Saúde Coletiva in a time of pandemics: Syndemics, Zika, and Democracy in Brazil

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Abstract

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International Studies and Comparative History of Ideas

The emergence of Zika in 2015 represented a novel social health risk embedded within a trifecta of ongoing public health crises, shaped by gendered, racialized historical practices of sanitation reform with differential impacts. The expansion of health and social integration in Brazil are political projects in solidarity that demand a conceptual and geographical bridging of the scales of body, home, and state. Drawing on connections between community health and local organizing practices in Recife and Rio de Janeiro as case studies, I demonstrate the distinctive practices of *Saúde Coletiva* that reveal Brazil in transformation amidst a pivotal political moment and important flashpoint for gender equality in Brazil. Local community health workers and civil organizations continue their work in the aftermath of the 2016 Zika PHEIC in addressing the eco-social determinations – or trajectories of health as a dynamic process in *Saúde Coletiva,* where community health workers and organizers were activated by Zika-related gendered risks in generating new spatial practices and forms of collectivity in ongoing struggles for *Saúde Coletiva*.

Keywords: *Saúde Coletiva,* Community Health, Zika, Syndemics, Social Determinations of Health, Pathways of Embodiment

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Valeu!

Contents

List of Figures & Tables *6*
Glossary and Acronyms *7-8*

Introduction Zika PHEIC 2015 - 2016 *10*
Pathways of Embodiment and Knowledge

Chapter 1 Globalization, Health Systems, and Pandemics *16*
Chapter 2 Towards a Decolonial Feminist Methodology in the Field *34*
Chapter 3 Coeval Histories of Public Health & Movements for Social Justice *41*
Chapter 4 Field Sites and Spatial Analysis *61*
Part I. *Rio de Janeiro* *62*
Part II. *Recife* *73*
Chapter 5 Conclusions - The Politics of Saude Coletiva and Democracy *85*
References *92*

List of Figures and Tables

Figure 1.1. Global Health Networks and Research *17*
Figure 1.2. Zika Virus Research Agenda Implementation Framework *24*
Figure 1.3. Zika Virus Knowledge in Context - Wikidata Query Service Graph *28*
Figure 3.1. Monument bust of Miguel Lemos, founder of the Positivist Church *47*
Figure 3.2. *Ditadura Nunca Mais*, Street tag in Florianópolis 2018 *53*
Figure 3.3. *Atotô,* a comic strip created by HIV/AIDS prevention program for Afro-Brazilian communities *58*

Table I. *Economic and Social Characteristics of Urban Field Sites* *61*

Figure 4.1. Rio de Janeiro Municipal Zones and Select Neighborhoods in research *62*
Figure 4.2. Recife Municipal boundaries with Select Neighborhoods in research *73*
Figure 4.3. SOS Corpo Cultural Center and Representational Spaces *79*

Glossary & Acronyms

ACT UP	AIDS Coalition to Unleash Power
ADE	Antibody Dependent Enhancement
ARENA	Aliança Renovadora Nacional - *National Renewal Alliance*
AS-PTA	Assessoria e Serviços a Projetos em Agricultura Alternativa *Consultancy and Services for Projects in Alternative Agriculture*
ASA	Articulação no SemiÁrido - *Semiarid Movement Network*
BF	Bolsa Familia
CAB	Community Advisory Boards
CCT	Conditional Cash Transfer
CDC	Centers for Disease Control and Prevention
CEM	Centro de Educação Multicultural
CHW	Community Health Workers
CONAQ	Coordenação Nacional de Articulação das Quilombola
CZS	Congenital Zika Syndrome
ESF	Estratégia Saúde da Família - *Family Health Program*
GDP	Gross Domestic Product
HDI	Human Development Index
IBGE	Instituto Brasileiro de Geografia e Estatística *Brazilian Institute of Geography and Statistics*
IHR	International Health Regulation
IMF	International Monetary Fund
IUAES	International Union on Anthropological and Ethnological Sciences
IPEA	Instituto de Pesquisa Econômica Aplicada *Institute on Applied Economic Research*
HSS	Health Systems Strengthening
FIOCRUZ	Fundação Oswaldo Cruz - *Oswaldo Cruz Foundation*
LAPOP	Latin American Public Opinion Project
MNU	Movimento Negro Unificado contra Discriminação Racial *Unified Black Movement against Racial Discrimination*
MS	Ministério de Saúde - *Ministry of Health*
MPA	Movimento Pequena Agricultural
MST	Movimento Sem Terra
PAHO	Pan American Health Organization
PHEIC	Public Health Emergency of International Concern
MDB	Movimento Democrático Brasileiro *Brazilian Democratic Movement Party*
PT	Partido dos Trabalhadores - *Workers' Party*
REDE CAU	Rede Carioca Agroecologia Urbana *Carioca Network of Urban Agroecology*
RT-PCR	Reverse-Transcriptase Polymerase Chain Reaction
SINASC	Sistema de Informações sobre Nascidos Vivos *Information System on Live Births*
SPF	Brazilian Forum of Public Safety
STS	Science, Technology, and Society
SUS	Sistema Único de Saúde - *Unified Health System*

UFPE Universidade Federal de Pernambuco
Federal University of Pernambuco
UFSC Universidade Federal de Santa Catarina
Federal University of Santa Catarina
UNDRP United Nations Declaration of Human Rights
UPP Unidade de Polícia Pacificadora
Police Pacification Unit
UERJ Rio de Janeiro State University
VISP Vaccine Induced Seropositivity
WHO World Health Organization

Beginning with “the idea of ***studying change as a constant*** … assumes the position that we don’t have - a starting point from which we can tell our stories - like this and *then* this happened.

What we have will be like … ***stepping into a river that’s already flowing*.** Perhaps what we end up with is an anthropology of fragments, of particular stories, linking together things that happen at multiple sites. Perhaps these are the kinds of techniques by which we can cobble together stories. But the question is - ***what will those stories be about, what type of coherence can we give them in a world that has so much uncertainty?***”

In her keynote speech to the 18th Congress of IUAES in Florianopolis, Amita Baviskar 2018

Introduction

Zika PHEIC 2015 - 2016
Pathways of Embodiment and Knowledge

Facing an unprecedented increase in newborns born with microcephaly and the acute possibility of international spread, the World Health Organization (WHO) announced its fifth Public Health Emergency of International Concern (PHEIC) in response to gaps in knowledge around Zika transmission and risks. For a brief time between February and November of 2016, the Zika PHEIC recruited a convergence of actors and organizations across scales – from local academic, regional, national, international, and non-governmental players – focused primarily on technical knowledge and coordination of institutional public health, geared towards providing evidence-based advice and harnessing appropriate control measures. This cascade response triggered an activation of the global health security networks that generated a wealth of knowledge aimed at building the evidence base and characterizing the Zika outbreak to prevent its spread. For example, the number of Zika-related publications before 2016 was less than 200. Comparatively, the Zika PHEIC resulted in a rapid expansion of knowledge with more than 9000 based on a PubMed search by 2023. While grappling with the limits of knowledge, Zika PHEIC relied also heavily on epidemiological studies and predictive models for assessing risk in the face of uncertain evidence on risk.

The emergence of Zika in 2015 - 2016 represented another social risk to health that was expressly gendered, racialized, unequal, and embedded within a prevailing trifecta of public health threats to reproductive and popular health. Although this was not explicitly communicated, Zika virus was a new human teratogen, meaning infection during pregnancy interfered with normal fetal development and resulted in congenital defects. Not every perinatal Zika infection resulted in the same effect on the fetus, and there exists other types of teratogens, including toxins, chemicals, and other infections that can shape maternal health status. Because of the timing and context of its emergence, Zika outbreaks in this period represented another threat to safety and an important flashpoint within a pivotal political moment for Afro-Brazilian and women of color in their fight for gender equality and their entitled citizenship rights to health protections. Especially for those living disenfranchised from Brazil's public health system, Zika PHEIC prominently exposed three persistent structural and social determinants of health in the disparities and inconsistencies of the Brazilian response:

While the need for an immediate response to Zika was informed by a biomedical model - the primary focus was on defining risk factors, characterization of the Zika-related syndrome and symptoms, arbovirus research into diagnostics and therapeutics, and the capacity of the health system to attend to the needs of the families affected. Meanwhile, some researchers raised the important question of the relationship between social inequalities and epidemics.

Not only was there reproductive health risks and Congenital Zika Syndrome (CZS), but Zika was identified within the context of co-circulating arboviruses, such as Chikungunya and Dengue virus, with similar symptom profiles, vectors and potential for cross-reactivity. International and domestic critics alike accused Brazil of failing millions in its response to the virus, since Brazil prioritized vector control campaigns, used hygiene policing methods, and "cleaning" sweeps of informal settlements and communities. Many noted the double standards of protection, unclear messaging in public safety campaigns, and research priorities for public health prevention. Travel advisories were issued to foreigners in anticipation to mega-events in the Olympic Rio Games, and new diagnostic tests were deployed, and vaccine research initiated (McCloskey & Endericks 2017, Gómez et al 2018). At the same time, the lack of investment in infrastructure and basic sanitation for communities, without community consultation and social control by the "tens of millions of women living in peripheral communities - many of [whom were] poor residents of [urban informal] slums" (McNeil 2017). Maternal malnutrition is a common reality, as well as disparities in water access, and lack of sanitation discussed in other scholarship. So while international travellers were afforded a different set of standards for care and hospitality, local communities were "swept out of sight," and essentially left unprotected in this critical moment.

Further, there was a wave of criticism led by women's rights, bioethics, and reproductive health groups who were vocal and politically activated by the government's continued failure to provide adequate health information on prevention and the risk of Zika's sexual transmission. The paucity of risk communication, public investment in family-planning resources, or shifting the rhetoric beyond heteronormative values of the "hygienic family," placed the burden of responsibility for prevention on women of reproductive potential. Zika represented yet another gendered risk, added to a long list of threats to reproductive health within a history of limited fertility autonomy, gender violence, and limited social and economic autonomy for women. Despite Brazil's public health system, there are still well-known barriers to universal access to medications and services important for informed decisions around family planning. Human rights and reproductive health groups charged that the Ministry of Health could have strengthened access to contraception and other family planning methods and education as a ready method of prevention or at least harm reduction for the adverse health effects of Zika infection for people with reproductive potential. Instead, there was a doubling-down against the legalization of abortion and the criminalization of women who sought to control their own fertility. This messaging played out across differential realities, where Zika infection during pregnancy could be a very real and existential threat to young women living in peripheral and contested territories throughout Brazil. Many women were unaware of the risk to themselves and their pregnancies, as a consequence of such lackluster public health outreach campaigns as well as missed opportunities by healthcare providers. This resulted in gaps in knowledge among high-risk women about Zika virus transmission and relevant information about its prevention. While others may know how to access clandestine resources to abortion as evidenced in unprecedented increase in requests for mail order access to abortive medication and nearly 8 percent dip in Brazil's birth rate in this time (Aiken et al 2016, Diaz-Quijano et al 2018).

Finally, Zika outbreaks emerged in a period of economic and political instability, where the Workers' Party faced accusations of corruption at nearly every level of governance, and everyday Brazilians faced a level of social precarity with a deepening recession, coupled with

an alarming rise in violent crime and public insecurity. In 2016, seventeen out of the fifty of the world's most violent cities were in Brazil. In this same time, the murder rate increased by 3 percent to 30.8 per 100,000 people, where Afro-Brazilians and women of color were disproportionately represented as victims of gender violence as illustrated in these health statistics. In addition to social instability and a heightened climate of fear for physical safety, the government instigated macroeconomic "corrections," instituting neoliberal austerity reforms and rolling back progressive social programs through nondemocratic means. Combined with declining wages and rising unemployment, the Zika PHEIC also overlapped with contentious preparations and mega-infrastructure projects in the lead up to the Rio Olympic games. With political reasons underpinning the timing behind the Zika PHEIC declaration, disease modeling and risk prediction were important strategies for navigating the risk of hosting another mega-event in the same year as a public health emergency. Meanwhile, there were increasing political street demonstrations across every major city in Brazil demanding investment instead into health and education. Understanding the Brazilian public health response to Zika-related health risks also requires a cognizance to this tumultuous period of political and economic change for Brazil. Now in hindsight, Zika emerged in a short but liminal period in Brazilian history between the decline of the left-wing Workers' Party administration and the rise of the hard-right Bolsonaro government.

By the end of 2016, Zika was no longer considered a public health emergency, and is now considered an endemic tropical disease. As of May 2023, 7,129 new cases in Brazil were reported to the Pan-American Health Organization (PAHO) in 2023 at epidemiological week 18 with a case increase of nearly 300% from 2022 (*Ministério da Saúde* 2023). Research and investigations continue to follow the mothers and infants infected by Zika while *in utero* to better understand the spectrum of neurological deformations now known as Congenital Zika Syndrome (CZS). One tool recruited in the response to the Zika PHEIC, epidemiological studies recruit methods and population datasets to analyze factors and determinants that might explain the patterns and distribution of disease, injury, and health risks. These studies are guided by questions over who or what drives current and changing patterns in health at the population level. In theory, this knowledge can be applied in practice – to control health problems or prevent future outbreaks. Epidemiologic studies provide clues that can delineate hypotheses for health disparities in sub groups, since we know that social inequalities contribute to health patterns in complex ways. Confounding our understanding, complexity interacts, synergistically, antithetically, and also across time and geographies. Many epidemiological studies rely on datasets from population health or longitudinal cohorts to evaluate statistically significant and correlative patterns that may only be apparent at a larger scale. However, early epidemiology gathered valuable information through 'gumshoe' or 'shoe-leather' fieldwork that included walking the beat track, tracing contacts, and gathering intelligence from direct inquiry of those communities impacted for a broader, descriptive understanding of the health issue at stake.

Subsequent research on Zika virology and pathogenesis in 2020 used epidemiological data from the epidemic coupled with mouse models to identify other gendered risk factors in maternal health status and nutrition. In 2020, Barbeito-Andrés and others showed that maternal malnutrition increases susceptibility to vertical transmission and the severity of congenital Zika Syndrome and birth defects. Food security and healthy nutrition are essential to maternal health that ensures healthy embryonic growth and development, where

maternal health status can affect the severity of infection in the pregnant woman and increase the severity of *in utero* infection through changes to protective placental barriers (Barbeito-Andrés et al 2020). Conclusions drawn from their studies point to epidemiologic and biological association between the severity of CZS seen in infants born to infected mothers who were malnourished during their pregnancy. Their study built upon knowledge that malnutrition contributes to a weakened immune system or immunodeficiency, and maternal malnutrition and insufficient protein intake can contribute to underdevelopment in the developing fetus (Katona et al 2008, Weger-Lucarelli 2018). Although the importance of nutrition and immune system is apparent, confirmation of Zika's connection to congenital birth defects illustrated the ways that social inequalities in sanitation, food insecurity, and syndemics combine in processes that shape the unevenness of Zika-related health disparities. The emergence of Zika virus and its novel adverse health outcomes presented unique risks to women of reproductive potential, where malnutrition can be more common and poses a serious risk for CZS. Especially for those who have written about the uneven human burdens of social precarity on maternal and infant welfare, maternal malnutrition provided an early possible explanation for the disproportionate numbers of CZS in the Northeast, (Scheper-Hughes 1992). Expanding an understanding of the tangential consequences to socioeconomic determinants of health, malnutrition has not been widely discussed, as the primary focus has been on vector control and reproductive health rights. My point here is to reinforce the fact that the same social determinants of health and risk factors that were identified at the height of the emergency continue to persist. Under the broad umbrella of social determinants of health, there are remarkable similarities between epidemics in how risks persist across public health emergencies despite great advances in scientific knowledge.

The pernicious persistence of risk and social determinants of health manifest in a myriad of social and biophysical pathways that translate into health disparities seen in larger epidemiological and population-level studies. In the opening description, there was a conscious attempt to draw attention to the fact that while these risks were named determinants, in fact, risk and reality of context exist as dynamic processes of determination. These dynamic processes can also be "pathways of embodiment," entangled, multiple, and reinforcing, where embodiment can have both sociocultural and biological dimensions to its meaning and impacts (Krieger 2021). From Margaret Lock in her studies of societal systems, situated biologies, lifecourse exposures to Pierre Bourdieu and his studies of the "social made body," health status develops by living within our spatial practice, from birth until our eventual demise (Lock 2012 & 2017, Bourdieu & Wacquant 1992, p 127). It is also important to expand our thinking beyond individual choice and behavior, holding simultaneously the notion that health status and inequities are also the product of our flawed and entangled structures that limit agency and direct probabilities of "chance," that can ultimately contribute to "embodied biological expressions of injustice versus unjustly interpreted … innate biological differences or [unruly versus moral] individual or cultural choices (Krieger 2021, p 49). A sociocultural analysis can shed an intensely qualitative light and rich data to hypothesize these "pathways of embodiment." This is certainly relevant to Zika-related risks and health disparities, especially in relation to local communities who work with or contextualize conditions that disproportionately shape exposure to Zika-related health risks for gender and reproductive health and the possibility of infections related to sanitation.

These processes implicate the importance of practical knowledge and local community perspectives on health to highlight insights into historical barriers that only these protagonists can articulate. Beyond the logistics of distributing pharmaceuticals and delivery of technological solutions, many countries – including the United States and Brazil – also face a perilous shortfall of health care workers and medical professionals. This has prompted a reconfiguration of institutional premises of who and how public health knowledge and risk communication mobilizes. Community health workers (CHW) often play a key role in bridging gaps of which are context-dependent, specific to the needs of their local health system. Especially in Brazil, CHW or *Agentes Comunitário de Saúde* fill gaps in health systems, providing outreach for seasonal vaccination campaigns and counseling. In some situations, CHW have played an expanded role where they may distribute supplements and products as well as diagnose and treat common yet uncomplicated childhood diseases. Ethnographic field work that begins with community organizers and health workers provided me with key perspectives on the expansion of universal health access and realities faced by local communities in the intervening time between public health emergencies. Popular movements and community health organizations for sanitation and gendered health reform play a catalytic role in the institutionalization of the right to health as well as mitigating Zika-related health risks entangled in the social determinations of health. By considering these pathways to embodiment and conflict that arise in these alternative spaces, a different and flexible array of solutions that are more sustainable in the long term, will help deepen an understanding of the critiques of the Zika PHEIC response. Otherwise, public health in Brazil remains perpetually entrenched by uneven geographies in development, and social ecology of knowledge around health and systems of care. In a comparison of two case studies, local CHW, civil organizations, and neighborhood associations continue their work in addressing these overlapping determinations of health and risk in the aftermath of the 2016 Zika PHEIC. Drawing from their grounded perspectives on health that address social needs that expand on this notion that health is more than simply the absence of disease, community health organizations remain anchored to historically hard-to-reach communities bridging gaps in knowledge and overlapping Zika-related risk in the form of reproductive health and addressing the constellation of health determinations, or dynamic processes associated with poverty.

To begin, I offer a high-level overview of the debates among health research and disciplines to contextualize a discussion on public health in Brazil and its health systems. Brazil is the largest country in an area known as Latin America, and the nature of its differences and alliances within Spanish-speaking Latin American countries provide a backdrop to how important figures have participated in regional and international conversations on public health and health equity. With this in mind, I then present an abbreviated historical account of the Brazilian public health system, which recounts key narrative highlights with the dominant framework. I also interject counterthreads along the way for an expanded understanding of the subsequent field studies with social movements and organizations for community health. The Zika PHEIC manifested a historical periodicity across different scales, especially for Brazil, who has always struggled with a bifurcated gaze on the meaning and valence of its own local identity in conversation with the dynamics and debates outside its borders, within the Latin American and Caribbean context and continue as a Global Health model for its participation in the international arenas of public health, global economic circuits, and the production of knowledge.

And if the system in question were the collective as such? What relations do we really have with each other? How do we live together? What really is this system that collapses at the slightest noise?

Michel Serres, The Parasite (1980)

Chapter 1

Globalization, Health Systems, and Pandemics

Alongside new challenges and change in the twenty-first century, the World Health Organization's vision of strengthening health systems has renewed interest in systems studies of human and environmental health in an increasingly unjust world. With globalization, our ties to place and consequent relationships in human health have been profoundly altered. Among others, sociologist Anthony Giddens used 'globalization' to refer to "the worldwide linkages of social relations and systems, both in their material and symbolic dimensions," established in the post Bretton Woods period that was also prefigured in the international development projects of the 1970s (Giddens, 1991). By the 1990s, globalization had conceptually and popularly been taken up into popular discourse. These changes have eased regulations on trade and travel, increasing the porousness of national borders to emergent and re-emergent diseases with epidemic and pandemic potential. In recent decades, we have seen how epidemics - like SARS and COVID-19, swine flu, Ebola, Zika, and Mpox - have magnified the invisible, intimate interconnections, and reproduced health inequities within power hierarchies of people, animals, and our shared environment. In this time, we have seen the ascendance of Global Health to address eco-social health matters of international concern.

Health equity was one of the founding principles of the World Health Organization (WHO) in 1948, committing its members to a biopolitical imaginary that the "highest attainable standard of health" was a fundamental right of every human. Stemming from the language of human rights drafted into UN Declaration of Human Rights (UNDHR), this notion of health equity has expanded the possibilities for health embodiment that implicates scale and structure in addressing extant social inequality. Drawing its definition of rights from the UNDHR, these commitments frame health in a way that encompasses a state of being – well-being – beyond the absence of disease. We may also interpret the collective nature of health necessary to expanding access to essential health care. In this sense, health equity forms the foundation of all public health systems. Subsequent to this, the historic Declaration of Alma Ata in 1978 invited members for the first time from the so-called developed and recently independent and developing nations in a post-colonial era. Participating representatives, despite geopolitical alliances to the Bretton Woods system as well as those non-allied nations, reinforced the essential human right to primary and community health care. Their commitments converged under the banner of 'Health for All' as well as the role of state

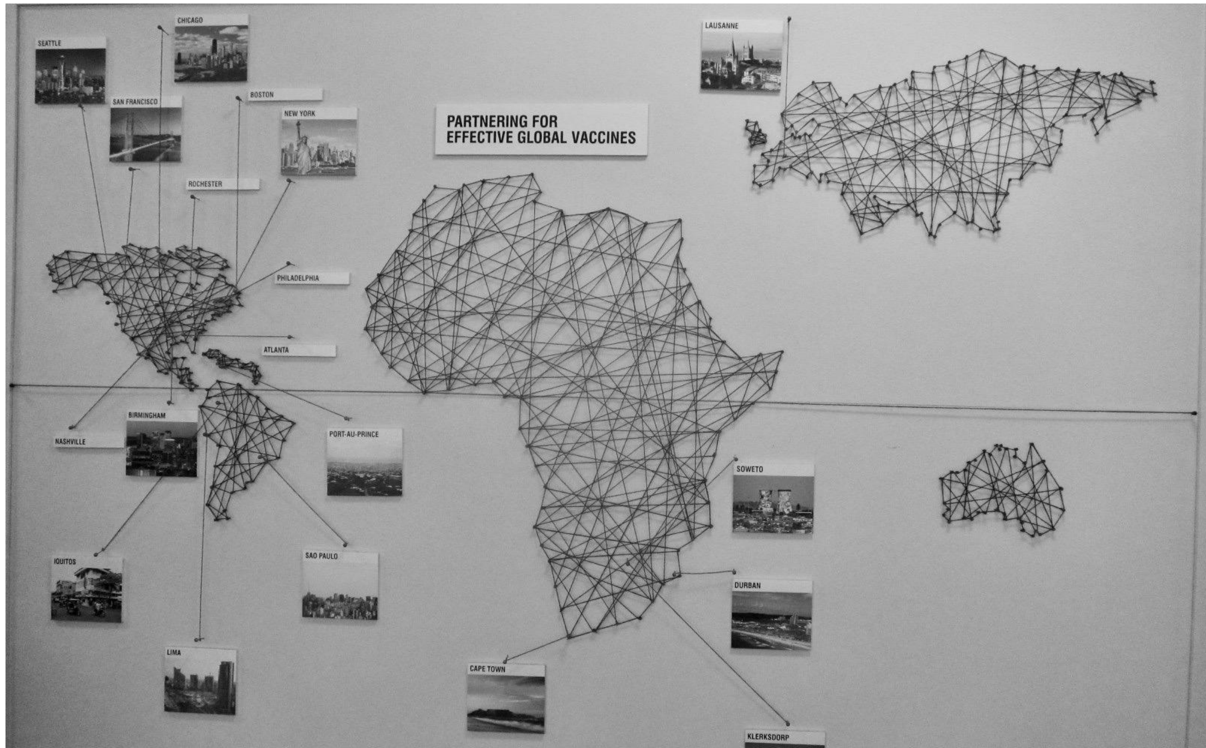

Figure 1.1. Global Health Networks and Research
Photo credit: Lisa M White (HIV Vaccine Trials Network – Endpoint Assay Immunology Laboratory in Capetown, RSA in 2015)

governments in upholding this social responsibility through judicial, legal, and continued investment into structural resources. Further indoctrinated in the heart of the Ottawa Charter of 1986, health was expanded to prefigure the necessary social, economic, and human resources for health and well-being. Taken together, these declarations acknowledge the prevailing social and economic inequalities and attempt to embed an ethos of health equity within broader development policies and programmes.

In 2007, the Director-General to the WHO, Dr. Margaret Chan defined a vision that centered the strategic importance of Health Systems Strengthening (HSS) as a conceptual framework and delineated key priorities for addressing global health problems (WHO 2007). Largely seen as a governmental responsibility, health systems can encompass both the network of programs and policies that ensure healthy conditions for population health as well as health care services and medical interventions at the individual-level. These are highly context-specific, and there is no single set of best practices prescribed to ensure parity in performance. However, all functioning health systems require sufficient staffing and funding to deliver services and interventions. She pushes a noncritical view on technological solutions and humanist possibilities of Western science, where we "have never possessed such a sophisticated arsenal of interventions and technologies for curing disease and prolonging life. Yet the gaps in health outcomes continue to widen. Much of the ill health, disease, premature death, and suffering we see on such a large scale is needless, as effective and affordable interventions are available for prevention and treatment … the *power of existing interventions is not matched by the power of health systems to deliver them*." The implementation and success of health systems can presumably be evaluated through a number of "downstream" metrics, population health outcomes, and human development indicators, including life

expectancy, maternal/infant morbidity and mortality. Conspicuously absent were political will and strategies to enforce such commitments, should health system reform be necessary given poor performance, public health failures, or growing health outcome disparities. Dominant methods rely on the primacy of market logic and leveraging moral reasoning until the next crisis arrives. Meanwhile, intensifying neoliberal structural adjustments and contraction of public sector, including health and social welfare programmes that favors of privatization over investment, consequently weakens key aspects of many health systems including the Brazilian health system.

Biosecurity of Risk Society and One Health

In addition to health systems response, global health works through an extension of biosecurity models, leaning heavily on technical surveillance, data collection, and production of health intelligence gathered in partnerships with civil, military, and private sectors. Aimed at strengthening a collective response to public health crises, the United States, Brazil, and other WHO Member States have developed governance strategies and health regulations – convening principally under International Health Regulation (IHR) 2005 – that are enforced by international law and guided by global health security agendas. These regulations emphasize early detection, building laboratory capacity, enhanced surveillance, data sharing, and standardized reporting criteria. Biosecurity approaches work to anticipate new threats by leveraging cutting edge technological tools for surveillance and control in hopes of eliminating environmental risks in an ever more global, risk-connected world. Challenged by complex mobility patterns as well as the interconnected nature of infectious diseases, national health agencies rely chiefly on technical experts and tools to detect the emergence of new or existing diseases, arguably earlier, from situations where humans, animals, and the environment interface.

Acknowledging that previous frameworks have been siloed within other health disciplines, the "One Health" framework was popularized by veterinarian, Calvin Schwabe, in 1984. "One Health" recruits a multi-system approach to data and technical expertise from life sciences, veterinary, environmental health, and health economics. "One Health" and other Planetary Health approaches emphasize central risk management, remote data collection, and coordinating surveillance across sectors (Benelli & Duggan 2018). These health system strategies favor mathematical predictive modeling, using data to map infectious disease outbreaks with the goal of better biosecurity management, and form the institutional basis within international health governance. There are alternatives to this perpetual arms war against nature that emphasizes the need to integrate a more humane and more-than-human approach to Global Health frameworks and methods of understanding the innumerable and complex interactions between pathogens, animals and wildlife, humans, and their environment.

Given the wealth of knowledge generated from study and variation in social practices, one major shortcoming of these unified health initiatives stems from interpreting health and disease as strictly an ecological phenomenon. Taking the 'social' as a given, these strategies advance an idealized view of society, despite contentious social realities - where a mixture of characteristics and identities within subpopulations, communities, and as individuals – are viewed as social determinants of health risks. An important area of study for health research, the WHO defines these determinants as "the conditions [under] which people are born, grow,

live, work and age [that] are shaped by the distribution of money, power, and resources" at multiple levels of organization (WHO 2012). The danger of such an understanding tends to reduce complex interrelationships between social and environmental realities to essentialized, categorical units of analysis (Levins & Lewontin 1985). As critical social epidemiologist & physician from Ecuador, Jaime Breilh, has advocated that this reductionist tendency is deeply embedded within Western public health and medical health systems sciences. Breilh, as well as other critical social health scientists, argue that this kind of thinking reifies a predetermined endpoint to social realities – for example poverty – "as static, fragmented, and individualized element … separating parts from their 'contexts and evaluative relations; [and] limiting the understanding of movement to the variations of those disconnected parts or fragmented empirical variables (Breilh 2021, p 84). If you grew up under any condition defined as "poverty," be it because of where you lived, your family's income sources or access to "lifestyle options," or even if the trauma you witnessed or experienced in childhood or domestically – such fragmentation fails to appreciate the dynamic shifts, course changes, or the harm in such categorization that temporally constrains or obscures dimensions and possibilities in resolving population health disparities. Instead, health risk, exposures, and disease processes are often lumped together without enough context to understand the evolution of factors over space and time; these sometimes may combine or overlap synergistically or antithetically. The social nature of health and disease processes are more dynamic, nuanced, as well as at times, even reversible. Thus, Brielh, along with others like Susan Leigh Star and Geoffrey Bowker who study Science, Technology, and Society (STS), have advocated for a more critical and liberatory practice of science that recognizes the limits of constraining "bodies in motion" and social trajectories of health. Alternatives to this functionalist understanding already exist, in the many community-based health action and participatory projects that respond in resistance to detached technoscientific research and surveillance, illuminating potential areas for intervention to address the health inequities. Amid shifting tides of climate crisis and displacement in the twenty-first century, many have questioned whether the above views on global health and health systems strengthening may be too limited and constrained by an essentialized view of the social.

Social Medicine and Right to Health

New scholarship explores alternative methods and models to clarify the expanding role of transnational actors, structural inequality, and the more-than-human factors that influence health and disease processes in more critically nuanced ways. They argue that global health will be perpetually challenged to raise a universal standard of improving health for all, if solely focused on implementation and programmatic goals too narrowly aimed at measurable results as the basis for evidence-based science. The global HIV/AIDS epidemic was the first major public health crisis experienced by a generation forced to come of age in an era of globalization. Since then, the global, international, hemispheric and punctuated responses to HIV have shaped expectations, strengthened the legal-regulatory foundation of international health governance, and established infrastructure that eventually defined the medical industrial complex of HIV treatment. It also brought to fore contentious debates on the uses and consequences of technology, biomedical application of ecological theory applied to different (not the universal idealized) bodies in motion. Vincanne Adams and Ilana Löwy posit that current policies in international health governance, health systems and more integrative frameworks need to do more to complicate the "social, cultural, and political basis for medico-scientific knowledge and the uneven distribution" of the resources necessary for

good health (Adams 2019, MacPherson et al 2009). Considering the politics of Global health knowledge and financialization of biotechnology, Brazilian anthropologist, João Biehl, provides a careful analysis of the uneven social impacts of a pharmaceutically-centered approach, which has led to a professionalization of non-governmental organizations (NGO) advocacy. Instead of the care work that was initially emphasized before the wide availability of the antiretroviral medications, these models promoted the exclusion of particular vulnerable groups, where "the well-educated urbanites … mobilize, but for the fifth line of treatment …who cares about better medications that would benefit the rural poor?" (Biehl 2007, p 1108). While both issues of access are important, in terms of political subjectivities and capacity, the pharmaceuticalization of public health and its reliance on biomedical technologies reinforced uneven political power relations and knowledge asymmetries unless there are improvements to people's basic living conditions and social realities. These perspectives and others analyze the political economy of pharmaceuticals and research that directly shapes possibilities and obscures other imaginaries in the WHO's vision of health systems strengthening. If interpreted thoroughly, the gaps and lacunas point to alternatives on how to address health equity.

Alongside these debates, social movements around the world organize for their rights under the existing system, as their own interventions – through disruption, occupation, autonomous spaces – draw attention to wider social, economic, and political inequalities that fuel health inequities as well as articulate other systems of health. These are powerful calls for health equity that are often sidelined as background or out-of-scope by international health scholars (Birn 2019, Giovanella 2019). In the face of social determinants of health, social movements organize for human rights to food security, against displacement and police violence, and environmental justice, sometimes under the umbrella "Health for All," or in protest to the lack of legal protections in the shadow side of globalization and structural adjustments (Williams & Collins 2001, #BlackLivesMatter 2016, Franco 2014, Lowe & Nading, 2018). Meanwhile, many cultural practices and philosophical traditions of health and embodiment have recognized the essential connection between the body's social and material relationship to place and wellbeing (Kimmerer 2013, Acosta 2013). Thinking outside market logics and technical results, critical methods and perspectives from social medicine step beyond unified ecological theories of disease and inflammation. Social medicine movements also embrace those actors and their spatial and organizational practices that challenge a limited conception of socially concrete hazards of health risk and stressors.

Biomedicine and life science research has generated a wealth of knowledge about the physiological mechanisms and biological responses that shape immunity. As Humberto Maturana writes, immunity is a dynamic recovery of [an internal] harmony when it is lost as a result of the appearance or intrusion of molecules that do not normally" occur within a self-constituted and internally managed system (Maturana 2017, p 149). Through a complex array of innate and adaptive processes – along with buffers against stressors and correlates of protection – under ideal conditions, we resist infectious risk. One could also imagine these systems across scale, where immunity can be understood in a more judiciously political way — at the community level through organizing and action, social work, and the structural changes needed to protect against ecological and social production of health and disease – as a kind of preventative medicine. As it was famously said by Rudolf Virchow – *medicine is social science and politics nothing but medicine on a grand scale* – in an acknowledgement of

the myriad elements that underpin the health of the public. Considered the father of cellular pathology, Rudolf Virchow observed in field studies of typhus and tuberculosis, again, that infectious disease outbreaks have both biological and social contingencies within the course of illness and prevention. As a social reformer and politician, he also advocated for changes to structures and practices in order to curtail unnecessary exposure or unhealthy conditions (Lange 2022). For VIrchow, cellular pathology was more than a biological theory, but reinforced a fundamental understanding of the relationship between the ecological and social through the political. Durable prevention for waterborne illnesses like cholera, required political action to redistribute power and improve material conditions for different social classes, where access to clean water and sanitation provided a social guarantee against future outbreaks.

A kind of social medicine in Latin America was already taking shape, independent of these Eurocentric debates, if not before. They drew from distinctive Latin American philosophy and pedagogies that emphasized "human dignity, social justice, and the protection of perceived disadvantaged social groups (such as mothers, children, and the elderly and disabled)," whose perspective and participation are integral to a larger, collective health (Sesia 2023, p 141). In Brazil, medicine - along with law – was the most institutionalized and professional branch of science, where elite and increasingly urban middle class families would send their children for education in what served as a liberal arts degree. Graduates from these programs did not always continue into professional practice. Instead, some would use their education for social advancement, where in medicine was not always "a narrow, scientific practice, but one connected to the larger, social issues of the day" (Stepan 2015, p 40). Social reformers and abolitionists would leverage a mix of socialist emancipatory theory within Catholic social doctrines and social liberalism that then made its mark on subsequent international laws on sanitation health (Waitzkin et al 2001).

Currently, social medicine can be defined by four qualities that foregrounds the "social" in the study of the root causes of ill-health processes and health inequities. By engaging with health from 1) critically interpretive stances, social medicine incorporates 2) multidisciplinary methodologies, 3) rooted in social theory with a proclivity to 4) engage with social aspects of clinical and scientific problems. In other words, social medicine works using "rigorous empirical research in the social world: ethnographic engagement, historical analysis, sociological and social epidemiological analysis, and contextual ethics" (Holmes et al 2014, p 477). By the late nineteenth-century, social medicine more formally seeded in debates on social reform through a mix of socialist emancipatory theory within Catholic social doctrines and social liberalism made its mark on subsequent international laws on sanitation health. The distinctive Latin American philosophy and pedagogies emphasized a language of rights in human dignity, social justice, and the protection of perceived disadvantaged social groups and workers. These formations came to bear in the twentieth century and found their way into international health and governance charters with added valence for those nations whose existing cultural perspective on health integrated a broader and more communal vision of health.

Syndemics and Introduction to Zika Virus (ZIKV)

Similarly, syndemic thinking also considers the interconnections between human health, social, and ecological systems. As a field of applied health research, syndemics deploys a

critical use of methodologies and concepts from the social sciences, integrating local and biosocial understandings of health and disease processes. Originally coined by anthropologist Merrill Singer, syndemics stems from *synergy* and *epidemics*, combined to describe the way that concurrent infections or threats to health can amplify the harm of two or more diseases. Working with communities in local health clinics in HIV, Merrill observed the entanglements of social and environmental factors, including addiction, domestic violence, and sexually transmitted infections, that contributed to the clustering of harms and increased biological and/or psychological susceptibility for the communities he worked with (Singer 2016). Research has shown how certain combinations of co-infections – as with chlamydia and gonorrhea and others – can affect the course of viral pathogenesis and infectious pathology on the individual- and population-level. Alternatively, if you were infected in the past, for example with dengue virus, this prior immunity may only be protective against one type, since dengue virus has multiple and distinctive serotypes that are endemic throughout Brazil. Convalescence and recovery may not necessarily result in immunity and at times, may enhance susceptibility to other serotypes or increase the severity of disease. In an event known as antibody-dependent enhancement (ADE), this was a concern for the SARS-CoV-2 virus and prior exposure to other coronaviruses, and it was also applicable to ZIKV in the context of prior immunity following the dengue outbreaks in 2013 (Halstead 1988, Katzelnick 2017, Whitehead & Pearson 2019, Dejnirattisai 2016, Tay 2020). Co-infection may lead to cellular changes in immune cell types or depletion of important defensive reservoirs that can contribute to increased susceptibility.

At the ecological level, syndemic clustering may occur due to a common viral or social transmission vector, where global connections have facilitated the spread of a common urban mosquito, *Aedes aegypti* or historically, the seeding of yellow fever in the New World through the transatlantic slave trade (Huang 2019, Bryant 2007). But even more than biological factors, syndemics can lend itself to increased vulnerability, drawing out an understanding of "pathways of embodiment," where power asymmetries and inequities interact in exacerbating ways for physical and mental health risks. Numerous scholars have demonstrated the structural, physical, psychological and social effects impacting health outcomes for people living in unequal societies and the experiential impact of chronic stress, racism, and threats to well-being (Du Bois 1898, Farmer 1999, 2001, Biehl & Petryna 2013, Briggs 2003, Pickett & Wilkinson 2015). As well, growing evidence points to intergenerational and longer historical trajectories of structural neglect or disenfranchisement due to institutional racism. For example, how does global health address health inequities – that are clearly driven by racialized social practices and yet challenging to measure – pertaining to the collective impact of structural violence or psychosocial stress impacts on societal health? Framed as structural and political determinants of health, syndemics studies can help elucidate concrete applications of scholarly insight and ethical values with the goal of promoting social justice through health systems strengthening.

Consider this context that zoonotic pathogens – parasites that are transmitted between animals and humans – account for more than 60% of emerging infectious diseases, and nearly a third of those were transmitted via insect vectors (Jones et al 2008). A study of syndemics is especially pertinent in the case of ZIKV, because it shares common vectors, the virus and prior immunity can cross-react with other flaviviruses, as well as social determinations of health. Investigations are ongoing to better understand the implications of timing and past

exposures to any or all of these viruses. Illustrative case of syndemics, ZIKV emergence was initially masked by overlapping yet endemic tropical diseases such as Dengue and Yellow fever as well as new Chikungunya outbreaks reported in 2014. Dengue virus, in particular, has been reported with increasing frequency, since the lapsed vector control of *Aedes aegypti* supported by the PAHO in the 1950s. The Brazilian Ministry of Health mandates reporting and routinely monitors other flavivirus, with outbreaks of yellow fever reported in 2017. In Rio de Janeiro, surveillance studies reported an increase in the number of Chikungunya cases in April to May 2016. Incidentally, ZIKV was initially detected in the same Northeastern states where Chikungunya had newly arrived in 2013. Singer applies syndemics thinking to the Zika outbreaks and focuses much of his argument on the management and anticipation of unforeseen interactions between the flows of vectored infectious disease, their associated hosts within an ever-shifting global and local ecological context.Attentive to the structure of social relationships and changes in eco-sociological conditions that shape everyday risk and vulnerability, syndemics can be a useful conceptual framework to understanding Zika epidemic while also staying sensitive to the environments of risk that distribute the burden of disease unevenly. Conceptually, syndemics studies have also opened up different ways of thinking and responding to health challenges faced by human communities through time and space.

Zika Research Agenda, **Risk Management & Mathematical Modeling**

In a dearth of scientific evidence, the WHO announced Zika as the fifth PHEIC for technical distinctions and better characterize Zika's possible links to birth defects in the acute possibility of international spread. In a brief period of nine months, Zika PHEIC harnessed the technoscience capabilities and risk management in the convergence of local academic, regional, national, international, and non-governmental actors. These partnerships wrestled with the limits of scientific knowledge, shortcomings of the local surveillance system, and leveraged epidemiological models to assess risk that resulted in a rapid accumulation around Zika virus as an object of scientific uncertainty.

In response, the WHO formulated a research agenda, detailed on the next page, honed a multilateral convergence of actors towards strategic priorities. This agenda foregrounded an emergency research and development prerogative that centered medical interventions including vaccines and therapeutics. Principally, the WHO designated three research priorities that included increasing monitoring, standardization of data collection for suspected Zika-related health events across Brazil and the Americas. In addition, more research was needed for the characterization of Zika virus and its clinical manifestations that could then be "translated" into medical and non-medical countermeasures through translational laboratory research and public health outreach. The third pillar relied on building capacity among community stakeholders by evaluating local perceptions about risk, access challenges. Taken together, these three research pillars represent an effort to strengthen health systems. Ultimately, these Zika research priorities were aimed at building up the evidence necessary to strengthen public health guidance and actions.

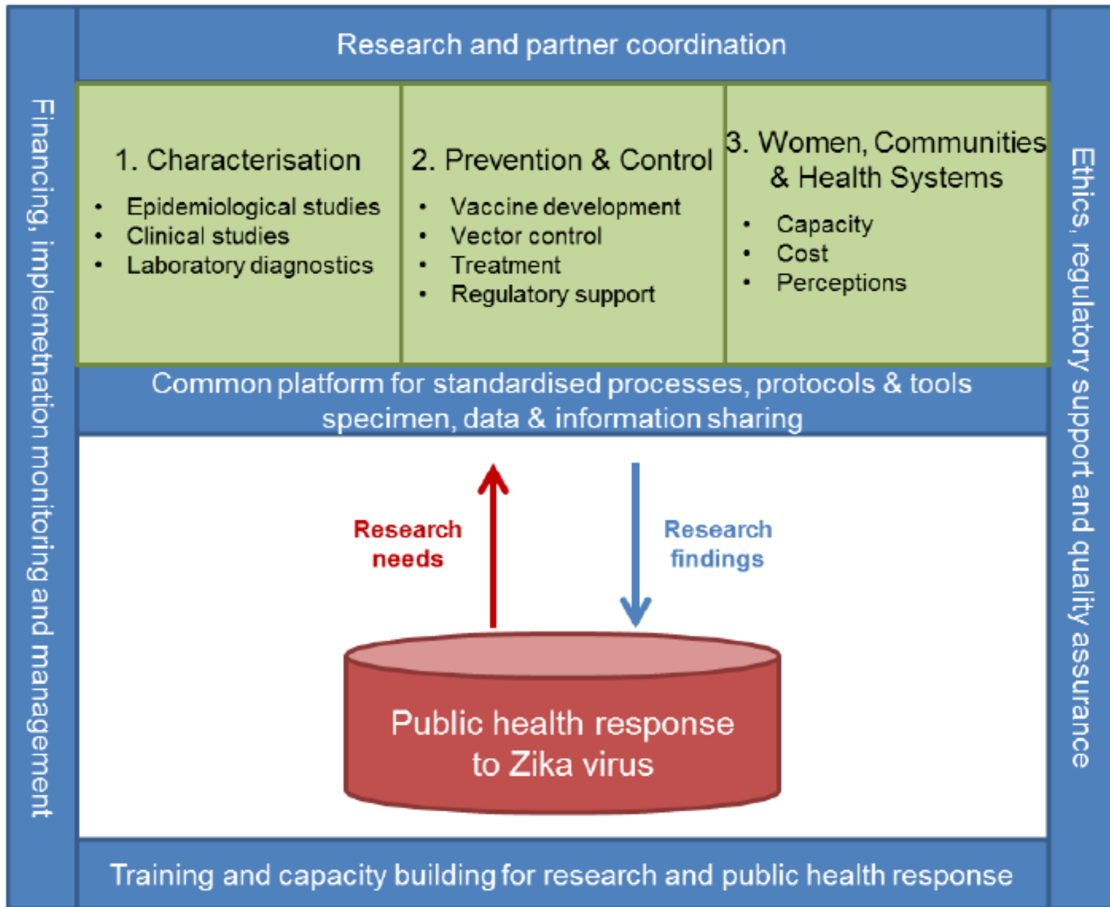

Figure 1.2. Zika Virus Research Agenda Implementation Framework
Source: World Health Organization. 2016 October. The WHO Zika Virus Research Agenda

Unlike the COVID-19 pandemic, international health programs had little indication that ZIKV possessed epidemic potential. As a little-known tropical disease of the 20th century, ZIKV was first identified in Uganda in 1947 (Dick et al 1952). With two distinctive African and Asian lineages, ZIKV is a member of a larger family of viruses called flaviviruses. The word *flava* stems from the Latin word, meaning 'yellow," which was used to describe the jaundiced color of someone's skin who was sick with yellow fever, another flavivirus. The flavivirus family also encompasses more than 50 other species, including West Nile Virus, the virus that causes Japanese Encephalitis, and Dengue Fever. Until the twenty-first century, there were a few episodic cases of Zika reported in the literature, whose symptoms were self-limited, generally mild or altogether asymptomatic occurrences. The first evidence of interhuman, urban transmission was reported in Malaysia in 1966. In this light, ZIKV was acknowledged as little more than a neglected tropical disease due to a lack of testing to detect and surveillance to report its spread (Gutiérrez-Bugallo et al 2019). However, it gained clinical notoriety in the new millennium, when ZIKV was reported in the 2007 outbreaks outside the Asian or African continent in the Yap Island states of Micronesia (Duffy 2009). Presumably spread via infected travelers by air, with subsequent outbreaks in French Polynesia resulting in nearly 100,000 people infected. This was followed by identification of ZIKV strains in other Pacific Islands, and then eventually to the Americas to emerge in Brazil by way of international travel and a mega-event, perhaps through the FIFA Confederation Cup in mid-2013 or World Cup in mid-

2014 (Musso 2014, Gatherer 2016, Faria 2016). Although there are competing hypotheses for the exact time of introduction, the temperature and climatic shifts associated with the appearance of El Niño in 2015 helped to expedite ZIKV rapid spread through viral incubation times and behavioral changes in its insect vectors.

Examining ZIKV and the natural dynamics of its vector transmission more closely, both *Aedes aegypti as well as Ae. albopictus* are ZIKV's primary vectors of transmission and familiar insects of globalization. While other *Aedes* subspecies have been implicated in both urban and wild settings, *Ae. aegypti* is the most widespread and highly adapted to a variety of urban settings. Ecological studies of mosquito-borne ZIKV transmission reveal a complex dynamic, where female mosquitoes are primarily responsible for the perpetuation and spread of ZIKV. Ecological studies suggest that ZIKV can be sustained in an area, despite harsh environmental conditions, such as drought and interepidemic dynamics limited by herd immunity, partly due to vertical transmission to larval offspring and the preservation of infected eggs. Additionally, female mosquitoes can infect multiple hosts – human and non-human – feeding during the daytime, taking in multiple blood meals within a small area, where bites can also go largely unnoticed. Small in size, these dark colored mosquitoes have zebra-like white markings on their legs that can seem almost invisible in reality. Flitting around mostly unnoticed without an audible buzz, they are well-suited to co-existing in urban human habitats. Even a small amount of water that may pool in a shower drain is sufficient for breeding. So as one researcher put it, *Ae. aegypti,* in particular, are as familiar as a family member in a Brazilian household.

Cast in this light, it was odd to encounter the sensational accounts of Zika breeding grounds that visually fixated on refuse or trash bins. In fact, a meta-analysis of socio-behavioral data, collected by NGOs and commissioned by UNICEF, found that while eliminating stagnant water and water containers as well as cleaning the house and yard were commonly reported; house cleaning was not especially effective for *Ae. aegypti* control (Bardosh 2019, p 10). In a systematic review and meta-analysis of over 80 studies of vector control in the Latin American and Caribbean region from 2000 to 2016, Bardach and team found that the single most effective approach relied heavily on health education and community-based environmental engagement (Bardach 2019). The types of vector control strategies undertaken at the peak of the Zika PHEIC have been shown to be largely ineffective and in fact contribute to a false sense of security. Outside these domains, insect transmission routes can be further amplified if infected mosquito larvae are transported in water reservoirs found in shipping containers. Therefore, expanding global linkages of *Ae. aegypti* have accelerated its viral transmission at the confluence of urban spaces interconnected through global networks in exchange of commodities, people, and sanitation (Olson 1981, Grard 2014). Brazilian public health campaigns against *Ae. aegypti* were nothing new for a country with a history of unsuccessful vector control efforts waged against mosquito-borne tropical diseases. Prior vector control campaigns were supported by the PAHO in the mid-1950s, and Brazil had actually eradicated *Aedes aegypti* until these maintenance campaigns languished under the military dictatorship. The mosquito returned *en force*, reemerging in the late 1970s (Bardach 2019, Lopes 2019). Beyond mosquito-borne transmission, other non-vector modes of transmission are possible, where the most widely recognized mode is congenital, perinatal (intrauterine and intrapartum), and sexual - and are well supported in the literature (Plourde & Bloch 2016).

Thinking through these trajectories of transmission, ZIKV have adapted to two hosts - female mosquitoes and humans.

In humans, the incubation time from mosquito bite to symptom onset is about 3 to 12 days, where in about 80 percent of the cases, Zika infections resolve with only mild or no symptoms at all (Albuquerque 2018, Lanciotti 2008). Infections which are symptomatic are characterized by mild or low-grade symptoms that emphasize rash and pruritus or sometimes conjunctivitis. A feature that was noted by Brazilian community health teams, Zika infections were less often associated with fever and joint pain – by comparison to chikungunya infection, which was also circulating in this same period. These Brazilian studies detected Zika infection in Rio de Janeiro for its similarities in its presentation of dengue-like illness while following pregnant women on surveillance studies for dengue (Brasil & Nielsen-Saines 2016). Distinctive from other flavivirus infections, Zika's most prominent feature – an erythemic rash – usually occurred without fever. Since Zika had previous garnered little attention, evidence from the 2013 - 2014 outbreaks shed light on ZIKV's association with neurological disorders in adults and congenital abnormalities in French Polynesia (Christian et al 2019). This same group also reported on Zika's perinatal, sexual, and transmission in blood transfusions (Roth 2014, Musso 2014, Oehler 2014). Zika infection may result in neurological sequelae – or secondary condition – in adults and developing embryos (Plourde & Bloch 2016). Longitudinal studies continue to date aimed at characterizing Zika virus' pathogenesis and the range of congenital defects and neurological deformations that are now known as Congenital Zika Syndrome. These studies seek unanswered questions regarding the critical timing and spectrum of birth defects that confirm perinatal infection at any point in pregnancy. As noted above, ZIKV infections share similar and overlapping clinical profiles with other flaviviruses, although it can now be distinguished through clinically defining features. Therefore, diagnosis relies principally on laboratory confirmation - either via molecular testing on serum samples (e.g. RT-PCR) within the acute infection phase (<7 days of symptom onset) or via serological confirmation of the presence of antibodies. However, confirmation of ZIKV can be confounded on two levels. First at the individual level, it can be difficult to distinguish between ZIKV and other flaviviruses based on serological tests, since the antibodies that may develop from a prior flavivirus infection can be cross-reactive due to the testing platform. Then, thinking on a social and structural level, confirmation relies on the presence and capacity of large reference laboratories, usually through universities, where diagnosis relies on technology and resources not widely available. Therefore, confirmation and capacity remains suboptimal in certain regions in Brazil.

The initial question was not whether Zika virus had emerged in Brazil – the first local cases and active autochthonous transmission had already been laboratory-confirmed by laboratories and researchers in the Northeast (Zanluca et al 2015, Campos et al 2015). However, the Zika PHEIC was declared to better define the extent to which Zika virus was causally linked to the unprecedented rise in congenital microcephaly versus other causes. This need to establish a causal relationship placed particular emphasis on epidemiologic studies to differentiate between association and causation from other possible factors and teratogens considered. From the Greek *"epidēmios*" to mean epidemic and "*logos"* to mean study, epidemiology is guided by questions over who or what drives current and changing patterns in epidemics and other health outcomes at the population level. Epidemiological studies and their technoscientific ability to resolve these terms of uncertainty were

contingent on data quality and consistent monitoring. Conspiracy theories were abound, ranging from speculation and misinformation spread through social media posts on the Rockefeller Foundation, vaccination campaigns, or transgenic mosquitoes. Local perceptions also reflected tangible explanations including concerns for maternal malnutrition and other health and environmental exposures to fertilizers, insecticides, or toxic mining waste released in the aftermath of the 2015 Mariana dam catastrophe. International health research debated two major technical distinctions - uncertainty regarding the magnitude of Zika's effect on microcephaly incidence, likely underreported up until the time of the public health emergency as well as the technical criteria and standards that were used to established microcephaly from other conditions of infant underdevelopment (Calvet et al 2016, Soares de Arajúro et al 2016, Johansson et al 2016, Frank et al 2016).

First thing to consider was the quality and availability of the data related to the surveillance system and the uncertain nature and timing of Zika's infection in relation to maternal-infant transmission. Zika's public health emergency exposed gaps in the Brazilian health surveillance system, where the accuracy of vital statistics are often questioned. This is especially true given the historical formation of Brazil's national health system, decentralized but also fragmented throughout Brazil's vast territorial expanse. There were large discrepancies in reporting as seen through the number of confirmed vs suspected Zika-related cases of microcephaly as well as other birth defects. Also related to the laboratory infrastructure mentioned earlier, it was impossible to confirm every suspected case through laboratory means. According to the Ministry of Health, there were only 2,464 total cases of microcephaly reported to the Brazilian Surveillance System on Live Births (SINASC) from 2000 to 2014. Following the start of the National health emergency, there were 14,558 suspected cases of microcephaly reported in November 2015 until 2017. Of these, Zika infection was confirmed in nearly 3,000 of these cases (PAHO/WHO, 2017). Confirmation was further compounded by the temporal and transient nature of maternal infection and memory recall, consequently complicating the link between maternal infection and its impact on the developing fetus.

Secondly, there were debates over the standard surveillance case definitions since there was a lack of consensus over case definitions of Zika-related microcephaly. There were also additional factors related to maternal health status that complicated a differential assessment between Zika-associated microcephaly and other causes of impaired congenital development such as teratogens, exposures to chemical or toxins, viral sequelae like rubella or malnutrition. Microcephaly can be diagnosed by comparing fetal development along different timepoints relative to the averages for gestational age. Ultimately, Zika-related microcephaly was characterized by an underdeveloped head circumference of more than 2 standard deviations below the average expected for the gestational age.

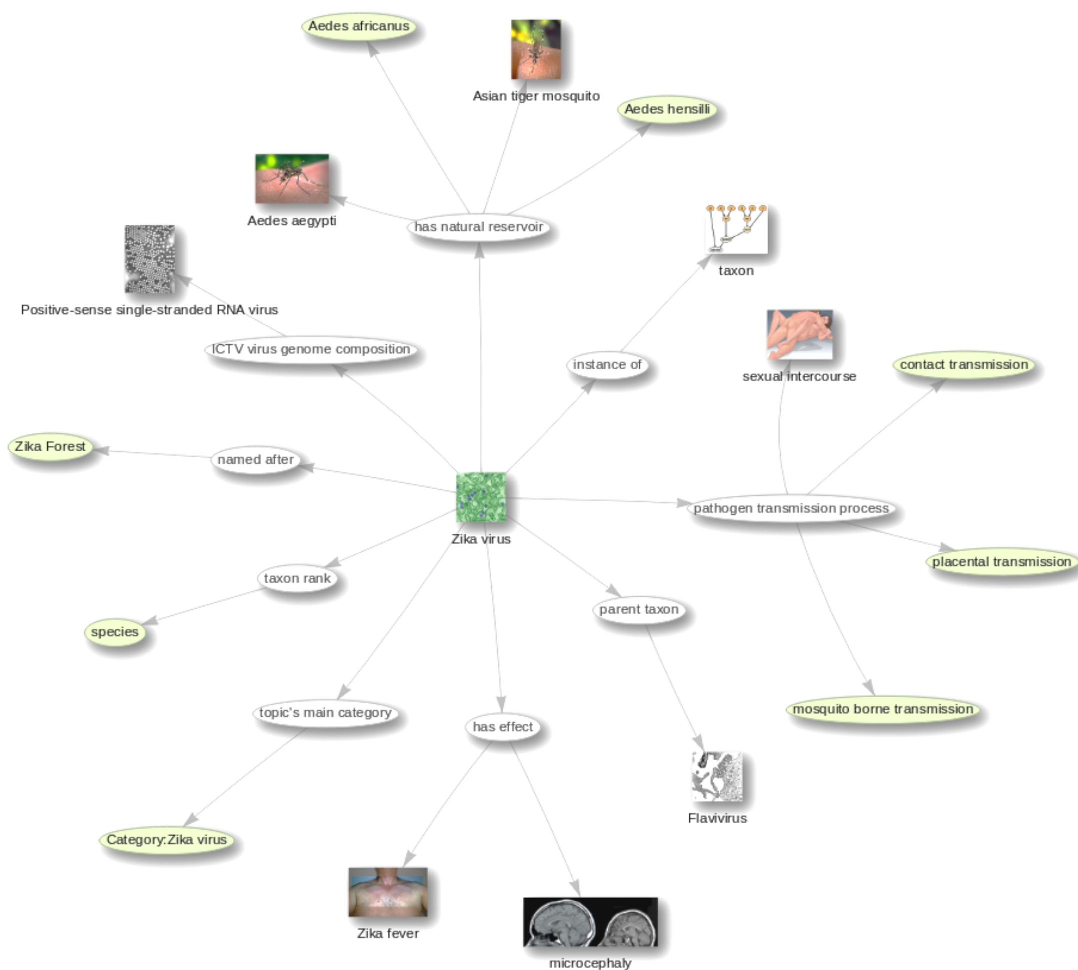

Figure 1.3. Zika Virus Knowledge in Context - Wikidata Query Service Graph
Source*:* Daniel Mietchen, CC BY-SA 4.0, commons.wikimedia.org/w/index.php?curid=70736590

The conceptual map above represents a visual rendering of Zika virus web of knowledge, especially following the rapid expansion of research generated in the wake of Zika's emergence in the Americas. But much of this knowledge remained sequestered in the domain of laboratory or clinical research, to the loss of the communities most impacted, in the form of translation and health education. Subsequent reports indicated there were significant gaps in knowledge among women who depend on the public health system for services and perinatal care. Although the health system is managed across federal, state, and municipal levels, there has been historically uneven investment in the public health infrastructure and challenges faced in reaching communities that are removed from the urban centers, especially in the more rural areas of the North and Northeast.

It was known early on that Zika virus can be passed along via ecological as well as social vectors – transmission can be punctuated or propelled sexually, vertically through mother and developing fetus, bodily fluids such as blood and tears - in addition to mosquito-borne transmission. However, a number of studies grounded in community health (Pires 2017,

Wurth et al 2017, Borges 2018, Harvard Center 2018) concluded that the Brazilian public health response missed important opportunities to expand rights to health and protect those most at-risk of Zika infection and risky maternal health outcomes. Health communication units at the level of the Ministry of Health tended towards overly technical, hierarchical, and were grossly underfunded. Drawing from interviews conducted with high-risk women who depend on the national health system, Human Rights Watch, Harvard Center for Reproductive Rights, and others reported significant gaps in knowledge and community awareness of Zika's risks, modes of transmission, and effective methods of prevention. These gaps in translating evidence into practice contributed to needless harm and wasted opportunities for community prevention. Such abstract views on predictive models collapse experiences and processes into something conceptual, leading to missed opportunities to redirect within contextual limits and potential and historical trajectories that shape risk, who is at-risk, and deserving of a more political understanding and response to mitigate risk. As evidence accumulates, translational research in public health yokes together both local stakeholder perspectives on "culturally appropriate" messaging to mitigate harm through unintended stigmatization and promoting prevention as well as expert, top-down overtures towards crisis management and technology distribution.

To move beyond technoscientific optimism and biomedicalization of health requires an attentive examination of abstracted representations of space and "the social" processes that shape the processes of health or its absence in everyday realities. While public health has shifted in recent decades, the Zika PHEIC draws attention to the salience of risk communication and awareness campaigns as vital components to the public health response. Considering the challenges illuminated in the recent public health emergency, where crisis management and risk communication was plagued by controversy and contestation especially as the evidence base shifted and subject to the influence of sociopolitical factors typically beyond the consideration of public health. Thinking about the Zika PHEIC and more broadly pandemics leads to new understanding of the ways that the social products of our economic development, gaps in communication, or barriers to equitable health systems delivery emerge with the expansion of access for both human and non-human actors to global networks. Provoked by other critical scholars, like Katerini Storeng and Arima Mishra, who consider what other research questions that we should be asking – are we missing important historical and political contexts if limited to biomedical framing of access and delivery models in health system strengthening?

Health Equity in the absence of biomedical therapeutics

In this context, the Zika PHEIC demonstrated shortcomings in Global Health methods based on market logics of access and pharmaceuticalization of public health, as well as the politics of Global Health knowledge rooted in ecological theory with scant attention paid to the social context. Prior to the Zika PHEIC in 2016, there were no specific treatments for Zika infection or preventative vaccines. Given the mild nature of infection, there were no existing initiatives or market incentives for research and development research. The international health community was caught flat-footed without a plan to treat perinatal infections that would prevent the virus from crossing the placental barrier, since the legacy of the Thalidomide tragedy of the 1960s resulted in categorizing pregnant women as a special research population (Kim & Scialli 2011). This precedent created a "perfect storm" where therapeutics were understudied, and there still are no viable vaccine options. Still, with past epidemics,

scholars and practitioners have called out the limitations of relying on pharmaceutical-forward or “magic bullet” approaches to addressing outbreaks. It is undoubtedly true that we benefit from the wealth of life-saving therapeutics and medical treatments available for those who have access. At the same time, less emphasis has been paid to non-pharmaceutical measures or the importance of health education and outreach to marginalized populations in meeting people where they are, where the perception of risk and harm mitigation comes into tension with the reality of multiple risks within a larger social hierarchy.

In advance of the Summer Olympic Games in Rio de Janeiro in 2016, WHO experts debated the evolving corpus of evidence and considered the risk of mass gatherings, epidemiologic disease modeling, and public health messaging geared towards prevention in the absence of biomedical interventions. Efforts relied on coordinating the non-medical, risk communication, and prevention, primarily vector control and public health messaging directed across multiple scales – from the individual, community, national, and international level. Consequently, the national public health response to Zika was critiqued and revealed double standards of protection on multiple fronts. First, the government’s messaging emphasized a militarized tone on vector control, with media messaging that overemphasized “mosquito as villain,” or hygiene policing by the military, in one of the biggest military mobilizations in Brazil’s history with over 220,000 soldiers called upon to fight the arthropod invader (de Oliveira 2016). One such armed forces-led campaign included the “Zika Zero Day,” a one-day action in 250 cities across Brazil to dispel standing water or eliminate potential mosquito-breeding reservoirs. However, these actions were limited to “safe areas” and did not extend into the informal communities or favelas in the cities or hard-to-reach territories outside these cities. When public health campaigns eventually reached the favelas, for example, in Rio de Janeiro with over 763 informal settlements, this one-day event, inaugurated the “Big Cleaning Day” or *Faixanão*, visited only two. Yet, there were no efforts to dramatically improve sanitation infrastructure for communities living without access to clean water and sewage systems, which admittedly is a much more complicated undertaking than coating the countryside with insecticide or the novelty of releasing a cloud of genetically modified and sterile male mosquitoes, a technoscientific engineering scheme coming out of UK-based company, Oxitec. This technoscience ideology and discourse – in the performative mobilization of evolving scientific knowledge and technocratic expertise – shaped a range of spaces in differential ways, channelled by social and power relations within Brazilian society and reinforced labor divisions that were both racialized and gendered. Government authorities intervened in a series of public performances and battles signified by words like “war,” “Obama,” and “combat,” yet assumed the primary responsibility for effective prevention was forwarded to the female individuals in contrast to the role of the state leveraging collective resources to act on behalf of its citizens as a caregiver or protector.

Further, the public health messaging around prevention was heavily gendered, limited to vague warnings to “delay pregnancy” with even less information about the virus’s ability to be transmitted sexually. For instance, early in 2016, then-President, Dilma Rousseff, enlisted the help of faith-based organizations and their congregations but limited her recruitment to the National Council of Christian Churches (CONIC) to eliminate household reservoirs for mosquito-breeding. In their conversations with religious leaders, discussions of sexual transmission and family-planning were completely avoided. This ambiguity was confusing for the public and contributed to gaps in knowledge and understanding around Zika’s risks to

reproductive health. In the absence of treatment or vaccines, these were also missed opportunities for conversations around family-planning, where methods could be used explicitly as prevention of the adverse health outcomes during a potential unplanned pregnancy. Meanwhile, pregnant women traveling from other countries, like the United States, France, or Japan, were advised to avoid affected countries with active Zika outbreaks. Those who were not pregnant but were considering and able, were advised to delay pregnancy for at least two years. Taken together, “the [Zika] epidemic has serious medical, ethical, and economic ramifications,” as Anne Plourde, Evan Bloch and others recognized that “particularly in countries where the resources for early diagnosis are lacking and potential interventions measures (e.g. contraception or abortion) are discouraged or illegal” (Plourde and Bloch 2016, p 1191). Amidst the public health emergency, this logic was openly championed by Brazilian bioethicist, Debora Diniz, vocal advocate for reproductive rights and one of the first to share the stories from Brazilian women and their infants. In her 2016 New York Times response, she makes this obvious in saying the “Zika epidemic [offered] Brazil a unique opportunity to look at inequality and reproductive rights, and to change how the country treats women. Asking women to avoid pregnancy without offering the necessary information, education, contraception, or access to abortion is not a reasonable health policy” (Diniz 2016). In the absence of national efforts to improve sanitation or access to reproductive health, the Brazilian response to Zika PHEIC becomes at once, a human rights issue as well as a topic of research for health systems strengthening, and larger determinants of health. Particularly in the Northeastern states where Zika emerged as well as many of Brazil’s sprawling metropolitan centers, women daily negotiate a myriad of threats to their safety and bodily autonomy. From the possibility of rape and highest rates of gender violence, unplanned pregnancies (especially for young women of color) are common, and there exists multiple physical and social barriers to access to national health systems and family health services. Zika was almost guaranteed to disproportionately impact those living in poverty with limited access to either. Many pregnancies are unplanned, as many as 60% of pregnancies in one study population, and for many, delaying pregnancy and bodily autonomy may not be an option (Borges 2018, Diniz 2017). By refraining from the political, public health efforts privileged the logics of access and rational choice, thus reproducing an unevenness that challenges the notion that populations stand equal before communicable diseases and microbes are social equalizers. Limiting their focus on single disease characterization and a-political approaches to risk management, public health responses missed valuable insights guided by social justice, alternative solutions, and community-level opportunities that could have shifted the paradigm on health strengthening and health equity.

Calling attention to these assumptions and limitations – perhaps in the form of data quality, collection, methods – or missingness — are core to any critical science. An increasing number of scholars, including critical social theorists in decolonial and feminist studies, have challenged the public health assumptions that underpin a broad cultural value of objectivity and what counts as evidence. Given a colonial history of research and subjectification, those critical of the politics of global health and sciences point to the ways that objectification of research subjects, people as data points, leads to the “active reduction of people, the dehumanization that fits them for the classification … into less than human beings” (Lugones 2010, p 745, Smith 2010). Further, they call for more attention to an epistemological missingness, where the biases of an objectively anonymized researcher are limited by their assumptions about research subjects. This is especially true in the field of epidemiology,

whose practitioners recruit population data and analyze factors and patterns within, that explain through determinants and influence the distribution of disease, injury, and health risks. If the field is guided by questions over who or what drives current and changing patterns in health at the population level, abstracted data runs the risk of missing possible explanations between factors to risk and specific health outcomes that an active research subject has important experiential knowledge drawing from their perspectives.

Critical of epidemiological practices and the harmful consequences of experiential missingness, Nancy Krieger and Jaime Breilh, make a case for an awakening to the richness of more transdisciplinary models that accounts for perspectives and knowledge. Beginning in 1994, American epidemiologist, Nancy Krieger, joined a chorus of those who argued for a paradigm shift for a field that relies predominantly on theoretical ecology models and tools. Over the past three decades, she has pushed to incorporate social as well as ecological theories to explain disease and health processes. An important first step in repairing public health's troubled history with denying agency and lack of accountability in its studies of socially complex health systems, social theory accounts for multiple and collective realities that contribute to outcomes. Krieger further elaborates on her **"**eco-social theory of disease distribution" in Eco-Social Theory, Embodied Truths, and the People's Health that draws out lessons learned in a peri-COVID pandemic moment. Beginning with a bioethical imperative, she stresses the wealth of social theories and human rights in conversation with comparably rich biological and ecological analyses. Contrary to a reductionist tendency, her arguments align with those made in Social Medicine that envisions populations and social institutions in their totalities instead of disarticulated into a sum total of individual parts. Health economists and epidemiologists have awkwardly attempted to account for how our health depends on different elements – social, structural, and biomedical influences – that cannot add up to 100%. Instead, there is overlap and redundancies. We embody a dynamic state of health, disease, and buffering risk exposures that materially draws resources from our food, the gaseous elements that we breathe, also how water is implicated in these interactions in its solvency, and miscibility, then mediated by biological responses to environmental and social stressors. Therefore, we are corporeally constituted and immersed along "pathways of embodiment" along with phenomenologically real and materially concrete ways that we experience and identify socially, reciprocally, and dynamically, in our engagement with others and incorporation of the world.

Critical health studies invite occluded perspectives and social theory to enhance an understanding of biological expressions of social injustices like racism or violence based on gender. Also addressing the need to make accountability and agency legible to communities in research, eco-social theory serves to connect the myriad of ways that racial inequality can become biologically embodied, by evaluating area-based structural and spatial analysis of social polarization over [time and across] the life course and generations, thereby creating racial/ethnic inequity in health (Krieger 2021, p 97). Ecuadorian epidemiologist and social medical doctor, Jaime Brielh, joins Krieger in elaborating on Latin American critical health science traditions that "as a result of the turbulence … [and] the extreme political authoritarianism and social inequity of the early 20th century, … there was a consolidation of revolutionary social ideas that penetrated thought about health and health inequalities … [and] impelled and inspired a culture of critique and resilience within the region" (Brielh 2021, p 32-35). Considering a history of Latin America and its movements for colonial and

neocolonial independence, Brielh argues for the recognition and critical importance of collective action and political subjectivities of non-state actors – meaning the organizing of social classes and popular movements who have and continue to shape the field of action for positive transformation of health conditions – for contemporary framing of social medicine as well as ways of knowing health and well-being (Brielh 2021, p 33). Sharing space and speaking the language of people, mobilizing within social networks that can literally be walked, returns to epidemiology's roots in fieldwork and shoe-leather data collection methods. Paying heed to the stakeholders – identified broadly as "women and communities" in the above Zika Research Agenda, this project responds to Dr. Margaret Chan's call to health systems with careful attention to complexity and community-level knowledge "as a powerful corrective to the tendency within global health and health systems strengthening initiatives to displace debates from the political realm and recast them as technical debates" about access and delivery (Storeng & Mishra 2014). Zika PHEIC represents a perfect example to examine those debates in context to necessarily reassert the politics in these debates.

Chapter 2

Towards a Decolonial Feminist Methodology in the Field

The thesis developed in this analysis covers a period from 2015 – 2020. Referencing a "Southern Cross" or another hemispheric sensibility of space and time, it implicates my active participation in the process of learning and articulating a new constellation of relationships in health research and knowledge. With my first visit to Brazil in 2015, I perceived the events that unfolded in a way, much like the narrative vignette by Amita Baviskar, as though I were stepping into *a river that was already flowing.* Remaining sensitive to discomfort, I engaged in-between different elements that animate the relations between data-and-researcher. I was invited by a university professor with ties to a Quilombo community to visit one of their settlements, Ribeirão Grande (Barra do Turvo, on the border of São Paulo and Paraná states). Over a four hour drive by highway along the coastal zone of Atlantic Forest, it was my first exposure to *Saúde Coletiva*, a concept that was popularly referred to in the field, and I understood later as a social movement for health and knowledge. Illustratively, Professor Waverli was a biologist, yet played an active and political role in her spatial practices in science and public health. Reflecting on my first encounter with Waverli, I remember her skill for animating a passion for biological science and bridging people, knowledge, and cultural resources in cooperation. The professor connected with the community leaders, Pedro and Nilce, who needed legal consultation for their community's claims to land. While my role was more of an observer and witness, I remember one of the community leaders asking if I would return. He said that so many people come to visit, but they never come back. This conversation – and the embedded invitation – resonated with me, because I also knew this reflected a long-standing criticism of conventional research and sciences.

Meanwhile, local cases of dengue-like illnesses were increasing in the Northeast, although the national crisis had yet to unfold. As Debora Diniz details in her early accounts on Zika: from the Brazilian Backlands to Global Threat, field researchers shared knowledge and accounts from their patients with an "awful allergy … rashes that left them itching all over, symptoms that [then] … vanished in a few days," further expedited by peer-to-peer groups using WhatsApp (Diniz 2017, p 22). Contradicting the political geographies of Global Health, the first published confirmation of Zika infections in Brazil emerged from the peripheral Northeast, not the productive epicenters of Rio de Janeiro or São Paulo. The day we left Brazil – on March 15, 2015 – thousands took to city streets in São Paulo and all over Brazil. Dressed in yellow Brazilian soccer jerseys, mostly middle aged men – and what I could ascertain through the milieu and performance – middle-class families, some pushing strollers and banging pots. Amidst its intensity, I was disoriented by the social cues, unable to make sense of the political spectacle in these demonstrations, beyond a general anti-government message.

Since then, my apprehension of the eco-social fullness of this early constellation has grown slowly, guided by a notion of *soft eyes*, described by Maggie MacLure, as a tool of analysis and active learning, and "a way of staying with the [discomfort and] complexity of what was unfolding and allowing what radiates to move us and mobilize new ideas" (MacLure 2013). Interested in questions that centered on a local notion of risk and health that was relayed to me by facilitators and spatial practices and rhythms in community organizing spaces to promote health. This project reflects a reorientation towards *Saúde Coletiva*, when new questions emerged as I followed this concept in the field to better ascertain its significance and historical distinctions from Public Health.

Personal and professional experience can be helpful in many ways, and beginning with these experiences may help the reader understand the lengths of my interest in this project. I am thankful for the opportunities I have had to understand health and community practices in a different context. I came to understand the ways that Brazil valorizes the idea of a national identity and miscegenation, promoted through an ideology of Brazilian racial democracy. The myth of Brazil's racial democracy has been increasingly questioned where to "look at what lies beneath that 'culturally produced resilience' [was] considered un-Brazilian" (French 2009, p 109). Speaking back despite social decorum can exemplify an important dimension to promoting health by Brazilians in resisting the harmful effects to "missingness" found within multiculturalism, and I came to understand this through examples and encounters in my fieldwork. Acknowledging resources and the privilege of conducting research, the ambiguity of my identity provided openings in some situations, and also quickly foreclosed on others. I was clearly introduced and outed as someone from the United States who has time to study and research, improvising with the best of my abilities to adapt, while taking notes on the tension, perceived vulnerability, and conflict along the way.

As a perpetual outsider and observer, I was surprised at the positive reaction while in Brazil - *de onde você, de onde você*? - Where are you from? And to my chagrin, some would pull taut on the corners of their eyes. This felt like a different kind of questioning when compared to questions while in the United States, "What are you?" or "Are you ethnic?" or "when did you know that you were white-passing?" I grew up in between cultures and found resonance with those stories of alternative identity affirmations and fluidity described by artists, scholars, and researchers who tried to make sense and identified the tensions of embodiment that shift despite categorization. Recently relocating to Los Angeles, I encountered more people, especially a younger generation trying to reconcile their identity in what was described to me as third culture experience. For me, identity and self-identification has felt complicated, so perhaps I would describe a fourth culture experience. I grew up across three continents - spanning the military-occupied island of Okinawa, where my parents met. From what I can piece together, my mother left Taiwan in the late 1980s amid the lifting of martial law and together, we immigrated to the United States. There was only a short pause before my father was stationed in Germany, taking my sister and I without my mother. Consequently, I came to identify more with this experience of movement and immigration over time, combined with making meaningful sense of identity despite the missingness of one side of my biracial mix. Growing up as a dependent of the US Department of Defense, I connected with students and educators in transient and accentuated ways. My instructors came from the global range of the US military "bootprint" and American territories in Guam or Puerto Rico. New students would arrive in the school year and then be transferred by the end of the year. From

classmates from mixed marriages from Korea and Philippines or learning Russian after the fall of the USSR and Berlin Wall, I was more aware of the fluid movement of people and the transient nature of their company than a singular sense of place that I considered "home." Perhaps contradicting intuition, these experiences and relationships were literally defined by biosecurity with US foreign policies and NATO in the 1990s.

These experiences also sharpened my sensitivity to systems-thinking, health in translation, and migration. My career in research began in the health and biomedical fields, first in biochemistry at the bench learning techniques and acquiring knowledge while thinking about systems and chemical signaling pathways in the biological sciences. I learned firsthand the importance of trust and communication in health and research in both as a community health worker in hepatitis education and outreach, as well as in relation to my father's diagnosis with kidney cancer in 2006. During the course of his disease, I delved into the knowledge of his disease, prognosis, and treatment as a defense against uncertainty at the limits of science. His treatment was consequently challenged by many unexpected developments, framed as Annemarie Mol would articulate, in the dialectics between the logic of choice and logic of care. While scientific knowledge and medical technology are often popularly cast in a rationalist, logic of choice mindset, where time and interventions are understood linearly and the facts, as they are ascertained, gradually increases certainty of knowing and predicting. The logics of care that we experienced involved a time full of twists and turns (Mol 2008). For our family and many others, these strange twists and turns are difficult to understand. Mol's assertions found particular personal resonance in her descriptions of the disturbing contortions between care and choice, where "gathering knowledge is not a matter of providing better maps *of* reality, but of crafting more bearable ways of living *with*, or *in*, reality" (Mol 2008, p 53). The incongruences between care and choice contrast with popular depictions of well-ordered theories of science and medicine that can contribute to no inconsequential amount of distrust and fear of conventional medicine. Emboldened by my personal experiences, I sought creative methods of bridging the frontier of medical language and communication, framed by implicit power relationships and trust between biomedical health knowledge of health professionals and experiential expertise of the patient**.** Following my father's experience with cancer, I joined an interdisciplinary team of cancer physician-scientists and an extended care network of nurses, pharmacists, and social workers who worked together to provide treatment and care for people diagnosed with pancreatic and other solid tumor cancers. It was here that I learned to talk about research and join discussions as a coordinator and translational researcher. I learned both an applied art of technical and social sciences in interdisciplinary teams to implement complex drug and epidemiologic studies in cancer, HIV, and COVID-19. All this built out of a desire to gather and apply knowledge in systems across scales - from the cellular pathways, studies in the lab, translation to families and patients at the bedside, to disseminating complex trial findings to the community – grounded in a reflexive practice in ethics, and health is understood through our shared human dignity, and based on trust and collaboration.

At the same time, my understanding of community-based research, education, and evaluation started to take shape when I was introduced to HIV-related research and care networks in treatment and prevention. Beginning in 2009, I became involved with a local HIV community advisory board (CAB) to an international HIV research network invested in vaccine development and prevention. Spanning over 30 cities across five continents, this particular

HIV research network began in the 1990s. Federal funding regulations required local clinical units to host an independent community advisory board – which being unpaid, generally relied on volunteers. Although not strictly defined, local councils were composed of stakeholders, community health workers and organizers who shared a commitment to or sense of identity with the local geography or social population and practices. The group's demographics shifted periodically across the decade that I served on this council and also reflected a diversity of backgrounds, education, and point-of-views. These experiences also contributed to an appreciation of qualitative research from my time invested in the local world of HIV research and advocacy. Initially, the community advisory board seemed more like an administrative council, and I was invited into the fold as a student interested in learning more about the practice of science particularly in this world of HIV research.

These advisory councils were created for community engagement and to generate more participatory-based possibilities in research. However, these councils were not autonomous bodies. Our practices and timelines mirrored the regulatory requirements of the research institutions – monthly meetings with bylaws and minute takers, annual reporting beholden to federal funding timelines, and network-wide evaluations that were intended to "measure" the research site performance based on study enrollment, community engagement, and relationship. Federal regulatory and oversight groups required these councils to establish long-term relationships and discourse with community stakeholders and local leaders. These experiences were also my first introduction to HIV exceptionalism, a term that emerged in the early 2000s in the way that public health and global medical science interventions came to focus specifically on HIV/AIDS as a disease, despite its related syndemics or social determinants of health that also impacted access to care, overall health, and comorbidities, resulting in a weakening of the larger national health system (Pfeiffer 2008, Nattrass & Gonsalves 2009, Oppenheimer 2009). Although we would valorize the past and the history of HIV activism, we couldn't engage with those same political boundaries of social determinants of health as CAB members. These experiences also demonstrated the work of science in practice, where CAB input was key to addressing controversy. We were involved in the messy work of disentangling the social from the biomedical science. One example highlighting the role of the advisory council in mitigating misinformation stigma around research involved a phenomenon known as vaccine-induced seropositivity (VISP). If a clinical study stopped prematurely or evidence emerged that showed an unexpected consequence, we would support the research unit in translating these results or hosting "town hall" spaces with participants or other community members as a forum to discuss their perceptions and concerns with complicated findings. Generally, vaccines activate the body's response to generate antibodies to prevent HIV infection. In some cases, a study vaccine only generated non-specific antibodies, and the presence of these antibodies led to false positive HIV tests due to technological limitations. Community participation and consultation were key factors to understanding the ethical implications of study participation. The communication of this risk information requires community-informed perspectives about gaps in knowledge, perception of research, and medical acceptability that ultimately shapes the process of informed consent with timeliness and cultural sensitivity.

These advisory groups served an important function for creating a space for discussion and discourse between the lay public and public health scientists, as well as fostering community participation in translating study findings in public health research. However, I also became

sharply aware of the power geometries and infrapolitics that existed between community representatives from civil society, biomedical health researchers, and the conditions of our federally funded enterprises. In this time spent with the local and global CABs, we were attuned to the shifting tides of public health funding streams, drawing from a wider variety of civil-public-private partnerships including the US military and biosecurity programs, universities, and the increasing influence of private philanthropic sources like the Bill and Melinda Gates Foundation. We would be invited to participate in the international conferences with plenary sessions that focused on aspects of public health that were increasingly subsidized, borrowing a term used by Adams and Löwy, philanthrocapitalism. These endeavors similarly lean heavily on technical interventions that are framed as economically efficient, administratively evaluable, and socially just, while also curtailing the political potential of public health action in solidarity with more radical alternatives to reforming our systems (Brandt 2013, King 2002, Street 2014). At the same time, the role and collaborations between non governmental entities, public-private partnerships have increased visibility and expanded opportunities for local actors to interface with international organizations as well connecting with transnational actors and movements.

As a student of local history of this community, I learned lessons through their stories which were passed on from elder organizers and activists who preceded me. Community elders were from the local gay community, underground but influential personalities, and people who were tied to Seattle's many community-based sex-positive, health organizations since their inception. They would share stories and point out the political in the personal ties, as well as the social dimensions that could never be resolved in biomedical research but continue to resonate in the forms and institutions of HIV activism and care in Seattle. One of the nurses who I worked with in the AIDS Clinical Trials Unit was originally from Los Angeles, and she shared that she was among the protesters who chained themselves to the steps of the LA City Hall in their own act of civil disobedience to protest against government inaction to the epidemic. Paula Treichler engages with aspects of infrapolitics in addition to these more visible movements and local activism that challenged the cultural value of objectivity and institutional inertia. From community activist spaces like Project Inform and ACT UP to accelerate the research and prioritize funding for social programs, Treichler examines the socio-cultural dimensions to the HIV/AIDS epidemic in How to Have Theory in an Epidemic and argues that there was an cultural evolution of our understanding of the AIDS epidemic. Seen in "its interaction with culture and language, the intellectual debates and political initiatives that the epidemic has engendered, its function as a site for competing ideologies and sites of knowledge," reflected a grassroots power to shape research and a more humane response to future epidemics (Treichler 1999, p 6). More than twenty years later, the socio-cultural impact continues to shape the debates on public health efforts, where community engagement allows two-way dialogue to navigate the contested knowledge and controversy around science and biotechnologies.

My participation on the community advisory council created opportunities for collaboration with other community health advocates internationally over transnational issues in health. Through this network, I met a fellow global-community advisory board member, Juliana K, at an HIV conference in Capetown, South Africa in 2015. Despite language barriers, we continued sharing community health related research, music and art, or life updates over email, WhatsApp, and social media. Working in-between systems of care, public health, and

HIV research advocacy helped direct me to pay closer attention to the sociocultural aspects of public health responses. Slowly building connections, I eventually returned to Brazil, in 2017, to the northern state of Pará with an expanding repertoire of Portuguese and confidence to connect. It was here I engaged with local researchers working with rural and Indigenous communities living along the tributaries of the Amazon River. These relationships afforded an opportunity in 2018, to begin field work in Florianopolis in the state of Santa Catarina. It was here I served as an English translator and participated in the 2018 World Congress of the International Union on Anthropological and Ethnological Sciences (IUAES). Along with these experiences at the conference, I was introduced to a group of interdisciplinary scholars in health movement research across Brazilian universities as well as researchers interested in human rights, social justice, and health research (Trafford et al 2018, Neely & Nading 2017, Klein 2019). I was able to finally meet Juliana in Rio de Janeiro, where she introduced me to her colleagues at the Oswaldo Cruz Foundation (FIOCRUZ) and introduced me to a different side of her city.

Zika PHEIC resulted in broadly defining high risk factors that were based on social identities that implicated a history of fertility control, reproductive health, as well as structural determinants that were often associated with racialized and class-based stigma in sanitation health. In 2018, debates continued over Zika-related gendered risks and popular movements for health rights, as an endemic vector-borne and sexually transmitted virus that was also implicated in a syndemics of other endemic arboviruses. I assumed that Zika-related health risks and social vulnerabilities still persisted, while I also stayed attuned to local responses to perhaps the irrelevance of Zika beginning in 2018. Considering missingness and the politics of public health science knowledge, I wanted to understand how community health perspectives may inform or direct unique approaches to address Zika's persistent determinants of health and risk. There were important gaps in knowledge and a general lack of awareness about Zika-related transmission and health risks reported in the literature by NGOs and academic research by multidisciplinary public health studies. These gaps in knowledge were especially apparent among women who relied on the public health system for their health care. From post-Zika PHEIC moments, I used these knowledge gaps as a way to initiate conversation and shed light on other themes in Zika-related health risks. Drawing from these relationships formed over time, I utilized purposeful, snowball sampling for connecting to community health activists, local coordinators at NGOs, who centered gendered reproductive and community health relationships with those living at higher risk of adverse Zika-related health outcomes. I was also introduced to community leaders from Afro-Brazilian movements through public sessions hosted by FIOCRUZ, where panelists discussed their interrelated work in anti-racism, access and human rights for gender and sexual minorities in health systems, as well as cultural knowledge that incorporates other ways of knowing health. This project also draws from historical data collection and is supplemented with news articles, activist scholarship, government documents, and secondary resources. It was Maria Lugones who clarified in her "Towards Decolonial Feminism," what is meant by intimate and everyday, where in the 'intimate, everyday … [there are] interactions [that illuminate] the colonial difference,' and as she says, focusing more on the 'interwoven social life among people who are not acting as representatives or officials" (Lugones 2010, p 743). In the analysis that follows, I follow grassroots as well as organized activism in Rio de Janeiro and Recife that traced everyday, largely unrecognized acts of collective organizing and community building among non-state, non-professional women, public councils and community health organizers

among urban and popular movements for gendered and collective rights to health in the context of overlapping Zika-related health risks.

Taken together, these dimensions were identified in the field as *Saúde Coletiva*, a social movement for health in Brazil. To elaborate on *Saúde Coletiva* as a social movement for health equity, I analyzed the spatial practices, language, and distinctive rhythms in these sites. Different from public health, *Saude Coletiva* is well-positioned to answer the following questions:

- How does history and local differences in public health contribute to racialized hierarchies of citizenship that inform and privilege one cultural framing of health differently in a public health response?
- Which groups are identified as causing the problem? (politics of inclusion, democratic transition through direct participatory action)
- What would it mean for *Saude Coletiva* to produce social justice in health equity, for which peoples and territory (*o povo*, *a gente*, *terreiros*) do they work for?

I use a "grounded theory" approach (Glasser and Strauss 1967, Corbin and Strauss 2015) to construct a historical and contextualized analysis of *Saúde Coletiva* through its networks and local roots of response and detail its interfaces with global health-defined health risks. My grounded theory also pulls from social theorists who provide novel tools and vocabulary to analyze the complex layers and interconnections between global health abstractions of health risk and everyday social contexts. To this end, concepts and methods developed by French sociologist and philosopher, Henri Lefebvre, in the social production of space and rhythmanalysis have been useful. A prolific thinker on the interrelation between space, time, and apprehending these together, he shed a historical light into social spaces and rhythms especially in urban studies. His humanist-informed writing on the "Right to the City" has also found increasing traction among non-state actors in their political rationale and organizing for affordable housing, access to municipal services – or generally the right of the people to democratic spaces and exclusions from the benefits of urban society. Lefebvre unpackages space in the following ways – space is often presented in an abstract or scientific form, where you refer to a map and its representation of space and movement depicted flatly between two coordinates. Inviting thought into a non-linear understanding of time and history, we also produce space and rhythms through our social actions, which can sometimes be constrained by individual and collective memories, which certainly shape and are shaped by differential power relations. For Lefebvre, the production of social spaces are generated within three interconnected moments of how spatial practices are lived, conceived, and perceived. He utilizes an analysis of rhythms and an active listening to the sounds, the habitual, patterns in order to reclaim *moments* that "confound the industrious, mechanical search for meanings, patterns, codes" in used in exercises of data science through interpretation, classification and representation (MacLure 2013, p 228). The differences between these layers of space reveal a lot about social and cultural values through how space is represented compared to lived experiences of space and the more banal aspects of social spaces. Providing this backstory, I move to the next chapter in painting an arc of historical context to *Saúde Coletiva* in Brazil.

Chapter 3

Coeval Histories of Public Health and Movements for Social Justice

Human Rights and Health Movements in Latin America and Brazil

Picking up from the first chapter, I briefly summarized the Zika-pertinent context to global health and international health governance. These governance structures are motivated by principles of health equity and biosecurity in addressing public health issues under the increasing complexity of environmental, human health, and technological concerns of the twenty-first century. The primary aims of public health are enhanced by the understanding that we live in a complicated and socially unjust world that influences, among other things, our relationship with health and ability to live and be well. By implementing a network of programs and policies, health systems work to ensure healthy conditions for population health as well as provide health care services and medical interventions at the individual level. Traditions of social medicine and applied health research methods provide additional insights into geographic and historical context that must also be accounted for. Without carefully situating theoretical models of biosecurity empirically – particularly due to cases that lean heavily on medical technologies and results-oriented measures as the primary means of strengthening health systems – research risks obscuring more than it reveals, and thus reproducing the health and knowledge inequities that are situated at the root cause of infectious diseases.

Beginning with a brief overview of geographic and historical context, I weave together connections between times of political unrest, social and economic changes in Brazil. In the Federal Constitution in 1988 and influenced by the spirit of the UN Declaration of Alma-Ata in 1978, Brazil is one of 69 countries who institutionalized health as a social right, leading to the creation of the Unified Health System, *Sistema Uníco de Saúde* (SUS). The creation of Brazil's health system is underpinned by earlier nation-building projects as well as sanitation reform campaigns that began in the beginning of the 20th century. However, Brazil faces substantial barriers to universal access to its health system due to its vast territory, uneven cultural geography, and inconsistent political support for public health funding and infrastructure across its 27 states. Although all states have faced challenges with investment in health system access, this is especially true for the states of the Northeast region, which is considered the poorest region in the country, due to the unevenness created by the rapid industrialization and urbanization experienced in Brazil through the mid-20th century. Despite this, the industrialized urban centers of Rio de Janeiro or São Paulo in the Southeast and South also deal with their own unique challenges regarding access and inequality, especially accelerated with the neoliberalization of Brazil's economy and government in the 1990s. Therefore, health system challenges across Brazil are complex and reinforced by systemic, cultural, and structural of disenfranchisement. Under the auspices of universal access and citizenship rights, the system attempts to join together communities living

historically marginalized by physical distance in rural hinterland of the *Sertão* or Amazonia. And as well, it is a political project that aims to integrate in hard-to-reach communities living within informal housing settlements and indeterminate areas. This chapter attempts to highlight watershed moments that influenced social reforms and movements for Sanitation Health in Brazil. These reforms moved the country towards a socially liberal ideal of health protection for all. I also review unique challenges faced by the Herculean task of implementing the right to health for all in Brazil, demonstrated through earlier public health crises leading up to the Zika PHEIC in 2016.

Discourse of Human Rights, Slavery, and Health in Latin America

While reviews of Brazil's history of social medicine and human rights tend to begin with the abolition of slavery, the formation of its national ideas of health and its social and economic contingencies were rooted within broader regional debates on human rights, the role of the state, and health. It is also often assumed that these ideas, growing out of European traditions and key figures like Rudolf Virchow, were subsequently taken up by intellectuals driving independence movements in Latin America. Still, it would be too simple to fixate on this as just a one-way traffic of ideas. As mentioned earlier, the discourse on universal human rights and collective health was already taking shape in the 19th century through social reform and a mix of socialist emancipatory theory within Catholic social doctrines. Since international health charters on health equity are embedded within the modern language of human rights found in the UNDHR, it is worth beginning with a closer examination of that history.

Public health historians and human rights legal scholars have been intrigued by Latin American contingency to UNDHR and their adamant insistence on inclusions and language that clarifies the nature of universal human rights. Subsequent scholarship suggests that the tradition of rights stemming from Latin America contributed an unique lineage of a language of social inclusion and protections that is distinctive from theories of civil liberties elaborated on in an era of Locke or Rousseau. The implications of this have importance since this Latin American discourse on rights and protections was drafted into the UNDHR of 1948. These drafts contained a more expansive notion of human rights, compared to Anglo-European or Soviet models. The drafts uniquely emphasized a language of social inclusion that balances socio-economic protections and civil liberties (Glendon 2003). Humanitarian consideration for equity that integrates a social justice framing to ensure legal definitions and protection of particular groups who are often disadvantaged including mothers, children, the elderly and disabled, as well as the rights of workers. Ultimately, these inclusions found multilateral resonance with many non-Western nations outside the Cold War camps. This intellectual genealogy can be traced to the 16th century contextual framing of the valorization of human dignity despite the brutal colonial encounters between the Spanish *conquistadors* and the original people.

Often deployed as a short-hand, Latin America has been used as a concept that risks compressing a wide array of experiences, heterogeneous, and multi-stranded social and cultural history into an abstraction of unity. It is true that Brazil and other Latin American and Caribbean nations continue to engage with a history shaped by European contact and colonization that characterized a subsequent racialized hierarchy of labor and power relations derived from dispossession of land. Social medicine practitioner from Ecuador, Jaime Breilh, points to a history of ideas on human rights in Latin American struggles that traces back to

the 16th-century colonial system that "fractured the communitarian spirit of Indigenous societies … and replaced [these] notions of a communal, social organization based on solidarity … [with] colonial regimes [that] institutionalized … social exclusion" (Breilh 2021, pg 25). Figured prominently in the controversy on early colonial practices by Spain, the Dominican priest and missionary, Bartolemé de las Casas, condemned the enslavement of Indigenous peoples and the *encomienda* system, freed his own slaves, and campaigned against conquest using legal methods and theological arguments as an official to the Spanish crown. He produced countless treatises based on theory and practice that included ethnographic accounts of the cruelty and neofeudalism of the *conquistadores*. Legal scholar of human rights, Pablo Carozza, suggests that De las Casas contributed to the idea of human rights in a way that is unique and distinctive from his contemporaries or Spanish thought - in a "combination of speculation and experience … [where] he never set out to reason in the abstract about the duties and rights" in association with colonization (Carozza, 2003, p 292). His arguments began by framing a common quality of human dignity derived from autonomy and sociability of shared beliefs, practices, and authority of the community. Carozza argues this emphasis on civil freedoms and social rights resulted in a persistent coherence of De Las Casas' ideas contributes to what we would today call the protection of cultural integrity and self-determination. These contributions allowed for a "conception of human rights that integrates the recognition of individual rights with social and collective ones," thus highlighting a more expansive definition of human rights. Subsequent legal protections and critical pedagogies centered a language of human dignity that became entangled with Catholic social doctrines as well as more secularized social liberalism of the 20th-century. This language on civil liberties and citizenship rights was subsequently legitimized in the constitutions of the newly independent nations of Latin America up to the end of the 19th century. If De Las Casas was successful in creating an audience for his case against the enslavement of Native peoples, his entreaties failed to acknowledge the humanity of African lives and their dispossessed labor. For the descendants of enslaved women and men, the language of universal human rights, social inclusion, and citizenship protections exemplify a paradox of past exclusions that justifies cultural erasure as part and parcel of modern liberal nation building.

These abstract logics of liberalism were rooted in a naturalized hierarchy of human races and culture that enabled, as Aníbal Quijano and other describe, the social classification and ranking that serves dominant political and economic interests and the dehumanization and mass enslavement of African labor due to "their lack of culture and deficit of humanity" (Quijano 2000, Walsh 2012, p 17, Bonilla-Silva 2014). In the subsequent 300 years until abolition, the slave trade across the Middle Passage resulted in the transport of millions, a forced African Diaspora of different ethnic groups with about 40 percent of all enslaved Africans landing in Brazil (Dodson 2001, p 119). As Afro-Brazilian doctor and executive director of Amnesty International in Brazil, Jurema Werneck, writes, "Slavery meant and still means reducing human beings to the condition of market goods, highly valued perishables moved to be employed in the exploitation and production of wealth … [including] mining, agricultural work, building and maintaining [settlements and urban design] for European colonial settlers in the context of extreme violence and exploitation" (Werneck 2007, p 101). In Latin America, Afro-descendants represent about one-fifth of the population, and yet are disproportionately represented in rural statistics of poverty as well as in urbanized industrial centers. While racism is legally a crime in Brazil, cultural erasure and structural exclusion form the basis for

anti-Black racism in a country that valorizes a national identity based on miscegenation, promoted through an ideology of Brazilian racial exceptionalism. In his book, *Race in another America,* Edward Telles describes a cognitive dissonance in beliefs that acknowledge miscegenation and racism in Brazil, where the majority of Brazilians surveyed affirmed both that whites definitely hold prejudices against blacks, and that "race mixture is a good thing" (Telles 2004, p 54). The myth of Brazil's racial democracy has always been challenged in the shape of active resistance of Afro-Brazilians as the protagonists in fighting racism – through "daily alternatives of sociability, habitability, and political strategies … [including returning or rooting, as well as] armed revolts, new freedom territories like maroon societies … and everyday acts of sabotage … that contributed to an environment of transformation that contributed to abolition" (Werneck 2007, p 102).

Elaborated on more below, I will briefly summarize the importance of the following periods and their implications for the expansion of the Brazilian health system: (1) Early *Sanitarismo* – through consolidation of state power, movements for Sanitation reform began in the First Brazilian Republic (1890 - 1930), championing national health campaigns and establishing a National Health service to address collective health problems and contagion. (2) *Sanitarista* – Brazil consolidated its public health ties with the United States institutions. Yet at the same time, there was a movement to work outside the biomedical bubble that started programs to broaden work on health-related contradictions of society. The end of military rule was shaped by convergence of social movements and concessions made by the political elites that led to the creation of the Citizen's Constitution of 1988. (3) *NGO-liberalismo* – Brazilian Response to the HIV/AIDS epidemic was fueled by the democratic participatory interventions and a coalition of health activists that resulted in a compromise between international trade partners and private pharmaceutical companies to provide critical HIV drugs.

Emergence of a national discourse and movement for Sanitation Reform
As the last slave society country to abolish slavery in 1888, the new republic of Brazil emerged from the 19th century, anxious to distinguish itself from this shame. Orchestrating a coup d'etat, the republic of Brazil was established through a political conjugation between civil conspirators and military Republicans that deposed the prior constitutional monarchy in 1889. Brazil's political economy has always been tightly tethered to landed interests and quixotic fluctuations in international trade and commodity boom-bust cycles, dependent on export-led trade of sugarcane, coffee, and other agricultural goods and the enslaved labor of Indigenous and African slaves. Further, Brazil was no stranger to tropical diseases, regularly buffeted by periodic outbreaks of yellow fever and other infectious diseases, including smallpox, malaria, and hookworms that repeatedly devastated the population – rich and poor – although not alike. Intent on reshaping its international image, the new republic was motivated to establish itself as a democratic nation – modern and orderly – devoted to public health and reversing any potential Western association with "unhygienic" or "hazardous" conditions in Latin America.

In The Sanitation of Brazil, the Brazilian public health historian, Gilberto Hochman, examines the dynamics between ideological, social, and political forces that consolidated state power in the process of eliminating tropical diseases and establishing a national health service. Traditional oligarchic elites and the new Republican political class struggled for control in defining interests in maintaining limited state intervention or setting a new agenda for the

future of the country in terms of national development – so-called modernization projects – and economic policies on trade, infrastructure expansion, and labor production. Many of the Republicans, who were among a growing urban middle sector of military, engineers and legal scholars, advocated for the "scientific management of society" which was undergirded by moral and eugenic overtones. Putting Hochman's historiography in conversation with political economy, Alfred Saad-Filho and Lecio Morais shed light on these state-led development projects and sanitation reform in the context of the history of the Brazilian state. Reformist leaders debated the strategies in consolidating state power that would be important for mobilizing resources geared towards nationalist projects of industrialization tied to increasing flows of foreign credit. These nation-building projects mobilized large scale economic changes and social policies that "drove sociological, cultural, and political transformations, leading to new patterns of behaviors, and the emergence of new industries, social classes, and interest groups (Saad-Filho & Morais 2018, p 16-17). With a focus on labor and political reforms, modern nation building would also result in the formation of a national identity shaped in the spatial and human dynamics of gendered power relations, immigration, and sanitation health.

International health and civil organizations in the last half of the 19th century advocated for sanitation health and structural reforms that were divided over theories to explain the growing burden of contagious diseases. Observers – taking note of the environmental milieu and conditions of the surrounding informal settlements of workers and popular masses – latched easily onto the circumstances and sensorial perception of sanitation and social spaces. Yet, the ultimate cause and thus prevention of disease remained elusive. Theories of contagion split proponents between either an environmentalist or the objective appreciation of germ theory of Robert Koch and supported by Louis Pasteur, yet invisible to the naked eye. These explain the social and health consequences of rapid industrialization and inequality. Possible solutions, ranging from urban design models in France or obligatory vaccination campaigns in Great Britain, turned to structural and societal reforms that crystallized around a centralized state authority to curtail the etiological origins of contagious disease. Disrupting the social connections between populations and risk of disease required state policies of investment in public services, restructuring living conditions, and hygiene enforcement. Ultimately, these policies were underpinned by an ideological hierarchy of what counts as social progress, practices, and empirical scientific knowledge.

For much of the 20th century, Brazilians have spent more time under a kind of authoritarian government than experiences with democratic governance. Modernist nation-building projects continued inconsistently with fits and reversals towards expanding the franchise and citizenship to Brazilian inhabitants. Universal citizenship rights and access have been hampered by the persistence of paternalist logics of exclusion, despite the formal law for equality. The organized state has typically played a conservative role in nation-building that preserve existing patterns, relations, and models of production in reinforcing the *status quo* inequalities of income and wealth. Governed by ideologies that intermittently align with either populist or elite interests, the state has mobilized nation-building projects both in socially transformative and conservative ways. As transformation, these projects would deconstruct or reconfigure the patterns of privilege, while also enhancing economic performance to benefit the majority instead of a limited and esteemed minority. To do this, statist efforts have tried to harness federal authority to enact public policy, cultivate alliances

and development that promote export-led growth outside agri commodity based economy that has been challenged by the landed-based interests of the traditional oligarchy. Historically, Saad-Filho and Morais argue that the Brazilian state has been strong ‘vertically,’ particularly to subdue political turbulence that periodically arises from populist alliances between Brazilian Indian communities, slaves, poor immigrants, peasants, and wage-workers. As others have written, these popular masses “have been deeply vulnerable to the power of elites, while elites have been broadly immune to their force … [and this periodic fluctuation between] vulnerability and immunity [persists as] one of the hard kernels of Brazilian society that has resisted change for centuries” (Holston 2008, p 19). Conversely, the state’s ability to work cooperatively has been limited by domestic conflicts and in-fighting among elite groups and external partners. And who were the political elites? They are widely considered a collective group of a largely white and male “political oligarchy,” whose “numbers are relatively small, its ranks mostly closed, and its power concentrated in a few hands” (Hagopian 1996). Saad-Filho and Morais elaborates on a Marxist political economy of alliances and productive relations that exist between large and medium capitalists (manufacturing, financial, agriculture exporters and traders), large landlords, regional and local political chiefs, technocracy, top civil servants, military officers, the Catholic hierarchy, and mainstream media. In Brazil, repeated infectious outbreaks were fueled by an echoing eco-social refrain over 450 years of land displacement, enslavement, and violent subjugation of Brazil’s Indigenous people, alongside the transatlantic import of tropical diseases, vectors, and African slaves.

This consequently tied together the rural hinterlands and bustling urban centers of the Northeast and Southeast along the coast. Imperial trading centers and port cities like Rio de Janeiro played as a “symbolic and functional neocolonial nexus between North Atlantic civilization and economy and a ‘modernizing’ Brazil” (Needell 1987, p 243). In this context, there was a growing social consciousness of the public connectedness, where “people [were] equally fragile, interconnected in a vast web of interdependent relations” and increased “industrialization, urbanization, and population growth [and density] created a society where disease formed one of the primary bonds between people, especially when it struck in epidemic fashion” (Hochman 2016, p 25). Public health professionals, politicians, and social reformers in Brazil leveraged this awareness and fear of contagion to generate political support for and accelerate the consolidation of authority necessary to combat repeated outbreaks. This simultaneously required political will and resources under a centralized public health authority in order to transform the country – including the *Sertão* or rural hinterland of the Northeast – into a modern and industrialized nation, worthy of foreign investment and active participation in matters of international affairs. Sensitized to the cultural stigma of contagion, the new republican government proved eager to upend the old political order and reconfigure the Brazilian state to promote a nationalist agenda underpinned by a philosophy of humanist positivism that originated in Europe for the “industrial and social well-being for a stratified society.” (Nachman 1977, p 4).

Popularized by August Comte, positivist thought undergirded paternalistic – which is to say patriarchal, ‘yet benevolent’ – interventions into national development, labor, and urban planning based on modernist ideals of rationalism, progress, and order. Taken up widely by Brazilian political elites, military leaders, legal professors and engineers of the middle class, the ‘scientific management of society’ was guided by social Darwinist views on evolutionary

Figure 3.1. Monument of Miguel Lemos, founder of the Positivist Church in Rio de Janeiro
Photo credit: Lisa M White

processes that 'naturalized' paternalistic and hierarchic forms of modernization. From Figure 3.1 above, this photo was taken in front of the first Positivist Church co-founded in Rio de Janeiro by Miguel Lemos and Raimundo Teixeira Mendes in the early 1880s. You can see in the sign above the doorway, a principal ethos of Positivism, *Ordem e Progresso*, also echoed in the national motto of Order and Progress. As Hochman delineates, the national projects of modernization crystallized in a public consciousness and that foregrounded the racialized and unruly poor (migration, immigration, working labor forces) and the family – militarily and symbolically enforced through the spatial construction of "social hygiene" and stigmatizing discourse of "morality." Gathering a social force of acolytes in this time, eugenic sciences and medicine simultaneously offered tools and authoritative claims to 'liberate and advance society,' while also increasingly allied with racism. Fundamental changes in labor and social demographics contributed to growing tensions and urban unrest arising from "poverty, the demographic and ideological solidarity and conflict emerging from migration and, immigration, and unemployment helped usher in a period of radicalized politics, protests, work stoppages, and strikes in the second decade of the 20th century" (Stepan 1996, p 38).

An unforeseen consequence, many of the European immigrants imported new anarchist and anarcho-syndicalist ideas of Proudhon, Bakunin, and Kropotkin, as they fled from fascist political regimes in Europe at the time. Eugenics was viewed as a formal response to "the social question," while the use of militias and police represented an alternative method of control, if an uprising got out of hand. Medical and sanitation professionals as well as social reformers … "assumed that social ills accumulated at the bottom of the [racialized] social hierarchy – that the poor were poor because they were hygienic, dirty, ignorant, and hereditarily unfit. … In Brazil, the formers slaves, the last 700,000 of whom were emancipated as late as 1888, had been … without education or [reparations], to compete … for wage labor with … more than 1.5 million white immigrants who entered the country between 1890 and 1920" (Stepan 1996, p 37). One result of the wave of migration and immigration was urbanization in both São Paulo and Rio de Janeiro.

Exclusion was at the heart of these early public health and sanitation projects, which targeted undesirable areas or regulated the political and bodily autonomy of the masses, according to the cultural values of progress and elevated aesthetic values. Public health and scientists of the time believed that race was a malleable concept that could be "corrected" through proper education and training. "Medicine was the most institutionalized and professional branch of science, in the 19th century medical education, along with law, served as an equivalent to liberal arts degree. Many students attending medical school either failed to graduate or once graduating, used their degree for social advancement, rather than the means of professional practice … physicians … Republicans, Darwinists, supported abolition of slavery and the monarchy … Moreover, since medical education and public health organizations were usually state-financed, the state was viewed as a natural ally to doctors" (Stepan 1996, p 43). As promoting European immigration on a massive scale from primarily Italians, Spanish, and Portuguese fleeing the increasing wave of fascism in different parts of Europe, although they were incidentally more susceptible to tropical diseases than those who were African descendants. The use of "soft eugenics" of public health policies and enforcement sought to eliminate tropical diseases as a means to "improve" the Brazilian population, by 'outsourcing' labor in tandem with encouraging racial miscegenation with white-appearing European immigrants who were recruited to replace the labor of former African Black slaves. Such soft eugenic policies were peddled in the name of civilization campaigns and contributed to the disproportionate policing of urban and rural communities.

At the same time, the new Brazillian state viewed Brazilian women's role as inseparable from nation building in their capacity to reproduce a labor force. In Cassia Roth's terms, this contributed to a period of increased public surveillance of women's private reproductive lives. The positivist-inclined government considered women crucial to its nationalist project, a scientific enterprise of reproducing the citizenry according to the values of modernity – morality, hygiene, and "whitening" through miscegenation. Abolition was a gradual process culminating in 1888, but also included the *Lei do Ventre Livre* – or Free Womb law in 1871 – which freed all children born to enslaved women. As the state created public health infrastructure and maternity hospitals, Brazil institutionalized women's health with maternal-infant health. Additionally, state interventions into reproductive health took the form of criminalizing abortion, demonized midwifery, and anti-obscenity laws against distributing information about sexuality and birth control. Brazil was not alone, and reproductive control and regulation became increasingly common in industrializing nations. Particularly with birth

control and fertility control, reproduction came to be understood in connection to social problems linked to the urban and rural poor, gender norms and sexual honor, and the nuclear family as the core representation of patriarchal relational ties from the domestic to the public realm. In the Civil Codes of 1916, a pregnant woman's rights were subsumed ultimately to the rights of the fetus. Her social and bodily autonomy were further undermined to the decision of the father or husband in reproductive matters. This approach deployed symbolic nationalist identity of motherhood to regulate women's reproductive capacity coupled with access to citizenship rights, which resulted in, as Roth writes, the "infantiliz[ation of] women's legal decision making while valorizing the maternal nature of all women" (Roth 2010, p 25). These reforms and campaigns resulted in the periodic purging and violent removal of those deemed dangerous, immoral, or incongruous to Brazil's cultural and political elites' vision of modern progress and public health.

Hygiene Policing and Moral Codes of the Rural and Urban poor

Hygiene policing was an important tool for enforcement and Brazil's national sanitation campaigns in the *Sanitarismo* era. informed by Western science-based interpretation of health. The cultural enforcement of sanitation campaigns came into direct conflict with other cultural forms of health. There was already a relationship between policing and resistance prior to abolition, in the form of runaway slave communities called Quilombos. These communities were spread all throughout Brazil including an especially strong presence in the Northeast where the most famous Quilombo of Palmares and its leader, Zumbi, were based in Alagoas state. The Rural Sanitary Campaign movement (*campanha pelo saneamento rural*) engendered an emerging social consciousness that was motivated by the science of the times as well as political autonomy from state governance through the formation of centralized infrastructures capable of enforcing policies. The Pro-Sanitation League of Brazil (*Liga Pro-Saneamento do Brasil)* was organized by political, educational, and medical elites from public health and medicine partnered with the São Paulo Eugenics Society, whose important ties to medical/public health institutions like Butanã Institute and FIOCRUZ, as well as journalism, functioned to propagate the 'problem with racialized hereditary degeneration' into Brazilian debates on progress. Sanitation reform debates focused on the social processes that shape disease transmission and assumed racialized dimensions to prevention and mitigation. Sanitation efforts also included a system of penal codes and regulation that legitimated one body of knowledge and medical practices over others.

Three highlights that reveal the intricacies and ideological motives of the National Public and Sanitation Health service in this time: the first Penal Code of 1890 criminalized vagrancy, resulting in the arrest of individuals not working. In light of the Brazilian strategies in shifting labor demographics in the wake of abolition, unemployment became a crime, which led to the arrest of many Afro-Brazilians coupled with pervading eugenic themes which naturalized criminality, race, and Afro-Brazilians to commit crimes. This was an ideological alignment between professional authority of law and medicine and the growing institutionalization of the science of its time. Legal medicine became an avenue of interpreting laws of eugenic science, applied by jurists instead of doctors, in "police work and reducing hereditary criminality ….[in the] linking problems of crime and responsibility to racial " and social degeneration (Stepan 1996, p 53). These same Civil Penal codes were also deployed to regulate the reproductive power of women – in their ability to symbolically and materially reproduce and raise the future labor force. In a period of unprecedented urbanization,

population density, and immigration, social reform debates over women's role in nation-building and reproduction of the national labor force.

Through a decree established by the National Public Health Service in 1906, a health or sanitary police force, enabled by the state, could enter any public building or private house to enforce rules of hygiene and public health. Although there were countless encounters between the state and local, one example of state violence and policing occurred in 1912 in the northeastern state of Alagoas. The *Quebra de Xângo* – or translated the "Breaking of Xângo," where Xângo is an *orixá* or Afro-Brazilian religious deity – was an example of racial and religious persecution that led to the decimation of nearly every Afro-Brazilian *terreiro.* Loosely understood as "houses of worship," *terreiros* were centers of utmost importance for Afro-Brazilian religious culture, whose spiritual and health knowledges are integrated together (Rafael 2010). The policing and subsequent attacks were based on the demonization of Afro-Brazilian cultural healing practices, deemed outside the scientific orthodoxy and labeled as witchcraft. As Vilma Piedade, Afro-Brazilian writer and political activist from *PartidaA* in Rio, writes, there are examples of Afro-Brazilian religious, cultural patrimony from this seizure still on display – pejoratively labelled as *Coleção de Magia Negra* or "Collection of Black Magic" – along with other artifacts from similar encounters with armed militia and public health police in Rio de Janeiro (Piedade 2017).

It is also important to highlight the oft-cited account by Jeffrey Needell of the Vaccine Revolt in Rio de Janeiro in 1904, that involved clashes between Carioca masses living in informal settlements and "health police" enforcement of immunization campaigns against smallpox. Needell's historiography uses the Vaccine Revolts in Rio de Janeiro as an example to illustrate the political dynamics of popular resistance to sanitation reform directed by Dr. Oswaldo Cruz and also provides insight into the type of urban planning and sanitation reforms implemented during the so-called *Belle Époque* era. His accounts offer a closer look into the identities and social conditions faced by common Cariocas at this time. Needell's account of Rio's *Sanitarismo* campaign reveals the kind of military-style hygiene policing and draconian tactics for inspection and surveillance that became standard practice and informed future methods. For instance, "the poor were physically forced to stand aside while the public physicians, sanitary police, and public health officials entered and ransacked their homes, designating some for destruction, and reserving the rest for periodic invasions, threats, and meddling" (Needell 1986, p 26). The radical sectors of the republican military or *jacobinos* played on popular fears of vaccination side effects and the legitimacy of state mandated immunization campaigns that were part of a wider power play to disrupt power alliances between regional political classes aligned with elements of the traditional oligarchy, by republican *jacobinos*. Ultimately, the *jacobinos* failed at their attempts at a revolt, but also failed the people who bore the brunt of this failed uprising. Dr. Oswaldo Cruz and his obligatory campaign represented a watershed moment for Rio in its pattern of addressing demographic changes and sanitation reform based on legal apparatus, urban planning, and policing that reinforced a spatial practice based on hygienist epistemology on sanitation in dispensing with the dangerous, immoral, "unruly" members of Brazilian society.

Social Programs under Vargas and Hygienic Family

Social policies in Brazil continued to take shape with subsequent nation building under the Getúlio Vargas (1930 – 1945), as the dictatorship shifted to another level of paternalism and

state intervention based on a corporatist ideology. Broadly speaking, the Vargas reforms to sanitation health shifted as the state re-oriented itself and centralized. In this way, social protection system and citizenship rights were extended as a benefit of loyalty to the corporatist government and political strategy to control the popular masses that also reinforced a new national identity (Skidmore 1990). These social assistance policies, security and welfare programs subsequently shaped the social norms on gender, racial, and hygiene social constructs. His populist dictatorship likely drew from the works of Gilberto Freyre/São Paulo school of analyzing a multi-cultural Brazilian exceptionalism that mythologized race relations in the Brazilian democracy through the minimization of race in order to overcome racial divisions. Some of the first social welfare programs in Brazil were introduced in the Vargas era and focused on crafting a citizenry based on an ideal "hygienic family" class and gender to incorporate a segment of society that was primarily poor women of color, who were single or not legally married and employed in domestic work (Gormley 2006). In addition, the state subsidized insurance and security programs for largely urban, male and relatively better-off workers with formal jobs in manufacturing, services, and the public sector. Provided in association with the state-sponsored manufacturing sector, benefits included minimum wages, employment stability, maximum working hours, paid holidays, trade union representation and pensions and were unavailable to the wider public. Other goods and services like health, education, and transport were available for purchase by the upper and middle classes from the burgeoning private sector (Saad-Filho & Morais 2018, p 44).

Brazil integrated technological resources, biomedical approaches, and public health ties with the United States. When Johns Hopkins University created the first course for public health physicians, a number of Brazilians from São Paulo and Rio were extremely enthusiastic about the American public health system and adopted aspects into a Brazilian system of health centers. Brazil has also benefited from the international health programs through the Rockefeller Foundation who funded vector eradication campaigns, strengthened by supranational ties to the PAHO. Eradication efforts began in 1947 under the auspices of 'species sanitation' aimed across the entire Western hemisphere. These techno bureaucratic campaigns emphasized a general authoritarian focus on a single-disease with detailed mapping and recordkeeping, and strategies based on chemicals such as DDT (Stepan 2011). By 1952, Brazil reported on the successful eradication of the mosquito vector. However, vector control campaigns subsequently slipped into mismanagement and neglect under the military dictatorship and abandonment by PAHO. Reports of mosquito reservoirs and increase in mosquito-borne illnesses were ignored by the dictatorship, and resulted in an overwhelming return of yellow fever and the introduction of Dengue fever in the late 1970s.

For its modest success in consolidating resources that could reach the rural interior and authority into a National Health service to "clean up its image," earlier Brazilian Sanitation Reform had its limitations. Its formation and functions were largely based on a hygienist epistemology that racialized the etiology of disease and sanitation and impacted a popular uptake of health and culture. While Brazilian expertise in tropical medical research is well-regarded, some have developed arguments that the United States exerts a type of cultural imperialism through NGOs, like the Rockfeller or Ford Foundation, in the imposition of a North American framework of race (Miles 2018, Wacquant & Bourdieu 1999). In this time of the military dictatorship, a few progressive research centers and universities began working

outside the biomedical bubble through Latin American Social Medicine. Integrating research from the social sciences with ecology, sociology, and biology, this movement sought new approaches to deal with the relationship between health, social class, reproductive forces, and systems which began programs to broaden work on the health-related contradictions of society.

Abertura **and Transformation of Sanitation Health Movement**
The movements for Sanitation Reform subsequently underwent major change during the military dictatorship. Despite decades of unprecedented growth, the fruits of this growth only further concentrated the wealth of the rich, with many at the bottom actually becoming worse off. Through the 1970s, Brazil experienced major demographic changes driven by climate patterns, rapid industrialization of labor forces, and mass migration into the cities in response to shifting circuits of international trade. However, beginning mid-decade, signals indicated that the tides were turning for the military dictatorship. From 1974 to 1985, growing disillusionment amid global recession, geopolitical and economic shifts led to the gradual loss of legitimacy of the military regime and opening of the political process to direct elections. Beginning with the first oil shock in 1973, the military's party, ARENA, experienced surprise losses in 1974 Senate elections, with many positions supplanted by party members from the more liberal *Movimento Democrático Brasileiro* (MDB). Incrementally reflected in a series of political missteps and controversial media exposés of the military deep state operations, the slow deterioration of dictatorship control became evident, paralleled by the rise of resurgent leftist organizing of formal workers, trade unions, urban middle-class dissidents, and social reformers of Catholic liberation theology doctrines.

These movements represented a collective rejection of state-sponsored terrorism, suppression of popular dissent, and media censorship under the dictatorship. Internal power struggles also motivated this transition, as argued by Bryan Pitts and others who highlight "how the often-inadvertent opposition of the Brazilian political class, along with civil coalitions, helped precipitate the demise of the military" rule while also managing to retain power in the transforming system (Pitts 2023, p 18). The decline of the dictatorship was a gradual one, called *Abertura*, intended as a limited and tightly controlled political opening that would allow the dictatorship to build a stable base of "reliable citizens" to transfer power to politicians who would "prioritize political manifestos over popular mobilization" (Pitts 2023, p150). However, these efforts to transfer power were thwarted by the global economic situation resulting from the second oil shock in 1980 which contributed to the most serious economic recession for Brazil in half a century. With the spike in oil prices, world interest rates also shot up, significantly impacting Brazil's ability to service its foreign debts. Rising inflation – from 55.8 percent in 1979 to 223 percent in 1984 – contributed to losses in real wages and rising unemployment. Disaffected and fed-up, Brazilian social movements crystallized around a zeal for the social right to health and solidarity. Scholarship surrounding the political transition to the new democratic republic valorized the solidarities formed despite socioeconomic and ideological differences between social movements that interfaced along separate struggles under the military regime.

Figure 3.2. *Ditadura Nunca Mais*, Street tag in Florianopolis 2018
Photo credit: Lisa M White

Or as Brazilian journalist Ricardo Kotscho put it - “the artist, the factor worker, the teacher, the liberal professional, the unemployed, the businessman, the white-collar worker, the laborer, the student, the journalist, the poet, everyone, of every color and size, with every fear and dream, yesterday let out their holy wrath and their beautiful certainty that … being Brazilian is something to be proud of.” (Kotscho 1984). Women and gender equality movements emerged actively and militant in this time struggling against violence and machismo, especially in light of conservative Brazilian culture that resists integrated and reproductive health. Other groups were involved in campaigns against gender violence and domestic abuse. The Federal University of Santa Catarina (UFSC) was a key contributor to the larger coalition guiding Sanitation Reforms towards a unified and widened vision of health and gender equality in the democratic constitution. In the course of these struggles for democratic rule conjoined struggles for basic rights and social justice under the authoritarian regime that integrated the movements of popular feminists, with socialist and radical feminists and the liberation theology movement against the dictatorship. Many federal universities played an important role in promoting national reforms and public programs for

Sexuality and Gender Development in consultation at the National Conferences for Political Rights of Women, LGBTQ, Disability and Education.

Feminist movements were multi-stranded and plural, where feminist leaders recognized Indigenous and Afro-Brazilian cultural recognition, social protection, and land rights. An important figure in the social movements in this time for Brazil, Léila Gonzalez was a political anthropologist and intellectual activist who moved beyond women-only organizing. She embraced causes of feminism, social justice, and a mix of Black-inspired political, university, cultural movements of rural/urban workers, residents associations, and founded the *Movimento Negro Unificado contra Discriminação Racial* (MNU) or Unified Black Movement against Racial Discrimination (Henson 2021, Martins 2018). Critically mindful of the stereotypical portrayal of women, especially black women and indigenous women as sex objects and "passive victims in the face of male domination and socioeconomic deprivation," Gonzalez resisted the myth of Brazilian exceptionality as a democracy of races where racism was nonexistent in a way that defined a form of feminism "by focusing on themes that were swept under the carpet by both [civil and gender rights organizations], such as the specific marginalization of black women in Brazilian society and domestic work and its historical roots in slavery (Martins 2018, p 259-260). Gonzalez was a key figure in multiple fronts of repression against the military dictatorship, involved in community organizations and institutions committed to social justice, especially for Black, Indigenous, women, poor, and rural communities, especially as these solidarities may be united through culture and education (Henson 2021). An embodiment of the social forces at play at the end of the dictatorship, she was involved in MNU, *o Instituto de Pesquisa das Culturas* Negras, founding a collective in Rio called N'Zinga; she also was a member of the National Council of Women's Rights and vice president of two UN Seminars on "Women and Apartheid" contributing impactfully to a broader understanding of social movements, health, and broadening the franchise to Brazilian citizenship at the close of the military dictatorship. Taken together, Brazil converged over goals from a previous era of Sanitary Reform aims by solidifying the social duty of the state to guarantee the right to health as a citizenship right in the Federal constitution of 1988. These social reforms were institutionalized in the formation of the Unified National Health system.

Formation of Unified National Health System

Much has been written about Brazil's return to democratic rule and the new social contract that broadened the franchise to citizenship rights at the end of military dictatorship. There were key movements who pushed for reforms and clarifying language around health, inclusion, and social protection, ultimately incorporated in the Constitution. Beginning in 1979 within a sequence of National Health Assemblies, the Brazilian *Sanitarista* or Sanitary Health movement transformed from earlier iterations as part of the resistance to the dictatorship, and included medical and health professionals as well as educated middle class. These advocates pressed for the institutionalization of a national health system as well as permanent mechanisms for reform processes, guided by the public, to be used as a social technology to repair the structural inequalities.

The resulting health system, also known as "SUS" from *Sistema Uníco de Saúde* or Unified Health System is one of a kind. Brazil is the largest country to act on a human rights commitment declared at Alma Ata in 1979 – with the social right to health and universal

access written into its Federal Constitution of 1988. Seizing on a progressive zeitgeist popularized in the period between Alma-Ata and Ottawa Call, the Citizen's Constitution reflected an understanding of global-local models, social determinants of health, and community health development that recruited community health workers to expand their reach and integration. To some, this represented an ambitious yet elusive convergence of the social principles underpinning the coalition of different social movements. As one Brazilian described it, "it is beautifully written, but impossible to implement." Collectively, this was Brazil's moment to actualize an agenda of human rights, enshrining an understanding of health as more than a physiological absence of disease and injury as well as operationalizing community-based models of delivery through public participation, decentralization, and strategies that build around primary and family medicine practices.

As a new social contract with commitments to health, the Federal Constitution articulates these assurances stemming from three main sections in the constitutions, under Articles 197 to 203. First, Section 2 defines health broadly, as "a right of all and the duty of the State" to be guaranteed by both social and economic policies "aimed at reducing the risk of illness and other hazards." Subsequent administrations have used these sections to experiment with policies of distributive justice, including combining income redistribution programs with education and primary health. For example, in the successful *Bolsa da Familia* (BF) program, that began in the 1990s in the Northeast, with a conditional cash transfer (CCT) program channeling funds through *Estratégia de Saúde Familiar* – or Family Health Program. Social and rural health programmes have also relied on community health workers and net results in reduction in hunger, poverty, and increases in literacy and education access (Mackinko 2015). Articles 196 and 198 under this section were also key to the institutionalization of responsibilities and possibilities of SUS, under the terms of health action and services, under public supervision and social control. Sections 3 and 4 address state prerogatives in implementing a Social Security system for disability, pension for retirement, insurances and protections for maternity and involuntary unemployment. Still some of these rights are allowed for Brazilians who are formally employed and while other programs address individuals living under the poverty line. This has left a fair percentage of Brazilians who fall somewhere in-between and also favor urban labor disproportionately.

SUS also institutionalized citizen participation through structures of community consultation. An innumerable health councils and conferences were created, "arenas of mediation, participation, and intervention … [to create] dialogue between directors, health service systems, parliamentary, judiciary, and civil society" (Modesto et al 2007). This dialogue was key to maintaining a presence of the social movements as a "counterpoint to social elites representation in health forums," leading to the creation of two special public institutions for policies related to racial and gender equality (Modesto 2007, p 19). Brazil's public health system can be viewed through socio-cultural prisms of social justice and health equity as a "challenge … requiring continuous engagement by Brazilian society as a whole to secure the right to health for all Brazilian people" (Fleury 2009, p 746). Conceptually and in practice, the movement advocated for transformational and liberatory capacity of science in the field of health. In order to do so, practices move away from the unilateral and biosecurity models of data and knowledge, and move towards co-creative models of knowledge production. Amidst the decline of the military dictatorship, the first cases of HIV were identified in 1982, which

represented the first substantive test for the National Health System in what then became known globally as the Brazilian Response.

Mobilizing the Activist State in Brazilian Response to HIV/AIDS
The Brazilian response to HIV/AIDS is an essential benchmark for understanding the local story with *Saúde Coletiva* as well as the Brazilian National AIDS policy that combined community input, prevention, and universal treatment. This model was subsequently used as the reference and a global model for other countries in the subsequent decades. As Brazil became the epicenter of the HIV/AIDS epidemic in South America, their public health response was never automatically guaranteed by the state, nor secured based solely on the power of therapeutics alone. Despite a suboptimal health system, HIV was the first major public health challenge to the incipient national health system, where activists and progressive organizations mobilized in creative ways to instrumentalize the newly formed democratic functions of the national health care system that generated possibilities for political representation in subsequent decades. As Marco Cueto writes, the successes of the Brazilian Response to HIV and its AIDS National Program were potentiated through social change in rhythm that coincided with the development of therapies, harnessed pro-democratic energies and novel funding opportunities, and utilized socially innovative methods of prevention, all compelled by a human rights agenda to intervene in the social dimensions of the epidemic.

First, the Brazilian National Policy on HIV/AIDS dovetailed with the advent of antiretroviral drugs and restructuring and financial negotiation with the World Bank and other sources of funding. Stemming from a human rights and health equity position, there was a broad denunciation of the pharmaceutical monopolies over pricing, government-subsidized research and development, as well as health economics that reinforced biomedicalization. Direct participatory action that led to the expansion of citizenship rights and social protection were similarly harnessed by community health workers and organizers who rallied against sexuality and gender discrimination in entrenched homophobia and *machismo*. Mobilizing "health as a fundamental right and responsibility of the State," the national program negotiated universal access to to antiretroviral medicine, according to the World Bank was an "unsustainable" health equity approach, a full five years *before* the global health community eventually shifted their own policies (Biehl 2007). In a tradeoff for wider access to the Brazilian market, pharmaceutical companies negotiated with the Brazilian Ministry of Health, so generic drugs could be manufactured domestically or provided at reduced prices.

Timing afforded new external funding opportunities that manifested in the increasing influence of NGOs. In this Activist State, NGOs, health activists, and community organizers were key to sustaining political pressure on the Brazilian Ministry of Health (Biehl 2004, Cueto 2023). NGO activists and organizations were the recipients of significant grants with over 70 Brazilian NGOs estimated to be working on AIDS. In the largest of "developing countries" at the time, Brazil signed a three-year loan agreement or USD 250 million with the World Bank in March 1994. As a result, these loans became "instrumental in leveraging political power on the part of civil society, marking a shift in the nature of World Bank funding" (Cuerto 2022, p 155). The Brazilian Response also formalized relationships between the Ministry of Health and civil-society organizations that could "bypass conservative local governments unwilling to collaborate on preventive interventions and [harm mitigation] perceived as controversial,

because" of homophobia and social stigmatization of unorthodox sexuality and drug use (Cuerto 2022, p 156). Further, Brazilian NGOs consolidated their partnerships with progressive associations with the Social Medicine Institute at Rio de Janeiro State University (UERJ) and private-public partnerships with international NGOs and philanthropic foundations as well.

International NGOs like the Ford Foundation supported early efforts and attention to the social dimensions to the epidemic. According to Marcos Cueto, the foundation enlisted social scientists and anthropologists, like Richard Parker, who was already in Brazil conducting fieldwork around the politics of gender and sexuality in Brazilian culture since the early 1980s. The Foundation's support consequently illuminated the work of local activists and stimulated the proliferation of local NGOs in important was that resulted in legal changes, recognition, and protective practices for sexual minorities and gender diverse identities. For example, Herbert Daniel (1946 – 1992) was an HIV activist who challenged the discrimination associated with conservative Brazilian religious and cultural values around gender and sexuality, as well as hygienist thinking around health, illness, and civil segregation. Broadening an understanding of solidarity as a type of a social vaccination against stigma, he co-authored a book with Parker called *Life Before Death* that examined the relationship between fear, infectious disease, and sexuality in naming the harm caused by HIV/AIDS as an "ideological virus." Consequently, Brazilian public health responses shifted the messaging to inclusion and belonging instead of separation and quarantining, partly through programs initiated by NGOs and international foundations.

Further, the Brazilian Response emphasized an important role of cultural and faith-based groups in the Brazilian Response. In his work with Afro-Brazilian communities and religious leaders from Candomle, Umbanda, and others, Jonathan Garcia demonstrates how the collaborations between HIV-related NGOs and Afro-Brazilian religious groups – in their *terreiros* – engaged leaders in social work and prevention campaigns and expanded the public health franchise. Afro-Brazilian religious groups have historically faced racial and religious intolerance related to the slavery, Catholic and Evangelical Church, and technocratic hygienist past that demonized other cultural framings on health and spirituality. Through micro-level networks of social protection and care, health NGO collaborations with Afro-Brazilian religious groups increased outreach to poor and socio-culturally marginalized communities, meeting them where they were and translating scientific knowledge into educational interventions using myths, symbols, and cultural references to Afro-Brazilian religious motifs (Garcia 2009, Garcia & Parker 2011).

***Figure 3.3**. Atotô,* a comic strip created for Afro-Brazilian communities in HIV/AIDS prevention program

Source: Programa Estadual DST:AIDS, Diretoria de Epidemiologia e Vigilância Sanitária, Estado de Pernambuco 2001

Seen above is an example of *Atotô,* a comic strip created in 2001 for the Pernambuco HIV/AIDS prevention program. integrates legends and cultural figures from the Afro-Brazilian belief system. Garcia, Parker, and others have highlighted in a word *acolhimento* that is similar to integrality or belongingness the social values of inclusion and care. In its discursive and spatial practices, *acolhimento* suggests a more holistic response instead of technological intervention on diseased state or imbalance. *Acolhimento* also demonstrates cultural resilience and sustainability in its practice through the interrelations of ideology, leadership, and networks linked by care and culture.

The Sanitary Reform Movement in Brazil was described as a major political force in organizing for democratic reforms, however, community-based models demonstrate multi-stranded alternatives health systems and have provided much of the heavy lifting. As the Brazilian Response to HIV continued, the international health community marveled at these successes and attempted to "scale-up" and replicate the same process in other parts of the world. A coalition of grassroots activists and prominent health figures acted together to negotiate around patent laws so that these life-saving treatments could be available through SUS, but also helped expose what has been described as "the limits of international development agencies when confronted with the need to act directly on behalf of the poorest" (Biehl 2007, p 1088). Despite these successes, as the epidemic continued to shape-shift in Brazil as it has globally, many researchers and activists voiced concerns with the "increased pauperization of the epidemic … developed the concept of 'vulnerability' – opposed to 'risk' – that denounced unjust economic structures" and also structural determinants including criminalization of sex work and drug use, that made certain groups more susceptible to the epidemic (Biehl 2004, Cueto 2022, p 154). This labor was performed at times informally within hybridized roles by community health workers powered by social mobilization. However, the strength of Brazil's public health response was its anchoring in primary health through community-based networks into regions that were often historically disenfranchised from state systems. These networks expanded care through mutual aid despite deficiencies in the public models and not necessarily due to state neglect.

End of HIV Exceptionalism and Democratic Rupture

It is also important to consider how things have changed since the end of the military dictatorship. Whereas some have described Brazil's democratization period in the 1980s as a period of rupture from what came before. This period following over decade of leftist social and economic policies marked what Manuel Castells describes, subsequent rupture in this time with democracy. Throughout the 2000s, the PT came into its own through the administration of so-called "post-neoliberal politics and neo-developmental projects, whose greatest impact was felt on the poor'' (Andrade 2019, p 3). The PT policies of social and financial inclusion dramatically impacted the lives of poor and working-class Brazilians, resulting in an estimated nine million households or thirty million people – emerging from poverty and into a "new middle class," although labels that described the social mobility gains and shifting class relations are still debated since this time (Vicente 2013, Neri 2014). Nonetheless, most will agree these populist social programs supported a demographic shift albeit a temporary one. Social gains were made through expanded access to higher education, increases in minimum wage and structural redistribution programs for retirement pensions and the world's largest family welfare initiative, *Bolsa da Familia*. The upward social mobility and reduction of poverty were capacitated by macroeconomic growth and labor-market expansion that were largely financed through Brazil's industrial agricultural production and primary exports.

As the global commodity boom eventually decompressed, Brazil began to feel the effects in a severe economic downturn. Beginning in 2013, political tides began to shift that accelerated by 2015 in a nearly 8 percent nose-dive in the national GDP until the end of 2017. Brazil slipped into an economic recession where unemployment and underemployment. Repeated scandals and corruption accusations threatened the credibility of political parties, politicians, and government institutions as a whole that entangled the former president, Luís Ignácio Lula de Silva. These protests were a continuation of mass demonstrations that began with "June Days" in June 2013 as a manifestation of the fissures and increasing polarization between left-wing popular organizers and dissenting perspectives of conservative and right-wing political entities (Avritzer 2017, Santos & Guarnieri 2016). Leveraging social media technology to amplify anxiety and redirect public opinion against the left-wing political establishment in the Workers' Party, these protests came to represent dissatisfaction with the government and its inability to redirect course in the face of economic downturn. In the meantime, Brazil's crime rate soared. Amidst backsliding wages, employment, and deteriorating public security, Brazilians agitated although without specific demands, taking to the streets to express deep anxieties and anger over the loss of livelihood gains from the previous decade.

This period is also marked by the end of HIV Exceptionalism, as Marcos Cueto suggests, "the decline of interactions of global and national developments, where conservative political and religious forces played a role marked by neoliberalism and biomedicalization" (Cueto & Lopes 2019, p 615). Political and electoral maneuvering by legislative and judicial branches orchestrated a soft coup d'etat that removed Lula's successor and first female president, Dilma Rousseff, from office. As the country sank further into political and economic crisis, Dilma faced impeachment charges while also trying to redirect the economy through a rollback of many of the progressive social and economic policies. Following her impeachment, her vice president, Michel Temer, who was from a more right-centrist party, implemented further austerity policies including labor rights reform, changes to the family welfare CCT

programs and privatization of the social pension program and health. He completely reorganized the political affiliations of this interim government, shifting the political coalitions toward the right, as well as dismantling key government ministries including Agrarian Reform and Development; Ministry for Women, Racial Equality, Youth and Human Rights; as well as the Ministry for Science and Technology. Subjective and material improvements on social life seemed to be slipping away, whereby some of the same citizens who were symbolically represented under the eponymously named, Workers' Party under the leadership of Lula, came to support a far-right candidate, Jair Bolsonaro, in 2018. Charles Klein and others provides insights into shifting lifeways of urban poor and working class Brazilians during this critical period between the collapse of the PT administrations and the rise of the hard-right Bolsonaro government (Junge & Klein 2021). Subsequently under Bolsonaro, civil and human "rights have been cut, the press threatened, minorities disrespected, police brutality encouraged, and state secularism challenged by evangelical" Christians. In his assessment of changes to AIDS policies under Bolsonaro, Marcos Cueto and Gabriel Lopes articulate:

Radical neoliberals, conservative religious forces and far-right authoritarian politicians helped to elect Jair Bolsonaro, especially evangelical and ultra-catholic groups, and vehemently opposed abortion, sexual rights and gender LGBTQ dignity. Subsequently, Bolsonaro appointed another evangelical pastor, Damares Alves, who believed in abstinence to prevent sexually transmitted infections and pregnancies, as Minister of Women, Family, and Human Rights. In this same time, syphilis cases were on the rise and AIDS among young people accounted for nearly 60% of new cases. Finally, as a "law and order politician," he believed that human rights and consequently NGOs linked to this work, should be ignored because they protected criminals. In this spirit, he disbanded the National Council to Combat Discrimination Against LGBTQ People and challenged universal access to sexual and reproductive health care services (Cueto & Lopes 2022, p 822).

In this context, I hoped to paint broad strokes in answering how history in public health contributed to racialized and unequal hierarchies of citizenship that inform and privilege one cultural framing of health differently in a public health response. Next, I will segue to my subsequent field analysis while elevating my earlier research questions in *Saúde Coletiva* in considering in local differences:

- Which groups are identified as causing the problem? (politics of inclusion, democratic transition through direct participatory action)
- What would it mean for *Saude Coletiva* to produce social justice in health equity, for which peoples and territory (*o povo*, *a gente*, *terreiros*) do they work for?

Through multi-sited fieldwork undertaken primarily in Rio de Janeiro and Recife, I sought to understand *Saúde Coletiva* as a common practice shared between sites. At various points, I interject with synthesized knowledge gained from time spent in Belém and other locations in the state of Pará, Floriánopolis in Santa Catarina state, and São Paulo. The bulk of my analysis will focus on public spaces and interviews conducted in Recife and Rio de Janeiro. I also could not avoid questions – how do grassroots health movements and health systems strengthen efforts to connect local histories and dynamics to global/transnational policies and norms? Other provocations emerged in my field findings that made me think about How did racialized hierarchies of citizenship privilege one cultural framing of health differently in a public health response? What are the socio-cultural notions of "health" circulating within society?

Chapter 4

Field Sites and Spatial Analysis

Both Rio de Janeiro and Recife are major political and economic centers with important histories that contribute to cultural production nationally. They also share regional connections through historical labor migration, public health, and climate changes. In the analysis that follows, I present relevant local histories and framing for understanding *Saúde Coletiva* by elaborating on its characteristics within local communities and response to Zika's risk factors. Recife is a prominent capital city in the Northeast with important connections to Afro-Brazilian history and culture. Rio de Janeiro plays a mediator role between the Northeast and São Paulo.

Basic socioeconomic characteristics for each municipality are presented in Table 1. Both sites are similar in many respects in terms of levels of income inequality and Human Development indices (HDI), although Recife has a slightly lower HDI and is more unequal than Rio de Janeiro as indicated by its Gini coefficient.

Table I. Economic and Social Characteristics of Urban Field Sites

	RECIFE (NE)	RIO DE JANEIRO (SE)
HUMAN DEVELOPMENT INDEX	0.77	0.80
GINI COEFFICIENT OF INCOME (2010)	0.69	0.64
GDP PER CAPITA	726.2	1119.2
POPULATION DENSITY (inh/km2 in 2010)	7,040	5,266
SCHOOLING (6 to 14 years old)	97.1 %	96.9%

Sources: IBGE and IPEA, GDP per capita (real 2000 dollars) is the total 2016 municipal GDP per capita divided to reflect monthly salaries. Population data are from the 2010 census. All other figures are from 2016.
Gini: http://tabnet.datasus.gov.br/cgi/ibge/censo/cnv/ginibr.def
HDI: https://www.br.undp.org/content/brazil/pt/home/idh0/rankings/idhm-municipios-2010.html

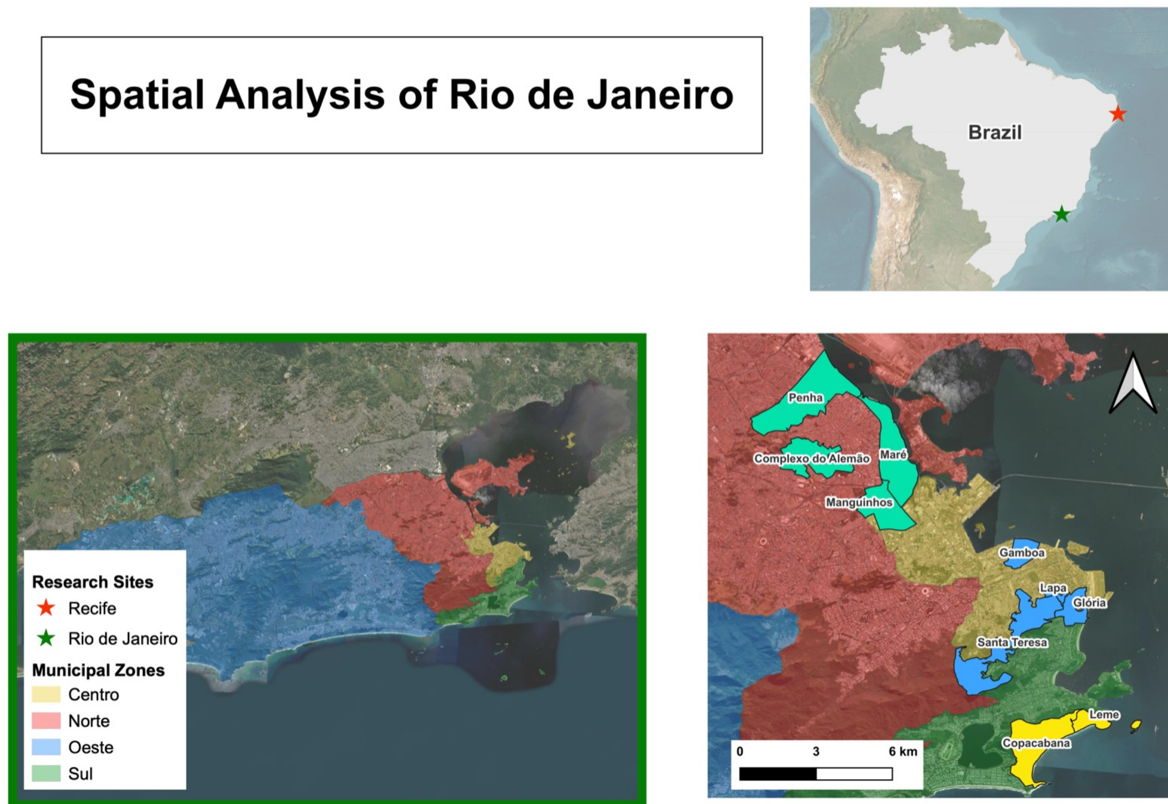

Figure 4.1. Rio de Janeiro Municipal Zones and Select Neighborhoods in research
Sources: Maps created by Kahlil Ali Ganem, Neighborhood boundaries via Google Satellites, Instituto Pereira Passos https://www.data.rio

I. Case Study - Rio de Janeiro
In the analysis that follows, I highlight important aspects of the city's spatial organization including histories of official planning, presence of local organizing to promote health, and relations between social movements and health that result in differential knowledge and reveal social and political meaning in an analysis of *Saúde Coletiva* and the social production of space**.** I use this method for analyzing space and lived experiences that illustrate defining characteristics of *Saúde Coletiva* and its relevance to Zika-related health risks by triangulating between my own research as a participant observer within sites as well as spatial practices described by community organizers in health and social organizations. I will consider Rio de Janeiro's urban peripheries and the social and political contradictions that are realized spatially giving rise to "differential spaces" found in sites of contestation.

As the second most populous city in Brazil and the third largest megacity in Latin America, Rio de Janeiro is a cultural juggernaut, often the first to indicate national trends in growth and declines in the country. Built up on the shores of the Guanabara Bay, it was the capital city of the Portuguese Empire during the Napoleonic wars and then Brazil for two hundred years, until its preeminence was usurped by Brasilia in 1960. The city has also been defined by its history and infrastructure in addressing periodic epidemics of smallpox, yellow fever, dengue fever outbreaks, as well as well-researched disparities in housing, sanitation infrastructure, and income inequality. The number of Zika cases and CZS were comparable to the numbers reported in some Northeastern states, and subsequent spatial analysis of the city in 2015 - 2016 demonstrated a syndemics of three arboviruses – where chikungunya, dengue, and Zika were all reported in circulation. This marked the first recorded triple epidemic in the city

(Queiroz et al 2021). Therefore, Rio provides a useful case study for understanding local community responses to Zika-related health risks and social determinants of health for its history of intensifying urban development, epicenter for public health infrastructure and research, and collective action anchored in social and community health.

Referencing the figure above, the city can be broken down into four main urban zones: the North Zone (red), South Zone (green), Centro Zone (yellow), and West Zone (blue). The city can be broken down into four main urban zones: the North Zone, South Zone, Central Zone, and West Zone. The West Zone was most recently occupied, still characterized with features of rural-urban spaces with the lowest population density but also low quality of social and health. The South Zone is best known for its beach access and affluence, a high concentration of commercial and business development tied to international tourism, and the highest HDI. The Central Zone includes the parts of Rio's famous Tijuca Massif as well as the downtown historic *Centro* and Brazil's oldest *favelas*, deriving this name from a nickname given by its original inhabitants, veterans from the Canudos War, in 1897. This zone has recently experienced significant urban development to expand commercial and business opportunities, especially after Brazil's successful bid for the 2014 World Cup and 2016 Olympic games. Finally, the North Zone is an industrial zone with the highest population of nearly half the population living in conditions, paired with the lowest HDI. Consider also the urban density of Rio city, which was just below 5,000 inhabitants per square kilometer at the time of Brazil's last census. By comparison, the density in the favelas can reach nearly 100,000 per square kilometer. While these areas are described as separated and distinct, Rio is characterized by a high degree of heterogeneity and coexistence, demonstrated through a walk down a street of well-fortified homes in an affluent neighborhood. Then, you peer down an alley to find *loteamentos* or small clusters of irregularly constructed buildings, also evidenced by an assemblage of old tiles, illegal electric extensions, or piping vessels for water in catchment. These examples of extreme wealth and poverty exist side-by-side, Rio is exemplary of the challenges faced by other Brazilian cities, where before the midcentury only 15 percent of Brazilians lived in cities, that number has swelled to over 85 percent.

Rio de Janeiro is also a historical epicenter for its universities and scientific research foundations with the Evaldo Chagas Institute and the Oswaldo Cruz Foundation (FIOCRUZ) campus. Founded in 1918, FIOCRUZ and its castle were established in the outlying North zone within *Zona da Leopoldina*. The institute services nearby communities of Manguinhos along with Alemão and Maré - these are among the largest complexes of favela communities and encompass over 10% of the city of Rio (Lima 2011). Marielle Franco, the first queer Afro-Brazilian city council woman, was from Maré. The Rio de Janeiro State University (UERJ) established the first graduate programs in social medicine studies in 1975, that invested resources and programs in the social sciences debates and Latin American ideas on health. Noting a surge in dengue-like illness with rash, the FIOCRUZ Manguinhos health clinics detected Zika infections early in the epidemic while following pregnant women who were also enrolled in an epidemiologic surveillance study for dengue infection (Brasil & Nielsen-Saines 2016). These community based clinics are important responses to health disparities that exist in favelas, where cases of bubonic plague and leprosy have been reported. All community associations of neighborhood and favela inhabitants that organize with demands for better health conditions are considered a part of the movement for popular health.

As a modern city, Rio's history was significantly shaped by periods of demographic changes, urban growth, and inconsistent attempts by urban planners and city government to regulate the labor force through social integration services. Their approaches alternated between a combination of spatial organization to exclude and redirect settlement through policing and policies of social integration to differentiate access to modern institutions and citizenship rights.

In the 1950s, the city experienced a period of rapid urbanization that was characterized by internal population growth combined with a massive influx of rural-urban migration from the North and Northeast. According to Janice Perlman, an expert on the history of the city's favelas, public authorities were unable to provide adequate housing, infrastructure, or services. As a result, established workers and new migrants spilled out of formal city limits, and communities sprang up in the peripheral zones of the cities. Building shacks and informal subdivisions, these sprawling settlements were illegal and lacked most infrastructural services including sanitation and water access (Perlman 2010). National state and urban governance strategies attempted policies of social integration through urban planning and organized new spheres of citizenship that extended social rights based on formal labor. In the subsequent period, the military dictatorship pivoted to redirect energies toward mass removal campaigns. These campaigns were guided by policies of policing, urban displacement, and favela eradication (Brum 2013). As urban planning was tightly connected to positivist interventions and medical sciences, areas of high population and poor sanitation were targeted and excised as a remedy against the urban malady of informality and illegality (Richmond & Garmany 2020). For example, more than 100,000 residents were evicted and the dictatorship directed social cleansing programs that resulted in the demolition of 62 favelas between 1970 and 1973 (Perlman 2010). By the time the Brazilian government renegotiated its foreign debt at the expense of social programmes and neoliberal structural adjustment policies, Rio reflected this social abandonment in an era of urban disinvestment and degradation that contributed to urban fragmentation in the 1990s. In response to increasing unemployment and informality, there was a massive increase in favela growth, from 11 to 40 percent, compared to a rate of formal urban growth for Rio that plummeted from 20 to less than 8 percent. Amid extreme social precarity, communities were also increasingly caught between the dictates of drug traffickers and heavily armed gangs in between military occupation by the police (Perlman 2010, p 53). Meanwhile, the elite classes in the wealthy areas barricaded themselves behind barbed wire and broken glass-studded gates and private, military-style tactics to ensure the security of their families and property.

Matthew Richmond and Jeff Garmany take a closer look at Rio's contemporary policy and elaborate on what has been popularly recognized as *hygienization*. Following the city's successful Olympic bid, the city shifted tactics once again enacting policies for structural upgrades and social integration programs in areas of housing, infrastructure, and increased systems of transport and securitization. Public debates on the City Project plan, in preparation for increased international attention, were mired in controversy over the targeted nature of urban growth and real estate development. Proponents of these mega-event initiatives argued that Brazil was amidst a period of inclusive growth and integration, described in a 'post-Third-World city' narrative of urban renewal by Richmond and Garmany. Critics debated whether these integration projects were intended to address the city's deeply seeded structural inequalities or a strategic prioritization of areas for revitalization. In light of the

city's profound public health needs, Garmany and Richmond analyze the history around these policies and harness the discourse of sanitation to describe the city's management of poor and communities in the favelas.

First, we bring a Lefebvrean lens for a better appreciation of space and timing, where urban "spatial practice embrace production and reproduction, and the particular locations and spatial sets characteristic of each social formation … [thus] ensuring continuity and some degree of cohesion … in terms of social space, and of each member of a given society's relationship to that space, this cohesion implies a guaranteed level of competence and a specific level of performance … symbolic representation serves to maintain the social relations in a state of co-existence and cohesion. It displays them while displacing them, thus concealing them in a symbolic fashion. As for representations of relations of production, which subsume power relations, these too occur in space. Space contains them in the form of buildings, monuments, works of art, such frontal … expressions do not completely crowd out their more clandestine or underground aspects; all power must have their accomplices – and its police" (Lefebvre 1991, p 33). Since 2008, the *Unidade de Polícia Pacificadora* (UPP) or militarized Police Pacification force has been used to drive out drug trafficking gangs and establish permanent police presence in the favelas throughout Rio's municipal geography. Referencing the map of neighborhoods above, I would draw attention to the neighborhoods of Gamboa and Maré as examples of continuities and distinction. Gamboa was an area significantly impacted by recent mega-project real estate development, specifically *Morro da Providência*, as well as a major site of conflict in Rio's *Revolta Vaccina* in 1904 and streetfighters fortified sections from the favela, *Saúde* (Needells 1987, p 265). Many have been critical of their overtly militaristic tactics and planning, including Marielle Franco. As a Black queer woman who emerged from the Complexo da Maré, Franco took advantage of education opportunities expanded through the left-wing PT policies and published critical sociological works against the ill-effects of police violence and disproportionate targeting of Black youth from her neighborhoods (Franco 2014). Subsequently, she ran for office on a feminist agenda that reflected political uprisings emerging between 2015 and 2016, known as *Primavera das Mulheres* (Women's Spring). Elected in 2016 from the PSOL party, her campaign hinged on a platform for human rights that forged "coalitions, translating community knowledge into concrete public policies focused on" the health and social determinants of health experienced differentially by urban peripheral Afro-Brazilians, LGBTQ communities and women's rights (Meireles 2022). Franco's legacy continues to reverberate in rhythm and movement with many community advocates promoting counter-insurgency in community-building programs as an alternative approach to establishing positive social changes and promoting community health in the favelas.

In advance of the 2016 Summer Olympic Games hosted in Rio de Janeiro, WHO experts debated the risk of mass gatherings, epidemiologic disease modeling, and public health messaging around prevention while evidence continued to evolve. Efforts relied on coordinating non-medical interventions, primarily vector control and public health messaging that were directed across multiple scales, from the individual, community, and international level. The city has used urban planning approaches that cantilever between targeted social cleansing campaigns and policies of social integration and development to address the disorder of Rio's urban neighborhoods on the periphery. First, popularly recognized in the term *higenização* – these policies involve methods of racialized enforcement and state

violence in displacing residents of the favelas. Despite constitutional mandates that allow the occupation of idle land as well as legal precedence that requires community consultation, *higenização* questions public development without consultation where the state reclaims and restores urban spaces to their natural and revitalized order. *Hygenization* can also refer to the residents living in these peripheral areas, when used idiomatically, the reference stigmatizes those who are displaced as trespassers, pathologized, and criminalized, as a function of their social class. As I described earlier, Brazil has a distinctive history and practice of hygiene policing tied to the country's relationship with medical sciences and positivism as the "scientific management of society," with its moral and eugenic overtones. In the interconnected experiences with social space and representation of space of the city and its extensions into the circumscribed peripheries, Lefebvre writes, "one occasionally hears talk of a 'pathology of space,' of 'ailing neighborhoods', and so on … [making] it easy for people who [speak this way] — architects, urbanists, or planners – to suggest the idea that they are, in effect, 'doctors of space … this is to promote the … idea that the modern city is a product not of capitalist … system but rather of some putative 'sickness' of society (Lefebvre 1991, p 99). This combination of historical and social representation of space represents a type of spatial practice that deserves careful analysis. As Garmany and Richmond illustrate, the practice of *higenization* reinforces the social reproduction of power relations between the city government and the residents of the favelas through periodic shifts in policies and pro-rich development to urban aesthetics without addressing deeper sources of social inequality. Instead, *higenization* and its acts of violent displacement spurs on more outgrowths of "urban informality" as residents relocate, rebuild in what has been called the "dance of the favelas."

Interestingly, the concept of "periphery" has also been used politically in Brazil and popularly to describe the social production of space – both in the favelas, *comunidades*, and other informal types of settlements as well as the people who live outside the city's limits of services and infrastructure. James Holston, a political anthropologist who spent thirty years in collaboration with residents of urban peripheries in ethnographic research on the shifting nature of citizenship in Brazil, writes in his book that the uses of *periphery* have changed over periods of demographic shift. Despite this, there was a tendency to homogenize the variety of actual conditions that exist into a politicized concept of "periphery" that is often limited to an understanding of exclusion and segregation. These observations take note of how symbolism operates in real and formal social spaces. Formal representation of space often conceals more than it reveals.

To better appreciate these debates on urban development and Zika-related risk and knowledge production, I traveled to Rio de Janeiro in 2018, based primarily in the hilly neighborhood of Santa Teresa. Famous for its historic tram, or *bonde*, clattering down narrow, winding streets, Santa Teresa was one of the first expansions by the Portuguese out of the city center. It was initially an upper class neighborhood and eventually became a well-known place for intellectuals, academics, artists, and politicians to gather for its cultural life. I stayed in Santa Teresa, for this bohemian atmosphere – like the *Montmartre* of Rio. But also because it was closer to the *Centro* zone, where I could travel to the North Zone with its *complexos* of favelas and FIOCRUZ campus. While not in the upscale, heavily securitized areas in Zona Sul, you had sweeping views from the peaks and ridgelines of Tijuca, both up to *Cristo Redentor* as well as to the North and South zones. On a clear day, your eyes can trace along the coastline, around the bay with the outcropping of Sugarloaf Mountain, and catch sight of

the white beaches of Copacabana and Ipanema that were also lined with high-rises, luxury hotels. Interspersed throughout, you might note the boundary zones between densely settled favela and informal *comunidades,* despite the city's attempt to delimit their expansion, building walls to shield their existence from public view. The politics and "relations of reproduction are divided into frontal, public, and overt – and hence coded… thus space may be said to *embrace a multitude of intersections each with its assigned location (*Lefebvre 1991, p 33), which Lefebvre suggests, "we are confronted not by one social space but by many – indeed, by an unlimited multiplicity or uncountable set of social spaces which we refer to as 'social space.' No space disappears in the course of growth and development: *the worldwide does not abolish the local* … the intertwinement of social spaces is also a law … as concrete abstractions, however, they attain 'real' existence by virtue of networks and pathways, by virtue of bunches or clusters of relationships" (Lefebvre 1991, p 86).

This neighborhood has also served as an important historical district for the popular movements and political mobilization, as well as the home to the eponymous Catholic convent, where many people fled during the height of the yellow fever epidemic in 1850. Nowadays the walls are tagged with street art and wheat pasted pastiche. I ventured out and wandered up the cobblestone streets, eventually lured into an open door to *Raízes do Brasil* and a lively *feira* bazaar with red-emboldened banners declaring *Lula Livre* or "free Lula." *Raízes* - or roots - has the connotation of being a group about racial issues. I eventually learned that a group of local community organizers hosted this bazaar as a fundraiser for Lula, who was imprisoned under dubious charges of corruption in April 2018, and for this, would be disqualified from the presidential race later that month. I stayed late and eventually met the community organizers, educators, and artists leading this group. There was Elisa, an Afro-Brazilian artist who studied biology and was vending artisanal food products at this bazaar. I rotated through the stalls of curiosities - old books, handmade crafts, and I arrived at Elisa's space. With an awkward sincerity, I introduced myself and reached out to make a connection. She was curious why I was there, and we continued in conversation. Through Elisa, I was introduced to a small group, after the shift ended, including Mariana and Carmen. I learned later that both were connected to *Movimento Pequena Agricultural* (MPA), a social movement for agroecology and small farmers and urban cultivators of organic and health foods. Carmen unveiled a handmade flag that she created with textile pieces that represented the key features of the MPA movement. The map of Brazil was centered on a red backdrop along with a mass of workers and prominently featured hands that were cupped and full of seeds. I also met her son who spoke English, and they were originally from Chile. Through a mix of Portuguese, Spanish, and English, I connected to this group and learned more about the neighborhood connections. Carmen and her son lived in Santa Teresa, working here and in the favelas of the North Zone as community health agents and educators. We kept in contact and Carmen invited me over to her place to talk more about her work.

Produtos da Gente and Cultural Determinants of Health

Beginning with dinner, I learned more about Carmen's story with MPA and her association with other clusters of collective organizations that address key social determinants of Zika-related health risks in women's health and maternal malnutrition. Her story started with food security and access to healthy food at another *feira* – this one was called *Produtos da Gente* and organic food. Carmen met community organizer, Ana Silva, who was a favela resident of Complexo da Penha, which consists of thirteen favelas in the North Zone. A part of a larger

network connected to the favelas, *Produtos da Gente* was created in 2015 by local growers and urban farmers and provided opportunities for the residents of favelas to connect with other low- and middle-class communities. *Produtos da Gente* was a public program that supported small farmers and promoted healthy foodstuff grown with agroecological practices. *Produtos da Gente* was affiliated with a cluster of associations that connected to the larger network of MPA, organic reticulations aimed to address food insecurity as well as other social issues relevant for people living in the *complexos* and *comunidades*.

In addition to these weekly markets, Ana was also a coordinator and co-founder of a local community association called *Centro de Integração na Serra da Misericórdia* also known as *Centro de Educação Multicultural* (CEM). In reference to its other name, this civil association began as a community-based reforestation project in the rural-urban spaces of Penha specifically around Morro da Misericórdia. Principally a women-led organization, CEM received funding in 2011 to extend to its community building work and activities and developed an agenda that centers agroecology in its community-based programs and activities in popular health, education, and food security integrating women and family health. Organized under the larger umbrella of agroecology, CEM is a part of the popular movements who defend culturally grounded and sustainable approaches used by small growers in rural and urban farming. Agroecology is a practice, as Black feminist geographer Katherine McKittrick, would have it, in resistance against *'geographic domination*' and environmental neglect, land evictions and displacement in Brazilian cities (McKittrick 2006). We see similar movements in cities across the United States like in South Central Los Angeles and Ron Finley and Green Grounds LA or community garden collectives led by Detroit Black Farmers. Agroecological practices and urban farming are important responses to social determinants of health because of the lack of healthy food options, rising prices of food, and climate challenges (White 2021). Like other Brazilian cities, Rio has a Master Plan for urban design and social programs, which is amended every ten years, to devise strategies of integration and sustainable development. However, this plan neglects the social needs and access to healthy food in the city's urban peripheral zones.

In response, the non governmental organization called REDE *Carioca Agroecologia Urbana* (REDE CAU) – or an Urban Agroecology Network for Cariocas, inhabitants of Rio de Janeiro – organized to promote small urban farming initiatives and collective agroecology endeavors. It does this through the distribution of funds and agroecology workshops for community-led social enterprises, like CEM in 2012, to strengthen access to essential social programs and integrating to community collectives based on agroecology-based food security programs. From here, things changed for CEM, who expanded their relationships through the workshops and transitioned from reforestation projects to also creating spaces for urban food farming and traditional medicine plants. was able to certify their product as organic, which is an unprecedented accomplishment for the community association based in a favela. *Produtos da Gente* was created through a similar focus around agroecology and natural food, this time through the state university of Rio de Janeiro. Together with other community associations from five favelas, *Produtos da Gente* created a weekly *feira* to provide alternatives to processed foods and the lack of healthy food options due to the physical and financial barriers faced by residents of the peripheral settlements. As *Produtos da Gente* gained more recognition and more vending opportunities, the members struggled with the benefits of commercialization - for example, CEM was able to certify their produce as organic which was

an unprecedented accomplishment for this community organization based in the favela. This would have allowed them to sell their produce at a higher market price because the distinctions between how agroecology produce and organic produce are interpreted by consumers. However, CEM insisted on decreasing their prices, despite this, in order to maintain agroecological principles and offer produce that remained financially accessible for residents of Penha.

For her part, Carmen described a wide variety of projects that stand outside what stands for public health knowledge and preventative health. Carmen and her son were connected with CEM initially in 2016 and began teaching at the school, since there were limited teachers willing to work in the favelas. Her stories illustrated how equipped with intimate knowledge of their own communities, “people from the favela, who often have less education, are the ones orienting how things are done.” These efforts address important social determinants of health that innovate on access to essential needs for survival, while building community and a sense of belonging, an alternative take on integration. I emphasize that there are so many connections, a large social network. Carmen shared her perspective that when people living in the favelas try to find solutions individually, one might argue in a way imagined by a neoliberal model of citizen engagement, then survival is impossible. Only by forming many small networks that may be redundant and multiplexed, like *Produtos da Gente*, is it possible for people to respond with resilience and also create a more stable foundation. In the absence of the right to fully exercise citizenship — such forms of collective are fundamental to responding to challenges and precarity in urban social spaces.

Arranjos Urbanas* and *Arranjos locais

Emerging from this initial work, CEM and other community organizations formed an aggregate collective. Carmen described this configuration using a term, *arranjos*, to indicate an arrangement or agglomeration of local community organizations with articulations to different social sectors. This was a term used locally, not officially - it could be used to describe a grouping of two or more organizations, which Carmen suggested shared activities and other collective actions that amplified the reach and integration within associated neighborhood populations.

Cada uma ajuda la necessiar de **ausente**.	Each one helps to what is needed and absent.
Que necessidades tem Penha?	What needs does Penha have?
Comida, saúde, e educação.	**Food, health, and education.**
Então o Arranjo da Penha ...	So *Arranjo da Penha* ...
Então a gente pra Lapa - comida, saúde e educação.	Then we go to Lapa - food, health and education.
Porque só precisa ...	Because you just need...
Então Arranjo de Penha … trabalha na Penha.	So *Arrranjo de Penha* … works in Penha.
Arranjo do Centro ... trabalha no Centro.	Arranjo do Centro ... works in Centro.
Que precisa ... pode que precisa no Centro?	What you need... you may need in Centro?
Não sei	I don't know.
Pude que precisa ... não sei ...	**I could say that you need** ... I don't know ...
salud ... saúde	**salud ... health**
Cada um dos... as arranjos onde mora	**Each of the... the Arranjos where you live,**
Tá fazendo coisas para essas comunidade.	**Are doing things for these communities.**

Outside of this local, Brazilian Institute of Geography and Statistics (IBGE) uses *Arranjos Populacionais* to describe areas of dense urban concentration and dynamic, multiplexed areas of movements of people in transit to common public services such as in schools, labor transit,

or products. Used as a metric for comparing urban growth across metropolitan centers of Brazil, *arranjos* are a measure of more than 10,000 people and provide an index for interpreting shifts in multiplexity and understanding relational reticulations and social integration. Each *arranjo* has a distinctive configuration based on its specific relationships and history of the community organization in its formation, reflective of its relationships and social needs. Every *arranjo* centers its association to core social needs of favela residents – which highlight food as well as health and education. For example, CEM is a part of the *Arranjo da Penha* and serves the communities living in the Penha neighborhood and favela *complexos*. Their *arranjo* encompasses a cluster of seven community-based organizations that bundle necessary social resources and programs related to work or study and provide continuity between patchwork of neighborhood services and gaps within the favelas. In her descriptions of the specific history of *Arranjo da Penha*, Carmen identifies relevant formal and informal modes of production that work in tension with spatial practices in determining the shape and nature of the resulting configuration of community affiliates. "The periphery is always shifting its location and triangulating among variables [one is reminded of social determinants] of poverty, illegality, rapid but precarious settlement, urbanization. It is a place for the poor that, although initially destitute, improves with autoconstruction and political mobilization" (Holston 2008, p 156). Prior to 2017, CEM was based out of a building in Penha, but as a not-for-profit community association, its value was not apparent to the owner. Subsequently, he encountered legal issues with the urban building codes and regulations, which is not uncommon for autoconstruction projects in these communities. In response, he sold the building to a drug trafficker, who expelled the community association and their programs from building. They also cut down the trees that were planted by the organization. At the time, CEM received a small grant for its social programs and received very little funding for operations. Therefore, there were limited options for relocation leading CEM to *in vivo* and diffusely without a physical location for over a year.

It was ultimately through food and health that CEM found an alternative location, shared between time spent at the public school, *Escola Bernardo de Vasconcellos,* and the family health post, *Clinica da Familia*. The family health post and health coordinators, seeing a rise in health conditions related to poor nutrition, contacted CEM to strategize community education approaches that connected women and families who depended on the BF program. The resulting program was a success, and provided fresh produce donated from *Produtos da Gente*, back to the community in the form of food baskets or "xepa na favela." CEM, then, became closely affiliated with the primary health post and access at the clinic, including nutritionists and nurses. In total, *Arranjo da Penha* has significant community ties to seven civil associations, including CEM. Residents of Penha can access resources related to food and health programs through affiliations with *Clinica da Familia*, as well as programs from the local school, and creches or preschools, where CEM established small community gardens. Due to the nature of these arranjos and their ties to other arranjos, this allows residents the possibilities of a larger network, anchored in agroecology programs like MPA. As a national movement, MPA shares an umbrella with many other smaller collectives like *Agroecologia Periferia, Agricultural Familiar e Agroecologia, Quintas Produtivo* and networks outside of Rio de Janeiro to the Northeast and rural farmers and alternative cultivators and cultural food practices like Quilombola traditional plant medicine and beekeeping. MPA has some connections to the government and representation, perhaps through MST. But these

organizations are all separate from the government; they may receive funding but they are not institutionalized. They claim a human right to the city – with a Lefebvrean sensibility – organizing for their right to quality food, right to health in community well-being, right to education. Their collective action itself is a generative act of self-determination and new possibilities for community integration in the urban spaces.

This favela has three arranjos, according to Carmen. Such experiences have shaped the history of favelas - favelas are overlooked as a source of solutions for urban challenges, suggesting that the people who live there should be better known by the formal city around them. By joining other community organizations from the favelas, these *arranjos* emerge as new forms of collectivity in their demand for community-based healthcare, quality food and security in light of the precarity of their urban social space. My interview with Carmen provided a unique view on the work that represented a consolidation of political subjectivities in food security that valorizes community participation and unmet social needs. From the community-led projects by CEM, new reticulations and partnerships formed around these social needs and spaces that led to the emergence of new collectivities in the *arranjos locais*. Exploring the importance of the relationships and production of symbols, the representational space that coordinators and community health workers with CEM lived through and responded to gaps and social inequalities through community building in terms of class, race, and gender.

Triangulating with Federal University of Rural RJ as participant observers with *CEM*
Local *arranjos* are community networks arranged across a shared territory. The *arranjo* that Carmen described was formed in 2016 and similar collective *arranjos* emerged in this time period – according to Portilho et al – that were further studied by a non-governmental consultancy organization, AS-PTA or *Assessoria e Serviços a Projetos em Agricultura Alternativa*. In hopes of replicating this model in other parts of the city, Portilho and others worked as participant-observers and student coordinators of CEM programs and noted that the NGO began by complicating the assumptions about urban space and peripheral neighborhoods like Complexo da Penha. They observed that residents of the favelas live in areas that are beyond the reach of forces, access, and activities of the city, and reproduced aspects of isolation experience in rural spaces” (Portilho et al 2021). These formations were novel responses in a time of Zika infection surges that also emphasize key Zika-related health risks and groups. These *arranjos* emphasized the protagonist role of women, organizing to address social needs: agroecological approaches to food security and an emphasis on community, as well as engagement with human rights issues in light of the persistent gender and socioeconomic marginalization endemic to urban peripheral zones. In addition to planting, CEM was engaged in an act of building relationships in the territory. The creation of the *Arranjo* supported the mobilization and strengthening of networking in urban agriculture movement and the local community. “We … socialize with the people, [in] a territory with a lot of conflict generates low self-esteem, [there is not much foot traffic] because of the [fear of violence and] shots, there were residents who did not raise their heads to avoid meeting the eyes of the *bandido*. New partners[hips] were [created] and from this, we brought visibility inside and outside the favela. The [*arranjo*] made it possible for CEM to continue its activity beyond the acquisition of a headquarters” (Portillho et al 2021, p 12). As a consequence of the social production of space, the *Arranjo da Penha* became tied to a community health clinic further extending its system capacity and access to resources aimed at the nexus of essential social needs - food, health, and education. Public health misses these

types of opportunities due to its positivistic focus on engineering technical interventions of sanitation and therapeutic access. “These findings suggest that even though urban agriculture is normally associated exclusively with health promotion, due to the supply of healthy food, the Urban Agriculture movement transcends the curative practice [of public health], considers the individual within all levels of care and as the subject who [experiences space] in a social, familial, and cultural context. Also, it allowed women in the community to experience other realities, expanding their capacity for political and collective participation” (Portillho et al 2021, p 7). Aligning with the notion of health described in the Citizen’s Constitution as well as the politics of intimacy and care, the work by CEM and the *arranjo* of community health developed long term practices of well-being in a shared space and across time through action, community-building, and belonging.

The representation of space in Zika infections and related risks conceals more than it reveals. It portrays a snapshot view of risk and case incidents. Even diachronic representation cannot demonstrate the work of resilient communities. The women of CEM and the importance of their work was enhanced by their capacity to promote health through multiple channels through food security, connecting through cultural foods like medicinal plants, utilizing space in creative and innovative ways like community gardening in preschools, and Health and Food programs connected to women accessing BF programs at the *Clinica da Familia*. As a counterspace, there was an added bonus of community building that generated opportunities for a wider network of residents living in the peripheries. As Holston points out, although residents of the urban periphery have been excluded from services by the city, it also has created its own relations of mutual dependence – and formulated new forms of citizenship, defined through and in response to the periodic shifts in programs and urban governance policies.

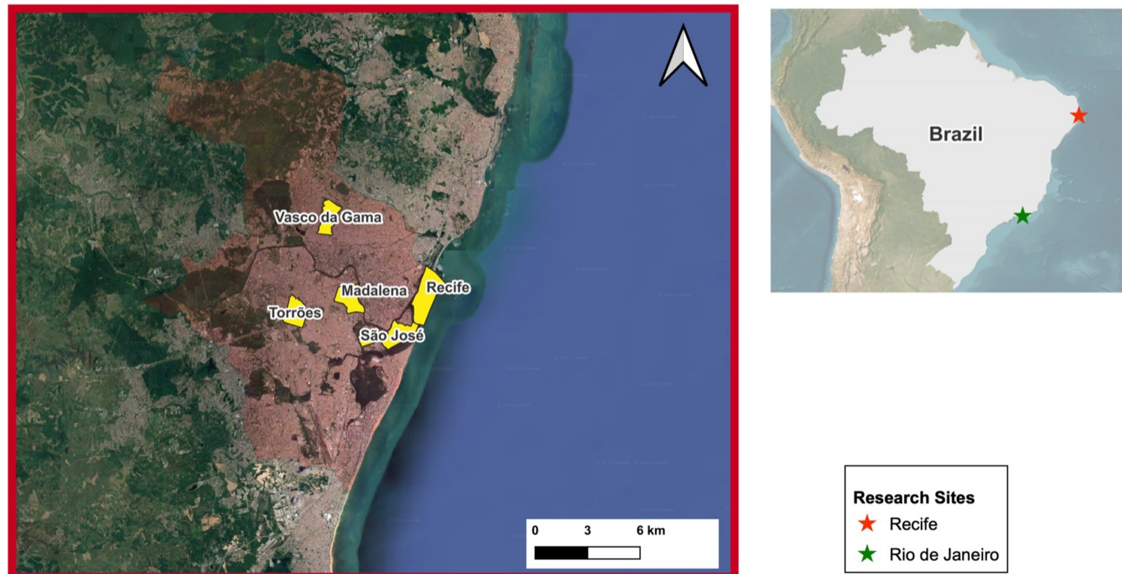

Figure 4.2. Recife Municipal boundaries with Select Neighborhoods in research
Sources: Maps created by Kahlil Ali Ganem, data from Prefeitura do Recife - http://dados.recife.pe.gov.br

II. Case Study: Recife - This analysis explores a set of critical questions that emerged from intersections between Zika virus and gender inequalities in social and reproductive rights. Zika PHEIC and outbreaks emerged in a turbulent time for Brazilians, amidst political, social, and climatic fluctuations. Political tides were shifting with conservative political elites orchestrating a judicial coup d'etat that removed Lula's successor and first female president, Dilma Rousseff, from office and implemented austerity policies that impacted social security and health. This also led to the imprisonment of the previous president, Lula Ignacio da Silva, under corruption charges that were aimed at the wider Workers' Party (*Partido dos Trabalhadores* or "PT"). Political agitation reflected a discontent with declining wages and employment, backsliding of livelihood gains from the previous decade, and the continuation of a severe economic recession. These factors led to the emergence of a collective response to address increasing threats to women and collective health.

I highlight important aspects of space in Recife including histories of urban planning, factors that shape movement and migration, and spatial practices and discourse between social movements that result in different cultural expressions that reveal social and political meaning in an analysis of *Saúde Coletiva* and the social production of space. Lefebvre unpackages space in the following ways – space is often presented in an abstract or scientific form, such as references to a map and its representation of space and movement depicted flatly between two coordinates (e.g. Cartesian space). Space is also produced through our social actions, sometimes constrained by memory or shaped by differential power relations. For Lefebvre, the production of social spaces are generated within three interconnected moments of how spatial practices are lived, conceived, and perceived. The differences

between these layers of space reveal much about social and cultural values through how space is represented compared to lived experiences of space and the more banal aspects of social spaces. Lefebvian methods can be applied in analyzing the real and formal complexity of space to understand the potency of contradictions, where conflicts in social space reveal openings for "differential space" - social and political alternatives. I use this method for analyzing space and lived experiences as I develop the role of *Saúde Coletiva* and its relevance to Zika-related health risks.

I begin with Recife as a case study, because it was an epicenter for the Zika syndemics with related risk and health disparities. It also has historical significance for its position within the Northeast, a capital of Pernambuco state, and relevance in terms of social movements with critical linkages to the 'outside.' As the fifth largest metropolitan hub in Brazil, Recife has a population of more than 5 million who are incorporated into its urban flow with one of the highest population densities in the country. The city can be divided into 94 districts and according to one study, it has a population density of approximately 7,000 inhabitants per square kilometer. It is also an important littoral anchor of labor migration and displacement between the *Nordeste Sertão* – or rural interior of the Northeast, and the Amazon in the North, as well as urban centers in the Southeast. Established on an estuary, Recife began as one of the first colonial cities in Brazil, previously surrounded by the Atlantic Rainforest, *Mata Atlântica*, situated in an ecosystem interlaced with water features, several river channels, and flooded mangrove forests.

The city emerged from a narrow spit of land at the confluence of Capibaribe and Beberibe Rivers as they spill into the Atlantic. If you stay along the coast, you can cross over the famous bridge, *Ponte Duarte Coelho,* and step back onto the colonial islands of *Cidade Velha*, or Old Recife. Recife is a hidden gem for Brazilians escaping the mobs of Carnival tourists in Rio. This bridge marks the point of departure for Recife's Carnival parade and bombastic celebrations that descend into São Antonio and Old Recife, which were the first areas built up by the Portuguese. With a brief interlude of Dutch colonization in the 16th century, these islands were influenced by Dutch urban design and engineering motifs that can still be seen today (Van Oeers 2001). Walking along the narrow streets of the city's epicenter or upriver on the mainland with its urban preserves and mangrove forests, you likely pay heed to any number of reservoirs or pools of water where mosquitoes could lay eggs. The severe weather of 2015 – 2016 were especially influential for Zika's emergence, where El Niño patterns brought extreme flooding and multiyear drought to different regions. With the climatic temporalities of Northeastern Brazil and its cyclic alluvial flooding and drought-derived precarity, any area of urban development and sprawl supports an innumerable supply of mosquito-breeding reservoirs.

Recife is also situated within a larger semi-arid region of the Northeast that includes four out of Brazil's six biomes. Documented since the late 16th-century, water scarcity and drought-ridden realities have intensified in frequency and duration into the 20th century. Following the collapse of the northeastern sugar economy, the region shifted to an exporter of labor to the industrialized southeast and the rubber towns of the Amazon through programs to relocate labor (Rogers 2010). From the verb *se-retirar* or remove oneself – the only option for some was to flee the health and humanitarian disaster associated with drought, triggering periodic waves of *retirante* migration or drought refugees. Severe drought also reinforced

asymmetrical power relations between the oligarchic families of landowners and political chiefs through an institutionalized network of patronage called *coronelismo* or clientelism (Kenny 2002). *Coronelismo* patronage became the primary tool for the poor to survive and facilitated access to water and food during times when the economy literally ran dry. Periods of severe water rationing led to violent riots, where in Recife, nearly a third of the population are without access to sanitation and subject to water rationing with interruptions for a week at a time (Souza 2018). In more rural areas of the *Sertão*, people may go for a month without regular access to running water (Pimentel 2021). Years of agricultural and labor policies have contributed to environmental crises, human damage, and the highest rates of poverty and inequality in Brazil, with over 77% of the state population living below the poverty line.

Research institutions and academic-non governmental partnerships in public health played a key role in the local response to Zika, highlighting the importance of Recife as a nexus for technical knowledge and research on tropical medicine and infectious diseases. As the Pernambuco unit of FIOCRUZ, Instituto Aggeu Magalhães serves a hub-in-spoke role in academic-community partnerships as well as international collaborations via Anglo-American and continental European health research centers like the CDC, Oxford, and Pasteur Institute. Researchers from Recife and Pernambuco State Department of health were among the first to report on their local findings on CZS, where the epidemic peaked earlier in Pernambuco and contributed information leading to the declaration of the National Public Health emergency in 2015. Whereas Brazil accounted for nearly 95% of all microcephaly and CZS cases in the Americas, most confirmed CZS cases – nearly 75% – were found in the Northeast. The highest rates of Zika and related health sequelae such as CZS were reported by several groups in Recife, where subsequent studies have shown that high Zika prevalence overlaps in the similar areas with other *Aedes*-mosquito vectors diseases that reinforces the syndemics model (Souza 2018, Freitas et al 2023, Anjos 2020). A closer examination of the epidemiological data showed differences in the spatial distribution of Zika cases and CZS, with a higher prevalence reported in both peripherally urban or rural parts of the region in socio economically depressed areas with high population density and mobility. Younger single women and women of color were at higher risk of Zika infection as well as missing key information about Zika-related risks and sexual transmission. Unpublished data on microcephaly cases between November 2015 and September 2016 from the federal Ministry of Health revealed a relationship between risk and social precarity. Roughly one-quarter of the women and girls who gave birth to infants with CZS were under the age of 20. Nearly half were single – 48 percent compared to 40 percent in the general population, and more than three-quarters were Afro-Brazilian and women of color and as compared to 59 percent of the population" (Wurth 2017, p 26). PAHO and others have reported on the social demographics of Northeastern women who delivered infants with microcephaly – in Espirito Santo state, 68% were living in peripheral areas and lacked post-partum care or option to return to employment (Freitas et al 2019). Many of the families that were disproportionately affected by Zika infections and CZS are reliant on the national health system and government assistant programs (Souza 2018, Lesser & Kitron 2016).

There is more to this region that is often missed when viewed through the lens of abstract space, representations of risk distribution and population demographics. Recife also has a strong progressive tradition with generations of people defending human rights and citizenship. Home to Brazil's first abolitionists as well as Paulo Freire, the Brazilian philosopher

and educator who pioneered an unorthodox approach to literacy linking education to citizenship building. Freire developed theories on educational science and literacy campaigns, while director of the Pernambucan Department of Education and Culture. Freirean methods were applied in practice, where 300 sugarcane workers learned to read and write in just 45 days (Freire 2000, Gadotti & Torres 2009). This history of political movements leaves a legacy of counter-knowledge production within socially liberal traditions of popular education, agroecology and reform movements, and the Liberation Theology movement. At the time of the 1964 military coup, Recife had a socialist government that was supported by Freirean methods of popular education. Following the coup under the dictatorship, many progressive figures left the country in exile, yet retained home connections while finding new ground with other social health movements abroad. As a result, Recife remained a focal center for social health movements and political dissidents, since many activists established civil society organizations with international collaborations while away or following their return.

As a result, Recife has some of the most effective and innovative civil society organizations in the world. Political subjectivities have emerged, shaped by differential impacts to spatial practices within a region that has been defined by extreme climatic and public health crises. Pernambucan popular movements have responded to a trifecta of threats to health in water scarcity, food insecurity, and pervasive violence – by organizing collectively for survival. In fact, many argue that the only effective efforts to mitigate the Northeast's unique challenges have been through community-based organizations. Zika outbreaks in 2015-2016 overlapped with an extended period of drought in Pernambuco state, considered one of the worst in Brazilian history. According to Avanildo Duque da Silva, an important member of the agroecology movement and community organizer within social sectors that address drought and poverty, droughts have been treated as a positivist phenomenon that parallels similar thinking with Zika virus (Mier 2018). Consequently, discourse and reactionary policies have been limited to how to 'fight' the droughts that resulted in concentrated water, and thus power, in the hands of the few. Duque da Silva helped found the *Articulação do Semiárido* (ASA) – a network with relational ties between a coalition of rural workers unions and Catholic church organizations across the Northeast. These ten states share a common political history and experiential knowledge of the Northeast's semi-arid biomes. He argues that the social policies and network of community organizations were key to alleviate issues with social and economic instability and thus health:

"When Brazilians talk about the organized left, they usually refer to the social movements, labor unions, and the organic intellectuals who support them. There is another category of civil society, however, that has a positive influence on advances in Brazilian society, the … NGOs … [in fact] the Catholic Church's liberation theology movement had a big impact in the formation of some of Brazil's best organizations are still active today, including *Centro Nordestino de Medicina Popular* – or the Northeastern People's Medicine Center." With this last drought, it was the "first time anyone could remember, we didn't have riots, looting or mass internal migration. Infant mortality rates in the region are very high due to the food insecurity caused by the droughts and by diseases that contributed to the mass exodus to other regions of Brazil and 500% population increases during the second half of the 20th century in cities like Rio de Janeiro." In Recife and other areas across the Northeast despite uneven power relations and access to resources, new collective forms of organizing shape the social spaces and possibilities produced for positive transformation of health conditions."

Recife has a history of radical feminist movements, whose militancy stems from engaging arguments, methods, and struggles from both left parties and women's groups. Engaging with social and gender inequality, sexuality, and reproductive health, especially in the Northeast, *Mulheres nordestinas* must navigate a myriad of risks to public health and safety related to gender inequality, limited labor and economic opportunity, and threats to their bodily autonomy along with everyday violence on a regular basis. Women represent a significant portion of migrant labor in the agricultural, informal domestic, and service economies; women of color and Afro-Brazilians of the popular classes and working poor are especially vulnerable. According to the Brazilian Institute on Applied Economic Research (IPEA), a report from the *Atlas of Violence* showed that over 70% of the homicides involving women – also known as feminicide – were single women, where 66% of those feminicides were Afro-Brazilian, mixed *parda*, and women of color. Unplanned and unwanted pregnancies are common, where in a national survey reported that around half of Brazilian women did not want to be pregnant, would have preferred to wait longer or not become pregnant at all (Leal et al 2014, Brandão & Cabral 2017). Many pregnancies are unplanned, as many as 60% of pregnancies in one study population, and delaying pregnancy and bodily autonomy may not be an option (Borges 2018, Diniz 2017). Barriers to access to contraception, poor sex education, and the cultural context of hyper patriarchal mentality or machismo and gender violence. For context, Carla Moura Lima worked as a *Ouvidoria Colectiva*, and functioned as an ombudsman for communities on rural and urban health issues to the Brazilian Ministry of Health. Born and raised in a *favela*, she spent much of her adult life working as an health educator in urban peripheral communities as well rural Afro-Brazilian communities across the North and Northeast. Part of the generation whose activism was shaped by the popular movements for Sanitation health as well *Movimento Negro Unificado* (MNU), she draws on her memory from the conferences in 1988 and also describes the challenges that women face from these communities – o *machismo é muito grande*.

Seja era a trinta anos como poder **entrar o movimento**. Daqui? No cidade? Seja imagina nas comunidades rurais. Embora ela tem o direito do trabalha e *Estratégia das Famílias*. Ainda é a muito machismo.	Whether it was thirty years ago how to be able to **join the movement**. From here? In the city? Be imaginative in rural communities. Although she has the right to work and the [Brazilian] Family [Health] Strategy. It's still very sexist.

Since then, the dynamics of neoliberal capitalism have had distinctive impacts on the spatial practices in countries of Latin America. While there may be a multiplicity of collectivized forms resisting the social effects, the plurality of women's experiences are often concealed. Elaborating on the distinctions from liberal movements across the North Atlantic, Veronica Schild argues that feminist movements in Latin America were shaped by different forms of patriarchal power relations that produced characteristic ideologies often as "reconfigurations of pre-existing currents – socialist, anarchist, Catholic, liberal — with traditions of activism, research, and cultural interventions stretching back to the nineteenth century" (Schild 2015, p 62). In response to the combination of social inequality and US interventions in the 20th century, social mobilization by feminist groups assumed different forms in their calls for action, inter-class solidarity and popular education as a tool for change. These forms and approaches utilized critical teaching methodologies popularized by Paulo Freire's the *Pedagogy of the Oppressed* to encourage learning through dialogue between students and

educators that valorized culture and empowerment. Freirean methods became widely used, as the *lingua franca* for feminist NGOs and other community-based models of engagement in the eighties.

Sources and paths, articulations, social networks
As a civil organization historically rooted in community and care, *SOS Corpo* - or SOS Body - was established in 1981 as a space that grew out of the need for women to discuss sexual and reproductive rights. They deployed Freirean techniques – for instance with 'circles of culture,' or *rodas de conversas* – in adapting basic feminist curriculum and public workshops around issues related to women's sexuality, law and intimate partner violence, parent-child relations – for use with women from rural and urban areas. *SOS Corpo* have established roots in connection to working and poor communities of color. *SOS Corpo* also provides outreach and information on sexually transmitted infections, discussion groups on family planning and resources. They were one of six NGOs in March 2016, along with other community stakeholders, who were invited to participate in the "Zika Situation Room." The Zika Situation Room or the "Situation, Action, and Articulation Room" was formed by local and international authorities to connect to community stakeholders in urban planning, basic sanitation, and dialogue around sexual and reproductive health issues on maternal, childbirth, and human rights.

In this intervening time, *SOS Corpo* continues their community-based work in response to socially produced Zika-related risks and ongoing advocacy for reproductive health rights, as well as, organizing around persistent issues, in terms of class and race, that result in the gender and socio-economic marginalization. Importantly, debates extend beyond academic circles to include actors from NGO and organized civil society already working with women who come from peripheral and working communities in Recife. As part of a regularly occurring series, *Fontes e Veredas*, I attended one of their community workshops in August 2019. Multiple crises in the form of economic, political, social insecurity and public safety – buffeted Brazil since 2013, marked by the worst recession in Brazilian history. Taken from an annual survey of citizens in eighteen Latin American countries, the Latin American Public Opinion Project (LAPOP) or *Latinobaróme,* found that Brazilians' support for democracy and its government faltered. These surveys seemed to reflect a profound loss of faith in the government's legitimacy, contributing to the concerns that Brazil would return to military or authoritarian rule. Although the Northeastern has historically supported the PT and progressive politics, these workshops reflected the political tensions between the neoliberal state of Brazil's democracy and developing political strategies and collective responses.

This session was entitled *Ruim com ele, Pior sem ele*, or "Bad with him, worse without," facilitated by community educator and organizer, Verônica Ferreira. Stretched over three evenings, registration was open to the public and free, where space was prioritized for locals and stakeholders from *SOS Corpo*'s main service communities – young Afro-Brazilian and women of color. The workshops were held in the evening in the middle of the week, and they also provided bus fare if needed. I hoped that by joining these conversations, I could learn more about the distinctions in the way that *SOS Corpo* relates to *Saúde Coletiva* in its approach to health and health systems strengthening. Making my way to their community cultural center, I arrive at the gate of this unassuming building from a busy arterial street, pulsing with cars, motorbikes, and city buses at peak time in the Madalena neighborhood.

Figure 4.3*.* SOS Corpo Cultural Center and Representational Spaces
Source: Lisa M White

Nervously entering the main room, I settled down onto the gray plastic chairs, taking in the bright chatter and different elements of their community space. In the corner, there was a coffee maker and small plastic cups for water or hot drinks. There were postings for organized community action to pamphlets on how to connect to *creches* and preschools; I grabbed a few. The space was arranged in a colorful and intimate way with chairs loosely arranged in a semi-circle and four 3x2 foot sheets of paper taped to the wall that we later used for mapping out concepts around the state, different forms of power and how they related to each other. There was an inner *quintal* or courtyard with doors that opened up to its small garden, where the sounds of the street or bell chimes would intermittently punctuate our discussions. *SOS Corpo* also hosts cultural events with music and, although not set up on this night, there was a small stage for performances.

Organized in a spatial practice around the *roda de conversas or* "circle of culture" methods used by Paulo Freire, our group began with 40 participants and condensed to a group of 22 by the last three hours of our workshop. The size and space allowed us more time and space to parse out differences and contested elements in discussion. Based on a random survey from how people chose to identify themselves in conversation, the group consisted of all women, ranging from young adults to older women into their sixties. Participants reflected their social positions in their questions or responses to other participants. There were a number of students, community health agents and social workers, as well as a few professionals. One participant was a lawyer and especially vocal, at times managed the discussions by correcting or defending interpretations against a larger group consensus. I also met a public health researcher, Ana Paula, who helped organize the public meetings for the Zika Situation Room, mentioned above. We spoke after the meeting, and when I described

my research interest in *Saúde Coletiva* as it related to Zika - she responded, “I do this research in *Saúde Coletiva*” and traded contact information.

In an effort to understand *Saúde Coletiva* and its relational space created here in Recife with its pertinent Zika-related health risks, I highlight three important themes that emerged from the culmination of our three-day workshop. These themes centered on three broad topics: first, discussion of contested reproduction and sexuality, especially in terms of the family, hygiene, and class-based stigma or racism. Also, discussions that engaged in phenomenological accounts of violence and identity – and this could include structural violence to the banal and experiential. Finally, the context of this workshop centered the ongoing crises of neoliberalism and the politics of social austerity in public health.

Framed in this context, we began by reviewing the role of state and methods that are used to reinforce social norms, culture, and governing ideologies. Through power relations, the state reinforces differential social and economic realities in different classes based on labor, formal and informal with access to resources, knowledge, and cultural codes. Throughout this discussion, participants repeatedly described relationships with an idea of separation or disassociation. which either described the administration making decisions on public health or social issues removed from the realities experienced by the broader populace or the separation of the political body from those who represented the Brazilian people. As one participant suggested - *o governo é um positivisto instrumento do estado* - the government is the positivist instrument of the state, and the ultimate locus of social force that becomes a sharply decisive point of concentration for all power in society.

Our discussion turned towards the idea of shared national identity, while wrestling with the state as a symbolic representative of the “will of the people” versus an administrative space for citizens to direct. The actual implementation and acts of carrying out the “will of the *o povo”* is done by state representatives, while decision-making, expressed preferences, and demands are limited to options, ideas, and policies that are voted on. Although this may seem like circular thinking, James Holston offers perspicacious points in writing on the peculiarity of citizenship and comprehending societal standing as members of society. While “the state is an association, it is also an association of associations [wow] that establishes the rules of other associations, and [ultimately] regulates their membership” (Holston 2008, p 21). The group questioned whether this existed as an idea of *o povo*, or the Brazilian people. Despite changes to the structure of political representation formulated in the 1988 Constitution, where social control, various mechanisms and levels of direct participation in government, participants lament that state representatives remain unchanged. By the privileged nature as political citizens, power is largely concentrated in oligarchic classes with ties to private business in finance/technology or agrobusiness. After much back and forth, the state and its policies are created, instead, through conflict and social disputes. As one participant elaborated, although the idea of one common Brazilian identity can seem, at times compelling, especially given the various forms of propaganda and indoctrination throughout society. By the end, *o povo* does not exist. Brazilian society is separated into social classes, there within women are stratified into different social classes, with differences in hierarchies of race and how groups are racialized which in turn impacts their political subjectivity and capacity in social spaces. Especially considering this point in time, which was late 2019, following in quick succession - in the aftermath of a soft coup that displaced Dilma Rousseff

with Michel Temer, and then followed by Jair Bolsonaro. Reflected what was described as ultra-neoliberalism. If our understanding of neoliberalism involved minimal involvement by the state, the group argued that there was no such thing. Tension between institutions and practices created during the democratic transition including the terms of the transition to a neoliberal state (including the local, social forces) are extremely relevant to understanding the formation of *Saúde Coletiva.*

Embora no neoliberalismo, para o Estado mínimo … Na verdade, não existe, menos o Estado. O que vai existir **menos direitos**, **menos políticas,** **orientadas para ... para os grupos** ... da população da maneira geral.	Although in neoliberalism, for the minimal state ... In fact, it does not exist, minus the State. What will there be **less rights**, **less policies**, **oriented to ... to the groups** ... of the population in general.
Mas o Estado, inclusive as forças do Estado vai continuar ser muito importante para social dominante manter isso no poder, né. **Então a gente não tem** **capitalismo *sem* estado.** **Não tem neoliberalismo *sem* estado.**	But the State, including forces of the State, will continue to be very important for the dominant social keep it in power, right. **So we don't have** **capitalism without the state.** **There is no neoliberalism without a state.**

Despite this, this separation did not preclude opportunities for collective action and organizing, and our discussions cantilevered between these examples of disassociation and collectivization - *São ligação as coisas que a gente tem crieu* or through the material connections that we have created.

Collectivação ou Separado

In the second theme, our group discussion raised questions over gendered division of labor and carework, as well as the terms of citizen engagement and participation under neoliberal reforms. We talk about the distinctions between living under a system of neoliberalism, which emphasizes the rational actor, consumer, and extreme individualism compared to life under liberalism. The group wrestles with two interpretations for the role of citizen engagement. Historically, state-guaranteed rights are achieved through contestation with the state and other actors, namely the political elites with property, power, and other financial relations to market, translating to material forms of control and privilege. Yet with the Brazilian system, there is an important focus on *Saúde Coletiva* - in this case the group used the word *Saúde Comunidades* or health reforms for urban communities from the favelas. The group says that there is something that is universally political about health organizing from the favelas. Reflecting this discussion and my conversations with Carmen in the Arranjos da Penha, Teresa Caldeira and James Holston and their analysis of citizen participation in democratizing and neoliberal projects in Brazil are helpful here. Neoliberalism uses this organizing in a focused way, and then connecting to Holston, "although technically based in the legislation of urban incorporation [or social integration], the popular concept of periphery … referred to politicized residential conditions of poverty, administration inequality, illegality, mobilization, and urbanization" (Holston 2008, p 151). Both informed paradigms of citizenship participation that were wrapped up together, that it is challenging to discern one from the other since they

both require an active citizenry and politicizes participation, albeit in different ways. Distinguishing between popular participation versus organized yet individual citizens, Caldeira points to the question of social justice and the ways that political and legal advances confront structural legacies in substantive ways – or enterprising citizens can fill in the gaps that "neither the state nor the market has a responsibility to ensure an equalization of capacities among citizens to do so" (Caldeira & Holston 2015). In this point, Holston uses Brazil as a model to understand "how citizenship and legal practices that fail [to provide durable] changes to the structure [will] only legitimate and reproduce inequality," which then offers insight into the "resilience of [the Brazilian] regime of legalized privileges and legitimate inequalities (Holston 2008, p 4).

A gente enfrentou ao contrário

In the final theme, conflict and identity – and this could include examples of structural violence to the banal and experiential. The group discussion centered around whether the modern state is, in fact, neutral and secular, while the earlier speaker suggests these are experienced together. Reinforcing what was said by Veronica Schild, "Latin American feminist practices remain entangled within hierarchical social relations, [where] solidarity often takes the form of educated activists helping 'other' women that … reproduces structural inequalities of class and race" (Schild 2015, p 65). There were several points along the third day where the discussion continued to return to objections made by participants in relation to Afro-Brazilian religions.

In the past, the Catholic Church and increasingly the Evangelical church have heavily influenced the production of social norms and heteronormative morality that have been naturalized in the social structures of the family, its hierarchy, and marriage. The influence of religion - specifically Catholic and Evangelical churches - are incredibly strong to the detriment of human rights and public health. During this time, Brazilian politics were increasingly influenced by ultra-conservative evangelicals and Catholics, where Dilma Rousseff's second term was narrowly confirmed, partly through pledges and support from these socially conservative entities. Their influence on politics also bled into social, reproductive health, and education policies, especially as a backlash against the legalization of same-sex marriages and progressive social changes related to gender and LGBTQ rights (Neiburg & Thomaz 2020). A number of key political figures in this time were either heavily pressured by or owed their electoral mandates to the political support afforded by these powerful right-wing groups, such as the Universal Church of the Kingdom of God (*Igreja Universal do Reino de Deus* and an array of Baptist, Presbyterian and Methodist denominations). In other terms, political leaders who were also pastors who were quite vocal about their homophobic stances, were appointed leadership positions in the Legislative Chamber's Commission for Human Rights and Minorities.

Foregrounding a Lefebvrean sensibility for analyzing the rhythms in these moments as well as the "spatial practice embraces production and reproduction, and the particular locations and spatial sets characteristic of each social formation [thus] ensuring continuity and some degree of cohesion … in terms of social space, and of each member of a given society's relationship to that space, this cohesion implies a guaranteed level of competence and a specific level of performance" (Lefebvre 1991, p 33). In conversations, the participant who was the lawyer continued to reinforce a correct legal interpretation of the separation

between Church and State in Brazil. In these moments, I was struck by how insistent she asserted that her views were unilaterally correct. But also the number of times that different participants continued to raise questions and concerns framed from an Afro-Brazilian perspective on the blurriness between Church and a secular state. The lawyer proceeds with a rational defense of the separation between church and state – "*porque a religião é uma construção* (religion is a construction)" and "*a fé é um dogma* (faith is a dogma)." This is then punctuated by moments of confusion, hesitation, and nervous laughter by multiple participants. Then, an increase in different attempts by participants to clarify the differences between this idealized, legal secular state and the reality that exists for many in Brazil. The facilitator interjected to dissipate the atmosphere while creating space to discuss, saying that these were all complicated ideas and would not all be resolved in one discussion. Eventually, one of the participants resolved the confusion through a clear and systematic denunciation of the idea of a secular state in Brazil, with references to historical structures, exceptions made in the name of culture, while prohibiting and even demonizing Afro-Brazilian culture and religious patrimony.

These interactions were curious for me as an outsider, because they highlighted an atmosphere which allowed people the space to articulate, sometimes difficult to express or unpopular ideas, where "symbolic representation serves to maintain the social relations in a state of <u>co-existence and cohesion</u>. It displays them while <u>displacing them</u>, thus <u>concealing</u> them in a symbolic fashion" (Lefebvre 1991, p 33). In the participant's monologue, she highlighted points that would have gone on in silence or missing. Drawn into contestation, she makes points that were both class- and race-driven. While these comments were both satisfying to some, they also disturbed the feeling of status quo in the room, despite the fact that we had been describing the state in similar terms previously. But the quickened sounds of chairs shuffling and nervous agitation, the participant proceeds with "the state is racist, but fundamentally Brazilians are racist... racism in its historical and social form. Therefore, this racist ideology, fundamental aspect of the Brazilian. But it expresses organizational, racist idea in all fields, including religion. This idea that... understand … if secular, but how confusing it was before that everyone was Catholic. Also, the racist part about making religion invisible - do you understand?" She makes another point about Afro-Brazilian religions including Candomblé and Umbanda, where despite the secular modern state that protects equal freedoms to practice – "*a gente enfrentou ao contrário da proteção altíssss-imo* or we have confronted and face the opposite of this protection. There was an emphasis and rising intonation which played on the irony or exposed the reality despite the national story of a Brazilian racial democracy. She continues to elaborate on different aspects of Afro -Brazilian religions that have also been an important political force through the Black Movement against Racial Discrimination in Brazil.

Reinforcing the complexity of these discussions, I bring Zika back into the mix. Where within the first week of Zika PHEIC, then-President Dilma Rousseff reached out to various civil society and faith-based organizations to "join the fight" against Zika. She met with specifically the Unified Organizations of the Evangelical Christian Churches. Strikingly, there was no evidence of a similar meeting with Afro-Brazilian religious leaders from Candomblé, Umbanda, or other groups. Considering the important role played in cultural translation of public health knowledge for the HIV/AIDS epidemic in Brazil, their absence was very surprising. As Keisha-Khan Perry and Jurema Werneck write, "the centrality of *candomblé* is important … as [these

belief systems] inspire the political formation of a black urban neighborhood located on the geographical and socioeconomic margins of a Brazilian city" (Khan Perry 2016, p 111). As this participant will advocate, African religious traditions are indivisible from Afro-Brazilian women's political actions in the local and national struggle against violent religious intolerance as well as the material resources necessary for health - including water, land, employment, and education (Khan Perry 2016, p 112). However too, we interacted with Gramscian concept of hegemony as a discursive and ideological dominance over the whole society achieved through consent or neutralization of of potential antagonisms. Further, Brazilian studies into femicides or female homicides have demonstrated statistically significant association between the increased incidence of feminicide among young, poor, Afro-Brazilian women in territories with a high prevalence of people practicing evangelical Pentacostal religion in Brazil. Meneghel et al demonstrated in a study of the relationship between femicides and indicators of social, economic, and health situations that religious beliefs often share an identity of traditional values, which limits gendered autonomy and enforced by male vigilance and violence (Meneghel et al 2016, p 2968). Contesting this ideology in session, the participant challenged the assumptions of what is visible or normative which utilize schools, media, other social reproductive relations, and importantly through religion and implications on racial tolerance, gender violence, and women's health.

Chapter 5

Conclusions - The Politics of Saúde Coletiva and Democracy

Writing a final conclusion is usually a difficult task with multiple purposes. The aim of my research was to analyze how community level organizing and health work continues to address persistent societal conditions – including gender, racial, and structural inequalities shaped the distribution of Zika-related adverse health outcomes. These community level efforts were identified popularly in the field as *Saúde Coletiva*. While Zika virus has since slipped into endemicity to join the syndemics of co-circulating arborviruses, *Saúde Coletiva* efforts still continue where in Brazil, uneven power relations in political representation and social constructed inequality such as gender and racism – can shape "pathways of embodiment" and impact the population distribution of health. Conspicuously absent from research implementation agendas and policies on health system strengthening were strategies that considered political, cultural, or structural determinants may be necessary for health system strengthening or contribute to health outcome disparities. In the absence of such strategies, these agendas will continue to push a pharmaceuticalization of public health as the most politically viable option.

In this light, I turn my attention to *Saúde Coletiva.* At the time of my first encounter, I was unsure of its history and longer trajectory as a a concept. Again, I revisit this notion of *soft eyes* that I mentioned earlier, which was a description for my active learning and "a way of staying with the [discomfort and] complexity of what was unfolding and allowing what radiates to move us and mobilize new ideas," without fetishizing the process or making dramatic claims to my knowledge. As a non-native Portuguese speaker, I traced the use of this word in the field, through relationships, in my questions, following threads in journal publications, probing strangers and researchers. Ultimately, I understood at least in the field that *Saúde Coletiva* was frankly political, and it involved confrontation or a kind of contestation with power in Public Health. Understood concretely and in the symbolic - *Saúde Coletiva* was began as the social movements that has its interdisciplinary and regional ties to Latin American Social Medicine movements and political roots in earlier Sanitation Health Reform movements in Brazil that converged at the time of the re-democratization in 1988. Triangulating with a growing body of English-translated but also Portuguese, available online, Brazilian social scientists, Teixeira and Sarah Escorel in 1998 characterized the Sanitation Health Movement as (1) a space for the buildup of knowledge; (2) being an ideological movement; (3) being political in practice. However, I would assert that this is the baseline description for movement based on these parameters, because *Saúde Coletiva* continues to shape-shift, but in nonlinear ways as citizens adapt, and sometimes innovate through the subsequent crises. The role of NGOs were important adaptions given the state neoliberalization and timing related to HIV/AIDS in Brazil. As noted above, the Brazilian Response catalyzed new political formations and collectives for social justice and health

parity, and since the 1990s, *Saúde Coletiva* movements can stem from a number of community level partnerships, including NGOs, public-private partnerships if connected to international funding agencies, progressive academic institutions and radiating from health posts of the decentralized National Health System. In fact, I was told that Brazilian Federal Universities that did not have a medical school would have a *Saúde Coletiva* program. Materially, social organizing works to fill the gaps and operationalize SUS and constitutionally guaranteed access to health provisions as a social technology. Conceptually, it is popularly used and can be mobilized as an assertion of citizenship right. But it can be elusive, neither static nor stable. This is partly due to the scale that *Saude Coletiva* operates, the spatial practices and political views on knowledge that distinguish it from public health. Its constitution in terms of representation, depends on the time and circumstances that require collective organizing with other actors, spaces, and shared discourse that would otherwise be excluded from a biomedical, disease-specific response to public health threats. *Saude Coletiva* instead demonstrates an agentive power of the community through organizing and extending social safety networks across uneven territories and histories shaped by colonialism. Importantly, *Saúde Coletiva* centers prevention in light of global public health's tack towards the biomedicalization.

Emergence of a Brazilian Identity Around Health and Citizenship

Recalling a flight from Sao Paulo, I was sitting next to a student, who was Brazilian and returning to the United States for school after holiday. Most Brazilians took an interest and were curious to have a conversation with foreigners, and I noticed they were especially piqued by discussions around health – nearly universally so. I mentioned my project and areas that I visited. "Oh no," he said, "the Northeast is dirty - I don't visit there, because it is not clean." But his response was not an isolated perspective, and this narrative is often reinforced at multiple levels – by the media that reinforces popular opinions about the Northeast through recounted tales of poverty, threats to public safety, and urban disorder. Even though I am not Brazilian, the social impact of these opinions were tenable where I could feel the similar iterations in its cultural hygienist refrain. Beyond the abstract categorization of social determinants of health, I recognized the shaming and stigmatization in casual remarks about hygiene and place.

These early forms of cultural enforcement and policing were important for early Brazilian Sanitation reforms and nationalist projects operationalized in the name of social liberal values of modernity and progress. For much of the 20th century, Brazilians have spent more time under a kind of authoritarian government than experiences with democratic governance. Formally, citizenship rights and access were inscribed in various iterations into earlier constitutions. However, universal and egalitarian application of these rights have been hampered by the persistence of patriarchal logics of exclusion despite the formal law for equality. High modernist nation-building projects continued inconsistently with fits and reversals towards expanding franchise and citizenship to Brazilian inhabitants. In the convergence of the human rights and sanitary reform movements, the creation of the unified National Health System represented a manifestation of the radical social policies of the time of human rights and the Declaration of Alma Ata. Beyond the formality of commitments described in the Constitution and subsequent institutionalization in SUS, *Saúde Coletiva* still remains a work in progress, through [spatial] practices that elevates community knowledge through consultation to actualize, symbolically if not materially as well, health for all, in

Brazilian society. Brazil's transition to a democracy is still a recent memory with members of this generation still alive and participating in the social institutions of governance. However it has been over thirty years since then and with Lula returning to the Executive seat of power at the age of 77 years, it is important to consider what has changed in this time and how or if direct participatory action still persists.

Understanding this history is important for appreciating the longstanding social determinants and organizing against hygienist policies of control sowed in 1) Latin American feminist movements for citizen rights and inclusion of gendered health reform as well as 2) Afro-Brazilian religious movements (Biehl 2007, Garcia 2009, Garcia & Parker 2011, Schild 2015) against hygiene and moral policing by the state. These movements were also important to filling gaps and addressing disparities in the HIV/AIDS epidemic that were amplified through exclusionary practices and human rights violations under the military dictatorship. The iteration of *Saúde Coletiva* stemmed from local, communal health that responded to gaps in knowledge or Zika-related social determinants of health with grassroots organizing for nutrition and food security, or organizing community spaces to discuss the ways that the current administration and neoliberal austerity measures may further limit access to reproductive health or destabilize an already precarious situation for physical security in the Northeast. *Saúde Coletiva* initiatives may recruit technical expertise, for example collective ombudsman for hyperlocal representation, designed into the system to create space for public participation and dialogue. This dynamic confirms the observations of Maria Lugones and her writing on decolonial feminist methods that are "interested in the relational subjective/intersubjective spring of liberation, as both adaptive and creatively oppositional. Resistance is the tension between subjectification – or the forming/informing of the Subject – and active subjectivity: that minimal sense of agency required for the oppressing-resisting relation being an active one" (Lugones 2010, p 746). However, their expertises are used to bridge the phenomenological divide between abstract realities and those lived experiences with the quotidian and experiential, instead of interventions. The ultimate aim of identifying health as a social right was that it concretized access and directed at improving health outcomes of all Brazilians by expanding coverage of health care services.

In Brazil, health and health systems integration are national projects. However, this project must begin with health understood more expansively beyond infectious diseases like Zika or HIV. Protagonists mobilize their community through participatory action to claim rights of citizenship in what is known popularly as *Saúde Coletiva.* Important for the Zika epidemic, for its particular array of social determinants of health and related risk factors, the form of *Saúde Coletiva* that was mobilized was expressly gendered although organizing was not limited to those who identified as women. The demographic and risk profiles (largely younger, unmarried women in precarious social and economic circumstances), and the emergence of Zika in the Northeast also during a time of environmental crisis (El Niño, protracted drought). More research is emerging that reflects the differences and importance of Afro-Brazilian movements and their role in *Saúde Coletiva.* Trajectories of sanitation health evolved in the course of the 1990s that incorporated different social groups who may have been historically marginalized or excluded from social protection and health systems, an after the restoration of democracy in the fall of the military dictatorship, they have gained more visibility. This collective movement is key to understanding both Brazilian responses to a syndemics (synergy between co-occurring epidemics that can be both social and ecological in nature) of

threats to public health & safety as well as its identity that is intimately tied to its colonial and postcolonial history with health at the heart of its democracy.

Emerging from the institutional health system, the concept of *Saúde Coletiva* or Collective Health that combined perspectives and views on health and community, stemming from other social organizations at the end of military dictatorship. Nunes defined *Saúde Coletiva* as a "social, community-based phenomena that are produced, observed, and confronted by society" to address the social determinants of health risks and gaps in care (Nunes 1996). *Saude Coletiva* represents both a historical convergence of social movements as well as community-level extension of social medicine to improving health through organizing and collective action that expands the formations (collective), articulations (arrangements), and reticulations (interconnections). As a movement, it continues to shape and be shaped by subsequent health crises and social changes. Brazilians who organized for *Saúde Coletiva* – also referred to as *Saúde Popular* or *Saúde Comunidades e Mulheres* – have used the constitution as a social technology and tool to transform the conditions that they experience and promote a populist-based health. These approaches focus on the roots of social determinants of health and the broader social and ecological causal linkages at play, aimed at prevention as intervention. I would also suggest that with politics of the poor, any intervention would require a critical pedagogical approach premised upon the idea of producing and exchanging knowledge without hierarchy.

Community health workers and agents are central to *Saúde Coletiva*; their function was also prescribed in the constitution, important for endemic disease control agents with their intimate knowledge of processes and awareness of trajectories that contribute to adverse health outcomes. *Agentes Comunitário de Saúde* are provided training around basic health issues, communication, and health rights through the Ministry of Health. Those who work and write in the field of *Saúde Coletiva* also emphasize the distinctions between knowledge, taking a critical position on reductionism and overreliance on positivism which forms the constructive basis for both western sciences and traditional sanitary practices. In practice, *Saude Coletiva* possesses the following distinctive characteristics:

First, its practices, framing of knowledge, and actors engage with the political dimensions and determinants of health. This requires technical experts to consult with or meet communities where they are or exercising technological knowledge in practice that means letting go of institutional security or relocating in nontraditional settings. There is a clear emphasis on the spatial arrangements of inclusion, culture, and care – especially in education and action. A perfect example of this can be found in the work of Eugenio and Caetano Scannavino and their civil NGO called *Projeto Saude e Alegria* or Project Health and Joy. Dr. Eugenio is a doctor and epidemiologist and his brother, Caetano, is an artist and socially innovates different programs as one of the project coordinators. Serving over 15 thousand *ribeirinhos*, they have worked over 70 riverside inhabitants and communities along the banks of the Tapajos River, one of many tributaries of the Amazon River, for the last thirty years. Many of these small settlements and communities are only accessible by boat, when land formations disappear with the cycle alluvial flooding and roads are washed away as water replaces what was once ground. Since 2006, a team of community health providers and *Agentes Comunitário de Saúde* travel by boat – hospital barges that operate on a 40 day cycle – and provide basic health services specific to women, children, and young adults, oral and dental care, and education.

With careful attention to the Freirean methods that emphasizes local culture knowledge and creative methods to translating medical knowledge beyond the transmission of the technical. They have also helped communities to connect to federal and state resources and programs, for example, building community cisterns for potable water and provide training for local community health agents. This is an exemplary illustration of *Saúde Coletiva*, where key actors are community based and centered in health, discussions and planning, including community health workers, collective ombudsman, or collectivization of leadership.

As its intervention, *Saúde Coletiva* deployed the constitution as a social technology and tool to transform public health, when integrating the political demands for civil and human rights of the social movements, into its practice, rhetoric, and knowledge production. Its action is geared toward preventative and health promotion that can work in partnerships with biomedical approaches that are typically more focused on therapeutic and curative research. Examples of this could be seen with the HIV/AIDS outreach and comic strip created by the Pernambuco Secretary of Health. Also, as a counter-knowledge to public health, *Saúde Coletiva* speaks for the local responses by communities in naming disparities or misrepresentation, missingness, either through gaps in health access or gaps in recognition in an ongoing process of health as social rights. But it has explicit conceptual and practical distinctions from biomedicine and public health that are most succinctly aimed at pervasive and dynamic social determinations – active and dynamic processes – of health.

Discourse of *Saúde Coletiva*

So how does the language and representation of Public Health interface and contrast with *Saúde Coletiva?* By refuting labels of vulnerability and victimhood, the language and actions of *Saúde Colectiva* are inherently political, and its differences can be observed in the social production of space and alternatives to the stigmatizing language of hygiene. Hygienisation should be viewed through class-stigmatized, gendered, and racialized prisms of neglect and policing. It has been used to describe the state-enforced displacement of urban poor, often violently and only serves to reproduce itself in the system if the gaps in social care remain unaddressed. It also maintains an uneven distribution of key resources including care and medical specialty services. This concept of *hygienization* is important for its unambiguous connections with acts of violence and social injustice. Therefore, the social reproduction of difference in community could be understood as following the discourse of cultural geography, by paying attention to living conditions and health of *a gente* – the people who speak in solidarity with the communities living on disenfranchised to the rich density of resources within these urban cores.

Counting as *a gente*

This notion of *a gente* – to become or taken as *gente*, to be recognized fully as a person – possessed an affect that I noticed while in Brazil. First, as a word - *a gente* as a noun, can mean the people or a person (Zilles 2005). Diving deeper into its history and use, sociolinguistics have found that the use of *a gente* is undergoing a process of pronominalization, where the noun is shape-shifting in its regular use and acquiring characteristics of a personal pronoun. *A gente* can be used in the first-person plural (including you and I), second-person singular and plural (including you and also you all). Growing up and surviving in the favelas, one worker tells his story and personal gains made under the PT, where in 2012, he "finally bought a small plot of land, his wife received bank credit to buy

building materials, and he constructed a modest house for his family … 'then I became *gente* … for the first time" (Pinheiro-Machado et al 2020, p 21). Social representation and participation in crafting a national identity around this history and the Brazilian fragile democracy in design – *os povos* – and the ideological challenge in expansion of citizenship rights as social mitigation of economic precarity. In the gradual opening - *Abertura* – of military power, the gathering of democratic movements, *a gente,* were shaped through crisis. "In Brazil, the process of social integration, which [is tied to literacy and] embodies the linguistic process of acquisition of the <u>standard code</u>, is basically related to social mobility and not directly to ethnic differentiation" (Bortoni-Ricardo 1985, p 21). However, the stigmatized dialects and linguistic variables are socially diagnostic markers used to distinguish Brazilian Portuguese speakers based on education, lower-class, and the basis of their rural/urban origins (if applicable). As told by MM, the Brazilian media networks are all owned by a few wealthy families in Brazil, the cultural elites or oligarchies from before the Old Republic. As a student organizer from USFC explained, the media " also play[s] a huge role [in] creating a national identity *uniform and homogenous*," which is socially enforced through status, stigma, and prestige markers. "These are based on the Rio-São Paulo cultural codes" – in *gíria*, phonetic, differences in morphosyntax, recognized as cultural codes and signifiers. All the expressive differences in "language, fashion, ways of living … [convey consumer access and status, where] all the anchors on the news spoke (still speak?) with São Paulo accents." Conversely, speaking among the people and collective solidarity can be named through the social embedding and pronominalization of the word – *a gente* – meaning the people, increasingly used in the 1970s into the 1980s to imply kinship or solidarity with the people (Zilles 2005).

One important point that still sticks with me was the incongruous way our discussions at SOS Corpo point to citizen engagement although it seems like on the surface that engagement based on social justice would be clear. However, James Holston concludes on a related point through his analysis of citizenship in Brazil, which also seams together my concluding thought. After thirty years of ethnographic work through the end of the dictatorship, his realization that the way that Brazilians conceive of citizenship – be it through health, property, privilege – is actually central, and not the consequence of democracy. This is to be understood through processes and practices that are "inherently not cumulative, linear, or even … but always a mix of progressive and regressive … unbalanced, heterogenous" (Holston 2008, p 311). Concluding on these thoughts on citizenship as well as the far-right populist movements activated by the former president, Jair Bolsonaro. Thinking of populism, as well as democracy, is ingrained in relations of representation, which encompass the relations between the state, as representative, and citizen, the represented. Not surprisingly, populism emerges in the "cracks of representative democracy … into economic and social phenomenon that are conditioned by and also mutually organize in dispute with the established politics of the state" (Andrade 2019, p 9) But there is no guarantee that the practice of popular participation will produce social justice or respect for the constitutional principles. Although I had a limited understanding of the political context while conducting fieldwork, it proved to be an unique and pivotal time in Brazilian history: the interim period between 2016 and 2019 encompassed the impeachment of the left-wing president and reversal of progressive politics and ascendance of the hard-right government of Bolsonaro. My research also provides an important insight into the Brazilian health system and social movements for health in the lead-up to the 2020 global pandemic of SARS-CoV-2. For the future, I know that there is more

that I can say and should have said, but I will save those thoughts and questions for the next round in the next time I return to the field in Recife and Rio.

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