health problems such as breaking biosafety guidelines or being a possible source of infection as criminal in nature, worthy of stigma and repression by police action. Although both cases were met with similar responses, these measures have had unequal impacts on different communities and groups of people. However, this was not a particular feature of the measures in which police action was strongly in evidence, in the form of militarization or the limitation of rights through police action. The second conclusion that can be drawn from Section III is that the combination of non-pharmacological measures with elements such as applications, mobility permits, police action,

and the restriction of activities and rights, as ways to reduce contagion and as alternatives to contribute to the management of the pandemic, had unequal impacts on the population, and particularly on vulnerable communities.

Measures such as militarization, police enforcement of enclosure and the restrictions on movement by certain communities to guarantee compliance with biosafety guidelines contributed to an increase in the vulnerability of indigenous and impoverished communities and informal vendors. In the cases of Medellín and Leticia, the militarization not only restricted the movement of people in the communities, but also restricted strategies and ways of obtaining essential supplies, such as those employed by indigenous communities that depend on moving across the border or the ones used by impoverished communities in Medellín to satisfy their basic needs.

Likewise, the combination of measures such as restrictions on work and movement, and the need to be authorized and to demonstrate that authorization through applications or special permits, primarily affected workers whose activities are part of the informal sector. Although plans for the reactivation of the economy were made in several cities, early plans did not take into account the people involved in this sector.

Recommendations

1. The public sector should design applications and data systems to tackle the pandemic that take into account the technical capacities and structure of the public health information systems.

2. The health authorities should lead the development of technology to deal with a public health crisis. The idea is to avoid a sense of urgency and excessive trust in technological solutions. In other words, the health authorities should define the problems to be solved based on the capacities of the health system.

3. The design of apps for public services by private parties must be accompanied by follow-up measures and clear responsibilities that prioritize the public interest.

4. The designers of the multiple apps at the national and local level should ensure that they are interoperable and based on coordinated responses. The data collected by local applications must reach the national level to be analyzed and consolidated and the national data should made available to local authorities.

5. The designers of these apps should avoid introducing other actors that are not familiar with the public health system.

6. The process of designing the apps must be transparent about the purposes of the data collected. Likewise, the collection of data should be guided by the principle of necessity and proportionality in keeping with the main public health objective.

7. Future lockdowns must be imposed by appropriate legal instruments such as laws and decrees that can only be issued by the President based on a legitimate declaration of an emergency. The Constitutional Court must review the orders and their time limits must be clearer.

8. Orders issued to protect public health must be coherent from the start. Thus, national and local governments must avoid using public order as the basic justification for measures to prevent contagion, whether for Covid-19 or any other pandemic.

9. National and local authorities must limit the use of data and systems acquired or created as part of the public health strategy. Strict limitations related to public health must be transparent and public. Other uses must be avoided.

10. The Data Protection Authority must review Circular 001 and formally declare that the exception is not in force. There should be accountability measures to ensure that personal data under Circular 001 is used according to data protection principles and law.

11. As noted by one of the experts interviewed for this report, data given or taken by authorities should not be used against the people in the form of surveillance and punishment. Authorities must question the use of data to punish people, choose action at a distance and focus on public health for communities as a whole.

12. The process of supporting communities to ensure compliance with biosafety measures and guidelines should be led by authorities and organizations aligned with public health missions. Communities that have historically been victims of police brutality should not be disciplined by force, especially when the crisis at hand is related to health and not to public order.

13. The government's decision to use applications to support the implementation of biosafety measures should not be based solely on the efficacy of the applications in other contexts. The government's use of these alternatives should be supported by an impact analysis that takes into account the possible consequences the apps could have in the Colombian context and on vulnerable groups.

14. The government's strategies to deploy applications or web apps to support the implementation of biosafety measures should consider, in their planning and design, the availability of technologies and the socio-economic conditions of vulnerable and impoverished communities.

15. The development of online forms to authorize economic reactivation and movement around cities should consider both the formal and informal sectors of the economy and include specific requirements for their reactivation that correspond to their characteristics, possibilities, and operation.

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Useless & Dangerous

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