

3 A literary history of Zika

Following Brazilian state responses through documents of emergency

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Introduction

In November 2015, the Brazilian Health Ministry declared a Public Health Emergency of National Concern (known as an ESPIN) because of a rapid increase in unexpected, and unexplained, cases of microcephaly in newborn babies in the northeastern region. The ESPIN announcement was issued by the Health Ministry and published as a *portaria* (an ordinance) (2015a). The Brazilian Health Ministry issued a series of such bureaucratic directives during the Zika epidemic, and these documents can shed light on state-directed form of governance by tracing what Veena Das (2006) has called the *literacy of the state*: the series of everyday performances in documents and signatures that act as forms of governance, created by technologies of writing and their corresponding power.

Due to the outbreak in French Polynesia in 2013–2014, and just as Brazil was preparing to host the 2014 FIFA World Cup and 2016 Summer Olympics, Zika was highlighted in a 2014 Epidemiological Bulletin by the Health Ministry (Secretaria de Vigilância em Saúde) as a possible risk to the country. Two issues seemed to be highlighted in this early document: the government's experience in organising mass events and on following the International Health Regulations (IHRs). The document also shows the official state concern with the economic importance of these two events. As Zika emerged, and became known to the global public, some health scholars, such as Attaran (2016), alluded to the potential global health threat that these mass events, especially the Olympic Summer Games, could create as tourists and athletes returned to their countries, many of which also have high *Aedes aegypti* populations.

In this chapter,¹ we follow Das's (2006) example and explore the social lives of written documents and what these documents reflect, reveal and omit about the Brazilian government response to the outbreak. Government institutions and mechanisms played important convening roles during the Zika epidemic in Brazil. One central actor was the *Centro de Operações de Emergências em Saúde Pública* (Public Health Emergency Operation Centre or COES) which was formed in 2014 in the aftermath of the West African Ebola epidemic. Thus, its existence as a mechanism of state literacy preceded Zika and is in line with growing international bioinsecurity. A core document of the COES is the *National Plan of Health*

Emergencies Protocol, which divides events according to four levels of alertness. COES provide technical guidance on resource allocation, such as increasing health staff and expanding infrastructure and services, and is also charged with providing information and communication to the public. COES becomes active when an ESPIN is declared, and during the ZIKV epidemic the institution operated on the highest level of alert, as it also did during the yellow fever outbreak in 2017. As an emergency operational unit, COES is connected to the Sanitary Vigilance Department and, during the Zika epidemic, worked alongside municipal, state and federal agencies to strengthen surveillance, disease prevention, care and support to affected families.

On February 2016, following the Brazilian emergency declaration, the World Health Organization (WHO) announced a Public Health Emergency of International Concern (PHEIC), given the suspected correlation between Zika infection and the rise of microcephaly cases in Brazil. This global alert lasted nine months, until November 2016, whereas it took the Brazilian state until July 2017 to officially end the ESPIN and close the *Centro de Operações de Emergências em Saúde Pública* (COES).

Between this time, diverse actions and responses were set into motion by the Health Ministry apparatus. Both of these announcements (the global PHEIC and national ESPIN) directly affected the Brazilian state as it dealt with a series of scientific uncertainties and political and social challenges permeated by a sense of urgency, fear and the demand for rapid action, all with domestic and foreign pressures. Understanding how this process unfolded in 2015–2017 is especially important given the fact that support for the thousands of children and their families affected by the virus, and preparedness planning for future arboviral epidemics, hangs in a cloudy balance in 2018.

The epidemic in Brazil was framed as a *war* – a war of both people against mosquito and women against microcephaly. Ribeiro et al. (2018: 138) pointed out that the Brazilian state “played a fundamental role in defining the terms of the debate” through a “war frame” that was focused on individualised disease prevention, particularly placed on women. This war spectacle masked social and gender inequalities, extending the negligence of poverty and regional inequality.²

The Health Ministry has been historically responsible for the creation of the country’s public health policies and scientific knowledge. In this sense, the state’s authority can be viewed, as proposed by the work of Veena Das (2006), as emanating from a set of temporal documents that inscribe policies and actions. Understanding the state, therefore, demands thinking in terms of literacy. This intensive production of documents and decrees, and the styles of reasoning and *seeing* that emerge from it, shapes the process of scientific knowledge and discourse stabilisation, both of which have consequences for the construing of official narratives. Such documents create temporalities, produce attention and silences, leave trails and inscribe some sense of official history. In this chapter, we explore these issues, using discourse and document analysis to investigate how the Health Ministry responded to the Zika epidemic. As a way to understand how official narratives are constructed, we selected a series of crucial government

and scientific documents in order to shed light on the complex relationships among policies, guidelines and actions during an unfolding health emergency. We approach this corpus of documents as a lens to inspect the relationships between, on the one hand, the Brazilian political response to Zika and, on the other, the scientific response to this emergent viral pathogen. In so doing, we aim to write a literary history of ZIKV in Brazil, one that pays special attention to how official documents navigated uncertainty, within the demands of expediency and the sphere of urgency.

In the first part of the chapter, we briefly describe some crucial details about Brazil's public health landscape and the early history of the epidemic. We then turn our attention to how the state came to understand and frame the epidemic itself, as it responded to public anxieties and questions. We do so by exploring the literacy of the Brazilian state, and how its ordinances, protocols and manuals aimed at guiding health professionals produced temporalities.³ Lastly, we adjust our lens to explore the government response to children and families affected by the virus. By analysing official microcephaly epidemiological bulletins (MEB) and their corresponding epidemiological reports (ER), we question how visible these children became given the biomedical emphasis on performing formal technical solutions disconnected from embodied suffering and affliction.

The birth of Zika: From pathogen to Brazilian politics

In 1988, health as a human right was enshrined in the Brazilian Constitution, ensuring that the state takes appropriate responsibility and action in offering policies and services to all Brazilian citizens. The constitution was created at the end of a 20-year military dictatorship and, in this sense, was representative of newly felt democratic expectations. As stated in the 1988 Constitution:

Health is the right of everyone and the duty of the State, guaranteed through social and economic policies aimed at reducing the risk of disease and other diseases and universal and equal access to actions and services for their promotion, protection and recovery.

Before 1988, Brazil had a health system founded on meritocratic principles, offering health services for formal employees in a social security model. Other citizens should need to buy health delivery from the private sector, for things such as chronic diseases, child and maternal care and traffic accidents. The health system was centralized and fragmented, and it excluded most informal workers as well as much of the rural population. The authoritarian regime created an unequal, but also highly inefficient, system.

Things changed with the birth of democracy in 1988, when the Brazilian Health System, officially named Unified Health System (Sistema Único de Saúde, or SUS), was scripted into the constitution, with a few at the time radical principles, that continue to structure health policies, services and actions across the country. This includes: (1) *universality*: that every Brazilian citizen has the right

to health services for free, guaranteed through state financing and policies; (2) *comprehensive care*: that the state should provide preventive, promotive and curative care, control policies on pharmaceuticals, biological inputs, the quality of food, water and other products for human consumption, and also epidemiological surveillance; (3) *equity*: that the state should pay attention to the health needs of diverse individuals and groups including the social, cultural and economic determinants of health; (4) *decentralization*: that the health system should be managed through a balance of federal, state and municipal control. According to the decentralised system, federal fundings concerning health care are destined to the state and municipal level. Each of the three federal levels are supposed to destined a specific amount of their budget to health care system. Constitutionally, the Ministry of Health (MoH) is also responsible for supporting and funding states and municipalities in case of health emergencies and disasters; and (5) *social participation*: that institutional arrangements should be created and supported to guarantee social participation in health delivery and also the policy-making process. These principles have helped to facilitate many significant advances on health access, primary health care coverage, the involvement in local municipalities in health (including specialized services, such as AIDS treatment, organ transplants and oncological services) and the expansion of the health workforce, to name a few achievements.

In spite of these great efforts to develop the right to health in Brazil, SUS still has serious problems. As with many health systems, this includes inequitable access, regulatory constraints among health care levels, the co-existence of public and private systems, challenges with social participation, federal government centralization and financing, difficulties in organizing local regional management, unequal health worker distribution, intersectoral policies to reduce the social determinants of health and the unequal burden of disease. These challenges can also be seen through the lens of basic health statistics, shown in Table 3.1. Whereas the overarching aim of SUS is to ensure health access to all, in reality, four epidemiological situations put considerable strain on existing resources and capacities: an increasingly ageing population, greater chronic diseases, a continued (and newly emerging) infectious disease burden and violence, both physical and psychosocial.

Table 3.1 Brazilian economic and health statistics

<i>Total population (2016)</i>	<i>207 million</i>
Gross national income per capita (2016)	\$8,650
Life expectancy at birth, m/f (years, 2016)	71/79
Probability of dying under five (per 1,000 live births, 2008)	21
Total expenditure on health per capita (2014)	\$1,318
Total of expenditure on health (public and private) as % of GDP (2014)	8.3%
Estimated population coverage of primary health care (2017)	64.5%

Sources: WHO, Brazilian Ministry of Health and World Bank

Infectious diseases are still relevant in contemporary Brazil. One of the most notorious is Dengue, an arbovirus responsible for an estimated one million cases and 500 deaths per year in Brazil (Fares et al., 2015). A concerted control program nearly eliminated the *Aedes aegypti* mosquito between the 1950s and 1970s. After a few decades of relative silence, Dengue returned to the country during the 1980s as successive waves of Dengue serotypes spread from Southeast Asia to the Americas, facilitated by modern transport networks and urbanisation. All four Dengue serotypes are now endemic in Brazil.

Dengue is not the only emerging mosquito-borne disease in the country. In 2014, the American Chikungunya (CHIK) outbreak spread rapidly in Brazil. More than 250,000 cases have since been registered with the MoH surveillance system, including 159 reported deaths in 2016 alone (Ministério da Saúde, 2017a), although the virus has certainly infected many more people. To make matters worse, Brazil has been battling resurgent yellow fever epidemics since the end of 2017. The sylvatic (jungle) yellow fever (YF) transmission cycle is endemic in monkey populations. In response, massive vaccination campaigns have been organised in 2017 and 2018.

It was on the tail-end of CHIK, and resurgent Dengue and YF, that Zika emerged in 2015. Brazil has an excellent and well-distributed national health surveillance system and at the very beginning of Zika circulating in the country, the Minister of Health, Arthur Chioro, made a statement to the nation:

It was confirmed 8 cases in Camaçari-Bahia. The Zika virus does not worry us. It is a benign disease that has a good prognostic. The fever is low, and the biggest annoyance is itching, red spots. It requires very little patient access to emergency room and medical services. All our concern is with dengue because dengue kills.⁴

Brazilian health authorities had identified Zika but dismissed it, believing it to be an insignificant pathogen, a “weak” Dengue-like disease of little consequence. Before the emergence of microcephaly clusters in and around Recife in late 2015, this was the standard scientific view. Before the 2007 epidemic on the isolated islands of Yap, Federated States of Micronesia, in the Western Pacific, there had been fewer than 20 human ZIKV infections reported over a 70-year period following its discovery in Uganda in the late 1940s (Gubler et al. 2017).⁵ The link between ZIKV and microcephaly was yet to be suspected: it took the Brazilian scientific establishment, and the world, by surprise.

From the beginning, Zika in Brazil was inseparable from two substantial political events that shaped the discourse and actions of the state towards this new viral disease (see Figure 3.1). On the one hand, there was the embattled presidency of Dilma Rousseff, involved in a lengthy impeachment process, and the political instability related to this. On the other hand, there was the planned Olympic Games in Rio de Janeiro in 2016, which was to host national delegations from 208 countries.

Rousseff’s mandate was under attack in parliament. During the leftist Lula and Rousseff governments, from 2003 to 2016, Brazil lived under steady economic

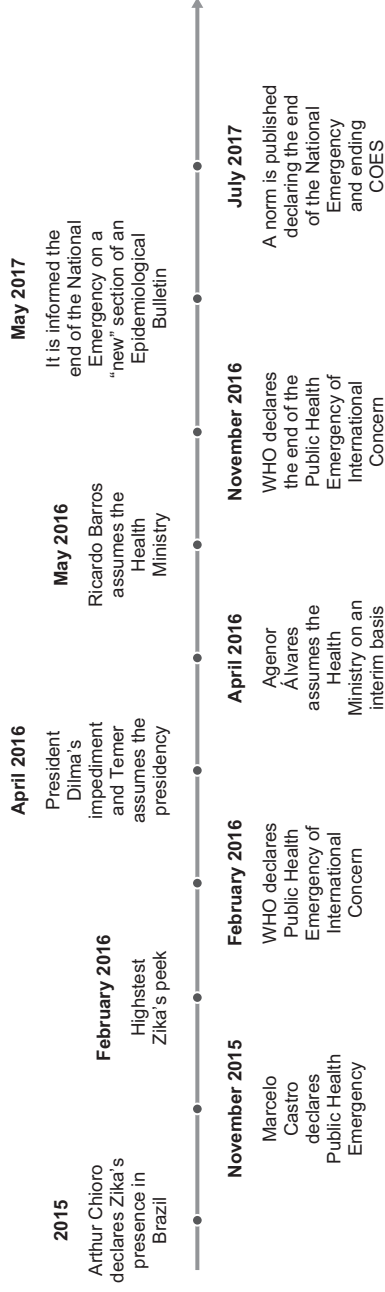


Figure 3.1 A timeline of Zika and political events in Brazil.

growth which helped support major investments in public social policies including support to the lower social classes in access to education, health, essential goods and living conditions. However, conservative undercurrents in politics and the higher classes disagreed with increasing state expenditures. Brazil had entered into a remarkable political and democratic crisis that stayed on throughout the entire Zika epidemic period.⁶ On October 2015, in one of several political strategies to maintain power and escape from the impeachment process, Rousseff reshuffled the Minister of Health, widely considered the best-resourced social ministry, removing a member of the Labour Party (PT) with a representative of the Brazilian Democratic Movement Party (PMDB). Marcelo Castro, a psychiatrist and congressman with no actual public health experience, became a crucial actor in the epidemic.

It was this new health minister who found himself having to declare a ESPIN after primary health care physicians in northeastern Brazil began raising the alarm about the rising cases of microcephaly (Diniz, 2017), which were confirmed in November 2015. Marcelo Castro supported his decision by relying on renowned scientific institutions, especially the Oswaldo Cruz Foundation (FIOCRUZ), and on a technical body from the Ministry of Health, specifically the Health Surveillance Secretary.⁷ Although there was certainly a great deal of uncertainty at this early stage, Castro and many other key actors from the government as well as scientists were scared. To galvanize support and convey the scope of the potential threat, the focus quickly turned to an old and traditional narrative: a “war” against the vector:

About 30 years ago the mosquito has been transmitting diseases to our population and since then we have fought it, but we are losing the war against *Aedes aegypti*. We are living in a real epidemic. We need Brazilian society to be mobilized in the prevention of these diseases.

(*O Globo* newspaper, Rio de Janeiro, Jan, 2016)

Launching a National Public Health Emergency is both a political and bureaucratic exercise. Through administrative mechanisms, it allows financial resources to be mobilized and targeted towards scientific studies, disease control interventions and efforts to fast-track biomedical countermeasures, like new diagnostics and vaccines. A sense of urgency and purpose floated over the actions and debates of those involved. In Brazil, primary care physicians, pediatricians and local epidemiologists in the northeastern region played important roles in unraveling early epidemiological details and raising the alarm. An area known for its history of sugarcane plantations, slavery and poverty, ZIKV hit what Diniz (2017) has called “a forgotten, anonymous region.” This meant that physicians and scientists from the periphery of Brazilian science, most unknown figures, made many of the key discoveries. These actors built rapid response networks and knowledge sharing platforms on the go, working with scientists from other regions of the country, in what became known among them as the “Whatsapp Epidemic.” These networks were organized organically, and the use of modern technologies (Whatsapp messages, cellphone texting, Skype video and iPhone photos) meant that the epidemic

played out in real time, almost instantaneously, with important consequences for the organization of scientific research and political decision making. Of course, this also meant that rumors and misinformation about this mysterious new disease could spread just as quickly as facts and data. Images of microcephalic babies and concerned mothers intermixed with scientific hypothesis, fake news and the ongoing Brazilian political crisis, especially in social media and internet news.

President Dilma Rousseff understood the threat of ZIKV to population health but also to the significance and symbolism of the epidemic to public trust in her presidency and to the Brazilian state. Zika became a priority issue, discussed side-by-side her political fight against the impeachment process taking shape in congress. From October 2015 to April 2016, she had been talking daily with scientists and epidemiologists regarding the epidemic and solutions to control it. In 2015, after the declaration of the ESPIN, the Ministry of Health invested millions of dollars in case-control studies, vaccine and diagnostic tests, community education material and vector control innovation studies, which included genetically modified mosquitoes.

Following in the footsteps of Oswaldo Cruz's sanitation campaigns of the early 20th century, the army went to the people to distribute information guides, to spread insecticides and to inspect houses and streets in search of mosquito breeding sites. In a patriotic show of hands and feet, more than 200,000 military troops and staff were called by the Ministry of Health to assist with vector control activities:

Armed forces, military police, firefighters, community agents, mayors, state secretaries, are all mobilized against Brazil's number one enemy today, which is the mosquito *Aedes aegypti*, the famous dengue mosquito.

(Minister of Health – February 2016)

Through a public health historical perspective during the 20th century, we see that Rio de Janeiro's landscape, for instance, seems to be a complex meshwork that involved mosquito combat through sanitization attempts, urban planning as well as violent state-induced dislocation of bodies and entire communities under the political discourse of "sanitation" (Hochman 1998; Nogueira 2016).

In April 2016, the impeachment of Dilma Rousseff reached its finish line in the National Congress. Michel Temer, her vice president, assumed the presidency of Brazil and a conservative turn began as Temer cut funding to social services (including health), science and technology policies by more than 20% and deregulated labour laws. The new Ministry of Health, under Ricardo Barros, proposed that new private health plans should be promoted for the lower social classes, threatening the National Health System and the right to health in Brazil. At that moment, Zika started to decrease. The new Ministry of Health chief declared that the mosquito was undisciplined:

‘If the mosquito committed to biting, only those who live in the house were easy, but unfortunately he is not disciplined,’ he said. The new minister

defended punishments for those who resist the entrance of public agents for house inspections. ‘This is the Brazilian culture. People have to be burdened.’
(Journal Bahia, 2016)

At the same time, President Temer and his government approved a constitutional amendment to impose limits on federal, state and municipal funding for public services and policies. Health, education and science were more affected by this law.

As this quick, and cursory, introduction to Brazilian politics show, the Zika outbreak coincided with a very complex political moment in Brazil, one that is ongoing. Ordinances, policies and health responses to Zika were immersed in these scientific, political, economic and historic contexts. The biopolitics of Zika made visible and invisible selected actors, groups and phenomena.

Paper trails: Official documents and unofficial silences

The war frame – man against mosquito – reinforced what Krieger (2014), in her analysis of 21st-century epidemiology, called the normalization of biomedical reductionism and this perspective reigned in the Brazilian response. A broader social epidemiological approach to the epidemic, that would have brought greater attention to poverty, sanitation, life conditions, social inequalities, reproductive health, climate change, urban planning and local governance did not enter into the conversation of the state nor, really, the scientific agenda (Ribeiro et al. 2018). *Aedes aegypti*-related diseases are widely endemic in the north and northeast regions, as well as in the big cities of Rio de Janeiro, Belo Horizonte, São Paulo and Recife. Oliveira et al. (2018) showed, for Ceará, over 190,000 reported cases of Dengue between 2001 and 2012, with higher peaks during the years of 2001, 2006, 2008 and 2012, with different strains of DENV circulating at the same time. In the city of Rio de Janeiro, Coelho et al. (2016) showed that in 2002 there were over 140,000 reported cases and in 2015 over 55,000 cases of different strains of DENV.

In many ways, ZIKV is a vector-borne disease causing only mild symptoms, one of many infectious diseases that now compose the epidemiological landscape of Brazil, like Dengue, Chikungunya or the seasonal flu (H1N1). But this was not the way ZIKV was framed during the epidemic. The consequences of neurological impairments for newborn babies turned ZIKV into what Veena Das (2006) has called a “critical event.” This unprecedented event disrupted a previous narrative and set it apart from other vector-borne diseases. In some ways, this conjunction of a dangerous pathogen with the state response highlighted what seemed to be a threat to the nation and its future. During an interview with *O Globo* newspaper, on January 2016, the Health Ministry expressed its concern and fears regarding the possibility of an entire generation affected by microcephaly, and the implications of this on the social and economic fabric of the country.

Human bodies, in an unequal world, are not subjected to the same effects, access and resources (Lock and Nguyen, 2010). Different neighborhoods and

social groups are not provided with the same resources, capacities, interventions and care from the state. People move along urban ecosystems in different ways, traveling along different axes and encountering mosquitoes differently. As Nading (2014) argued in reference to Dengue in urban Nicaragua, vector-borne disease control is not only about mosquitoes and their breeding sites but also about the embedded and complex human-to-human relationships that also need to come under the microscope and into public surveillance. This includes the ways in which different actors invoke the language of “emergencies” and “crises,” with their corresponding emotions of fear and urgency. Nading (2014:178) argues that overlapping geographical and political event inform the urban city, often in a continual process of “emergency” and constitute a “political trope”.

We want to explore this “political trope” in a slightly different way: instead of looking and thinking about the city, we want to think about the “documents of emergency” that evolved during the Zika epidemic itself, and how these paper trails produced the literacy of the state response.⁸ We are concerned with a set of official documents that were created and disseminated through institutionalized channels, such as ordinances, technical notes and protocols. There are two aspects of these documents: historical and institutional. The former create specific temporalities by declaring, in this case, start and end dates to the Public Health National Emergency in 2015 and 2017. The latter include the various ordinances created during the epidemic as well as operational instructions, protocols and epidemiological bulletins. These documents produce guidelines and ordinances on how to do public health in times of epidemic emergency, documents with an institutional power, produced within the Ministry of Health, by technicians and experts, with the purpose of guiding and structuring a set of actions.

Over two years, the ministry issued over 17 ordinances, 6 technical notes, 4 protocols on ZIKV and 4 on microcephaly, and 60 weekly reports monitoring, specifically, cases of microcephaly. These are the main bureaucratic forms that produced and communicated decisions and policies in the health ministry, the health secretaries at both state and municipality levels and to health care professionals. In our analysis of this corpus of documents we have found three broad categories: (1) surveillance protocols; (2) documents concerning non-vector Zika transmission; and (3) documents that outline institutional arrangements between different ministries.

Surveillance protocols

By the end of 2015, and all through 2016, national epidemiological bulletins were announcing the appearance and distribution of new microcephaly cases in different states of the country. Alongside Pernambuco, Bahia and Recife in the north-east, Rio de Janeiro also began showing substantial increases. As cases and public interest in the new emergency increased, important surveillance gaps needed to be quickly filled. In response, during the last month of 2015, two main documents were issued. The first, *Protocol for Implementing Health Sentinel Sites*, stressed the need to better understand viral spread, improve laboratory diagnostics and

coordinate the flow of surveillance information. This short and concise document (of only seven pages) settled, among other things, approaches for surveillance of the new virus including how to turn diagnostic laboratories into sentinel sites to trace Zika's movement.

The health ministry, following tenets of decentralized policy-making, decided that every capital city, in each of the 26 federal states, should have at least 1 sentinel laboratory and that some medium-sized cities should also have this capacity, in order to track cases from smaller cities located nearby. These labs, situated in the northeast, were supposed to send 10 samples per week to the federal referral laboratory Instituto Evandro Chagas (located at Pará state in the north of the country). This system only lasted a couple of months. By mid-2015, the referral lab was receiving far more than 10 samples per week, and the health ministry had to find other laboratory facilities to act as referral sites, such as Fiocruz-Pernambuco, in order to respond faster to the outbreak.

The second document, the *National Plan to Combat Microcephaly*, was the first protocol issued after the state officially confirmed the correlation between Zika virus and microcephaly. It is geared towards health professionals and administrators, and is a handy book detailing not only how to deal, medically, with ZIKV (such as on diagnostic issues) but also delves into planning and bureaucratic problems, including how the state should generate, share and store information. Along with providing parameters to classify suspected and confirmed ZIKV infection and microcephaly (in both pregnant women and newborns), it urges health professionals to inform suspected cases of the results of diagnostic tests and assessments as soon as possible. Information should also flow upwards, from the health professional (preferably a doctor) to the municipality, the state and then the national federal entity, the health ministry – a fairly standard notification process. However, it took until early February 2016 for ZIKV virus and ZIKV virus infection among pregnant women to be classified as a reportable disease, to be notified to local health authorities within 24 hours, which meant that passive surveillance was no longer to be solely based on eligible sentinel sites.

This document enunciates some certainties: the geographical dispersion of Zika cases and the fact that the virus can be found in the amniotic fluid of pregnant women whose babies were born with congenital malformation, such as microcephaly. Nevertheless, the document points out some scientific uncertainties: available data could not ascertain the risk to women of having a fetus with congenital malformations if they were infected when pregnant. The document clearly states the necessity of further studies. Other possible forms of virus transmission seemed less important, as the document only mentions the possible presence of the virus in breastmilk, semen, urine and saliva but discards its potential transmissibility, focusing on human-animal relations (mosquitoes).

Negotiating transmission uncertainties

In late December 2015, just three days before Christmas, a technical note was produced by the National Coordination Body on Blood and Blood Products

(Ministério da Saúde, Agência Nacional de Vigilância Sanitária, 2015), which stated:

The main mode of Zika virus transmission is through mosquitos bites such as *A. aegypti*. However some evidences suggest that the virus can also be sexually transmitted among humans, as well as by blood transfusion.

In light of the other official pronouncements cited earlier, such a declaration reveals the fragmentation within the corpus of “documents of emergency” and inside the Health Ministry. The document addressed blood transfusions protocols, alerting health professionals to be more careful in screening for possible ZIKV-infected blood donors. This work followed a history of monitoring hospital and public blood banks, going back to the 1970s and 1980s, when contamination cases, mainly from Chagas disease and Hepatitis B, were widely known and problematic. Once HIV/AIDS became a global threat, the Brazilian social movement was highly effective at demanding changes on blood transfusion policies, through federal surveillance and reinforced screening policies. While more scientific studies are needed on the risks that blood transfusions pose for the spread of Zika, the coordinating body followed other international institutions (like the US CDC) and altered blood transfusion protocols. A decision had to be made, and scientific uncertainties, as Callon et al. (2009) put it, constitute the everyday lives of policy-makers and political institutions.⁹

Another technical note was issued in March 2016 concerning semen donation. This forbade the donation of sperm in the case of positive or inconclusive blood tests for Zika virus infection. By March 2016, the National Epidemiological Vigilance Agency (ANVISA) issued a technical note altering the protocol for the utilization of both national and imported semen or oocytes for reproductive uses. It is important to highlight that these technical notes were not ordinances, and so did not exert much tangible bureaucratic power, although at the time some inside the MoH were emphasizing the possibility that Zika could be sexually transmitted, although there were no warnings to the general public.

In a recent interview conducted by our research group, a technical member of the health ministry involved in the epidemic outbreak response affirmed that given the amount of vector-borne transmission cases and the uncertainties surrounding sexual transmission, such as the duration of the virus’ incubation and its viremia, the health ministry decided to focus on vector control alerts and campaigns. This official statement seems to be in agreement with the epidemiological bulletin (no. 46, published on 2015), affirming the existence of other forms of transmissibility but also downplaying it.

Institutional arrangements

A little over a month after the ESPIN declaration, a presidential decree was signed by Dilma Rousseff, Marcelo Castro, from the health ministry and Gilberto Ochi, from the national integration ministry. This latter ministry is involved in many

national development programs, such as irrigation and drought prevention, but it also has a role in protection and civil defence. This decree combined efforts from these ministries to create the *Sala Nacional de Coordenação e Controle para o Enfrentamento da Dengue, do vírus Chikungunya e Zika vírus* (National Unit of Coordination and Control for Dengue, Chikungunya and Zika viruses). This centralized unit's role was to coordinate and integrate efforts from both the Health Ministry and the Ministry of Social Development, putting together both ministries' efforts into the National Integration Ministry's administrative units.

This decree did not invalidate the ESPIN declaration; rather, it reinforced national concerns by creating a specific institutional device that not only combined forces from different ministries but also transformed, what at first glance could seem like a more regionally localized microcephaly outbreak into a national one, deploying a set of combined institutional efforts. During the ESPIN, the flow of surveillance data becomes particularly important, and is watched very closely and COES issued weekly reports to inform decision makers.

Until this moment, the Health Ministry was the main state institution involved in producing "documents of emergency" – protocols, ordinance, guides and general public communications. One of the presidential decree's effects was to create better coordinated actions between the ministry of health and ministry of social development. Here, there seems to be another governmental entry point into Zika's timeline as the ministry of social development is brought to the political stage to socially and financially address the needs of children and families touched by congenital malformation. Three interministerial ordinances were then issued, in addition to two "combined operational instructions." These five documents dated from early February until late October 2016, and they are analyzed here together as a way to perceive subtle changes and some continuities.

Throughout these documents, there is a sense of emergency regarding the diagnostic accuracy and confirmation of microcephaly. In the first document produced by this interministerial group, there are still doubts concerning the correlation between the high rates of microcephaly and the Zika epidemic. The document points to "unexpected situations" and "possibly associated with Zika virus." Nevertheless, the health ministry and social development ministry created actions aimed to strengthen prevention and care and social protection to pregnant women and women of reproductive age.

As far as prevention activities go, there is a clear focus on individual care and responsibility, as well as vigilance and control at the household level. As Nading (2014) shows in Nicaragua, Dengue and vector control are often seen through the prism of individual vigilance and action, where motivational social and educational programs and campaigns are the main vehicle for state intervention. Engaging the community to fight the mosquito, to create a housing environment that is unfit for the mosquito, as well as being vigilant about the hygiene and personal attitudes of your neighbours, are the main tasks. What is missing from this rhetoric, however, are state actions concerned with public goods and public spaces, such as sewer systems, garbage disposal and better housing – all of which remained largely absent from state documents and campaigns during

the Zika crisis. Infrastructural efforts that would indeed make concrete changes in people's lives are, and have been for many years, a political and economic issue that remain, time and again, unaddressed by local and federal policymakers. As scholars of Brazilian anthropology have shown, these infrastructural issues become, at each election, merely a rhetoric slogan for political campaigns, with very little progress made in-between the ballot box (Heredia and Palmeira, 2006; Kuschnir, 2000).

The next three documents, issued between March and October 2016, no longer had any doubts concerning the correlation between high rates of microcephaly and ZIKV. In a detailed epidemiological survey at the time, every state of the country, except Amapá, had suspected or confirmed cases of microcephaly. Rio de Janeiro was ranked 6th among 26 states; the first 5 were all located in the north-east of the county and each of those 26 states received additional national funding. The amount of the funding was calculated based on the number of confirmed cases of microcephaly, as established by these ordinances.

Another point that is not addressed in any of the documents is the possibility of pregnancy terminations. Abortion in Brazil is only legal when a woman's life is at risk or in rape cases. Sexual and reproductive rights in these five documents concerned only a social and educational approach about contraceptive methods (and its dispensation) and "medical counseling to inform and better evaluate women's decisions on wanting to get pregnant." In a touching documentary film, produced by Debora Diniz, terms as "we will see"; "we will wait and see"; and "it is hard, I know, but have faith, you are strong" are deployed by medical staff when attending to pregnant women whose fetuses had been diagnosed, via ultrasound, with microcephaly. In a country where abortion in those cases is illegal, and when pregnant women are faced with a new challenging reality, it begs the question: what else is there to be said?

In an epidemiological bulletin issued in 2017, the health ministry described the women most touched by Zika's terrible effects. It depicts mostly Afro-Brazilian women, poor and living in neglected urban areas or in the poor countryside. These are the women making routine use of the Unified Health System (SUS), who have no financial resources at their disposal to use private health care. For these women, abortion is not only illegal but also completely inaccessible.¹⁰ It becomes apparent, through this depictions and many others like it, that Zika's worst and most devastating effects were not only gendered but also embodied in racial and class differences.¹¹

Throughout the epidemic, a national campaign slogan could be seen spread across the country: "*Um mosquito não é mais forte do que uma nação inteira*" (a mosquito is not stronger than a whole nation). Obviously, this is a piece of propaganda designed to reinforce a sense of community in a collective effort to combat the mosquito threat. It was used to focus the collective psyche on individual responsibility, on the need to follow environmental sanitation procedures at the household level, and to accept government fumigation and house-to-house vigilance by municipal staff called *agentes de combate de endemias* (combat agents of endemic disease).

However, this slogan did more than this. It reinforced the military idiom that pervaded these campaigns throughout the 19th and 20th centuries (Hochman, 1998), which viewed the mosquito as the enemy and created an impossible battle to be fought in a deeply unequal society. What “nation” is being addressed by this campaign slogan? What “nation” will have its houses inspected on a daily basis by state agents? And on whose shoulders does the weight of this campaign fall? By July 2017, the health ministry published a norm declaring the end to the national emergency, leading each state, in its own way, to continue with the medical and epidemiological follow-up.

Brazilian responses to microcephaly: Caring and forgetting children affected by Zika

Babies affected by ZIKV started to appear in the Brazilian and international press in 2015 in ways that revealed certain things and kept others hidden. Indeed, ZIKV has become a political event in Brazil and a global health problem through the fear and uncertainty surrounding microcephaly, and its related health risks, bodily damage and burden. The disease has a temporal dimension, with its impact dragged from an infected present to a chronically burdened future for those families that are, unfortunately, affected. Nevertheless, it is worth asking: have affected children and families become as perceptible as the virus itself? How has the Brazilian government responded to their plight and suffering, and long-term care needs?

Microcephalic infants were visual centerpieces of the epidemic, but addressing their caregiving needs, and the psychosocial realities of their mothers and families, were not the first priorities of the Brazilian government when they declared the ESPIN in November 2015. Rather, the aim was to obtain continuous and timely knowledge about the disease by strengthening epidemiological surveillance and to prevent more cases by mobilizing long-known strategies to combat the *Aedes aegypti* mosquito (Ministério da Saúde, 2015b).

The fact that ZIKV was already known to science complicated things. A known disease suddenly became unknown, and epidemiologists and public health experts needed to quickly map and evaluate the available data. The unprecedented nature of ZIKV consequences and the rapid increase in the number of cases posed difficulties in reorganizing the Brazilian health system to respond promptly and adequately to these new demands.

The corpus of microcephaly epidemiological bulletins (MEB) (Boletins Epidemiológicos de monitoramento de microcefalia) and their corresponding epidemiological reports (ER), produced by the Health Ministry as tools of monitoring ZIKV and affected children, were important parts of the repertoire of “documents of emergency.” The epidemiological bulletin (EB) and the epidemiological report, published online, provided the Sanitary Vigilance Department with a platform to rapidly disseminate results on disease-specific information and investigations, and to orientate public health action.

At the end of 2015, when there were many scientific uncertainties and no guarantees of significant and immediate health system support, mostly because of the

troubled political landscape, the official discussions centered on knowing and controlling the disease right away. Regrettably, Dengue has shown us that simply knowing about a disease is not enough to control it.

If the Brazilian state provided medical care in full accordance with its constitutional laws, focused on comprehensive care for example, then all babies with Congenital Zika Syndrome (CZS) ought to get specific pediatric primary care, professional early stimulation and follow up by different specialists, according to the national “Protocol for Surveillance and Response” published in 2015 by the Brazilian Health Ministry (Ministério da Saúde, 2015b). As reported by the Sanitary Vigilance Department (Secretaria de Vigilância em Saúde, 2017), among the 2,681 confirmed CZS cases that remained alive from November 2015 to February 2018, 72% had some kind of care, 31% had all three kinds and 23% had both pediatric and specialist care. According to same document, there were 3,087 confirmed cases of CZS by February 2018. Although life expectancy for these children is considered exceptionally low, 2,681 of them were still alive in 2018. In addition, 12,393 notified cases were still under investigation, or were considered probable, discarded, excluded or inconclusive, for various reasons (Secretaria de Vigilância em Saúde, 2017).

In our analysis, we found three significant moments that shifted the management of the epidemic in Brazil. The first included the government’s integrated approach between the Ministries of Health and Social Development, in early 2016, to combat the sanitary emergency (Ministério da Saúde, Ministério do Desenvolvimento Social do Brasil, 2016a,b,c). The second included, in early 2017, the effort to better integrate epidemiological data into the management of the epidemic through surveillance and healthcare data, protocols and guidelines (Secretaria de Vigilância em Saúde, 2017). The final and third shift was seen in the second half of 2017, when the United Nations International Children’s Emergency Fund (UNICEF) entered the scene. Although prevention and care of children and families affected by Zika were discussed in official documents, until mid-2017 most actions focused on risk communication in vector control and on individual microcephaly diagnosis.

In the Brazilian health system, diagnostic practices are important, even necessary, vehicles for accessing social service provisions. For children with CZS, a medical report was needed to plan individual care routines and to access the *Benefício de Provisão Continuada* (BPC), a financial security program for low-income families with a victim of Zika-related microcephaly (Congresso Nacional do Brasil, 2016). Benefits in this program, however, seem calculated to an early death; the maximum benefit period is only three years. The BPC has political implications. Social support tied to microcephaly babies is set apart from the greater disability advocacy community and may compromise efforts in strengthening the general health care and social protection of other children and families. In addition, the arrangement between the ministries, affecting health system and social assistance, focused on promoting early stimulation interventions through family involvement, instead of creating conditions to provide pediatric primary care, professional early stimulation and

follow up by different specialists, such as neurologists, ophthalmologists and orthopedists.

The aim to better integrate epidemiological data into practices of caring for mothers and children affected by Zika, stated in the 2017 MEBs, promoted the integrated monitoring of changes in growth and development. Nevertheless, in everyday practices the discourse on microcephaly continued to frame biomedical surveillance and health interventions. This situation conflicted with what we know about CZS, or came to know in 2016, that CZS constitutes a range or spectrum of disorders and can occur without microcephaly and can appear after birth (Mota et al., 2016).

The term “CZS,” therefore, implies that children exposed to Zika during pregnancy may have multiple development disorders, even though they are considered “normal” at birth. Lowe et al. (2018:9) called these babies the “Zika generation.” The microcephaly spectacle blurs their visibility, also because there remain substantial diagnostic difficulties that complicate tracking these more insidious and hidden affects. This threatens a large segment of children born during the Zika epidemic, the “Zika generation,” with unknown health, social and economic implications as well as social and state neglect and disregard, which is well known to the wider Brazilian handicapped population (Nações Unidas no Brazil, 2018). The existence of a large segment of “Zika generation,” their life conditions and requirements are, therefore, in dispute and remain unaccounted for.

The health apparatus, in the second half of 2017 and in cooperation with UNICEF, created three documents to better address the needs of children affected by Zika (United Nations Children’s Fund, 2017a,b,c): (1) guidelines for families and caregivers of children with developmental disorders (*Orientações às famílias e aos cuidadores de crianças com alterações no desenvolvimento*); (2) school and home stimulation of children with developmental disorders: qualification course for health, education and social assistance professionals (*Metodologia para Multiplicadores. Estimulação de crianças com alterações no desenvolvimento no ambiente domiciliar e escolar: Curso para qualificação de profissionais de saúde, educação e assistência social*); and (3) ensuring the rights of families and children with CZS and other disabilities (*Projeto Redes de Inclusão. Garantindo direitos das famílias e das crianças com Síndrome Congênita do Zika vírus e outras deficiências*). These documents drew heavily on the “early childhood development” (ECD) concept that has guided UNICEF’s strategies since the 2000s (UNICEF, 2001). Practices established from the ECD approach place strong emphasis on brain enhancement and optimal brain development, as well as the promotion of a child’s cognitive, physical, emotional and social potential (UNICEF, 2001). In reality, however, the majority of efforts under the ECD umbrella tend to focus most on cognitive and physical issues, and less so for emotional and social ones (Silva, 2016).

In an atmosphere of limited resources and the need to optimize investments, the collaboration between the Ministry of Health and UNICEF focused on the first three years of life, regarded as the most significant period for structural brain development, although according to the United Nations Committee on the

Rights of the Child (2005), early childhood may last up to eight years of age. They also focused largely on early non-professional stimulation, often to be carried out by the families of the affected children. Like mosquito control, the onus of responsibility is on the individual and the household, charged with conducting and maintaining most child development interventions (Silva, 2016). This may sideline the demands of poor families for comprehensive professional care and state intervention.

Discussion and conclusions

This work highlighted some critical nodes in Brazilian health policies in relation to the ZIKV outbreak. Political contexts, scientific uncertainties and state trajectories enact complexities and produce different meanings and actions on Zika. The rapid response of the Brazilian Ministry of Health helped to increase epidemiological surveillance, diagnostic resources, improve financing to research and implement vector control initiatives. This was efficient in some ways and less so in other, but overall followed well-established historical patterns of other medical emergencies, such as outbreaks of H1N1 influenza, Dengue and measles. In a climate of unstable national politics, the Brazilian state response to Zika was predominately biomedical and reactionary, with limited regard for the deep-seated structural issues in the public health system and the social inequities that, in many ways, explain the virus' particular epidemiology. The "war framing" of Zika (Ribeiro et al. 2018), and with it the large, periodic campaigns on vector control, remain the main course of action, regardless of the social determinants of health, structural problems in the health system and other forms of transmission, such as through sex.

The "documents of emergency" we have reviewed and analyzed in this chapter reveal, first and foremost, a policy approach that repeats time-restricted and epidemiological monitoring patterns of previous responses. In the beginning of 2017, the Brazilian government announced the development of a "process of integrated surveillance and health care monitoring in cases of changes in the growth and development of Zika virus infections and other infectious etiologies," but, in February 2018, this processes was still unfinished. If, on the one hand, science learned to know Zika better, then, on the other hand, data from the improvement of epidemiological surveillance did not result in enhanced integration between the surveillance system and health care network planning, much less in guaranteeing access to much needed expanded health care assistance to all babies effected by ZIKV.

In January 2016, a former health minister, Marcelo Castro, declared that women should postpone their pregnancies and that he "hoped" women would get infected early in their lives, before they reached their fertile period.¹² The minister's underlying assumption seems to have revolved around a sort of "permanent immunization" established by a one-time infection with the virus. However, there seems to be no scientific evidence confirming this statement, just as there is no

certainty about how the immune system responds to ZIKV and its transmissibility. Individual responsibility here appears entangled in a complex meshwork evolving gender biases, ideas of nation building and an assumption that herd immunity would “naturally” resolve an epidemic that, in many ways, was driven by dominant social, economic and political phenomena.

In this chapter, we situated Zika within a broader landscape of Brazilian politics and health systems. By exploring the literacy of the Brazilian state, and its ordinances, protocols and manuals aimed at guiding health professionals, we provided some reflects on how the state came to understand and frame the epidemic itself. With regard to the official responses to microcephaly, we found three significant moments that shifted the management of the epidemic in Brazil: the government’s integrated approach between the Ministries of Health and Social Development, in early 2016, to combat the sanitary emergency; the attempt to integrate epidemiological surveillance data with health care planning; and the shift (in the second half of 2017) in care and support to affected families, where UNICEF played an important convening role.

From a local epidemic to a global threat, from the state’s response seen through what we called “documents of emergency” to children and family care, we have attempted to explore, following Nunes and Nacif (2016), how and why certain subjects, issues and groups became visible during the epidemic and its aftermath, while others largely remained hidden and invisible. Through each set of documents analyzed here, such as ordinances, protocols, technical notes and microcephaly epidemiological bulletins, not only do we see differences among the Health Ministry’s departments and hierarchies but, most importantly, in each of these set of documents a slightly different ZIKV is put forward, and “enacted” (Mol, 2002).

A Zika construed solely by mosquitoes and their human-animal relations leaves absent other forms of transmission, including sexual transmission, and constitutes a series of silences and erasures of scientific data; a Zika construed by its correlation only to microcephaly constitutes another series of silences, this time concerning an entire “Zika generation” that falls outside the more visible effects of microcephaly; and a Zika with which a considerable number of families, especially women and mothers, are expected to provide early life stimulation hides the need for professional state services and access to specialists.

Scientists now affirm that Zika is here to stay and, just as Dengue and Chikungunya, has become endemic to Brazil and most other countries in the Americas. It will in time reappear in epidemic form once herd immunity wanes. But Zika’s transmission, effects and repercussions are embedded in a set of uncertainties. Zika is not the same as other arbovirus diseases. In January 2016, the former health minister (cited earlier) also declared that the fight against Zika was a fight against the need to avoid a “damaged generation” for Brazil. Nowadays, in the aftermath, it is possible to see that the children affected by the Zika virus have been framed and treated, to a large degree, as yet another segment of a neglected population group, inscribing further iniquities in Brazil’s genealogy. Some aspects

are highly visible, just as microcephaly is highly visible, and yet many aspects are equally silenced and unseen, just as many of Zika's biological effects are also unseen and invisible.

Notes

- 1 This work was partially supported by the European Union's Horizon 2020 Research and Innovation Program under ZIKAlliance Grant Agreement no. 734548. We would also like to acknowledge the Newton Fund Institute and the British Council for their support. Special thanks to our colleagues at the Zika Social Science Network and at FIOCRUZ.
- 2 As Hochman suggested (1998), the emphasis on large environmental sanitation campaigns in Brazil reflects a certain history of how the state has dealt with vector control over the years, in fragmented actions carried out for some months during peak epidemics and mainly concerned with individual and household responsibility and the use of chemical fumigation. In this approach, none of the infrastructural issues that surround mosquito breeding are addressed.
- 3 We use the term "temporalities" here in the terms used by Veena Das (2007) and Alex Nading (2014). Both authors, in different contexts, speak about a state that makes itself present only sporadically in the lives of its citizens, in lacunar actions.
- 4 See <http://www.jb.com.br/ciencia-e-tecnologia/noticias/2015/05/15/especialista-minimiza-riscos-de-zika-no-pais/>
- 5 It is now believed that Zika was likely introduced into Brazil from various soccer and canoe race competitions, between 2013 and 2014, that brought athletes from the South Pacific, as the virus was circulating there (see Gubler et al. 2017).
- 6 After the Brazilian presidential elections in 2014, an economic crisis started which supported the political crisis against President Dilma Rousseff and the Labour Party. A conservative wave grew all over the country among high and middle social classes. From 2015 until the time of writing (mid-2018), Brazil was immersed in a polarized battle between democratic and conservative politics.
- 7 FIOCRUZ is a major public health research institution in Brazil, established in 1900, when it originally worked on sanitation campaigns for smallpox, yellow fever and plague. It has a current workforce of over 7,500 people, with a main office in Rio de Janeiro.
- 8 In a classic paper on bureaucracy, Weber (2006:50) establishes an articulation between written papers (the archives) and the professionals who work in the administration, and suggests that it is not possible to analyze bureaucratic practices without paying due attention to these papers and their role in structuring and ordering the administrative apparatus. Bourdieu (2014: 113), in a similar sense, emphasizes the "situation of authority" that produces the legitimacy of an "appointment or attestation," making them official acts, endowed with bureaucratic meanings and, in a certain way, creative powers, orders and realities.
- 9 Such a decision, at least the way it was implemented, has since been questioned in the United States. Saá et al. (2018) showed the high cost of screening each individual donor (which cost over \$42 million over a period of 15 months) was likely an unnecessarily sensitive (and expensive) process given the risks involved.
- 10 It is important to note here that the argument that abortion is a public health issue had been strengthened in 2007 when a former health minister, Mr. Temporão, openly defended revisions to the country's abortion laws, supported by former president Lula. However the two following elections changed this legislative effort (Nogueira and Baptists, 2007).
- 11 For an ethnographic study on the entanglements produced by official documents construing everyday life in primary health care facilities in Rio de Janeiro, especially concerning prenatal care and HPV screening prevention, see Nogueira (2016).
- 12 See: <http://g1.globo.com/bom-dia-brasil/noticia/2016/01/ministro-da-saude-come-tegafe-ao-falar-sobre-vacina-contra-zika-virus.html>.

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