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ESSAY

One Health as hegemony dispute: An answer from the perspective of Brazilian collective health

One Health como disputa de hegemonia: uma resposta na perspectiva da saúde coletiva

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ABSTRACT In response to multilateral agreements and corporate interests, Brazil began to promote the 'One Health' (OH) approach, contradicting the explanatory model of social determination of the process health-disease, which had been developed in Latin America. The expanded concept on health underpinned the Brazilian health reform and the health chapter in the 1988 Federal Constitution, placing health at the center of social policies and enabling it to face the challenges of contemporary health crises. This essay aims to: recover the history of the OH approach; analyze possible impacts on Brazilian health policy; and warn of possible setbacks in the understanding of health like was before decades prior to 1970. To develop it, the authors conducted a documentary study on the agent-host-environment triad that guides OH to solution complex situations, but without considering that these mainly result from the exploitation of nature and bodies, the precariousness of work and territories. The authors show that OH is a repetition of past formulas and foreign interventions that disregards the sovereign health policy developed in Brazil. In conclusion: Human orientation responds in a functionalist way to the issues of zoonoses and epizootics, and its linearity makes it difficult to act on the complex processes of expropriation of nature and society, ecological collapse, and climate change.

KEYWORDS One Health. Biological science disciplines. Public health. Social determinants of health. Health inequities.

RESUMO *Atendendo a acordos multilaterais e interesses corporativos, o Brasil passou a induzir a abordagem One Health (OH), que contradiz o modelo explicativo da determinação social para o processo saúde-doença, construído na América Latina. O conceito ampliado de saúde fundamentou a reforma sanitária brasileira e o capítulo da saúde na Constituição Federal de 1988, colocando a saúde no centro das políticas sociais, em condições de enfrentar os desafios das crises sanitárias contemporâneas. Este ensaio objetiva: resgatar a história da abordagem OH; analisar possíveis danos na política sanitária brasileira; alertar possíveis retrocessos e repercussões da compreensão da saúde às décadas anteriores a 1970. Para seu desenvolvimento os autores realizaram um estudo bibliográfico documental sobre a tríade agente-hospedeiro-ambiente que orienta a OH a buscar soluções para situações complexas, porém desconsiderando que estas são decorrentes principalmente da espoliação do ambiente e dos corpos, da precarização do trabalho e dos territórios. Os autores mostram que a OH é uma repetição de fórmulas passadas e de intervenções estrangeiras que desconsidera a política de saúde soberana desenvolvida no Brasil. Como conclusão: A OH responde de modo funcionalista aos temas das zoonoses e das epizootias e sua linearidade dificulta atuar nos processos complexos de expropriação da natureza e da sociedade, no processo de colapso ecológico e mudanças climáticas.*

PALAVRAS-CHAVES *Saúde Única. Disciplinas das ciências biológicas. Saúde pública. Determinantes estruturais da saúde. Desigualdades de saúde.*

Introduction

The complex context of environmental interventions resulting from agricultural and industrial models, animal feed production, and ultra-processed foods for human consumption, which are chemically dependent, with intensive use of water and energy resources, producing deforestation, among other harmful effects, has been profoundly affecting ecosystems, favoring zoonotic jumps of pathogens responsible for epidemics and pandemics[1], with scientific and political implications in the context of public health in Brazil.

Climate change and its emergence on a geological scale (Anthropocene), as well as accelerated demographic changes, also affect biodiversity and human health unevenly[2,3].

Studies demonstrate evidence that the pathogen spillovers observed at the end of the 20th century and the resulting emerging diseases observed in the first two decades of the 21st century are events clearly linked to agribusiness and consumption patterns[4,3] which, in the Global South, manifest themselves with greater intensity and inequity. This serious environmental and health situation has sparked interest in various fields of technical and scientific knowledge and in international health agencies, among other diverse interests, both in the public and private sectors, in finding conciliatory ways to address health crises[5].

In this search, since the beginning of the 2000s, initiatives have been taken by entities in the United States of America (USA) to influence this complex situation through an approach called One Health (OH), which presented itself as a 'melting pot' to experiment with ways of addressing the health of populations and animals in the face of diseases resulting from zoonotic pathogens, according to Kahn[6] cited by Wallace[7(231)].

With the COVID-19 pandemic, what had already been formulated since 2004 in the USA as 'One Medicine, One Health', as will be seen in this essay, was then adopted as a global governance strategy, as is also understood by the World Health Organization (WHO). A quadripartite commission was responsible for the Five-Year Plan (2022-2026) to be implemented in the member countries of the United Nations, as will be explained below.

This demand was formally received by the Brazilian government in 2023, but insidiously, it was centralized and foreign to the legislation foreseen in the country since the Federal Constitution of 1988[8] and the Organic Health Law No. 8,080 of 1990[9], in the definition of strategic policies involving the theme of health. In 2024, the decisions published by the Presidency of the Republic became evident: 1) in January 2024, the law that establishes the National One Health Day[10], and 2) in April 2024, the Decree, which renames Unified Health as 'One Health', creates a commission to elaborate the National One Health Plan[11]. The participation of the National Councils of Health, Environment and Food and Nutritional Security; and civil society was excluded from this commission; from researchers in the field of public health and their organizations, who have historically participated in the formulation of national health policy and the development of the Unified Health System (SUS). These organizations remained on the sidelines of this process and only belatedly became aware of the implications of this proposal.

One Health is a contradiction to public health and the Brazilian Unified Health System (SUS)

Originating in the USA in the first decade of the 2000s, and supported by the World Bank and WHO, OH is anchored in a model that integrates the triad of causality between humans, animals, and the environment. It presents itself as an approach to a wide variety of problems related to events, from

the most localized to the most widespread, such as pandemic epizootics, among others[7].

The notion of interdependence between humans, other living beings, and the environment is not new. This understanding has been present throughout time, providing support for public health measures, according to the historical, environmental, social, and cultural contexts of each country.

The multicausal model of the natural history of diseases and the three levels of prevention by Leavell and Clark[12], also developed in the USA in the 1960s, received criticism in the 1970s for its reductionist view, both from the field of Latin American social medicine and from the Brazilian perspective, which was active in universities and research institutes. The triad of the natural history of disease was based on the biomedical model (agent-host-environment) which, in its theory and practice, excluded the socio-environmental complexity of the determination of health and disease and the need for combined actions to address problems in their ontogenesis.

The work of many Brazilian intellectuals, especially the seminal work of Sergio Arouca on the preventionist dilemma, among others, played a strategic role in the original conception of public health in Brazil[13], in the Brazilian Movement of Sanitary Reform, and in the construction of the SUS in the country. These theoretical, conceptual, political, and programmatic formulations, in the Brazilian context, took shape as an interdisciplinary field of knowledge and practices centered around the object of health and disease and the processes of its determination, named and recognized as public health[14]. Certainly, this designation stems from the contribution of critical thought, but it is also even more complex and comprehensive. It is linked to the social and political peculiarities of Latin America, and more specifically to those of Brazil. The model of social determinations was an important metacritical construct for the configuration of the new field of Brazilian public health. These significant aspects conferred upon it an epistemological status, which began to guide the praxeological perspective of a health system as we know it in its legal framework.

This has been strategic for the construction of public policies, professional training, and articulation with other sectors, including civil society, clearly aimed at reducing social inequalities, guaranteeing the right to health, and the capacity for integrated care and guidance of scientific production, in which there is no inhibition of biomedical production in service of public health, which, incidentally, are the most well-funded in the field of medicine.

For this reason, the theorization of the social (also understood contemporarily as socio-environmental) determination of health, amalgamated in Latin America, focuses on the analysis and confrontation of social inequalities in health, being strategic for understanding adverse and complex contexts and conjunctures at the global, regional, national and local levels[15], constituting a cognitive toolbox for operating research and actions on problems involving the intricate relationships between society and nature.

The establishment of the SUS, as a policy and ethical value for Brazilian society, was an extraordinary achievement, considering the political contexts that were unfavorable to structuring public policies in the country. The theoretical and conceptual basis of public health, with its interdisciplinary, political, and reflective capacity, and the consequent historical achievements of the SUS, have faced opposition from sectors not aligned with its principles and guidelines since its inception. These oppositions are currently becoming more radical due to the worsening of various crises—democratic, economic, environmental, and health-related—in Brazil, Latin America, and globally, especially in these first decades of the 21st century, in which forms of exploitation of nature have intensified.

Among the problems of great sanitary relevance, the following stand out: multidrug-resistant pathogens, epizootics and epidemic pandemic, and syndemic zoonoses. These events have naturally intensified the international interest of health professionals, scientific institutions, and governments in addressing these challenges. The private sector and international philanthropy join these debates tactically, either to intervene, to silence dissenting voices, or, from the perspective of disaster capitalism, to profit from offering technological and epistemological solutions without criticizing necropolitics, as Ken et al.[16] cited by Wallace[7].

The implications of this process in Brazil, stemming from its formulation and implementation, raise an alarm, since the SUS, endowed with principles and guidelines — universal, comprehensive, and public — to guarantee the right to health and effective care, is what motivates the elaboration of this essay. It is also concerning that segments, deliberately absent from and even opposed to the SUS, are now empowered by the April 2024 Decree, already mentioned in the formulation of the 'One Health' action plan.

Based on the fundamentals of the field of public health, this article aims to discuss the origins, characteristics, and potential problems of the OH approach, considering ideological, historical, political, institutional, and scientific dimensions, as well as possible threats to its sovereignty regarding the development of metacritical analyses capable of producing interpretive models adequate to the complexity of the social determinants of health, in order to provide political and institutional support to the Brazilian Unified Health System (SUS). Throughout the article, we seek to analyze OH not as a new proposition, but as a process of dispute for hegemony, for the construction of consensuses and worldviews, beliefs, and projects that allow elites to maintain their intellectual and moral leadership as a strategy for the political direction of society.

The insidious process of implementing One Health in Brazil

In 2023, Brazil also held the 17th National Health Conference (17th CNS), a special moment for the reconstruction of health policies in the face of the serious setbacks of the federal government that ended in 2022. As already mentioned, without dialogue with the 17th CNS process, the Ministry of Health did not consider this space legitimate for discussing the approach to OH. Despite this, and during Lula's government, which proposed the resumption of social issues, this topic was treated by the authorities of the Brazilian Ministry of Health with little transparency and care, ignoring the legal order and the necessary social agreement foreseen in the highest instances of health policy definitions in the country, such as the National Health Council (CNS), among other strategic bodies.

The way OH arrived in Brazil has been the target of criticism that focuses on three central characteristics:

1. verticality, disregarding the democratically established processes in the country in the formulation of its health and environmental policies, without a broad debate with the professionals who operate them and ignoring the necessary debate with the entities that have always been at the forefront of health policies in Brazil, especially since its redemocratization, as well as with civil society in general;

2. Use of seductive and all-encompassing narratives, such as 'One Medicine, One Health', 'One World, One Health', which removes the complexity and conflicts of the real world. The name 'One Health' appeals to the unity between humans, animals and nature, even using examples from the worldview of indigenous peoples; however, it does not present a concrete innovative political

development in the way of acting that is not already inscribed in the institutional legal framework of the SUS (Unified Health System) and the National Environmental System (Sisnama);

3. Adoption of a biomedical model already outdated by the historical, systemic, complex, interdisciplinary and intersectoral conception of social determination formulated by Latin American social medicine and public health, since the 1970s[13–15,17,18].

Public health, as a critical concept, inscribed and consolidated within the science, technology, and innovation system (National Council for Scientific and Technological Development – CNPq), postgraduate training (Coordination for the Improvement of Higher Education Personnel – CAPES), and present in the curricula of health professional courses, remains in dialogue with the advances in scientific and technological knowledge developed by thousands of diverse research groups in the country. This field has challenged itself to delve more boldly and less fearfully into the complex themes and problems of contemporary times, including zoonoses, such as the COVID-19 pandemic. In this context, the Brazilian Association of Public Health (ABRASCO), in 2020 and 2021, along with other higher education and research institutions, provided a rich and audacious debate, with proposals for action, despite the denialism of the federal government and the medical establishment, in which the SUS demonstrated its vitality to act at all levels of this enormous tragedy.

Furthermore, it also looks at other issues surrounding health crises, such as violence, racism, working conditions, the precariousness of territories, ecology, the environment, education, the influence of social networks and misinformation in health, health care at all levels and sectors, in short, the socio-environmental determinants of health, intercultural and bioethical dialogue, among others, with social movements, communities and indigenous, traditional, peasant and urban periphery peoples.

However, in a very short time, One Health began to receive support from national entities that previously had little or no support for the SUS, including sectors of agribusiness and corporate segments, such as the Federal Council of Medicine (CFM). Recent positions taken by the Brazilian Center for Health Studies (CEBES) and some intellectuals in public health are willing to seek debate and correct the deviations pointed out[19–23].

In this sense, it is necessary to bring to the debate the issues at stake relating to the epistemic, political, economic, ideological, ethical and practical fields in light of the implications of One Health for health policy in Brazil. The issue of sovereignty seems to be a key issue for this debate, as it concerns its defense against threats to public policies and to the SUS itself, which has been guaranteed in the Federal Constitution since 1988[8] and in the Organic Health Law since 1990[9].

This text will also describe some aspects of how the USA has historically exerted influence on the epidemiological and sanitary surveillance model in Brazil, especially in the control of communicable diseases, inspired by the triad 'agent, host, environment'. Following this, points for reflection will be presented regarding the challenges to Brazil's sovereignty in defending its Constitution and national health policy.

One Health, health and ecological crises: the role of agribusiness in the public health landscape

There is a historical interconnection between public health, agriculture, and the environment. In the last three decades, health and environmental crises have been highlighted by zoonotic epidemics and climate emergencies. It is in this context that closer

collaboration is sought between multilateral intergovernmental organizations linked to these sectors, particularly the United Nations (UN) organizations, among others. For example, the World Organisation for Animal Health (OIE/WOAH), the WHO, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP), the International Labour Organization (ILO), the World Trade Organization (WTO), and the World Bank. Agreements and policies emanate from these organizations, which sometimes overlap with those of member states, hindering the construction or maintenance of sovereign, sustainable, and solidarity-based processes for solving problems within their territories, in accordance with the social and cultural dynamics of each country.

Specifically regarding the ecological crisis and climate emergencies, the process of ecological collapse on the planet has been evident since the 1970s[3]. The environment was first addressed at a United Nations Conference in Stockholm in 1972, and this was expanded twenty years later in Rio de Janeiro with the theme of sustainability. Since then, several agreements have been made, such as Agenda 21, the Paris Agreement, and Agenda 2030. The latter, a plan adopted in 2015, has 17 Sustainable Development Goals (SDGs). However, we have seen that none of these agreements, in general, achieve the established targets.

As multilateral organizations began to question the reasons for the environmental crisis and propose concrete measures for socio-environmental sustainability for development, the contradictions between the interests of each country became more evident. For example, agreements on biodiversity and climate did not have the effective adherence of the USA, which recently withdrew from the Paris Agreement and its financial contribution to the WHO. More recently, this country has embraced the dissemination of divergences and denialism in health policies, such as the anti-vaccine movement. The presence of corporate lobbying aimed at disputing and influencing environmental and health agendas and policies in favor of its interests has also grown, a topic widely denounced at the Conference of the Parties (COP-30) by the social movement.

Brazil is viewed with great interest worldwide regarding the environmental landscape and climate change due to the diversity of its biomes, particularly the Amazon, with its importance in regulating the planet's climate. However, the country, with its increased reliance on primary production, has other economic and geopolitical elements that oppose environmental protection measures, such as: 1) the political power of agribusiness, with the production of agricultural commodities, mainly for animal feed; 2) the damaging ultra-processed food industry; 3) mining with the export of metallic commodities; and 4) the energy sector, which directly conflicts with the prospect of reducing fossil fuel use.

In this scenario, we identified that, in the country, the chemical-dependent, hydro-energy-intensive agricultural model, which consumes soils and destroys forests, has been induced since the 1960s through privileges, tax protection, and deregulation. The resulting consequences are very serious for the environment and health. There is sufficient scientific information that agribusiness has been a sector with great responsibility for the ecological collapse, which is linked to the global health crisis[3].

Historically, at various times during health crises, the USA — as the leader of the Western capitalist bloc — has hegemonized its mode of intervention, especially after the Second World War. In the decades following its end, this influence became even more intense. Initially, through so-called 'philanthropic' foundations, such as the Rockefeller Foundation, linked to universities and research institutions. In the 1960s, 1970s and 1980s, the influence of the USA in Latin America and Brazil was particularly pronounced in the formulation of models for agriculture, public health, science and technology.

In health, there is a focus on sanitary and epidemiological surveillance, strategic areas for economic interests due to their role in the regulation and commercial release of technologies and products, such as pesticides and procedures for their use. Many of these products are of interest to the global market and have been supported by the Bill Gates Foundation, among others[24].

The 1960s and 1970s were quite marked, in Brazil, by the environmental issue: the so-called Green Revolution advanced in the country, favored by the dictatorial regime implemented in 1964. During this period, a plan was developed to condition rural credit on the mandatory use of pesticides, in addition to other tariff subsidies for the production and use of these inputs, making Brazilian agriculture chemically dependent[25], as occurred for medical training, induced by the Flexner/Rockefeller Foundation report, and for agronomists, who also received foreign contributions to support the use of the pesticide technology package.

This orientation, mainly from the United States, is still felt today in the field of health, especially in the control of transmissible diseases traditionally called tropical diseases. However, in the 1970s, a turning point occurred due to the actions of Brazilian public health, which, through solid theoretical, pedagogical, and ethical foundations, supported the health reform process, promoting the SUS and consolidating it in the following years.

Public health has thoroughly examined the relationship between medicine and capitalism, analyzing the commodification of health and its processes of social determination, violence, social inequities, and other complex problems that require a different model of understanding to guide policies. The advances achieved have been significant, especially for a gigantic, diverse, and unequal country. Many barriers remain to be overcome, including those related to the promotion of research and professional training, which continues to prioritize science geared towards business and commercial interests to the detriment of those aimed at meeting health needs and environmental protection, and the absence of professional careers that allow for better problem-solving within the health system. Within these demands, there are disputes that permeate policy definition and require, for example, permanent action from public health amidst conflicting interests.

International cooperation and the USA quest for hegemony in global public health: a burning issue of sovereignty

Agencies founded at the beginning of the 20th century that shaped health, such as the Rockefeller Foundation, directed a large part of their activities towards donations aimed at scientific activities of universities and research institutes. There are marked differences in emphasis regarding the operating mode of these foundations[26]. One example was the Rockefeller Foundation's support for teaching and research in the biomedical field in the state of São Paulo, and in the disputes surrounding public health policies in the 1920s and 1930s. According to Faria[26](562),

> The movement for the implementation of a public health system and research institutions in Brazil presented significant regional differences during the First Republic. The areas of activity of the Rockefeller Foundation, in a way, reflect and reinforce these regional differences. Some states, due to their favorable economic and political situation, ended up receiving priority treatment from the foreign institution. This was the case of São Paulo.

The health model conceived and promoted by private foundations linked to the American medical-industrial complex, initially presented more as a pedagogical than paradigmatic

proposition, but with a claim to hegemony, was conceived by Abraham Flexner in 1910 and supported by his brother, Simon Flexner, a pathologist and Director of the Rockefeller Institute for Medical Research[27]. Abraham Flexner went on to direct the General Education Board, the Rockefeller family's philanthropic organization for education.

The purpose of citing the Flexnerian model in this article is solely to exemplify the modus operandi of the USA in exercising its hegemony in the field of public health and professional education, particularly for physicians.

The reform of medical education in the USA after the Second World War, another aspect of the Flexner report, was that of preventive medicine. To disseminate this, several events were held in the USA and Latin America, under the special sponsorship of the Rockefeller Foundation and the Pan American Health Organization (PAHO)[27]. Almeida Filho[27] provides a historical overview of Abraham Flexner's contributions and justifies the reasons for his refutation in the 1970s and 1980s, periods of struggle for the redemocratization of Brazil, of training in public health, and of the construction of the SUS. In this 2010 article, the author polemicizes the topic by concluding that the proposition of public health unfairly antagonized the Flexnerian model, by seeking in a 'mythical way' to overcome the conceptual framework or the reductionist positivist theoretical matrices, which induced authoritarian forms of management that converged in biomedical models of training and practice in health. However, criticism of the Flexnerian model and that of Leavell & Clark was also strongly made by other international thinkers[28-30].

With the end of World War II, the USA gained enormous economic and political preponderance in the Western world. After a period of attempted reorganization of its health system in the 1950s, it maintained its tradition of keeping prevention and assistance actions separate, as well as surveillance and care, which drastically influenced health surveillance in Brazil to this day. Sanitary and epidemiological surveillance in the USA constitute what is called public health, mainly focused on controlling epidemics through the more hygienist approach of 'cleaning the environment'[31].

It is up to medicine to identify the transmission agents, diagnose and treat communicable diseases. The neoliberal framework of this assistance is based on individualism, free choice and market laws[31]. In the dominant division of the market, preventive aspects (generally less profitable) remained in the hands of the public sector, and curative aspects in the hands of the private sector. This, through assistance plans, which were created at the beginning of the 20th century and consolidated as the purchasing power of the middle classes improved after the Second World War. The European inspiration of the welfare state never influenced American society. The freedom of choice, so defended in this system, is limited by the consumer's pocket, making access to health care in that country profoundly unequal[31].

Vicente Navarro[32] points out that, in reality, the problems of insufficient coverage and high costs of this system are rooted in the private and for-profit nature of medicine. Despite the ineptitude of this system, the USA prescribed its restricted and fragmented health model to other countries, especially in the Americas, through the promotion of philanthropic foundations.

It is also necessary to clarify that in the US, public health is limited to the Centers for Disease Control and Prevention (CDC). These originated from the Center for Communicable Diseases, initially dedicated to malaria control. In 1951, concern about a potential biological war during the Korean War led to the creation of the Epidemic Intelligence Service (EIS), with the training, in 1980, of field epidemiology professionals, known as 'disease detectives', in more than eighty countries.

In Brazil, in the 2000s, the CDC trained epidemiologists to establish the Applied Epidemiology Training Program for the

Unified Health System (EpiSus)[33,34] and to create Level 3 (NB3) and Level 4 (NB4) laboratories dedicated to dangerous infectious agents, a topic of interest in addressing potential bioterrorism.

It is interesting to note that, in Brazil, during the military dictatorship in the 1970s, Epidemiological and Sanitary Surveillance was implemented, faithful to the technocratic biomedical origin of controlling communicable diseases and under strong influence from the CDC[35], and that remains essentially the case to this day.

The ecological triad model in the USA and its implications

Historical analysis demonstrates that unicausal models of health lost strength after the Second World War, when industrialized countries experienced a period of epidemiological transition in which infectious and parasitic diseases ceased to be the main cause of illness and death, in relation to chronic-degenerative diseases. The weakness of the unicausal model in explaining diseases associated with the complexity of interacting elements favored the emergence of multicausal models[36]. Among the first efforts to rethink this approach, we can cite the 'balance model, the network of causalities model' and, finally, following Flexnerian modeling, the 'ecological model' conceived by Leavell and Clark[12].

Leavell and Clark[12] thus systematized the theory of the natural history of disease, known as the Ecological Triad — agent, host and environment —, which was announced in 1928 by Wade Hampton Frost, under the name of Epidemiological Triad with the same formulation of relationships: agent, host and environment (Frost 1928/1976)[37].

Although this scheme was an advance over the dominant monocausal model, it continued to represent the biomedical-based functionalist framework of communicable diseases, that is, that there is an etiological agent (pathogen) and a host, in a physical environment that favors greater susceptibility to illness. Leavell and Clark[12(46)] suggested that disease results from a

> a set of interactive processes that creates the pathological stimulus in the environment, or elsewhere, through the host's response to the stimulus, until the changes lead to a defect, disability, recovery, or death.

In fact, this formulation arises as a consequence of the propositions presented in the Flexner Report[38].

Ayres[39] explains that, at the beginning of the development of epidemiology, reasoning centered on the concept of cause. The aim was to ascertain the quantitative variation of health phenomena in populations and to establish the environmental constitution unfavorable to health. As Epidemiology became more formalized, the concept of external environment was replaced by the concept of risk, which in the 20th century progressively became a probabilistic abstraction. The calculation of risk became present in the models that were successively established[39].

Table 1 presents the precursors to the development of the biomedical model of disease causality and its influence on the scientific practice of medicine, as desired by American reformers in the first decades of the 20th century.

Table 1. Precursors of the biomedical model of disease causality in the USA in the first decades of the 20th century

Period	Who	What	Circumstances	Contribution
1910s to 1930s USA	Abraham Flexner, Psychologist and educator. Studied at Johns Hopkins University. Worked at the Carnegie and Rockefeller Foundations. Created an Institute for Advanced Study.	Flexner Report.	Reformist policies in higher education in the USA.	He introduced pragmatic medical education. He disseminated the biomedical model.
Years 1919 to 1938 USA	Wade Hampton Frost, Medical Epidemiologist. In 1931 he became Director of the Department of Epidemiology at the Johns Hopkins School of Hygiene and Public Health (SHPH) in Baltimore, United States. The SHPH was funded by the Rockefeller Foundation.	It outlines the theory of epidemics, which is based on the balance between the agent, the host, and the environment.	To give scientific validity to the epidemiology of epidemic diseases. In the context of the post-Spanish flu and health crisis in the USA	It proposes the logic of the Natural History of Disease. It proposes the epidemiological triad model: agent, host, environment (TE), announced in 1928 and published in 1976. It develops a method to estimate the mortality rate of the 1918 pandemic, known as the excess mortality method.

Source: Own elaboration (2025).

Europe, especially Germany, based on experimental science, exerted a profound influence on Flexner's proposal for medical education reform in the USA. His mission was initially directed towards the USA and Canada and later to Europe, Central and South America. In Brazil, it shaped the curricula of health professionals since the reform of the medical education curriculum carried out after the promulgation of the SUS in 1988.

For Frost, the term 'environment' was used as a generic term to group all elements external to the organism. However, given that some pathogens are transmitted directly from person to person, the understanding was that the host and the environment, in these cases, were confused, a dilemma that weakened his proposition[39]. The solution, then, was to leave the environment extrinsic, focusing only on the agent-host relationship for prevention and care measures. Thus, the cause of the disease was restricted to the etiological agent[39]. Even considered an incomplete model, it was disseminated by the process of worldwide medical education reforms.

The opposition of public health to the natural history of disease model

In the 1970s, in Brazil and Latin America, a theoretical-conceptual field was created to guide and assist the organization of inclusive and equitable health policies. To this end, critical and solidarity-based thinking was mobilized to reconceptualize the issue of prevention[13] in the labor market[40], medical practice[41], causality in health[15,17,29,42], among others.

From then on, a profound debate opened up in Brazil and other Latin American countries about the Ecological Triad model, which failed to recognize the complex processes of social determination of diseases, social inequities, and vulnerabilities arising from poverty, labor exploitation, and productive and environmental processes.

Simultaneously, in that same decade, in Latin America, criticisms of classical epidemiology emerged, moving towards a social

epidemiology contextualized within the complexity of the health-disease process. Thus, the Latin American critical thought proposed a dialogue with other fields of knowledge. Beyond biomedicine, it incorporated knowledge from sociology, economics, anthropology, geography, ecology, demography, engineering, among others[43], thus gaining significant social force, known as the health reform movement, which underpinned the constitution of public health. This also had repercussions in social struggles for public policies, which in Brazil have maintained their vitality to face the challenges presented in the territories, as we saw occur in the COVID-19 pandemic, despite the barriers created at the federal level by the government of the time and the chronic underfunding.

Although this movement initially resonated with European events that began after the Second World War, in which innovative health reforms and formulations guided by the concept of the social determinants of health took place[44], it was in Latin America, from the 1970s onwards, that the understanding of the social determination of health distinguished itself through its more comprehensive formulation based on social reproduction and the complexity of the phenomena involved in the logic of nature and the social.

This powerful formulation has been systematically ignored by countries in the global north. As evidence, the WHO Commission on Social Determinants of Health report, published in 2025[45], made only one reference to the theory of health determinations. Jaime Breilh, a key Latin American author on this formulation, states that, since the end of the 19th century and the first decades of the 20th century, there was a global context that boosted medical scientism. The author explored this theme in his master's thesis in Social Medicine at the Autonomous Metropolitan University of Xochimilco, Mexico[29(38)], where it is stated that:

> The imperialist expansion of the powers, first the European and then the American, developed to a large extent in the tropical regions of Asia, Africa, and Latin America [...] the greed for raw materials and products for agricultural export and the construction of land access routes produced the dispersal of natural elements prone to generating transmissible infectious diseases. The imposition of inhumane forms of production and labor, and in general of social reproduction, became cheap solutions to mitigate damage within the limits of capitalist interests. Investigations into so-called tropical infectious diseases fit into this model. Thus, in these centers of power, with the technical and financial backing of large monopolies, investments were made in medical schools and microbacterial research institutes [...]. The hidden premise of this type of medical development was, and continues to be, that aggression against human beings attributed to supposedly natural causes exonerates the dominant social organization from responsibility.

Another important question that interests us to point out concerns the crisis in health care in the 1960s, with the emergence of 'community' medicine, a significant turning point in the characteristics of health practice and in questioning the role of medicine in social formation processes, which motivated positive experiences in various territories[29].

The One Health approach's return to the agent-host-environment triad and its adoption by the WHO

Despite the vitality of public health over the last few decades and its successful influence on public health policies, professional training, research development, and technological innovations, in Brazil, paradoxically, there seems to be an inverse trend, due to a unilateral governmental decision, towards the incorporation of the OH approach. In Brazil, since OH

arrived in parallel with the advances achieved in its health system, it is necessary to examine how this proposition and its mode of operation are being implemented in the country.

As is well known, zoonoses have always been part of public health action, including intersectoral collaboration with shared responsibilities among various agencies. In Brazil, the health of wild animals is overseen by the Ministry of the Environment (MMA), while the health of animals involved in intensive meat production for human consumption falls under the responsibility of the Ministry of Agriculture and Livestock (MAPA), including the production of feed for these animals. This Ministry defines the list of animal diseases and regulates the activities of veterinarians in the production process related to livestock and animal health care. Regarding human health, the Ministry of Health monitors animal reservoirs and vectors of zoonoses, epizootics, and arboviruses. Some examples of intersectoral collaboration involving coordination between agencies include actions related to yellow fever, Chagas disease, rabies, and, more recently, avian influenza and the COVID-19 pandemic, which marked the first quarter of the 21st century.

The World Organisation for Animal Health (formerly OIE, now called WOAH) played a fundamental role in shaping the OH approach. It is an international body created in 2003 as an offshoot of the former International Office of Epizootics[46]. The standards, guidelines, and recommendations on animal health issued by the OIE are designated as a reference on animal diseases and zoonoses and play a significant role in controlling trade in animals and their byproducts (including beef), which are a potential source of disease-causing agents in animals. It also has the mission of providing standards under the auspices of the World Trade Organization (WTO) and is a reference for the WHO.

In 2003, events took place that sought to develop the approach to OH. One of them was the Animal and Human Health for the Environment (AHEAD) program[47], launched at the 5th World Parks Congress of the International Union for Conservation of Nature (IUCN) in Durban, South Africa[48]. The issue raised at this event was the transboundary problem related to livestock farms and wildlife in parks; its objective was to find collaborative ways to address the challenges at the interface between wildlife health, livestock health, and human health and livelihoods. This congress is held every ten years by the IUCN[49].

The year after the 2003 winds, in September 2004, the Wildlife Conservation Society (WCS) held a symposium hosted by Rockefeller University, with the aim of establishing an approach to the interactions between people, animals and the environment in the field of health. Representatives from several organizations participated in this event: WHO; FAO; CDC; National Wildlife Health Center of the United States Geological Survey; United States Department of Agriculture; Canadian Cooperative Wildlife Health Centre; National Public Health Laboratory in Brazzaville, Republic of Congo; IUCN Commission on Environmental Law; and the WCS itself, among others[47].

At this symposium in 2004, twelve principles were developed, called the 'Manhattan Principles — One World, One Health', with the approach called OH 50. A series of awareness-raising meetings were held in several countries around the world, including Brazil in 2007[51] and 2009[52]. The brochure shows the list of promoting entities, including business sectors of the food and pharmaceutical industries.

The Manhattan Principles were updated in 2019, being called the Berlin Principles[53]. In this process, the role of the American Veterinary Medical Association (AVMA) should be highlighted, which had, from the beginning, adopted the OH approach as an important mission[54]. This approach has a history of its own construction in the US in the field of infectious disease control. In addition to the World Bank, the promotion of OH has the support of the American Rockefeller and Bill

Gates foundations, as well as others, such as the English Wellcome Trust.

In 2008, the OIE, WHO, and FAO began developing joint strategies regarding the issue of epizootics, working around the OH approach under construction. In 2010, the World Organisation for Animal Health (OIE/WOAH), without citing bibliographic references, developed a Manual on the OH approach[46], presenting a theoretical model of the interactions between pathogens, hosts, and environments, practically with the same formulation developed by Frost (1928/1976)[37] and by Leavell and Clark (1976)[12], that is, agent-host-environment. They propose to represent it by the Ecological Triangle of disease[46].

For the OIE/WOAH, ecology is the study of the interactions of living organisms with each other and their surroundings (environment). According to the OIE, the importance of controlling human and animal diseases aims to "reduce their socioeconomic or ecological impact" and, to this end, they propose, as a treatment, "manipulating the ecological aspects of these diseases"[46].

The ecological triangle of diseases was considered by the OIE "a reliable framework for understanding how the onset of a disease is triggered"[46(9)] and for guiding actions. For this formulation, it is not enough to have the pathogen, as there is a certain 'way' for transmission to occur. It cites as examples the rabies and Yersinia pestis viruses, which "need to remain in some kind of animal reservoir from which transmission operates"[46(9)]. As for 'environmental factors', they are referred to as numerous, but there are those that facilitate the transmission of each pathogen to a new host[44]. As for the host, it "will be infected, or not, depending on its immune status"[46(9)].

The OIE concludes, in the end, that "these factors form part of the cause of a disease"[46(9)], and that

> these same factors will equally determine whether the appearance of a disease will affect few or many host animals or whether the disease has been recorded only once or will be recurrent[46(9)].

In addition, it states that environmental factors and changes in hosts are the most influential factors in whether or not a disease appears, as well as its magnitude and scope[46(10)]. As can be seen, the entire formulation is centered on the disease and causal 'factors'. In 2021, a 'High-Level Expert Panel' was created, under the influence of the OH approach, to provide scientific and policy advice to international organizations.

Following COVID-19, the WHO established a new international agreement on pandemic prevention, preparedness, and response. In 2022, the United Nations Environment Programme (UNEP) was integrated into this articulation, forming the Quadripartite Alliance (WHO, FAO, OIE/WOAH, and UNEP), which launched the Joint Action Plan that year.

In 2023, at a time of recomposition and recovery of several public policies destroyed or degraded by the previous government, in Brazil, the OH began to be instituted hastily and without due debate.

On the One Health Commission's 2025[55] website, we see two maps: 1. the distribution of countries where workshops entitled 'Facilitated Prioritization of Zoonotic Diseases from a One Health Perspective' were held by the US Centers for Disease Control and Prevention (US CDC); and 2. a map showing the distribution of countries where that strategic plan is underway. It shows a greater concentration in Africa and some Asian countries; however, practically nothing is represented in the Americas and Europe[55]. Comparing the two maps, we see that there are more countries identified as recipients of CDC induction than those with any degree of implementation of the Joint Action Plan established by the Alliance.

In the Brazilian context, it has been expanding beyond the scope proposed by the WHO. In 2024, the Interinstitutional Technical Committee for One Health was created by

decree, for the National One Health Action Plan, which was sent for public consultation for one month, ending in August 2025[56]. The One Health (OH) approach has been presented in Brazil as a novel formulation to address various other health issues, including those related to climate change. This was probably motivated by the need for the country to present a proposal at the COP-30 Climate Conference, held in Belém (PA), Brazil, in November 2025, in which health could be better positioned.

Thus, the topic of OH has not been limited to zoonoses, epizootics, and the abusive use of antibiotics, among others. Now, almost everything that has always been done in public health, involving zoonoses, can be called an OH approach. About a year and a half before COP-30, the Brazilian government took the first steps to institute OH in the country[9–11,57] and during its realization, together with some national entities, it failed to present to the world the power of its health policy, which for 37 years (since 1988) has been demonstrating its capacity to face the health and climate crises in the country.

Contrary to what was expected, OH was promoted, which is still in the initial stage of its action plan[58,59]. CEBES has warned about the untimely process[22,23,60]. In the bibliographic survey conducted for this essay, it is observed that Fiocruz, in 2016, interviewed technical specialists on the subject of biodiversity and wild animals, but without a clear defense of OH [61,62].

Other possible answers

Public health, with its critical perspective, addresses the fundamental processes underlying health, including multispecies processes in the social determinants of health, precisely because it does not separate society and nature[29]. The deep-seated and place-specific histories of time, the cultural infrastructure, and the economic geographies that drive the emergence of diseases are not incorporated into the OH model. A question that arises is how to explain the technocratic protagonism given to One Health in Brazil in just two years? Or, the centrality of the government in this approach during COP-30, with the support of The World Federation of Public Health Associations (WFPHA)[63] and the China Preventive Medicine Association (SCPMA), which, with the participation of the WHO, arrived prepared to strengthen it at this event, as a strategy also for mitigating and adapting to climate change and emergencies through public health.

One important reason that would explain how the USA, Brazil, China, and a few other countries in the Europe have taken positions in defense of One Health is the fact that, for all of them, agribusiness plays a strategic role in economic terms, whether in the production, export, or import of agricultural commodities and derivatives. Although geopolitical strategies and political-economic-ideological-cultural interests may vary considerably in the face of environmental, climate, and health crises (as seen in the COVID-19 pandemic), for all these countries, agribusiness exerts strong political influence on governments and needs to participate in institutional and economic solutions for the stability of global trade, provided that the mode of production is not changed.

This context leads to a search for consensus within multilateral organizations that can strengthen institutional policies that reconcile agricultural production models with the prevention and mitigation of pandemics and climate emergencies. In the Brazilian case, this is reinforced by the existence of a coalition government and a strong bloc in the National Congress that defends the interests of agribusiness.

According to a study by the Brazilian Confederation of Agriculture and Livestock (CNA) and the Center for Advanced Studies in Applied Economics (CEPEA), the Gross Domestic Product (GDP) of agribusiness

reached R$ 2.72 trillion in 2024, with R$ 1.9 trillion from the agricultural sector and R$ 819.26 billion from the livestock sector, with a projected increase of more than 20% in 2025[64]. It is evident that this sector supports the OH, while simultaneously engaging in political-institutional and ideological disputes. However, it is unacceptable that it be privileged as a strategy for international and national governance and that it hinders the construction of a sovereign, democratic, sustainable, and healthy country.

The proposed OH approach in Brazil will encounter resistance because: 1) it ignores the historical metacritique of the ecological triad model, which allowed for a much broader and more complete understanding than that presented in OH; 2) it contradicts the democratic precepts established in health policy; 3) it disregards the SUS agreement process, its advances under a structure guided by principles and guidelines of social, health, environmental, and cognitive or epistemic justice; and 4) it is unaware of Latin American authors in the field of social medicine and public health[20].

The OH approach has been presented as a savior in view of future epidemics and pandemics[19,21,22,60,65]. It does not introduce into its modeling the driving forces of the socio-environmental determination of zoonoses, where national and transnational circuits of capital, changes associated with agroecological landscapes, genetic evolution and spatial dissemination of xenospecific pathogens are involved, and which require structural responses[7,66,67].

Wallace, an evolutionary biologist, proposed in his 2015 book 'Pandemic and Agribusiness' ('Pandemia e Agronegócio', in portuguese), a critical approach that sought to integrate public health, ecology, and political economy to understand how the spread of swine and avian flu was strongly related to the expansion of agribusiness and its livestock commodity chains within the global economic system in the neoliberal era[66]. The consequence of this mode of production and its expansion not only affected the balance of ecosystems but also created the conditions for the emergence of new global pandemics. The author produced a powerful analysis carried out years before COVID-19, placing capitalism and agribusiness at the center of the issue[20].

These are original scientific analyses compatible with the perspective of public health. For Wallace[7], OH is a colonialist approach. Although this scholar has participated in several events in Brazil over the past four years, including those organized by ABRASCO, the Oswaldo Cruz Foundation, and the Brazilian Society of Tropical Medicine, and some of his most important publications have already been translated into Portuguese, he has been little studied.

Other recent critical views on OH can be found in the books:

1. 'More-than-one health: humans, animals, and the environment post-covid'[68]. This is a collection that examines the complex interconnections between human, animal, and environmental health with contributions from authors from the humanities, social sciences, natural sciences, and medicine. The book argues that thinking about health and the possibilities of its management involves recognizing the interdependence between living entities and the plurality of knowledge, that is, more than OH (One Health). This perspective requires the decolonization of public health and the defense of its sovereignty with the support of critical thinking. We believe that, in the Latin American context and in Brazil in particular, public health has been playing a strategic role in this direction.

2. 'One Health: One Planet, One Health, One Ethics' ('One Health: Um Planeta, Uma Saúde, Uma Ética', no original)[69]. This publication challenges the OH approach to consider fundamental and recent issues of inclusion in socio-political and decolonial arenas, with broad thinking and collective

action in addressing the broader horizons of care for our planet and all its inhabitants. In it, the author Santos[70] warns that the totalizing language of OH seduces those unfamiliar with the complexity of processes, in which interactions produce phenomena that require transdisciplinary understandings, and thus loses sight of central issues, both at the planetary and health levels.

In conclusion, the reductionisms produced by the OH Approach, from its totalizing formulations: 'One World, One Health'; 'One Medicine, One Health'; 'One Planet, One Health', etc., all derived from the agent-host-environment triad, are denials of complexity, reality, and science itself. Faced with this epistemic and political issue, some questions need to be answered in responsible and transparent debates: Why did PAHO/WHO disregard Brazil's progress in the health sector when demanding the inclusion of OH in the country without taking into account the SUS and the field of public health, both already consolidated? Why did the Brazilian Ministry of Health fail to provide the necessary mediation and disregarded the importance of social participation established in the country, so fundamental to the sustainability of the SUS? Why did it allow this approach to be surreptitiously and untimely introduced and disseminated as a dystopia in the face of Brazilian health policy, which has principles and guidelines guaranteed in the Federal Constitution? Why didn't the Ministry of Health take the necessary steps to adapt the WHO's demands (regarding the socio-environmental issues involved in zoonoses) to the conceptual framework of public health and the SUS, given that these frameworks are much more established in Brazil?

To confront contemporary health crises, and for a sovereign, democratic, sustainable, and healthy Brazil, it is necessary to deepen the paths that have enabled the creation of bold health policies for a country lacking social justice, education, and other areas capable of mobilizing skills in an integrated, intersectoral, interdisciplinary, and participatory manner within the territories where social and natural reproduction takes place.

Authorship contributions

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