Public Health and Epidemics in South America

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Table of Contents

Introduction

This book traces how epidemics and public health have shaped South America from the first colonial encounters to the era of COVID-19. It argues that disease has been both a mirror and a motor of social change: epidemics exposed existing hierarchies while also reorganizing states, markets, and everyday life. Across diverse ecologies—from high Andean plateaus to Amazonian floodplains and Atlantic port cities—pathogens traveled along routes of conquest, commerce, labor, and migration. In response, communities mobilized knowledge and care, and governments built institutions that sought to define who counted, who was protected, and who could be left at risk.

The narrative begins before European arrival, when Indigenous societies cultivated rich medical repertoires rooted in local environments and cosmologies. Conquest violently altered these landscapes, unleashing catastrophic mortality and forcing the accommodation, suppression, and hybridization of healing traditions. Colonial authorities experimented with quarantines, hospitals, and sanitary policing, especially in port centers where imperial trade converged. The arrival of vaccination—dramatically symbolized by the Balmis expedition—offered new tools and new forms of governance, as empires sought to immunize populations while asserting administrative reach.

In the nineteenth century, independent republics confronted the political and sanitary challenges of nation-making. Yellow fever and cholera swept through cities like Rio de Janeiro, Buenos Aires, and Lima, catalyzing ambitious urban reforms in water supply, sewerage, street cleaning, and housing. These projects were never purely technical. They were tied to visions of citizenship, racialized anxieties, and the remapping of class and space. Epidemics justified intrusive policing and expropriations even as they delivered tangible gains in survival, revealing the hard bargains that underwrote modern public health.

The twentieth century brought new alliances between science and the state. International philanthropy and domestic expertise targeted malaria, hookworm, and other endemic diseases, while the 1918 influenza pandemic exposed the limits of fragmented systems. Tropical medicine matured around pathbreaking research on Chagas disease and vectors, while occupational health emerged from mining and industrial frontiers where nitrates, oil, and dust carved injury into bodies and landscapes. Out of this ferment grew a distinctive tradition of Latin American social medicine, which connected illness to labor, housing, and political rights and inspired reforms from clinics to ministries.

Politics mattered profoundly. Authoritarian regimes mobilized public health for legitimacy and control, sometimes expanding coverage while repressing dissent and masking inequalities. The post–Alma-Ata turn to primary health care opened paths for community participation, even as neoliberal restructuring reshaped welfare states, introduced new insurance models, and deepened territorial and class disparities. Nowhere were these tensions more visible than in Brazil’s Unified Health System (SUS), which pursued universalism amid fiscal austerity and persistent social divides.

The early twenty-first century layered new challenges onto old. Activists reframed HIV/AIDS responses around rights and access to medicines; arboviruses such as dengue, chikungunya, and Zika surged through rapidly urbanizing networks; and environmental degradation, deforestation, and extractive economies accelerated encounters among humans, animals, and vectors. Mass migration—especially from Venezuela—stressed border health systems and demanded cross-national coordination. Meanwhile, datafication transformed surveillance: registries, indicators, and dashboards promised timely management yet also politicized numbers and obscured the lives behind them.

COVID-19 was a stress test of unprecedented scale. It illuminated the capacities and contradictions of South American states, the reach of community solidarity, and the enduring consequences of inequality. The pandemic refracted centuries of history: the politics of quarantine and mobility, the stratified geographies of work and housing, the hopes and limits of vaccination, and the contested role of expertise in democratic life. By placing COVID-19 within a longue durée, this book shows that today’s crises are anchored in deep structures—and that the future of public health depends on how societies remember, reform, and reimagine those structures.

Methodologically, the chapters weave archival records, epidemiological data, policy analysis, and oral histories with insights from anthropology, geography, and political economy. The goal is not a triumphalist tale of steady progress, nor a fatalistic chronicle of failure, but a critical history attentive to contingency, power, and agency. In tracing how epidemics have reordered institutions and everyday worlds, the book asks a simple question with complex answers: what kinds of states and communities do we build when we are forced to live with disease?

CHAPTER ONE: Landscapes of Health before Colonization: Indigenous Medicine and Disease Ecologies**

South America’s human story begins in a mosaic of environments so diverse that health looked different from one valley to the next. On the coast, fishermen ate diets rich in protein, while in the high Andes, tubers like quinoa and potatoes supplied calories designed for altitude. In the Amazon, gardens and forests offered a pharmacopeia of plants, some bitter, some sweet, all woven into rituals that made sense of illness. No single “indigenous medicine” existed; there were hundreds, each tuned to local ecologies and social relations. Yet across these systems, health was not only the absence of fever or cough. Balance—between body and landscape, human and spirit, individual and community—was the familiar measure of well-being.

If there is a common thread, it is that illness rarely arrived without a story. A fever might be linked to a disrupted relationship with a river spirit; a persistent cough might signal envy in the village. Healers—curanderos, shamans, yachaks—were part physician, part ritual specialist, part social mediator. Their authority derived from knowledge accumulated over generations and validated by results. Herbal remedies were not taken in isolation; they were administered alongside songs, diets, purges, and sweat baths. These practices were empirical, even if their frameworks were not biomedical. A remedy that consistently reduced fevers remained useful, whatever cosmology explained its efficacy.

Ecology mattered profoundly. In the Andes, high altitude limited certain vectors but posed its own physiological challenges. Chronic mountain sickness, described by Spanish chroniclers as “Andean mal de altura,” was recognized by local populations as an imbalance that could be mitigated by coca leaves, rest, and specific dietary practices. Coca, often misunderstood by outsiders as a vice, functioned as a stimulant, appetite suppressant, and digestive aid in thin air. In the Amazon, insects, snakes, and parasites made the forest both pharmacy and hazard. Local healers tested plant extracts against infections and pain, refining recipes that later became staples in colonial and national materia medica, including quinine from cinchona bark.

Dietary diversity served as a frontline defense against deficiency. Coastal peoples relied on fish and shellfish, sources of iodine and essential fatty acids; inland and highland groups relied on maize, beans, squash, potatoes, and other tubers. The sheer variety of crops cultivated by Andean farmers offered resilience against crop failure, but it also meant that malnutrition was patchy and local. The Inca state, with its Mit'a labor system and vast storehouses, managed redistribution in ways that could buffer

famine but also exposed communities to periodic demands that strained local resources. Health was thus tied to political economy even before Europeans arrived.

Medicinal plants occupied a central place in daily life. Willow bark, rich in salicylates, was used for pain and fever; eucalyptus, though more associated with Australia today, has native South American relatives that were used for respiratory ailments. Cinchona, the “fever tree” of the eastern Andean slopes, became legendary for its bark’s antipyretic properties. Indigenous knowledge described which barks to harvest, how to prepare them, and when to administer them. Healers guarded recipes and practiced careful observation, keeping notes in memory and, later, in colonial manuscripts. This pharmacopeia formed the basis for many later European remedies, even as the indigenous frameworks that shaped their use were often ignored or suppressed.

Ritual and ceremony complemented physical treatments. In the Andes, offerings to mountain spirits (apus) and earth mothers (Pachamama) were part of preventive health, an attempt to maintain harmony with a landscape that could be generous or cruel. In Amazonian communities, healing rituals involving ayahuasca and other psychoactive plants were not merely spiritual theater; they were diagnostic tools and therapeutic strategies embedded in communal support. These ceremonies helped individuals navigate psychological distress, which, left unchecked, could manifest as physical illness. The line between the mind and body was porous, and treatment was accordingly holistic.

Water and sanitation practices varied. Many Andean communities built canals and terraces to manage water for agriculture and domestic use, reducing standing water that might attract insects. Amazonian villages typically situated themselves near water but avoided stagnant pools where mosquitoes bred. Knowledge about safe water sources was passed down, and certain springs were considered sacred and thus protected. Latrine practices existed, but the concept of fecal-oral transmission of disease was not explicitly formulated. Nonetheless, avoidance of contaminated water, when possible, and separation of waste from living areas were common-sense measures that reduced risk in tropical climates.

Trauma and surgery were not alien to indigenous medicine. Skulls from the Andes show evidence of trepanation—holes drilled into the cranium to relieve pressure or repair fractures—with signs of healing that indicate survival. The techniques varied, from scraping to circular cutting, and outcomes suggest skilled hands and careful postoperative care. Wounds from hunting and warfare were treated with poultices, antiseptics derived from plants, and binding techniques. Bone-setting and midwifery were specialized crafts. Midwives, in particular, held respected positions, guiding births, advising on postpartum diets, and managing infant care, forming an anchor of maternal and child health networks.

Healers’ authority was checked and reinforced by social structures. Knowledge

transmission occurred through apprenticeships and oral traditions. Not everyone could become a healer; initiation often involved visions, trials, and the approval of elders. These gatekeeping mechanisms preserved quality but also guarded secrets that could be lost in times of upheaval. Illness and healing were communal events, with neighbors and kin participating in care, food provision, and ritual support. This social fabric was itself a determinant of health, buffering stress and ensuring that patients were not abandoned. It would later be tested by epidemics that disrupted kin networks and scattered communities.

Trade routes served as early vectors for ideas and pathogens. The Inca road system, stretching thousands of kilometers, connected diverse climates and populations. Merchants, messengers, and state laborers moved goods and people, bringing new plants and new ailments. Regional exchange networks in the Amazon facilitated the circulation of medicinal knowledge; a healing practice from one river system could migrate along trade routes. In this sense, South America was not isolated or static. Disease and remedy traveled together, long before Spanish caravels appeared on the horizon. The capacity to adapt—adopting a new plant, reconfiguring a ritual—was part of resilience.

Archaeology and bioarchaeology provide snapshots of health before 1492. Skeletons reveal periods of stress—lines in teeth indicating childhood malnutrition—and signs of recovery, suggesting that communities endured and adapted. In some Andean sites, patterns of anemia and parasitic infection reflect water use and food storage practices. In Amazonian shell mounds, there is evidence of protein-rich diets and repetitive strain from fishing labor. These records are incomplete, but they underscore that precolonial health was not a paradise. Illness existed; so did ingenuity. Populations navigated seasonal scarcity, environmental hazards, and local conflicts while maintaining cultural systems that made suffering intelligible and manageable.

Gender roles shaped health experiences. Men and women often had different diets, workloads, and exposures to risk. Women, frequently responsible for water collection, gardening, and childcare, might face burdens from carrying heavy loads and repeated pregnancies. Yet their knowledge of plants and household medicine made them central to daily care. In some Amazonian groups, men’s hunting exposed them to animal-borne pathogens, while women’s garden work brought them into contact with soil-transmitted parasites. These patterns were not uniform, but they show how health was entangled with labor division and social organization. Medicine happened in the home as much as in the ceremonial space.

Children’s health was a particular focus. Infant mortality, while lower than in early modern Europe, was still significant. Breastfeeding practices, often extended into early childhood, provided nutrition and antibodies. Introduction of solid foods was carefully timed, and certain plants were used to treat diarrhea, a major killer. Rituals marked developmental stages, embedding children in networks that monitored their growth

and well-being. Elders transmitted stories about health—what to eat in certain seasons, which plants to avoid—which doubled as public health education. The loss of children was mourned deeply, but it was also anticipated; resilience came from collective care and shared responsibility.

The spiritual and ecological were inseparable. Illness could be a signal to realign one's life with community expectations or environmental realities. Treatments aimed not only to silence symptoms but to restore relationships. This holistic orientation did not eliminate suffering, but it offered meaning and structure. It also meant that "compliance" with a healer's regimen was easier to achieve when the patient believed in the underlying narrative. Modern epidemiology might dismiss this as placebo, but the social support and behavioral change that accompanied ritual healing had real physiological effects, reducing stress and encouraging adherence to beneficial practices.

Ecological knowledge was precise. Communities could predict seasonal changes, identify edible and medicinal plants, and understand animal behavior in ways that reduced risk. For instance, recognizing when a river would flood allowed families to relocate temporarily, reducing exposure to waterborne diseases and snake bites. In the Andes, knowledge of microclimates informed crop choice and storage, mitigating famine and associated illnesses. This knowledge was not always transferable intact to new ecological contexts, which would later be a problem when populations were displaced by colonial demands. Displacement broke the match between knowledge and environment, leaving communities vulnerable.

Healers also dealt with psychological suffering. Anxiety, grief, and trauma were not neatly separated from physical ailments. Rituals provided a container for distress, and psychoactive plants were used in controlled contexts to confront personal and collective pain. These practices often required preparation, dietary restrictions, and post-ritual integration. In Amazonian traditions, ayahuasca ceremonies were—and are—complex, with strict rules about who can participate and how. The risks were real; misuse could lead to dangerous reactions. But within the proper framework, these ceremonies could be transformative, helping people integrate difficult experiences and return to communal life with renewed purpose.

Food and medicine overlapped extensively. Many plants were both nourishing and therapeutic. Diets were seasonally adjusted, with certain foods emphasized during periods of hard labor or pregnancy. Salt and mineral intake varied by region; coastal groups had access to marine salt, while inland groups used plant ash or traded for it. In the Andes, freeze-drying potatoes (chuño) preserved calories and nutrients through harsh winters, reducing the risk of famine-related illnesses. Amazonian communities used fermentation to enhance food preservation and digestibility. These practices lowered disease burdens related to malnutrition and contamination, even if the mechanisms were not understood in microbial terms.

Labor and health were intimately linked. Agricultural work, hunting, fishing, and weaving all produced predictable patterns of strain and injury. Repetitive tasks led to joint problems, while heavy lifting affected backs and knees. Healers addressed these ailments with massage, steam baths, and analgesic plants, but prevention was woven into work schedules and rest periods. In state labor systems like the Mit'a, the intensity of work could outpace recovery, leading to cumulative health declines. Yet these systems also provided access to communal resources and food distribution, illustrating the paradox that state involvement could simultaneously protect and exploit, a theme that would recur across South American history.

Seasonality structured health risks. In the Amazon, the rainy season brought flooding, increased mosquito breeding, and a rise in febrile illnesses. Dry seasons might concentrate people around dwindling water sources, heightening the risk of waterborne disease. In the Andes, winter’s cold and scarcity tested immunity and food stores, while summer offered abundance but also brought travelers and trade. Communities developed calendars of activities and rituals to manage these cycles, and healers adjusted treatments accordingly. This temporal awareness—knowing when to harvest, when to fast, when to move—was an essential public health technology, long before the term existed.

Food storage and distribution technologies mitigated risk. Andean freeze-drying, ceramic storage vessels, and granaries allowed communities to weather shocks. Coastal societies relied on fish preservation through drying and salting. In Amazonian horticulture, shifting cultivation—often maligned as slash-and-burn—was practiced with careful fallow periods to maintain soil fertility and plant diversity, thereby sustaining dietary variety and reducing micronutrient deficiencies. Misunderstanding these practices later led colonial observers to dismiss them as primitive, when in fact they were sophisticated adaptations. Health outcomes were not solely the product of individual choices; they depended on collective infrastructure and knowledge.

Intergenerational learning anchored resilience. Elders taught children which plants were safe, which waters were clean, and which behaviors risked illness. Storytelling embedded health lessons in myth, making them memorable and meaningful. This system ensured continuity, but it was vulnerable to disruption. When diseases or conflicts removed elders, knowledge gaps emerged. Some communities compensated by intensifying exchange with neighbors, adopting practices from allied groups. Others lost traditions entirely. The fragility of oral knowledge systems would be exposed after colonization, but even before, communities experienced shocks that tested their capacity to preserve and adapt health wisdom.

In some areas, proto-state structures influenced health organization. The Inca Empire’s record-keeping and logistics could mobilize labor and food across vast distances. This capacity had mixed effects: it could deliver resources to famine-

stricken zones, but it also moved people into novel environments, exposing them to unfamiliar pathogens. In Amazonian chiefdoms, leadership roles included managing resource distribution during scarcity, indirectly affecting disease risk. These political arrangements were not “public health” in the modern bureaucratic sense, but they did shape who ate, who worked, and who had access to healing. Political authority and health outcomes were already intertwined.

Foreign observers noted and sometimes misread these systems. Early European accounts marveled at the diversity of foods and medicines but often dismissed indigenous practices as superstition. Some chroniclers, like the Inca Garcilaso de la Vega, offered sympathetic portraits, while others were contemptuous. These perceptions mattered because they influenced later policies. Dismissing indigenous medicine paved the way for coercive assimilation and the suppression of knowledge. Yet indigenous practices survived in hidden forms, embedded in daily life and adapted to new constraints. The precolonial landscapes of health were not erased; they were folded into colonial realities, shaping responses to epidemics yet to come.

A final point concerns the concept of “endemic” disease. Many pathogens were present before colonization but kept in check by ecological balance, immunity built over generations, and cultural practices. Smallpox and measles were not yet circulating; influenza had not arrived; tuberculosis was present but not the scourge it would later become. This is crucial: the absence of certain catastrophic epidemics does not mean health was perfect. It means the disease ecologies were different. When the logics of conquest, trade, and migration reconfigured those ecologies, the results were devastating. Precolonial health was a system finely tuned to its environment—and it was about to be tested by forces that would change the tune forever.

These systems show that health is never only biological. It is ecological, social, and narrative. The stories people tell about illness shape how they seek care, how they comply with treatment, and how they support one another. In South America’s diverse landscapes, those stories were rich, adaptive, and deeply rooted in place. That rootlessness would be the great colonial injury—not only the movement of people, but the severing of people from the environments and meanings that made them healthy. As we turn to the encounters that brought catastrophic disease, we should remember: the Americas were not empty, and neither were they without medicine. They were complex, uneven, and ready to adapt—until the scale of change outstripped even their remarkable flexibility.

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