Fortaleza

Keeping an Electoral Promise

CARIN-ISABEL KNOOP, CARLOS PAIVA, JORRIT DE JONG, AND RAWI ABDELAL

In March 2017, second-term Fortaleza Mayor Roberto Cláudio Rodrigues Bezerra (Cláudio) had to decide how hard he would push to keep an electoral promise he made in his two mayoral campaigns: to ensure that every citizen would have access to the free essential medicines guaranteed by the Brazilian health care system. "Every mayor in Brazil had to deliver on this constitutional right, often amid tight financial constraints," he noted. "For years, occasional lack of access to essential medicines was the major citizen complaint in our city. Because I am a doctor and I hold a PhD in public health, expectations were even higher that I would solve this problem. By my second term, I was determined to do so."[1]

This push was not universally popular in his cabinet. He explained, "Some of my advisers kept telling me that we would not solve this problem and that we should prioritize other public health issues. They argued that this problem had no solution, in part because we depended on federal funds, on vendors' supply, and on a number of other factors out of our control. For our administration's image, it would be better to focus on simpler issues under our management." He continued, "That was true to a certain extent. But I preferred to take the risk. I was also worried about creating an expectation but not delivering the solution. Because many campaign promises get broken, this was also about improving the credibility of the public sector."

The stakes were high, as was problem-solving fatigue, since his first-term administration had already devoted extensive time and funding to improving the public health clinic network and access to medicine. Older clinics were renovated, daily operating hours extended, and nineteen new health clinics were built. The city also changed the health clinics' management model, transferring most operational and maintenance activities to a nonprofit organization. Furthermore, the drug management process was digitized, allowing clinics to better predict when to order supplies. However, patients were still unable to reliably access medicine. One unanticipated consequence of expanded access to health care, in fact, was an upsurge in diagnoses that further strained medication supply chains. Some argued that the previous investments and reforms needed time to bear fruit. Others suggested improvements to some of the measures already taken. A final group advocated creating an entirely new drug distribution channel in bus terminals.

Delivering Public Health Care in Fortaleza under Brazil's Unified Health System

Brazil's 1988 constitution stated: "Health is a right of all and a duty of the State and shall be guaranteed by means of social and economic policies aimed at reducing the risk of illness and other hazards and by the universal and equal access to actions and services for its promotion, protection and recovery."[2] The constitution and subsequent national health care legislation made municipalities responsible for managing the local public health system and providing health care services with no costs at the point of use, including the delivery of medicines.

To make good on this guarantee, in 1990, Brazil's national legislature established the *Sistema Único de Saúde* (the Unified Health System, or SUS). When Cláudio became mayor, the SUS was already the world's largest public universal health care system.[3] All services and essential medicines were available at no cost to the user. There were three components of pharmaceutical assistance: "basic" (i.e., drugs for common health problems such as hypertension and diabetes), "strategic" (i.e., for endemic diseases such as HIV/AIDS, tuberculosis, malaria, etc.), and "specialized" (i.e., treatments for seventy-eight diseases targeted by Brazil's health ministry).[4] In addition, prescription medicines could be purchased from private drugstores.

In 2013, more than 10 percent of Brazilians were unable to access the drugs they were prescribed.[5] In northeastern Brazil, 9.1 percent of the population were unable to access any prescribed drugs at all, and an additional 9.2 percent had only partial access.[6] About 54 percent claimed the medications were not available.[7] Another 17 percent pointed to price as a primary deterrent to receiving non-essential medications.[8] Brazilians unable to access prescriptions sometimes sued the government, citing Brazil's constitutional health care guarantee.[9] "People complain about the public health system even though it is the envy of most of the world in terms of equity and access," noted Mobility and Public Works Department Secretary João de Aguiar Pupo.[10]

Instead of relying solely on the public system, wealthier Brazilians turned to private insurance and private pharmacies.[11] Just over 20 percent of Brazilian pharmacies were run by the public sector in 2015.[12]

The Fortaleza Context

From the Portuguese word for "fortress," Fortaleza, the capital of the state of Ceará in northeastern Brazil, was (as of 2018) Brazil's fifth-largest city.[13] Located along the Atlantic coast, it covered 314 square kilometers (121 square miles), slightly less area than the U.S. city of Philadelphia.[14] (See Appendix 1.) Mayor Cláudio described his city as "big and distinct." Fortaleza's challenges were not new and included poor infrastructure, extreme poverty and income disparity, and the persistence of infectious diseases. (See Appendix 2A for the city's health indicators and Appendix 2B for a map of the public health network.)

From the 1950s to the 1980s, Fortaleza experienced rapid growth. Its population doubled from 1970 to the late 1980s.[15] A housing boom helped the city's established middle and upper classes, which some historians saw as foreshadowing "the contrasts of wretchedness and opulence that would become the

city's trademark."[16] In the 1990s, the city was advertised as the "Miami of the Brazilian Northeast" and referred to itself as "The Brazilian Caribbean."[17]

However, economic growth was uneven. Roads were unpaved just a few blocks inland from the luxury beachfront hotels and high-rises that hugged the coast. The city had a GINI coefficient of 0.61 in 2015, relative to 0.51 for the nation, a sign of extreme income inequality.[i] The latest available census (2010) reported that the average monthly income per capita was R$846 ($509.08).[18] Many citizens slept in indoor hammocks for better ventilation in a city where temperatures regularly exceeded 85˚F and varied little over the course of the year. Fortaleza also experienced torrential rain, and the city's inadequate sewage lines bred disease. Mosquitoes sometimes carried viruses such as Zika and Chikungunya. A significant percentage of Fortaleza's population was overweight, and chronic lifestyle diseases such hypertension and diabetes were rampant. Leprosy and syphilis were also commonly treated conditions.

About 84 percent of the population, or 2.3 million people, depended on the public health system. Just 16 percent of the population had private health insurance, compared with a national total of 25.5 percent.[19] Public health clinics were the primary health care resource for most Fortaleza residents, though the city also boasted ten hospitals—a greater number than comparable cities. By 2013, there were ninety public health clinics in Fortaleza, but that number lagged population growth. As a result, some patients, especially residents of Fortaleza's poorest areas, had to travel long distances to reach a clinic, often through poor weather on suboptimal public transportation.

While medication could only be picked up in a select number of "hub clinics" in some cities, all public health clinics in Fortaleza included a pharmacy. As a result, Fortaleza's network of public pharmacies was larger than those run privately by pharmaceutical companies. In 2013, City Hall was responsible for acquiring all essential medicines; the state and federal governments were responsible for all other medicines dispensed through the public health system.

A central warehouse replenished all of Fortaleza's public pharmacies. Demand for each medicine varied depending on the region served by the public health clinics. This created a significant logistics challenge, and Fortaleza's clinics often faced medicine stock-outs. A patient might be prescribed five drugs but find only three available at the public health clinic where she had just seen a doctor and she may visit multiple clinics before finding the other two drugs. Some patients sought to avoid stock-outs by stockpiling drugs, which could exacerbate shortages and create waste if medicine was improperly stored or no longer needed. "The health system in Brazil is perfect on paper, but in reality, it has many problems, and access to medicine is a multi-sectoral problem. We need to understand the issue as a whole," explained Marcus Vinícius Campos, the head of the city's health council .[20] The council represented important stakeholders, such as doctors and patients, and served a consultative role.

[i] The GINI coefficient or GINI index measured income distribution and was seen as a proxy for economic inequality. The higher the number, the greater the studied inequality. 2015 national data from World Bank, reported at "GINI Index for Brazil," Federal Reserve Bank of St. Louis, April 25, 2018, https://fred.stlouisfed.org/series/SIPOVGINIBRA, accessed March 2019.

Cláudio's First Term (2013-2016): First Things First

"As a mayor," Cláudio said, "I need to take care of three major systems—education, transportation, and health. They all matter immensely, but health care touches everyone and impacts lives, families, and communities. The demographics alone are enough to justify a different approach to these services and its prioritization." In contrast, Fortaleza's public school system served 250,000 students, and 1.1 million people used public transportation daily.

"Roberto Cláudios's election and his management approach was a shock to the health care system," recalled Pupo. Cláudio broke with the old practice of appointing the head of health centers based on political connections. Now, candidates formally applied for center-head positions and were hired based on technical skills and education. "This was a big rupture," Pupo noted. "As such, there was a series of consequences and backlash. No one could publicly complain, but we experienced a lot of pushback behind the scenes." Patients who received poor service at a clinic now felt free to complain, when they may have feared retaliation in the past.

Another shock was a major recession in Brazil that started in 2014. Those no longer able to afford private schools and health insurance increased the burden on public services. By 2015, the share of Fortaleza's population relying on public health care increased from 70 percent to over 80 percent. Health clinics strained to keep up with the demand, compounding medication shortages.

Phase One: Rebuilding the Foundations

Cláudio appointed Socorro Martins, a physician with thirty years of public health experience, to head Fortaleza's Health Department. Martins appreciated not only Cláudio's technical expertise, but also his human perspective. She, like the mayor, felt that "before starting anything new, it's always important to first consider what has already been done, how, who was involved, and what the results and consequences were."[21]

Led by Martins, a review of the public clinic system exposed medication shortages, inadequate infrastructure, and substandard clinics, as well as a shortage of doctors, caregivers, and processes. This analysis led to the development of a strategic infrastructure plan that generated patient profiles and improved understanding of the patient population. The effort ultimately brought about a set of investments and reforms to expand and improve health care access, and improve information flow and management.

Renovating clinics

In 2013, Fortaleza launched renovations at about seventy-two of the city's original ninety health clinics to improve their look and feel and to update their medical equipment. Posto de Saúde Frei Tito, a health clinic located in a low-income part of Fortaleza, was representative. (See Appendix 3 for photos.) The clinic's staff included a dentist and several diabetes specialists. Families with children and elderly patients were among those who sat in a waiting area with no air conditioning, some fanning themselves with pamphlets to stay cool. Medical residents crowded into a room to observe a patient. Outside, medicinal herbs grew in a small garden.

Expanding the supply of health care services
Between 2013 and 2016, Fortaleza added nineteen health clinics, bringing the total number of clinics to 109, and extended their operating hours.[ii] Working hours in Brazil were typically from 8 am to 6 pm with two hours for lunch, and clinics were open between 8 am and 5 pm. To make it easier for workers and parents to receive care, Martins expanded clinic hours to twelve hours a day, opening at 7 am. To comply with federal law, she also expanded Fortaleza's use of "health districts teams," which included a doctor and a social worker. This change helped move care from reactive (i.e., treating people after conditions had already developed) toward preventative (i.e., preventing conditions from developing by encouraging lifestyle changes, for example).

Creating a digital belt
The city also invested in a digital belt that provided internet access to the renovated clinics and connected most major public buildings, including schools and health clinics. This information technology (IT) infrastructure made it possible to develop and support systems to monitor drug inventory from acquisition to delivery. A central warehouse to acquire and store medication would be built and connected to this network, as well.

Changing health clinic management
Managing all the services needed and offered by the health clinics was a considerable operational challenge. Since 1998, Brazilian law had allowed the government to partner with private, non-profit social organizations (Organizações Sociais, or OS) to provide public services including health care and education.[22] A management agreement dictated the responsibilities of an OS, typically outlining specific funding requirements, outputs, and performance benchmarks. Funds were disbursed to OS service providers per the terms set out in these contracts.[23] Though the government provided oversight, each OS had considerable freedom to use its funding and manage facilities as needed. [24]

In 2013, the Instituto de Saúde e Gestão Hospitalar (Institute of Health and Hospital Management, or ISGH) signed a contract to manage all of Fortaleza's health clinics as an OS. At the time, ISGH managed one state hospital and six state urgent care clinics (UPAs) in Fortaleza.[25] "We wanted to foster more flexibility and speed in administration," Martins recalled. Like several of her colleagues, she commented that Cláudio "understands that the private sector can sometimes be more efficient and that we can collaborate with it without losing our public service soul. This was a new mindset in the public health sector."

Phase Two: Dealing with Good Intentions

By 2015, there was a clear perception of improvement. Cláudio said, "We felt that we were victorious. The population felt that there were more health clinics and that access to doctors and other health professionals had become easier." Martins held a weekly meeting with the pharmaceutical services coordinator and the other team members to track progress. This group also participated in a monthly meeting chaired by Martins with ten clinic coordinators and ISGH to discuss problems. OS and pharmaceutical services coordinators also met separately.

[ii] Cláudio's two predecessors had added only two health clinics over their combined terms of twelve years.

Despite (and, in part, because of) these changes, shortages of essential drugs persisted and even worsened at the health clinics. Increased numbers of clinics and more health professionals working longer hours led to more diagnoses of chronic diseases and more prescriptions. "What was a good thing turned into a problem," Cláudio recalled. "People started perceiving that a lot had been done, but it was only half done, and as the re-election approached, the opposition explored this theme, which is natural due to how politics works in democracies. By the end of 2015, I heard complaints about it in many different neighborhoods. This issue started to become more salient. At this point, it became not just a local problem, but a problem at a municipal scale. "The problem was everywhere," noted Infrastructure Secretary Manuela Nogueira. "Roberto Cláudio is a public health expert, so I think the population was frustrated because they felt that he should not allow medicine to run out. People were upset for good reason."**[26]**

In November 2015, Cláudio set up a "Monitor Commission" to get a sense of what was happening in the field. The commission consisted of selected individuals across various city government departments, each tasked with overseeing several clinics and reporting their findings in monthly meetings with the mayor.[27] A background in public health was not required, but the mayor's trust was. "They were supposed to be a high-performance team. If a clinic lacked a particular medicine, they could call the social organization to try to address the problem. This was a non-hierarchical approach,"[28] said Ticiana Mota Sales, in charge of coordinating the contract with ISGH at the time. "These monitors also worked to improve the users' experience at the clinic—in a way, to humanize it."

The Monitor Commission's diagnosis was that Fortaleza had a distribution problem. Private pharmacies also had to deal with stock-outs, albeit not as frequently. Monthly surveys of health clinics conducted by ISGH also showed that medicine shortages were their main problem.

The digital belt, digitization of pharmacy and clinic records, and the IT system for tracking the distribution of drugs proved useful in improving logistics. Past patterns could help predict when a particular medicine would run out, and the system would create automatic reminders to reorder it. In addition, ISGH developed and rolled out a database system (FastMedic) enabling clinic pharmacists to register and track patients and their medicines. When patients came to fill prescriptions that had been issued at other clinics, the pharmacist entered that prescription information. This made it possible for doctors to ensure that prescriptions were properly filled. The hope was that patient compliance would improve and fraud would be avoided. Drawing on FastMedic, the IT group of the health department developed a database (Pages) that provided an overview of inventory across the system.

The monitors arranged to have medications sent to the clinics within forty-eight hours when they detected any shortage, using smaller vans for more targeted deliveries. However, delays persisted when staff at the clinics failed to update the medicine database.

Frustrated by the ongoing drug shortage challenges, in 2016, Cláudio authorized drug acquisition spending to double. He recalled, "When I transferred funds from other areas to this—which is really hard to do—and the problem was not solved, I realized it was a tougher and more complex problem than we first perceived. [. . .] high expectations led us to a quick and wrong response by injecting more financial resources. We thought money would solve the problem. Here is my *mea culpa*: we tried to solve the problem as quickly as possible instead of first understanding it."

A Second Chance to Get It Right: New Team(s), New Idea(s)

At the time of the October 2016 mayoral election, 35 percent of those polled approved of Cláudio's performance and 19 percent disapproved.[29] Opposition candidates pressed the issue of medicine shortages repeatedly in campaign speeches and debates. Some complaints regarded past incidents that had been resolved. The mayor's team fretted that the issue could weaken his re-election prospects, but he won in a run-off with 53.57 percent of the vote. Term limits meant that 2020 would be his last year in office.

A New Team for an Old Problem

The mayor's second term brought change. Nearly two-thirds of the twenty-eight secretary-level positions turned over.[30] Incoming Secretary of Government Samuel Dias said, "Previously, I thought that the mayor had gotten lucky with the team he'd selected, but then I realized that he is very good at choosing people and putting them in the right places at the right time, which brings the best out of them. They will outperform. He can really read the people that he manages."[31] Dias elaborated, "Sometimes when you are in a position for too long, you might give up on a problem or get bogged down in it. A new person could be more excited and approach things with a clean slate. When I was secretary of infrastructure, the mayor asked me to undertake a lot of new projects with tight deadlines. Today I would say, 'No, impossible,' but then, maybe out of lack of experience, I said, 'Yes, of course,' and we got things done."

The Working Group Tackles "Mission Impossible"

The health department's previous team felt that they had done all they could to improve the system and that great strides had been made. The department's leaders and some team members were replaced when they stepped down or were let go due to performance issues. Cláudio noted, "This time, my first step was to make sure that we would get a good diagnosis of what was actually causing the drug shortage problem. I made it clear to my health team and to other departments that it was fundamental to understand the nature of the problem because our first attempts did not work." Time was also a key aspect of the strategy: "I told my team that we had to solve this problem in the first year," he said.

Tackling the drug shortage issue would now fall to Cláudio's new health secretary, Joana Maciel, whom Cláudio charged with reviewing the situation and submitting a report with alternatives to solve the problem. Maciel set up a multidisciplinary working group within Fortaleza's Health Department. "People have blamed the issue on a lack of financial resources and that had left people kind of resigned to the problem," said a member of health reform working group. "Now we needed a different approach."[32] (See Appendix 4 for a list of members.) Nogueira explained, "Multi-sector teams were formed in the cabinet to brainstorm ideas tackling particularly difficult problems."

This working group had two subgroups. One focused on devising health protocols and reviewing a potential list of essential medicines. Health protocols involved working with an expert to set common standards, improve processes across the clinics, and make it easier for patients to be seen at multiple clinics. The other subgroup focused on the acquisition, logistics, monitoring, and deployment of the

medicine stock. The working group was given six months to ensure that all medicines were available at all Fortaleza clinics.

Maciel described her brief: "The team investigated why the problem persisted. Was it a problem of acquisition? Distribution? Where were the bottlenecks? We soon realized that the problem was more complex than we first thought and that it would require a whole set of measures to address it."[33] Dias noted, "We had good ideas. Everyone contributed on figuring out what could be done, and things were pretty harmonious. We wanted to make sure to overcome the problem and not let any issues creep back in. The new team was invigorated and there was a spirit of collaboration and cooperation." Dias met with this group weekly, and the mayor met with them at least once a month.

Despite the enthusiasm, Sales said, "Half of the members of the workgroup thought this was 'mission impossible.' However, because the mayor had made clear that this was his foremost priority, and the new Secretary of Health reflected that same attitude on our department, we started feeling that solving the problem was possible." The working group was directed to work out the problem within the existing financial constraints.

Improving the System

The working group assumed that it had to limit the scope of the problem, as it would not be able to promise access to all medicines one hundred percent of the time. Cláudio reflected, "I became increasingly aware that, depending on how you describe or frame an issue, it won't create empathy with the citizen, no matter how true it is. We have to be really careful on how we present our goals and the expectations we create. It has to be and seem doable. And during the campaign, I was clear about the steps we needed to take." He explained: "We did not say, 'We are going to solve the problem with medicines.' This would be too generic, demagogic, and impossible to achieve. We said we would solve the problem of medicines related to primary care. Despite that, many people, even among my voters and my supporters, did not believe it could be done, because it was an old problem."

In January 2017, the pharmaceutical coordinator and health department colleagues considered the epidemiological profile of Fortaleza patients to determine the most essential medications on the national list of 137. The eighty-four essential medications they selected were mostly for prenatal care, chronic conditions (blood pressure and diabetes), and infectious diseases.

The working group also assessed the ISGH contract. ISGH management was viewed as an important improvement to the prior approach, but payment delays from the city to the OS slowed drug acquisition. With each financial transfer from the government, the OS used the funds to purchase medicine only after first paying its employees and taxes. Labor laws dictated some of these constraints, while others were dictated by ISGH practice, which prioritized fixed costs like salaries over variable costs such as medicine purchases. City Hall considered altering the contract to address the issue by creating two separate accounts, one dedicated to medicine acquisition and the other for all other expenses. The OS opposed this change, as it could delay payment for maintenance and operational staff.

Beyond Improvements

The team feared that the system remained fundamentally vulnerable to logistical glitches: upstream, it depended on pharmaceutical vendors; downstream, it relied on Fortaleza's 109 health clinics. But the working group felt that the improvements made in the first term—IT systems put in place and increased funding for drug acquisition—would begin to address some of the lingering drug shortage problems. With improvements starting to take hold, Cláudio and his working group had to determine whether they had gone far enough to meet his campaign promises.

During the diagnosis process, newly appointed Deputy Health Secretary, Ana Estela Fernandes Leite, a former doctor who had worked in the private sector, suggested that the government distribute essential medications in places frequented by users of the public health system, such as the bus terminals scattered throughout the city. Over one million people visited the seven largest terminals each day. The city would be responsible for building and operating these distribution centers. By one estimate it would cost R$1.6 million per year to administer such a program, including R$44,000 to build each unit and R$6,000 to pay each pharmacist's monthly salary and benefits.

Another option involved putting vending machines for essential medications at strategic locations in the city. Among many logistical challenges was how to devise standardized packaging for medicines that vending machines would be able to handle. If necessary, a pharmacist could remotely oversee a group of vending machines, checking prescriptions and providing guidance to the patient.

A final option considered was having motorcycle couriers deliver medicine to patients unable to fill their prescriptions at their clinic. This would ensure that medicines would be available to those who needed them without requiring them to go to another locale. This solution would be costlier than the distribution centers at the bus terminals, and it had been attempted by the health department for a few months in 2013, only to be halted during clinic renovations.

The group raised a series of concerns. Given all the investments already made and the existing financial constraints, would directing resources to building and operating new distribution channels create more problems than it solved? Should the administration wait for past investments, such as the digitization process and the digital belt, to demonstrate results before embarking on another project? Some argued this was especially important after City Hall had already cut 3,000 staff amid other cost-cutting measures. Others suggested that money would be better directed to preventative medicine to *reduce* the need for medications in the first place. Better access to medicine had led more clients of the public health care system to rely on medicine rather than, for example, to change their diets.

Implementation raised further concerns. Who would be responsible for managing motorcycle couriers or running the distribution centers at bus terminals? How would they prevent robberies of vending machines across the city? Would an additional distribution channel confuse users and lead to further frustration if they misunderstood the purpose of the distribution centers at bus terminals? Would pharmacists at existing clinics be concerned about being replaced and block approval of these alternatives at the health council? More generally, was it appropriate to place pharmacists in bus terminals or have remote interactions? Finally, how would these options affect the already overwhelmed staff at the public health clinics?

Some in Fortaleza's Health Department and at ISGH felt that such a major project might be unnecessary given that all the improvements made in Cláudio's first term were just starting to bear fruit. With the foundations laid, maybe it was now just a matter of making incremental adjustments, such as ensuring that all financial transfers to ISGH were on time so that the OS could acquire medications. "The main problem causing drug shortages before was that we never had a system in place, so there was no data for us on which to base our estimates of medication acquisition,"[34] said ISGH Director Flávio Clemente Deulefeu.

In March 2017, three months into his second term, the mayor had to decide how to proceed. "My role as a leader," he liked to say, "is to make very clear what the purpose and the role of the municipal government is in a very poor and unequal city such as Fortaleza." What was the role of the public sector and the mayor in this situation? Cláudio had campaigned on fixing this problem not once, but twice. At what point could he reasonably consider that promise honored?

Appendix 1 Location of Fortaleza in Brazil

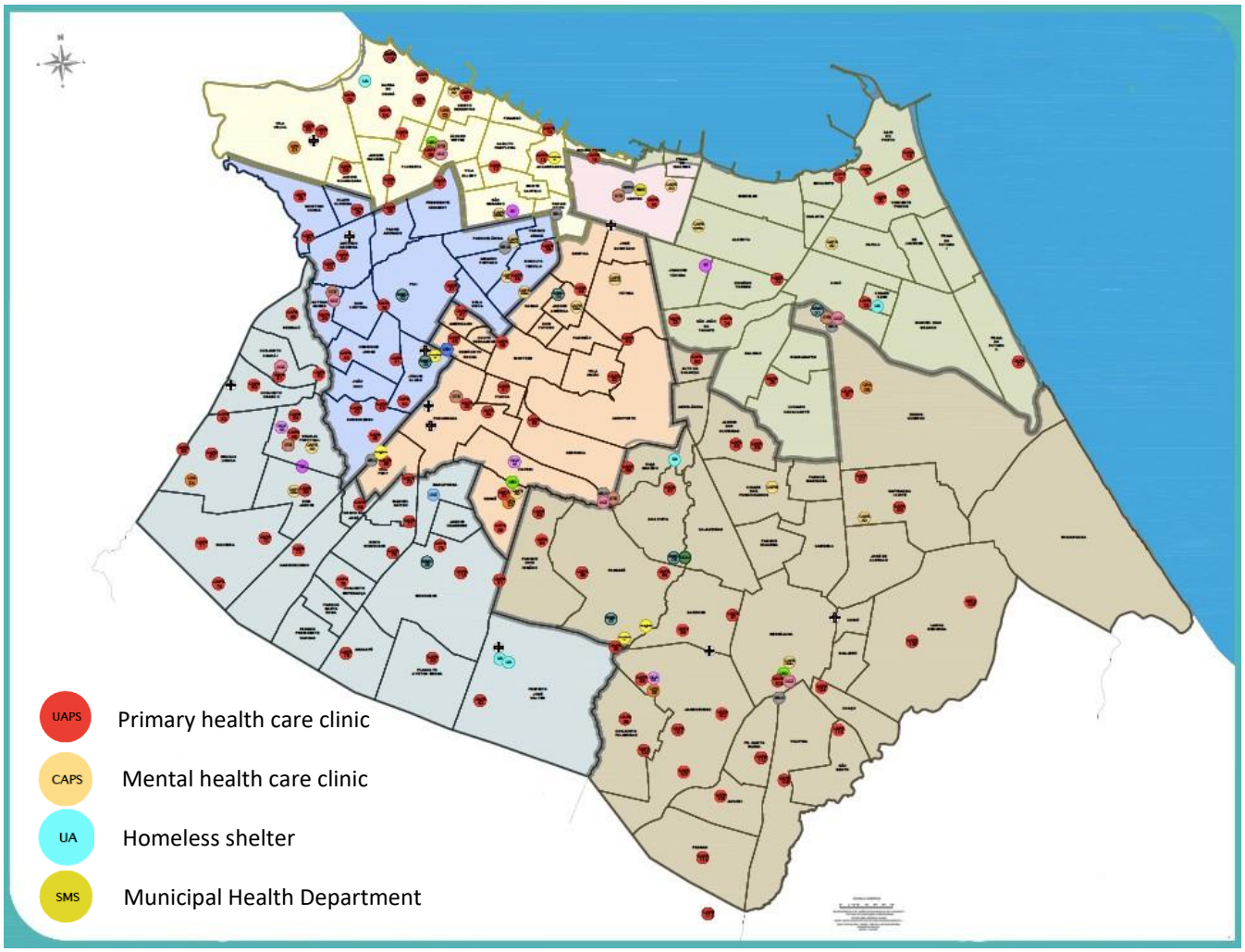
Source: City of Fortaleza

Appendix 2A City Health Indicators

Longevity, Mortality and Fecundity - Municipality of Fortaleza, CE			
	1991	**2000**	**2010**
Life expectancy at birth (in years)	66	69.6	74.4
Mortality up to one year of age (per thousand born alive)	47.1	34.6	15.8
Mortality up to five years of age (per thousand born alive)	62.3	44.8	16.9
Total fecundity rate (children per woman)	2.5	2.2	1.6

Source: PNUD, Ipea and FJP

Appendix 2B Health Care Delivery Map

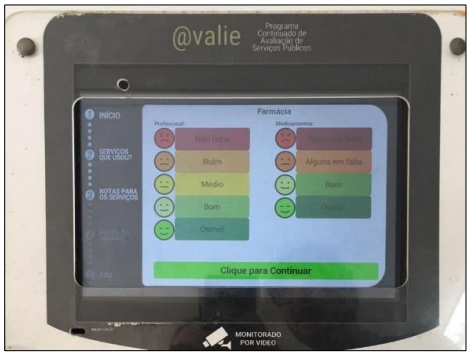


Source: City of Fortaleza

Appendix 3A Entrance to a Public Health Clinic in Fortaleza with Patient at Pharmacy Counter

Source: Case writers

Appendix 3B Evaluation Terminal at Public Health Clinic



Source: Case writers

Appendix 3C Opening of the Health Clinics

Source: City of Fortaleza

Appendix 4 Members of the Working Groups

City Hall Working Group

- Samuel Dias, Secretary of Government
- João de Aguiar Pupo, Mobility and Public Works Department Secretary
- Manuela Nogueira, Infrastructure Secretary
- Joana Maciel, Health Secretary
- Ana Estela Fernandes Leite, Deputy Health Secretary

Health Department Working Group

- Magno de Sousa Sampaio, City Manager for Pharmaceutical Services Unit
- Erlemus Pontes Soares, City Manager for Primary Care Unit
- Alfran Ferreira de Araújo Junior, City Director of Operations of Contracts with Social Organizations
- Ticiana Mota Sales, City Manager of the OS Contract - ISGH

Source: City of Fortaleza

Appendix 5 Timeline of Events

	DATES	# OF CLINICS	PUBLIC HEALTH EVENTS	POLITICAL EVENTS
1st Term	2012	90		MAR: Mayor Cláudio elected (1st term)
	2013	90		JAN: Mayor Cláudio took office (1st term)
		90 (22 renovations)	MAR: Contracted with OS AUG: Tested Moto Courier for medication delivery	
	2014	91 (1 new clinic) (33 renovations)	JAN-JUN: 18 clinics renovated JUL-DEC: 14 clinics renovated SEP: 1st new clinic opened	
	2015	96 (5 new clinics) (4 renovations)	JAN-JUN: 2 clinics renovated JUL-DEC: 2 clinics renovated NOV: Monitor network created NOV-DEC: 5 new clinics opened	
	2016	109 (13 new clinics) (4 renovations)	JAN-AUG: 12 new clinics opened JAN – JUL: 2 clinics renovated JAN-DEC: Acquisition funds doubled	
				OCT: Mayor Cláudio elected (2nd term)
2nd Term			DEC: 1 new clinic opened	NOV: Mayor Cláudio announced his cabinet (2nd term)
	2017	109	JAN: Working Group created	JAN: Mayor Cláudio took office (2nd term)
			MAR: Working Group report to the Mayor	

Source: City of Fortaleza

Appendix 6 Stakeholders Cited with Highlight Quotes (in order of appearance in the case)

ROBERTO CLÁUDIO Rodrigues Bezerra, Mayor of Fortaleza (2013-16, 2017-20)
"Every mayor in Brazil had to deliver on this constitutional right, often amid tight financial constraints. For years, occasional lack of access to essential medicines was the major citizen complaint in our city. Because I am a doctor, and I hold a PhD in public health, expectations were even higher that I would solve this problem. By my second term I was determined to do so."

João de Aguiar PUPO, Mobility and Public Works Secretary (2017-)
"Roberto Cláudios's election and his management approach was a shock to the health care system. As such, there was a series of consequences and backlash. No one could publicly complain, but we experienced a lot of pushback behind the scenes."

Marcus Vinícius CAMPOS, Head of the city's Health Council (2017-19)
"The health system in Brazil is perfect on paper, but in reality, it has many problems, and access to medicine is a multi-sectoral problem. We need to understand the issue as a whole."

Scorro MARTINS, Health Secretary (2013-16)
"Before starting anything new, it's always important to first consider what has already been done, how, who was involved, and what the results and consequences were."

Manuela NOGUEIRA, Infrastructure Secretary (2017-)
"The problem was everywhere. Roberto Cláudio is a public health expert, so I think the population was frustrated because they felt that he should not allow medicine to run out. People were upset for good reason."

Ticiana MOTA SALES, ISGH Contract Manager (2013-)
"Half of the members of the workgroup thought this was 'mission impossible'. However, because the mayor had made clear that this was his foremost priority, and the new Secretary of Health reflected that same attitude on our department, we started feeling that solving the problem was possible."

Samuel DIAS, Secretary of Government (2017-)
"Sometimes when you are in a position for too long, you might give up on a problem or get bogged down in it. A new person could be more excited and approach things with a clean slate. When I was secretary of infrastructure, the mayor asked me to undertake a lot of new projects with tight deadlines. Today I would say 'No, impossible,' but then, maybe out of lack of experience, I said 'Yes, of course,' and we got things done."

Joana MACIEL, Health Secretary (2017-)
"People have blamed the issue on a lack of financial resources and that had left people kind of resigned to the problem. Now we needed a different approach."

Flávio Clemente DEULEFEU, ISGH Director (2006-)
"The main problem causing drug shortages before was that we never had a system in place, so there was no data for us on which to base our estimates of medication acquisition."

Endnotes

[1] Cláudio Rodrigues Bezerra, interview by Carlos Paiva and Carin-Isabel Knoop, February 11, 2019. All further quotes by this individual from this interview.

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