

Path of infectious diseases in Brazil in the last 50 years: an ongoing challenge

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ABSTRACT

In this article, we comment on the main features of infectious diseases in Brazil in the last 50 years, highlighting how much of this path *Revista de Saúde Pública* could portray. From 1967 to 2016, 1,335 articles focusing on infectious diseases were published in *Revista de Saúde Pública*. Although the proportion of articles on the topic have decreased from about 50.0% to 15.0%, its notability remained and reflected the growing complexity of the research required for its control. It is noteworthy that studies design and analysis strategies progressively became more sophisticated, following the great development of epidemiology in Brazil in the recent decades. Thus, the journal has followed the success of public health interventions that permitted to control or eliminate numerous infectious diseases – which were responsible, in the past, for high rates of morbidity and mortality –, and also followed the reemergence of diseases already controlled and the emergence of until then unknown diseases, with a strong impact on the Brazilian population, establishing a little predictable and very challenging path.

DESCRIPTORS: Communicable Diseases. Communicable Diseases, Emerging. Public Health. Scientific and Technical Publications. Historical Article.

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INTRODUCTION

The social, economic, and demographic transformations that took place in the last 50 years have been determining factors of significant changes in the morbidity and mortality patterns around the globe. In the context of such transformations, the expansion of sanitation coverage, improvement of housing conditions, and introduction of new health technologies, particularly vaccines and antibiotics, were decisive for the rapid decline in the magnitude of infectious diseases^{25,99}.

This new scenario has led, in the 1960s and 1970s, to the optimistic perception that this group of diseases would lose relevance in public health as economic development and access to better living conditions could be widely achieved by most countries⁵⁷.

However, the facts contradicted such expectations and what we saw was the acceleration of the emergence and reemergence process of infectious diseases from the end of the 20th century on, keeping them on the list of priorities of the Public Health Global Agenda⁵⁸.

This path of continuous and often unexpected changes assumed a global aspect, but with different speed and intensity in the countries. For its continental dimensions, large population, pronounced regional contrasts, and for having presented in the last half-century fast and accentuated changes in its socioeconomic, demographic, and health indicators, Brazil is a case of special interest^{22,119,120,131}.

Celebrating the 50 years of *Revista de Saúde Pública* (RSP), we developed this study with the objective of describing and commenting on the main features of infectious diseases in Brazil, from 1967 to 2016, highlighting those that have attained greater relevance in the public health agenda and pointing out the most striking aspects recorded in the articles published on the topic by RSP.

With this purpose, we describe the behavior of infectious diseases in Brazil in the period, and comment on the most relevant aspects portrayed by RSP, grouping these diseases into three categories: (i) diseases with strong decline tendency; (ii) diseases with mild decline tendency; (iii) diseases that have assumed emerging and reemerging quality.

For this review to be the most complete possible, we surveyed, year after year, all the keywords related to the topic linked to articles published by RSP. Then, we searched SciELO database, selecting all texts focusing on the topic of interest. In this process, we identified 1,335 articles and selected 146 that highlighted relevant moments of the path of infectious diseases in Brazil.

Brief Report on the path of Infectious Diseases in Brazil (1967-2016)

Over the past five decades, Brazil has suffered profound transformations – its population more than doubled, reaching 200 million inhabitants, and urbanization has increased (nowadays, 83.0% of its inhabitants live in cities), in addition to the fast process of population aging. Income *per capita* and education increased and, in turn, child mortality significantly decreased, from 117 to 16 deaths per 1,000 live birth^{22,119,120,131}. The Country's Human Development Index is currently classified as high, scoring 0.755, contrasting with 0.545 in 1980.

Consistent with this new scenario, infectious diseases lose their relative importance because the ratio of deaths associate with them decreased from 35.0% to about 5.0% nowadays^{22,156,172}. This favorable tendency was due especially to the drastic decrease of deaths by diarrhea and vaccine-preventable diseases^{118,178,181}.

Contrary to this tendency, the Country was plagued by major epidemics, such as meningococcal disease in the 1970s (possibly the most serious epidemic outside the sub-Saharan region, in Africa, throughout the 20th century), an event well described on the pages of RSP^{14,90}. Brazil was also heavily affected by the emergence of HIV^{23,130}. In addition, we have seen the emergence of three arboviruses: Rocio virus encephalitis causes a serious

epidemic in the region of Vale do Rio Ribeira, SP, in the 1970s^{91,163} and, more recently, the emergence of Chikungunya^{13,55} and Zika^{36,89,104} viruses.

We also observe the reemergence of diseases considered controlled or eliminated, such as dengue in the 1980s, cause for growing concern by the increased incidence of its serious manifestations and the mortality associated with it^{136,154,181}, and trachoma, which was highlighted in the past as a major cause for blindness⁷² and which, from the 1980s, is again reported^{34,51,106,108}. The reemergence of cholera also caused surprise in the 1990s, after a century of its absence in the Americas^{78,179}.

Infectious Diseases in Revista de Saúde Pública

Articles published by RSP in its half century of existence allow monitoring not only the epidemiological transition in the Country, but also feeling the consolidation of the multidisciplinary quality of public health. During this period, the proportion of articles focusing on infectious diseases decreases from about 50.0% to 15.0%, without, however, losing its prominence. Such texts reflect the increased complexity of public health in the Country and the decentralization of research in this field of knowledge, which is consolidated in all regions of Brazil, along with dissemination of the graduate programs in Public Health. We note in these articles studies with progressively more complex designs and more robust analysis strategies, following the development of epidemiology in Brazil in the last decades^{21,85}.

This downward path of infectious diseases – paradoxically, full of potentially serious situations –, was recorded in articles published by RSP. The multidisciplinary quality of the journal offers its readers subsidies to understand the complex interaction of factors involved in the behavior of infectious diseases, which is often unpredictable. This characteristic allows a single infectious disease presenting, at different times in the same population, profiles of distinctive behaviors, which often bring great challenges to society and, especially, to health professionals and researchers, professionals whose mission is to protect and promote the population's health.

I. Infectious Diseases with Strong Decline Tendency

Rural Endemic Diseases

In the 1960s and 1970s, infectious diseases were highlighted specially on the public health priority agenda; among them, the so-called rural endemic diseases. Samuel Barnsley Pessoa¹³⁴ (1963), in one of his classic works, commented on health conditions of the Brazilian rural population, noting the high prevalence of malnutrition and chronic hunger, bad housing and hygiene conditions, and the complete lack of sanitation to which such population was exposed. Under these conditions, rural areas, which in the 1960s comprised approximately 50.0% of the Country's population, featured hyperendemic levels of several parasitic diseases, among which outstood masonic schistosomiasis, Chagas disease, and malaria.

The rapid industrialization of the Country and the resulting urbanization, economic development, expansion of education at all levels, and the establishment of the Brazilian Unified Health System transformed, especially over the past three decades, the Brazilian health framework, creating conditions for eliminating rural endemic diseases of the public health agenda of priorities in the Country^{120,131,181}.

Malaria has its history well documented on the pages of RSP, with the publication of dozens of articles on the topic. In the 1960s and 1970s, the highlight was the discussion of the performance of strategies to control this endemic disease in several Country regions^{12,47}. In the 1980s, with favorable results in the control of malaria, which practically restricted its endemic transmission to the Legal Amazon region, new challenges were highlighted, such as resistance to drugs^{3,60} and the impact of development projects on the Amazon, due to the risk of reintroducing the disease in regions where it was already controlled¹⁷⁴. More recently,

following the discussion of new challenges for controlling diseases transmitted by vectors, interesting studies have been published on climate change and malaria transmission^{184,185}.

Chagas disease also outstood on RSP pages, with approximately 100 articles published on the topic. Of these articles, we have classic texts by Forattini on the biology of Triatominae⁶³⁻⁶⁸. Studies on the burden of Chagas disease in different regions of the Country^{40,155,176}, control strategies¹³⁹⁻¹⁴¹, and alternative transmission types of Chagas disease¹⁷⁵ are also present, as well as the disease social impact and, more recently, an interesting article on the 100th anniversary of the Chagas disease description⁶.

Mansonic schistosomiasis was also widely covered by RSP, with 75 articles addressing various aspects of this endemic disease. On its pages, we find the most important records of the spread of schistosomiasis in Sao Paulo^{11,110,132,138}, as well as relevant research on the biology of its intermediate host¹⁰¹, studies focusing on biological control of planorbids⁸⁶ and on the planorbid chart of São Paulo state^{170,171}. It is worth highlighting two articles that explore aspects little addressed in our literature: the study by Silva¹⁵⁷ (1985) described the disease expansion process in São Paulo and defends the thesis that the urbanization pattern would have been more relevant than the migration in the schistosomiasis expansion; the article written by Barreto²⁰ (1987), in turn, discussed the importance of studies on causal and predictor factors of this parasitosis for the development of intervention strategies.

Acute Diarrhea

In the 1960s, urban life conditions in Brazil were very unfavorable, a situation exacerbated by the intense process of migration from the countryside to the cities, which was the responsible for the rapid and disorderly growth of our cities and accentuated bad housing conditions and lack of basic sanitation. As a result, child mortality was very high, mainly caused by diarrhea, even in the richest capitals of the Country^{102,118}. Transformations faced by the Country in the following decades allowed such scenario to be radically changed, making diarrhea a little relevant cause for child morbidity and mortality¹²⁸.

The path of acute diarrhea is well described by RSP, not only quantifying the burden of disease and its reflections on child mortality^{27,28,75,118,128}, but also addressing interventions such as oral rehydration⁷⁶, and the change in its seasonality^{95,178} and etiologic pattern³⁷. Moreover, pioneer articles about rotavirus outstand³⁸.

Vaccine-Preventable Diseases

In the 1960s and 1970s, acute diarrhea was not the only disease afflicting the child population in Brazil. Vaccine-preventable diseases were endemic and responsible for high rates of morbidity and mortality. Measles was considered the leading cause of death among children aged from one to four years in major cities from different regions of Country¹³⁷. Poliomyelitis was epidemic, leaving many individuals with motor sequelae, often aggravated by late manifestations (post polio syndrome) that worsen the quality of life^{46,152}.

The creation of the successful *Programa Nacional de Imunizações* (PNI – National Immunization Program) in 1973 drastically reduced morbidity and mortality by vaccine-preventable diseases, including the elimination of poliomyelitis in 1989 and the practically absence of sustained measles transmission in the whole Country since 2001¹⁸¹, as well as the eradication of smallpox, certified in 1980^{69,70}.

With over a hundred articles on this group of diseases, RSP recorded in a classic study by Barbosa¹⁵ (1969) the great epidemics of poliomyelitis in the 1950s and 1960s, which occurred in the period prior to the introduction of the vaccine. It also published some of the first studies on seroprevalence of poliovirus antibodies^{16,17,177} and relevant information for the development of vaccination strategies. Moreover, it described the impact of mass vaccination campaigns and the higher seroconversion after three doses of trivalent polio vaccine obtained by this strategy, if compared with the exclusive application of regular vaccination¹⁸. More

recently, in the context of the final stages of Global Polio Eradication Initiative, we had the publication of an interesting study about the cost-effectiveness of the inactivated vaccine against poliomyelitis¹⁴⁹.

Measles and rubella were also object of several publications that aimed to better know their epidemiological aspects, including studies on seroprevalence^{31,41,135}, and the operational aspects regarding the conservation of measles vaccine¹¹⁴. Recently, when measles no longer showed sustained transmission in a large part of the Country, RSP registered a disease outbreak from an imported case, in the metropolitan area of São Paulo⁵⁹.

We also find articles that contribute to better understand the vaccine coverage achieved by PNI, showing a significant decrease in disparities in different social strata^{107,116}, and studies that investigate factors associated with non-adherence to vaccination¹⁵⁹, which certainly contributed to the improvement of vaccination strategies. In addition, RSP has published articles focusing on new strategies for vaccination against whooping cough, before the possible disease reemergence in Brazil⁷⁴.

The recognized success of PNI and the significant expansion of the vaccines included in the national calendar of immunizations make this program more complex, creating new challenges such as maintaining the high vaccine coverage, equity in access, and safety. Several studies address these issues: methods used to assess the impact of vaccination programs¹⁵⁰; surveillance strategies focusing on the evaluation of vaccination safety^{73,180}, and discussions about the incorporation of new information technologies for real-time monitoring of vaccine coverage, including micro areas, and the identification of vaccine lots with greater reactogenicity¹⁵¹.

II. Infectious Diseases with mild Decline Tendency

Tuberculosis and Hanseniasis

Tuberculosis (TB) was covered by 130 articles in RSP, highlighting the main points of its path in Brazil over the last 50 years. In turn, hanseniasis was addressed by 30 articles. Commonly, both diseases are strongly related to poverty and poor living conditions⁵⁰. Furthermore, they presented a mild but consistent decline in the period and suffered, albeit with different intensities, the impact of the emergence of AIDS^{8,181}. We also highlight that the influence of AIDS on the hanseniasis behavior was little studied¹¹².

In the 1970s, we had the dissemination of the results of an important tuberculin investigation with students, developed by Certain et al.⁴⁴ (1972), in addition to relevant articles about planning and evaluation techniques for TB control activities in health services^{9,10} and new treatment schemes³³. We also found texts on robust methods of risk estimation of tubercular infection^{144,145}, an indispensable support to the improvement of TB control strategies. We also highlight an early case-control study published in Brazil, which investigated the TB risk factors³⁹.

In the 1980s, we had studies that analyzed the effectiveness of short term treatment schemes newly introduced²⁶ at that time and about the low efficiency and health risks of chest photofluorography (or roentgenphotography) as screening strategy for discovering new cases^{4,81}. From the 1990s on, studies started to address the importance of TB/HIV coinfection^{97,127,148}, as well as the differences in the TB incidence for older age groups⁴⁵.

More recently, analyses on the high social impact of TB and estimates of its treatment costs⁴⁹, new approaches to its surveillance¹⁶¹, and one pioneering study that analyzed the effectiveness of revaccination strategy of adolescents with BCG³⁵ were published.

In the last decade, RSP published current texts on the topic, and those on the challenges and perspectives of TB control strategies in Brazil^{19,142} stand out. These studies analyzed the burden of disease, its tendency, and current profile^{29,30} as well as the drug resistance

situation⁵². Another aspect that deserved emphasis in recent years has been the TB behavior in vulnerable populations^{77,126,129}, besides special emphasis on high mortality and surveillance strategies for this outcome^{103,153}.

Regarding hanseniasis, we highlight articles that estimate the burden of disease in different regions of the Country^{2,105,124} and those describing the main aspects of its behavior in high-endemicity areas¹²³. We have two texts that deserve special highlight for their historical importance: the article of Guimarães⁸⁷, which analyzes the integration of care of patients with hanseniasis in general hospitals, and the comment of Rotberg¹⁴³ on the pathogenic theory of Hansen's disease.

III. Emerging and Reemerging Diseases

Despite the recent highlight, the emergence of infectious diseases is not a new phenomenon. Among the most cited old records about the topic, we have a pandemic of bubonic plague at the end of Middle Age^{100,122}. Some factors give to this type of event great importance in public health: the unpredictability, the possibility of strong impact on demographics caused by the rapid elevation of mortality rates, the impact on the economy of affected populations, and the potential to assume a pandemic behavior^{58,89,122,158}.

In the last two decades, the increase of the frequency and speed with which these events have occurred is associated with many factors, including globalization, increased international exchanges, and the intensive use of mass air and urban transportation, along with the fast population growth and the accelerated urbanization process that has recently intensified in developing countries with large populational contingent^{32,57}.

The emergence and reemergence of infectious diseases in Brazil have often been interpreted as resulting from worsening living conditions of the Brazilian people, especially considering the urban infrastructure of major cities, which would mean a retrocession back to the situation lived by the Country in the early 20th century. However, this interpretation is mistaken, since these emergence and reemergence cycles comprise characteristics of this group of diseases, even though the lack of urban infrastructure is an aggravating feature.

Reemerging Diseases

Among reemerging diseases of bacterial etiology reported in Brazil, in the last 50 years, we have the Brazilian purpuric fever that in the 1980s spread to states in the South, Southeast, and Midwest regions. It deserved special attention at the time for affecting 10-year-old children, with high lethality (about 70.0%), and the potential risk to reach large urban centers. It was an unknown disease at that time, and its etiologic agent – *Haemophilus influenzae* biogrup *aegyptius* – was identified after exhaustive research⁸⁸. RSP has published a relevant study to elucidate its etiology⁹⁶. For little-known reasons, this disease is no longer reported in the Country since 1993; however, in 2007 five suspected cases of the disease, although unconfirmed, were reported in Ilha do Marajó, in the state of Pará, Brazil¹⁴⁷.

Cholera also reemerged in 1991, entering Brazil by the Amazon region, at the Colombia and Peru borders. The disease affected more intensely small towns and some capitals of the North and Northeast regions, especially populations without access to basic sanitation. Studies published by RSP suggest that the impact of cholera mortality on these regions would have been underestimated because of faults in information systems^{78,79,133}.

The reemergence of trachoma in the 1990s has been registered in RSP by the publication of research with students in the Southeast Region^{98,113} and a recent national investigation, which shows higher prevalence in rural areas and among children under five years of age, although severe forms are rare¹⁰⁶.

Visceral leishmaniasis also stands out – the disease was the subject of 30 articles. Its relevance is due to rapid urbanization and expansion of its transmission area, and the high lethality

(approximately 10.0%)¹⁸³. The path of visceral leishmaniasis in recent decades is well described in the pages of RSP^{48,93} as well as the difficulties for its control. Such difficulties are due to the fact the diagnosis and early treatment of human cases are essential to prevent deaths, but are ineffective to prevent the transmission. On the other hand, its control by interventions focusing on reservoirs has faced obstacles such as those commented by Werneck¹⁸³ in detail.

The reemergence of yellow fever, which currently gains international importance, was prominently reported in RSP. Brazil has two wide areas with potential risk of transmission: one is enzootic and extends through forests of the Amazon and Midwestern Regions; the other, of epizootic behavior, covers the states of Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, and Minas Gerais^{92,169}. In turn, the wide dispersal of *Aedes aegypti* in the Country is a warning for potential urban outbreaks^{165,169}.

Historically, Brazil has regular cycles of increased cases of yellow fever among human beings every five years, suggesting a predictable behavior. However, since the beginning of this century, we see smaller and irregular intervals between the peaks of incidence of the disease and, more worrying, the recent occurrence of outbreaks in the states of São Paulo and Rio Grande do Sul, which have been free of the disease for decades. The risks are not negligible, especially considering the occurrence of two epidemics of urban yellow fever in bordering countries: in Bolivia, in 1999, and in Paraguay, in 2007^{165,169}.

The report in China, in 2016, of several imported cases of yellow fever from an ongoing epidemic in Angola – urban type of the disease –, illustrates the potential magnitude of the problem, considering that part of the Chinese territory is endemic for dengue and that international vaccine stocks could be insufficient to deal with a situation of international emergency¹⁸².

Among infectious diseases that reemerged in Brazil in the last 50 years, dengue was the one assuming greater importance. Since the reintroduction of *Aedes aegypti* in the Country, in 1976, it was only a matter of time for the emergence of the first epidemics of dengue fever in Brazil, following the vector dispersal. This happened in 1981 with the first outbreak in Roraima¹⁶⁴. Since the early 1990s, we have an endemic circulation of three serotypes (DENV-1, DENV-2, and DENV-3), situation that became more worrisome, in 2010, with the reintroduction of DENV-4^{162,166}.

In 2007, *Aedes aegypti* was already found in approximately 70.0% of Brazilian municipalities and dengue fever occurred in half of them, with significant presence in medium and small cities. In some capitals, seroprevalence was over 65.0%¹⁶⁶. Another important aspect observed over the past 10 years is the proportional increase of cases with people aged under 15 years, with the increase in severe forms of the disease and, consequently, in hospitalizations and deaths. In some regions of the Country, these severe forms have affected more intensely younger age groups¹⁶⁶. Such data place this arbovirus among major public health problems in the Country and also suggest the possible aggravation of this situation.

The RSP marked important moments of the path of dengue in Brazil, with articles describing a history of *Aedes aegypti* control programs in Brazil¹⁵⁴, commenting on the introduction of *Aedes albopictus* in the Country and its potential impacts⁷¹, the first epidemics in medium cities of the Southeast region¹³⁶, important studies on the vector behavior¹¹¹, seroprevalence surveys in Brazilian capitals¹⁶⁸ as well as socioeconomic characteristics and their relation with the vector density and the occurrence of dengue^{61,117}. Finally, in recent years, we have an article commenting on the obstacles and challenges to the development of a vaccine against dengue¹.

Emerging Diseases

Among emerging diseases, the one that determined the greatest impact on Brazil was certainly AIDS, topic explored in about 200 RSP articles, including four special issues. The first study, published in 1989, showed HIV seroprevalence (0.07%) from tracking tests in

blood banks in Goiânia (GO), emphasizing the risk of transmission by blood transfusion and the need for control⁷.

Important aspects of the path of AIDS epidemic were portrayed by RSP. The behavior of the disease has changed a lot in this period due to the evolution of knowledge and therapeutic and diagnostic resources. Studies show a tendency of stabilization or decline in the incidence and mortality from AIDS from 1996, due to the introduction of highly active antiretroviral therapy, albeit in a heterogeneous way in the Country^{54,82}. It should be noted that a disease of acute and fatal quality initially assumes features of a chronic disease with increasing incubation period and survival rate⁸⁴. To the extent that the prevalence of HIV/AIDS increases, the demand for basic health services also increases, in addition to the demand for specialized network, either for treatment, diagnosis, or prophylaxis¹²⁵.

Several articles showed the change of groups vulnerable to HIV infection throughout the period. Initially, the disease reached mainly male homosexuals of middle and upper-middle class, then started affecting women, and also the more needy population⁵⁶. Topics such as social vulnerability, stigma, sexual behavior, and perceptions were covered by RSP²⁴.

A major proportion of the studies published by RSP on the topic analyzed the impact of the disease on the quality of life⁸⁰. We also highlight studies on adherence to treatment as an important challenge due to, in addition to adverse events, social and cultural factors that permeate the disease¹¹⁵. Equally important, studies on adverse events of the treatment as metabolic and morphological changes were present in RSP^{5,94}.

We also found in the journal studies that describe defining opportunistic infections of AIDS. Overall, oral candidiasis appears as the most prevalent infection, followed by tuberculosis, *Pneumocystis carinii* pneumonia, and neurotoxoplasmosis¹⁶⁷. Research on TB/HIV coinfection have also been frequent since the 1990s and are still today in the journal^{42,146}.

Moreover, studies on AIDS with other specific populations, such as pregnant women and vertical transmission¹⁷³, health professionals¹⁰⁹, sex workers⁵³, drug users¹⁶⁰, and homeless population⁸³ are also carried out.

An important event, but punctual and little cited currently, was the emergence, in the 1970s, of the Rocio virus, an agent transmitted by arthropods, which determined a wide encephalitis epidemic in the region of Vale do Rio Ribeira, South of the state of São Paulo, causing more than 600 cases with 10.0% of lethality and 20.0% of sequelae. This event was described in RSP by Iversson^{91,92}. Other outbreaks of this arbovirus are unknown; however, the presence of Rocio virus has been reported in rural areas of the Country⁶², suggesting the risk of its reemergence.

Since 2014, Brazil has seen the emergence of two other arboviruses, Chikungunya and Zika, which, as dengue and urban yellow fever, have *Aedes aegypti* as the main vector. The Zika virus have a strong international repercussion for being associated with congenital malformations and neurological complications^{36,89}. Despite being recent events, both arboviruses were covered in RSP by two very interesting and convenient articles^{13,104}.

The emergence of these arboviruses exemplifies the ability of microorganisms to adapt in new host species, creating conditions for the emergence of so far unknown infectious diseases in humans, caused by agents that circulated only among animals^{100,121}.

Final Remarks

With the reintroduction of infectious diseases in the new global public health priority agenda, we note that control activities of this group of diseases are far more complex than in the past. Therefore, it is necessary, in addition to high coverage of vaccination and sanitation, an effective network of basic health services and an appropriate surveillance system.

However, without diminishing the relevance of the strategies mentioned, we perceive, since the beginning of this century, the incorporation of Internet and new information technologies, including the interconnected use of large databases, routine activities of monitoring and control of infectious diseases⁴³. On the other hand, in addition to a better relation between national surveillance systems and the network of health services, we also observed the establishment of a stronger and more explicit relation between surveillance and research. This makes the knowledge production more agile, which is essential to ensure effective and appropriate interventions, making surveillance an important instrument for the continuous improvement of health services. A recent example, intensively experienced by the Country, was the emergence of Zika virus, for which was established, in response, a close relation between health services, epidemiological surveillance, research institutes, and universities, along with a strong international insertion.

This scenario brings enormous challenges to Brazilian scientific journals, especially to those that act in the field of public health, among them, RSP. Such journals are responsible – with new strategies and the incorporation of new technologies – for expanding and accelerating the diffusion of the knowledge produced, as well as strengthening their relations with researchers and professionals that work in different areas of public health and, thus, responding to the new challenges of the 21st century. The RSP, with 50 years of continuous renewal and accumulation of experience, is certainly prepared to do its share in this mission.

REFERENCES

1. Abrão EP, Espósito DL, Lauretti F, Fonseca BA. Vacinas contra a dengue: o que sabemos, o que tem sido feito, mas o que nos reserva o futuro? *Rev Saude Publica*. 2015;49:60. DOI:10.1590/S0034-8910.2015049006146
2. Albuquerque MF, Morais HM, Ximenes R. A expansão da hanseníase no nordeste brasileiro. *Rev Saude Publica*. 1989;23(2):107-16. DOI:10.1590/S0034-89101989000200004
3. Alencar FH, Ferraroni JJ, Shrimpton R. Resistência do *Plasmodium falciparum* ao fansidar, quinina e tetraciclina. *Rev Saude Publica*. 1982;16(5):299-302. DOI:10.1590/S0034-89101982000500005
4. Algranti E, Ali SA, Cuginotti AP. A inadequação dos exames radiológicos periódicos indiscriminados em saúde ocupacional: resultados do censo de 1984 em uma empresa de grande porte. *Rev Saude Publica*. 1986;20(1):26-32. DOI:10.1590/S0034-89101986000100003
5. Almeida SE, Borges M, Fiegenbaum M, Nunes CC, Rossetti ML. Metabolic changes associated with antiretroviral therapy in HIV-positive patients. *Rev Saude Publica*. 2009;43(2):283-90. DOI:10.1590/S0034-891020090005000005
6. Amato Neto V, Pasternak J. Centenário da doença de Chagas. *Rev Saude Publica*. 2009;43(2):381-2. DOI:10.1590/S0034-89102009000200022
7. Andrade AL, Martelli CM, Pinheiro ED, Santana CL, Borges FP, Zicker F. Rastreamento sorológico para doenças infecciosas em banco de sangue como indicador de morbidade populacional. *Rev Saude Publica*. 1989;23(1):20-5. DOI:10.1590/S0034-89101989000100004
8. Antunes JLF, Waldman EA. Tuberculosis in the twentieth century: time series mortality in São Paulo, Brasil, 1900-97. *Cad Saude Publica*. 1999;15(3):125-32. DOI:10.1590/S0102-311X1999000300003
9. Arantes GR. Avaliação de serviço anti-tuberculose na rotina de saúde pública. *Rev Saude Publica*. 1974;8(1):105-18. DOI:10.1590/S0034-89101974000100012
10. Arantes GR. Planejamento de atividades anti-tuberculose pelo método CENDES/OPS. *Rev Saude Publica*. 1976;10(1):17-29. DOI:10.1590/S0034-89101976000100002
11. Artigas PT, Perez MD, Baggio D. Censo coprológico no município de Peruipe (litoral sul do Estado de São Paulo): registro de casos autóctones de esquistossomose *mansoni*. *Rev Saude Publica*. 1969;3(2):141-7. DOI:10.1590/S0034-89101969000200003
12. Azevedo AC, Tauil PL, Manzano E, Manzano HL, Tauil MC. Experiência de um programa de profilaxia medicamentosa coletiva da malária no sudeste do Pará, Brasil. *Rev Saude Publica*. 1972;6(3):245-53. DOI:10.1590/S0034-89101972000300002

13. Azevedo RSS, Oliveira CS, Vasconcelos PFC. Risco do chikungunya para o Brasil. *Rev Saude Publica*. 2015;49:58. DOI:10.1590/S0034-8910.2015049006219
14. Barata RCB. Epidemia de doença meningocócica, 1970/1977: aparecimento e disseminação do processo epidêmico. *Rev Saude Publica*. 1988;22(1):16-24. DOI:10.1590/S0034-89101988000100003
15. Barbosa V. Estado atual do problema da poliomielite no município de São Paulo. *Rev Saude Publica*. 1968;2(1):68-80. DOI:10.1590/S0034-89101968000100006
16. Barbosa V, Stewien KE. Estado imunitário relativo à poliomielite das crianças de 0-12 anos, residentes no município de São Paulo, Brasil e assistidas pelo Hospital Menino Jesus. *Rev Saude Publica*. 1975;9(2):137-53. DOI:10.1590/S0034-89101975000200006
17. Barbosa V, Stewien KE, Rosenburg CP. Estado vacinal, tipo de habitação e nível cultural da mãe e sua relação com o estado imunitário à poliomielite, em uma amostra de escolares do município de São Paulo, Brasil. *Rev Saude Publica*. 1977;11(3):330-7. DOI:10.1590/S0034-89101977000300004
18. Barbosa V, Waldman EA, Fujita M, Kitamura C, Waldman CC, Lacerda JP. Imunidade relativa à poliomielite em crianças de zero a dez anos, após o "Quarto Dia Nacional de Vacinação Contra a Poliomielite" com a vacinação oral trivalente, tipo Sabin, em área da Região da Grande São Paulo, SP (Brasil), 1982. *Rev Saude Publica*. 1984;18(1):19-29. DOI:10.1590/S0034-89101984000100002
19. Barreira D, Grangeiro A. Avaliação das estratégias de controle da tuberculose no Brasil. *Rev Saude Publica*. 2007;41 Suppl 1:4-8. DOI:10.1590/S0034-89102007000800002
20. Barreto ML. Causa versus predição: história de banhos em rios como fator de risco e preditor da infecção pelo *Schistosoma mansoni*. *Rev Saude Publica*. 1987;21(4):305-9. DOI:10.1590/S0034-89101987000400003
21. Barreto ML, Barata RCB. Public health and epidemiology journals published in Brazil and other Portuguese speaking countries. *Emerging Themes Epidemiol*. 2008;5:18. DOI:10.1186/1742-7622-5-18
22. Barreto ML, Teixeira MG, Bastos FI, Ximenes RA, Barata RB, Rodrigues LC. Successes and failures in the control of infectious diseases in Brazil: social and environmental context, policies, interventions, and needs. *Lancet*. 2011;377(9780):1877-89. DOI:10.1016/S0140-6736(11)60202-X
23. Bastos FI, Barcellos C. Geografia social da AIDS no Brasil. *Rev Saude Publica*. 1995;29(1):52-62. DOI:10.1590/S0034-89101995000100009
24. Bastos FI, Barata RC, Aquino EL, Latorre MR. Comportamento sexual e percepções sobre HIV/Aids no Brasil. *Rev Saude Publica*. 2008;42 (Suppl 1):1-4. DOI:10.1590/S0034-89102008000800001
25. Beaglehole R, Bonita R. Public health at the crossroads. Cambridge, Cambridge University Press; 1997.
26. Belluomini M, Tagusagawa HK. Seqüência do tratamento de curta duração da tuberculose pulmonar em Unidades Sanitárias do Vale do Paraíba, 1980-1981, São Paulo, Brasil. *Rev Saude Publica*. 1984;18(6):466-75. DOI:10.1590/S0034-89101984000600005
27. Benicio MH, Monteiro CA, Zuñiga HP, Rio EM. Estudo das condições de saúde das crianças do Município de São Paulo, SP (Brasil), 1984-1985: IV - Doença diarreica. *Rev Saude Publica*. 1987;21(1):23-8. DOI:10.1590/S0034-89101987000100004
28. Benicio MH, Monteiro CA. Tendência secular da doença diarreica na infância na cidade de São Paulo (1984-1996). *Rev Saude Publica*. 2000;34(6 Suppl):83-90. DOI:10.1590/S0034-89102000000700011
29. Bierrenbach AL, Gomes AB, Noronha EF, Souza Mde F. Incidência de tuberculose e taxa de cura, Brasil, 2000 a 2004. *Rev Saude Publica*. 2007a;41 Suppl 1:24-33. DOI:10.1590/S0034-89102007000800005
30. Bierrenbach AL, Duarte EC, Gomes AB, Souza Mde F. Tendência da mortalidade por tuberculose no Brasil, 1980 a 2004. *Rev Saude Publica*. 2007;41 Suppl 1:15-23. DOI:10.1590/S0034-89102007000800004
31. Boskovitz EP, Benetti CH, Toledo RI. Levantamento de características epidemiológicas do sarampo em São José do Rio Preto (Brasil) - 1973. *Rev Saude Publica*. 1974;8(2):181-6. DOI:10.1590/S0034-89101974000200005

32. Bloom DE. Seven billion and counting. *Science*. 2011;333(6042):562-9. DOI:10.1126/science.1209290
33. Brólio R. Quimeoterapia da tuberculose. *Rev Saude Publica*. 1975;9(1):71-85. DOI:10.1590/S0034-89101975000100011
34. Caligaris LSA, Morimoto WTM, Medina NH, Waldman EA. Trachoma prevalence and risk factors among preschool children in a central area of the City of São Paulo, Brazil. *Ophthalmic Epidemiol*. 2006;13 365-70. DOI:10.1080/09286580601013078
35. Camargos PA, Barreto ML, Alvim C, Bedran R. Manter ou suspender a revacinação BCG em adolescentes. *Rev Saude Publica*. 2006;40(2):318-20. DOI:10.1590/S0034-89102006000200019
36. Campos GS, Bandeira AC, Sardi SI. Zika virus outbreak, Bahia, Brazil. *Emerg Infect Dis*. 2015;21(10):1885-6. DOI:10.3201/eid2110.150847
37. Candeias JA, Iaria ST, Christovão DA, Schmid AW, Taunay AE, Cotillo LG. Pesquisa de enterobactérias e enterovírus em crianças normais e com quadros diarreicos agudos. *Rev Saude Publica*. 1968;2(2):194-206. DOI:10.1590/S0034-89101968000200006
38. Candeias JA, Rosenberg CP, Rácz ML. Identificação por contraímunoelctroforese de rotavírus em casos de diarreia infantil. *Rev Saude Publica*. 1978;12(1):99-103. DOI:10.1590/S0034-89101978000100011
39. Caron-Ruffino M, Ruffino-Netto A. Associação entre alcoolismo e tuberculose pulmonar. *Rev Saude Publica*. 1979;13(3):183-94. DOI:10.1590/S0034-89101979000300003
40. Carvalheiro JR, Carvalheiro CD, Xavier AR, Costa JC. Contribuição das doenças infecciosas e parasitárias na morbimortalidade de Ribeirão Preto, SP (Brasil). *Rev Saude Publica*. 1979;13(3):203-7. DOI:10.1590/S0034-89101979000300005
41. Carvalho RP, Evans AS, Grossmann L, Pannuti CS. Anticorpos para os vírus da rubéola, do sarampo e da caxumba em crianças de São Paulo, Brasil. *Rev Saude Publica*. 1976;10(4):279-84. DOI:10.1590/S0034-89101976000400002
42. Carvalho CN, Dourado I, Bierrenbach AL. Subnotificação da comorbidade tuberculose e aids: uma aplicação do método de linkage. *Rev Saude Publica*. 2011;45(3):548-55. DOI:10.1590/S0034-89102011005000021
43. Castillo-Salgado C. Trends and directions of global public health surveillance. *Epidemiol Rev*. 2010;32(1):93-109. DOI:10.1093/epirev/mxq008
44. Certain DA, Brólio R, Salomon GC, Oshiro JH, Nardy SM. Levantamento da prevalência da infecção tuberculosa em escolares do primeiro ano primário das escolas públicas de São Paulo - 1970. *Rev Saude Publica*. 1972;6(2):189-97. doi:10.1590/S0034-89101972000200009
45. Chaimowicz F. Transição etária da incidência e mortalidade por tuberculose no Brasil. *Rev Saude Publica*. 2001;35(1):81-7. DOI:10.1590/S0034-89102001000100012
46. Conde MTRP, Oliveira ASB, Quadros AAJ, Moreira GA, Silva HCA, Pereira RDB et al. Post-polio syndrome: epidemiologic and prognostic aspects in Brazil. *Acta Neurol Scand*. 2009;120:191-7. DOI:10.1111/j.1600-0404.2008.01142.x
47. Corrêa RR, Alves UP. Informes sobre o programa de erradicação da malária do Estado de São Paulo. *Rev Saude Publica*. 1969;3(1):93-104. DOI:10.1590/S0034-89101969000100012
48. Costa CH, Pereira HF, Araújo MV. Epidemia de leishmaniose visceral no Estado do Piauí, Brasil, 1980-1986. *Rev Saude Publica*. 1990;24(5):361-72. DOI:10.1590/S0034-89101990000500003
49. Costa JG, Santos AC, Rodrigues LC, Barreto ML, Roberts JA. Tuberculose em Salvador: custos para o sistema de saúde e para as famílias. *Rev Saude Publica*. 2005;39(1):122-8. DOI:10.1590/S0034-89102005000100016
50. Cunha SS, Rodrigues LC, Duppre NC. Current strategy for leprosy control in Brazil: time to pursue alternative preventive strategies? *Rev Panam Salude Publica*. 2004;16(5):362-5. DOI:10.1590/S1020-49892004001100014
51. D'Amaral RKK, Cardoso MRA, Medina NH, Cunha ICKO, Waldman EA. Fatores associados ao tracoma em área hipoendêmica da Região Sudeste, Brasil. *Cad Saude Publica*. 2005;21(6):1701-8. DOI:10.1590/S0102-311X2005000600017
52. Dalcolmo MP, Andrade MK, Picon PD. Tuberculose multirresistente no Brasil: histórico e medidas de controle. *Rev Saude Publica*. 2007;41(Suppl 1):34-42. DOI:10.1590/S0034-89102007000800006

53. Damacena GN, Szwarcwald CL, Souza Júnior PR. Práticas de risco ao HIV de mulheres profissionais do sexo. *Rev Saude Publica*. 2014;48(3):428-37. DOI:10.1590/S0034-8910.2014048004992
54. Dourado I, Veras MA, Barreira D, Brito AM. Tendências da epidemia de Aids no Brasil após a terapia anti-retroviral. *Rev Saude Publica*. 2006;40(Suppl):9-17. DOI:10.1590/S0034-89102006000800003
55. Faria NR, Lourenço J, Cerqueira EM, Lima MM, Pybus O, LCJ Alcantara. Epidemiology of Chikungunya Virus in Bahia, Brazil, 2014-2015. *PLoS Curr*. 2016; Feb 1;8. DOI:10.1371/currents.outbreaks.c97507e3e48efb946401755d468c28b2
56. Farias N, Cardoso MR. Mortalidade por Aids e indicadores sociais no Município de São Paulo, 1994 a 2002. *Rev Saude Publica*. 2005;39(2):198-205. DOI:10.1590/S0034-89102005000200009
57. Fauci AS, Touchette NA, Folkers GK. Emerging infectious diseases: a 10-year perspective from the National Institute of Allergy and Infectious Diseases. *Emerg Infect Dis*. 2005;11(4):519-25. DOI:10.3201/eid1104.041167
58. Fauci AS, Morens DM. The perpetual challenge of the infectious diseases. *N England J Med*. 2012;366(5):454-61. DOI:10.1056/NEJMra1108296
59. Fernandes EG, Oliveira ME, Fred J, Carelli LA, Lima GD, Sato HK et al. Surto de sarampo na região metropolitana de Campinas, SP. *Rev Saude Publica*. 2013;47(6):1213-7. DOI:10.1590/S0034-8910.2013047004788
60. Ferraroni JJ. Malária falciparum resistente à cloroquina e ao Fansidar[®] tratada com minociclina. *Rev Saude Publica*. 1983;17(4):328-31. DOI:10.1590/S0034-89101983000400007
61. Ferreira AC, Chiaravalloti Neto F. Infestação de área urbana por *Aedes aegypti* e relação com níveis socioeconômicos. *Rev Saude Publica*. 2007;41(6):915-22. DOI:10.1590/S0034-89102007000600005
62. Figueiredo LTM. Emergent arboviruses in Brazil. *Rev Soc Bras Med Trop*. 2007;40(2):224-9.
63. Forattini OP, Juarez E, Rabello EX, Pattoli D, Corrêa RR. Infestação domiciliar por *Triatoma infestans* e alguns aspectos epidemiológicos da tripanossomose americana em área do Estado de São Paulo, Brasil. *Rev Saude Publica*. 1969;3(2):159-72. DOI:10.1590/S0034-89101969000200006
64. Forattini OP, Rabello EX, Castanho ML, Pattoli DG. Aspectos ecológicos da tripanossomose americana: I - observações sobre o *Panstrongylus megistus* e suas relações com focos naturais da infecção, em área urbana da cidade de São Paulo, Brasil. *Rev Saude Publica*. 1970;4(1):19-30. DOI:10.1590/S0034-89101970000100004
65. Forattini OP, Ferreira OA, Souza JM, Rabello EX, Rocha e Silva EO, Rodrigues FW. Medida da infestação domiciliar por *Triatoma sordida*. *Rev Saude Publica*. 1973;7(3):241-50. DOI:10.1590/S0034-89101973000300005
66. Forattini OP, Ferreira OA, Rocha e Silva EO, Rabello EX. Aspectos ecológicos da Tripanossomíase americana: VI - Persistência do *Triatoma sordida* após alteração ambiental e suas possíveis relações com a dispersão da espécie. *Rev Saude Publica*. 1974;8(3):265-82. DOI:10.1590/S0034-89101974000300003
67. Forattini OP, Santos JL, Ferreira OA, Silva EO, Rabello E. Aspectos ecológicos da tripanossomíase americana: X - Dados populacionais das colônias de *Panstrongylus megistus* e de *Triatoma sordida* espontaneamente desenvolvidas em ecótopos artificiais. *Rev Saude Publica*. 1977;11(3):362-74. DOI:10.1590/S0034-89101977000300008
68. Forattini OP, Ferreira OA, Silva EOR, Rabello EX. Aspectos ecológicos da Tripanossomíase americana: XII - Variação regional da tendência de *Panstrongylus megistus* à domiciliação. *Rev Saude Publica*. 1978;12(2):209-33. DOI:10.1590/S0034-89101978000200013
69. Forattini OP. Varíola e erradicação? *Rev Saude Publica*. 1985;19(5):385-8. DOI:10.1590/S0034-89101985000500001
70. Forattini OP. Varíola, erradicação e doenças infecciosas. *Rev Saude Publica*. 1988;22(5):371-4. DOI:10.1590/S0034-89101988000500001
71. Forattini OP, Kakitani I, Ueno HM. Emergência de *Aedes albopictus* em recipientes artificiais. *Rev Saude Publica*. 2001;35(5):456-60. DOI:10.1590/S0034-89102001000500008
72. Freitas CA. Prevalência de tracoma no Brasil. *Rev Bras Malariol Doenças Trop*. 1976;28:227-380.

73. Freitas FR, Sato HK, Aranda CM, Arantes BA, Pacheco MA, Waldman EA. Eventos adversos pós-vacina contra a difteria, coqueluche e tétano e fatores associados à sua gravidade. *Rev Saude Publica*. 2007;41(6):1032-41. DOI:10.1590/S0034-89102007000600019
74. Freitas AC, Okano V, Pereira JC. Avaliação de reforços vacinais contra a coqueluche para adolescentes e adultos na cidade de São Paulo. *Rev Saude Publica*. 2011;45(6):1162-71. DOI:10.1590/S0034-89102011000600008
75. Fuchs SC, Victora CG, Fachel J. Modelo hierarquizado: uma proposta de modelagem aplicada à investigação de fatores de risco para diarreia grave. *Rev Saude Publica*. 1996;30(2):168-78. DOI:10.1590/S0034-89101996000200009
76. Galvão CE, Silva AA, Silva RA, Reis Filho SA, Novochadlo MA, Campos GJ. Terapia de reidratação oral para diarreia aguda em região do nordeste do Brasil, 1986-1989. *Rev Saude Publica*. 1994;28(6):416-22. DOI:10.1590/S0034-89101994000600005
77. Gava C, Malacarne J, Rios DP, Sant'Anna CC, Camacho LA, Basta PC. Tuberculose em crianças indígenas da Amazônia brasileira. *Rev Saude Publica*. 2013;47(1):77-85. DOI:10.1590/S0034-89102013000100011
78. Gerolamo M, Penna ML. Cólera e condições de vida da população. *Rev Saude Publica*. 2000;34(4):342-7. DOI:10.1590/S0034-89102000000400005
79. Gerolamo M, Penna ML. Sobremortalidade por diarreia simultânea à cólera na região Nordeste do Brasil. *Rev Saude Publica*. 2004;38(4):517-21. DOI:10.1590/S0034-89102004000400006
80. Geocze L, Mucci S, De Marco MA, Nogueira-Martins LA, Citero Vde A. Qualidade de vida e adesão ao tratamento anti-retroviral de pacientes portadores de HIV. *Rev Saude Publica*. 2010;44(4):743-9. DOI:10.1590/S0034-89102010000400019
81. Gikovate F, Nogueira DP. Abreugrafia sistemática em massa: inviabilidade econômica e eventuais perigos da exposição a radiações. *Rev Saude Publica*. 1976;10(1):103-10. DOI:10.1590/S0034-89101976000100008
82. Grangeiro A, Escuder MM, Castilho EA. Magnitude e tendência da epidemia de Aids em municípios Brasileiros de 2002-2006. *Rev Saude Publica*. 2010;44(3):430-40. DOI:10.1590/S0034-89102010005000013
83. Grangeiro A, Holcman MM, Onaga ET, Alencar HD, Placco AL, Teixeira PR. Prevalência e vulnerabilidade à infecção pelo HIV de moradores de rua em São Paulo, SP. *Rev Saude Publica*. 2012;46(4):674-84. DOI:10.1590/S0034-89102012005000037
84. Guerreiro MF, Kerr-Pontes LR, Mota RS, Franca Junior MC, Tavora FF, Caminha I. Sobrevivência de pacientes adultos com Aids em hospital de referência no Nordeste brasileiro. *Rev Saude Publica*. 2002; 36(3):278-84. DOI:10.1590/S0034-89102002000300004
85. Guimarães R, Lourenço R, Cosac S. A pesquisa em epidemiologia no Brasil. *Rev Saude Publica*. 2001;35(4):321-40. DOI:10.1590/S0034-89102001000400001
86. Guimarães CT. Controle biológico: *Pomacea haustum* Reeve, 1856 (Mollusca, pilidae) sobre planorbíneos, em laboratório. *Rev Saude Publica*. 1983;17(2):138-47. DOI:10.1590/S0034-89101983000200008
87. Guimarães C. Participation of general hospitals in the care of patients with Hansen's disease. *Rev Saude Publica*. 1975;9(3):401-7. DOI:10.1590/S0034-89101983000200008
88. Harrison LH, Simonsen V, Waldman EA. Brazilian purpuric fever: emergence and disappearance of a virulent clone of *Haemophilus influenzae* biogroup *aegyptius*. *Clin Microbiol Rev*. 2008;21(4):594-605. DOI:10.1128/CMR.00020-08
89. Hennessey M, Fischer M, Staples JE. Zika virus spreads to new areas - region of the Americas, May 2015-January 2016. *MMWR Morb Mortal Wkly Rep*. 2016;65(3):55-8. DOI:10.15585/mmwr.mm6503e1er
90. Iversson LB. Aspectos epidemiológicos da meningite meningocócica no município de São Paulo (Brasil), no período de 1968 a 1974. *Rev Saude Publica*. 1976;10(1):1-16. DOI:10.1590/S0034-89101976000100001
91. Iversson LB. Epidemia de encefalite por arbovírus na região sul do Estado de São Paulo, Brasil, em 1975 e 1976: aspectos da distribuição cronológica e geográfica dos casos. *Rev Saude Publica*. 1977;11(3):375-88. DOI:10.1590/S0034-89101977000300009
92. Iversson LB. Aspectos da epidemia de encefalite por arbovírus na região do Vale do Ribeira, S. Paulo, Brasil, no período de 1975 a 1978. *Rev Saude Publica*. 1980;14(1):9-35. DOI:10.1590/S0034-89101980000100002

93. Iversson LB, Pires RB, Ribeiro MA, Takeda AK, Escrivão Júnior A, Tolezano JE et al. Investigação epidemiológica de, um novo caso de leishmaniose visceral ocorrido na Grande São Paulo, Brasil. *Rev Saude Publica*. 1982;16(4):205-19. DOI:10.1590/S0034-89101982000400002
94. Jaime PC, Florindo AA, Latorre MR, Segurado AA. Obesidade abdominal e consumo alimentar em portadores de HIV/Aids. *Rev Saude Publica*. 2006;40(4):634-40. DOI:10.1590/S0034-89102006000500012
95. Kale PL, Fernandes C, Nobre FF. Padrão temporal das internações e óbitos por diarreia em crianças, 1995 a 1998, Rio de Janeiro. *Rev Saude Publica*. 2004;38(1):30-7. DOI:10.1590/S0034-89102004000100005
96. Kerr-Pontes LR, Ruffino-Netto A. Estudo epidemiológico da febre purpúrica brasileira: epidemia em localidade do Estado de São Paulo (Brasil), 1986. *Rev Saude Publica*. 1991;25(5):375-80. DOI:10.1590/S0034-89101991000500009
97. Kerr-Pontes LR, Oliveira FA, Freire CA. Tuberculose associada à AIDS: situação de região do Nordeste brasileiro *Rev Saude Publica*. 1997;31(4):323-9. DOI:10.1590/S0034-89101997000400001
98. Koizumi IK, Medina NH, D'Amaral RK, Morimoto WT, Caligaris LS, Chinen N et al. Prevalência do tracoma em pré-escolares e escolares no Município de São Paulo. *Rev Saude Publica*. 2005;39(6):937-42. DOI:10.1590/S0034-89102005000600011
99. Lederberg J. Infectious disease as an evolutionary paradigm. *Emerg Infect Dis*. 1997;3(4):417-23. DOI:10.3201/eid0304.970402
100. Lederberg J. Infectious history. *Science*. 2000;288(5464):287-93.
101. Lemos Neto RC, Magalhães LA, Piedrabuena AE. Alguns aspectos referentes ao estudo de linhagens de *Schistosoma mansoni* Sambon, 1907, provenientes dos Estados de Minas Gerais e de São Paulo, Brasil. *Rev Saude Publica*. 1978;12(3):277-90. DOI:10.1590/S0034-89101978000300003
102. Leser WSP, Barbosa V. Relacionamento de certas características populacionais com a mortalidade infantil no município de São Paulo, de 1950 a 1970. *Probl Bras*. 1972;10:17-23.
103. Lindoso AA, Waldman EA, Komatsu NK, Figueiredo SM, Taniguchi M, Rodrigues LC. Perfil de pacientes que evoluem para óbito por tuberculose no município de São Paulo, 2002. *Rev Saude Publica*. 2008;42(5):805-12. DOI:10.1590/S0034-89102008000500004
104. Lima-Camara TN. Arboviroses emergentes e novos desafios para a saúde pública no Brasil. *Rev Saude Publica*. 2016; 50:36. DOI:10.1590/S1518-8787.2016050006791
105. Lombardi C. Situação da endemia da hanseníase no município de São Paulo, Brasil (1976-1977). *Rev Saude Publica*. 1979;13(4):281-98. DOI:10.1590/S0034-89101979000400004
106. Lopes MF, Luna EJ, Medina NH, Cardoso MR, Freitas HS, Koizumi IK et al. Prevalência de tracoma entre escolares brasileiros. *Rev Saude Publica*. 2013;47(3) 451-9. DOI:10.1590/S0034-8910.2013047003428
107. Luhm KR, Cardoso MR, Waldman EA. Cobertura vacinal em menores de dois anos a partir de registro informatizado de imunização em Curitiba, PR. *Rev Saude Publica*. 2011;45(1):90-8. DOI:10.1590/S0034-89102010005000054
108. Luna EJA. A epidemiologia do tracoma no Estado de São Paulo. Campinas, São Paulo [dissertação]. Campinas (SP): Faculdade de Ciências Médicas da Unicamp; 1993.
109. Machado AA, Costa JC, Gir E, Moriya TM, Figueiredo JF. Risco de infecção pelo vírus da imunodeficiência humana (HIV) em profissionais da saúde. *Rev Saude Publica*. 1992;26(1):54-6. DOI:10.1590/S0034-89101992000100010
110. Magalhães LA, Dias LC. Estudo da suscetibilidade da *Biomphalaria glabrata* de Ourinhos (SP), à infecção pelo *Schistosoma mansoni* de Belo Horizonte (MG), e de São José dos Campos (SP). *Rev Saude Publica*. 1973;7(3):295-7. DOI:10.1590/S0034-89101973000300011
111. Marques GR, Gomes AC. Comportamento antropofílico de *Aedes albopictus* (Skuse) (Diptera: Culicidae) na região do Vale do Paraíba, Sudeste do Brasil. *Rev Saude Publica*. 1997;31(2):125-30. DOI:10.1590/S0034-89101997000200004
112. Massone C, Talhari C, Ribeiro-Rodrigues R, Sindeaux RHM, Mira MT, Talhari S et al. Leprosy and HIV coinfection: a critical approach. *Expert Rev Anti Infect Ther*. 2011;9(6):701-10. DOI:10.1586/eri.11.44

113. Medina NH, Massaini MG, Azevedo CL, Harima C, Prado M, Maluf S et al. Vigilância epidemiológica do tracoma em instituição de ensino na cidade de São Paulo, SP. *Rev Saude Publica*. 1998;32(1):59-63. DOI:10.1590/S0034-89101998000100008
114. Mendes IF, Pral MM, Miyaki C, Gallina NM, Petricevich VL, Fang FL et al. Avaliação das condições de estocagem de vacinas vivas, atenuadas contra o sarampo, em postos de vacinação credenciados e em centros de saúde do Estado de São Paulo (Brasil). *Rev Saude Publica*. 1985;19(5):444-9. DOI:10.1590/S0034-89101985000500008
115. Melchior R, Nemes MI, Alencar TM, Buchalla CM. Desafios da adesão ao tratamento de pessoas vivendo com HIV/Aids no Brasil. *Rev Saude Publica*. 2007;41(Suppl 2):87-93. DOI:10.1590/S0034-89102007000900014
116. Miranda AS, Scheibel IM, Tavares MR, Takeda SM. Avaliação da cobertura vacinal do esquema básico para o primeiro ano de vida. *Rev Saude Publica*. 1995;29(3):208-14. DOI:10.1590/S0034-89101995000300008
117. Mondini A, Chiaravalloti Neto F. Variáveis socioeconômicas e a transmissão de dengue. *Rev Saude Publica*. 2007;41(6):923-30. DOI:10.1590/S0034-89102007000600006
118. Monteiro CA. Contribuição para o estudo do significado da evolução do coeficiente de mortalidade infantil no município de São Paulo, SP (Brasil) nas três últimas décadas (1950-1979). *Rev Saude Publica*. 1982;16(1):7-18. DOI:10.1590/S0034-89101982000100002
119. Monteiro CA. organizador. Velhos e novos males da saúde no Brasil: a evolução do país e de suas doenças. São Paulo (SP): Hucitec; 1995.
120. Monteiro CA, Levy RB, organizadores. Velhos e novos males da saúde no Brasil: de Geisel a Dilma. São Paulo (SP): Hucitec; 2015. v. 1, p. 374.
121. Morens DM, Folkers GK, Fauci AS. The challenge of emerging and re-emerging infectious diseases. *Nature*. 2004;430:242-9. DOI:10.1038/nature02759
122. Morens DM, Falkers GK, Fauci A. Emerging infections: a perpetual challenge. *Lancet Infect Dis*. 2008;9(11):710-9. DOI:10.1016/S1473-3099(08)70256-
123. Monteiro LD, Martins-Melo FR, Brito AL, Alencar CH, Heukelbach J. Padrões espaciais da hanseníase em um estado hiperendêmico no Norte do Brasil, 2001-2012. *Rev Saude Publica*. 2015;49:84. DOI:10.1590/S0034-8910.2015049005866
124. Munhoz Júnior S, Fontes CJ, Meirelles SM. Avaliação do programa de controle da hanseníase em municípios mato-grossenses, Brasil. *Rev Saude Publica*. 1997;31(3):282-7. DOI:10.1590/S0034-89101997000300009
125. Nemes MI, Alencar TM, Basso CR, Castanheira ER, Melchior R, Alves MT et al. Avaliação de serviços de assistência ambulatorial em aids, Brasil: estudo comparativo 2001/2007. *Rev Saude Publica*. 2013;47(1):137-46. DOI:10.1590/S0034-89102013000100018
126. Nogueira PA, Abrahão RM, Galesi VM. Tuberculose e tuberculose latente na população prisional. *Rev Saude Publica*. 2012;46(1):119-27. DOI:10.1590/S0034-89102011005000080
127. Oliveira HB, Marín-León L, Cardoso JC. Perfil de mortalidade de pacientes com tuberculose relacionada à comorbidade tuberculose-Aids. *Rev Saude Publica*. 2004;38(4):503-10. DOI:10.1590/S0034-89102004000400004
128. Oliveira TC, Latorre MR. Tendências da internação e da mortalidade infantil por diarreia: Brasil, 1995 a 2005. *Rev Saude Publica*. 2010;44(1):102-11. DOI:10.1590/S0034-89102010000100011
129. Oliveira LG, Natal S, Camacho LA. Contextos de implantação do Programa de Controle da Tuberculose nas prisões brasileiras. *Rev Saude Publica*. 2015;49:66. DOI:10.1590/S0034-8910.2015049005802
130. Osmo AA, Honda J, Baldacci ER, Okay Y, Manissadjian A. Inquérito sorológico para a detecção de anticorpos contra o vírus da Imunodeficiência Humana (VIH) em crianças internadas em enfermaria geral. *Rev Saude Publica*. 1990;24(2):113-8. DOI:10.1590/S0034-89101990000200006
131. Paim J, Travassos C, Almeida C, Bahia L, Macinko J. The Brazilian health system: history, advances, and challenges. *Lancet*. 2011;377(9779):1778-97. DOI:10.1016/S0140-6736(11)60054-8
132. Passos AD, Carvalheiro JR, Gomes UA, Kimura ET, Silva GF, Sato HT et al. Descrição de um novo foco endêmico de esquistossomose mansônica no Estado de São Paulo, Brasil. *Rev Saude Publica*. 1979;13(4):341-7. DOI:10.1590/S0034-89101979000400009

133. Penna ML. Rede neural artificial para detecção de sobremortalidade atribuível à cólera no Ceará. *Rev Saude Publica*. 2004;38(3):351-7. DOI:10.1590/S0034-89102004000300003
134. Pessoa SB. Endemias parasitárias da zona rural brasileira. São Paulo (SP): Fundo Editorial Prociex; 1963.
135. Pontes RJ. Sarampo em trabalhadores rurais: ensaio metodológico de epidemiologia social. *Rev Saude Publica*. 1990;24(4):323-31. DOI:10.1590/S0034-89101990000400012
136. Pontes RJS, Dal Fabbro AL, Rocha GM, Santiago RC, Figueiredo LT, Castro e Silva AA et al. Epidemia de dengue em Ribeirão Preto, SP, Brasil: nota prévia. *Rev Saude Publica*. 1991;25(4):315-7. DOI:10.1590/S0034-89101991000400011
137. Puffer R, Serrano C. Características de la mortalidad en I niñez. Washington (DC): Pan American Health Organization; 1973. (Scientific publications, vol. 262).
138. Ramos AS, Piza JT, Pinto GH, Tion T, Fleury GC, Morais LV et al. Focos ativos de esquistossomose mansoni no Vale do Ribeira, Estado de São Paulo, Brasil. *Rev Saude Publica*. 1969;3(1):59-65. DOI:10.1590/S0034-89101969000100008
139. Reis UL, França JB, Rocha e Silva EO. Um critério de menor custo, como subsídio para a escolha do método de combate a triatomíneos vetores da Doença de Chagas. *Rev Saude Publica*. 1969;3(1):31-9. DOI:10.1590/S0034-89101969000100005
140. Rocha e Silva EO, Dias Júnior J, Guarita OF. Suspensão do rociado no combate ao Triatoma infestans em áreas do Estado de São Paulo, Brasil. *Rev Saude Publica*. 1969;3(2):173-81. DOI:10.1590/S0034-89101969000200007
141. Rocha e Silva EO, Maluf J, Corrêa RR. Doença de Chagas: atividades de vigilância entomológica numa área do Estado de São Paulo, Brasil. *Rev Saude Publica*. 1970;4(2):129-45. DOI:10.1590/S0034-89101970000200002
142. Rodrigues L, Barreto M, Kramer M, Barata RCB. Resposta brasileira à tuberculose: contexto, desafios e perspectivas. *Rev Saude Publica*. 2007;41(Suppl 1):1-3. DOI:10.1590/S0034-89102007000800001
143. Rotberg A. The etiopathogenetic theory of Hansen's disease "N-Factor/Hansen anergic fringe" on its 50th anniversary: general acceptance--with new authorship and exclusion of the Brazilian origin. *Rev Saude Publica*. 1989;23(2):175-6. DOI:10.1590/S0034-89101989000200012
144. Ruffino-Neto A, Arantes GR. Risco de infecção tuberculosa em município do interior do Estado de São Paulo e suas aplicações. *Rev Saude Publica*. 1976;10(2):143-9. DOI:10.1590/S0034-89101976000200002
145. Ruffino-Neto A. Modelos epidemiométricos em tuberculose: definição de "estados" e risco de infecção. *Rev Saude Publica*. 1977;11(2):188-98. DOI:10.1590/S0034-89102006000200004
146. Ruffino-Netto A. Avaliação do excesso de casos de tuberculose atribuídos a infecção HIV/AIDS: ensaio preliminar. *Rev Saude Publica*. 1995; 29(4):279-82. DOI:10.1590/S0034-89101977000200004
147. Santana-Porto EA, Oliveira AA, Costa MR, Pinheiro A, Oliveira C, Lopes ML et al. Suspected Brazilian purpuric fever, Brazilian Amazon region. *Emerg Infect Dis*. 2009;15(4):675-6. DOI:10.3201/eid1504.090014
148. Santo AH, Pinheiro CE, Jordani MS. Causas múltiplas de morte relacionadas à tuberculose no Estado de São Paulo, 1998. *Rev Saude Publica*. 2003;37(6):714-21. DOI:10.1590/S0034-89102003000600005
149. Sartori AM, Vicentine MP, Gryninger LC, Soárez PC, Novaes HM. Custos da vacina inativada de pólio na imunização infantil de rotina no Brasil. *Rev Saude Publica*. 2015;49:8. DOI:10.1590/S0034-8910.2015049005492
150. Sartori AM, Nascimento AF, Yuba TY, Soárez PC, Novaes HM. Métodos e desafios da avaliação do impacto na saúde de programas de vacinação na América Latina. *Rev Saude Publica*. 2015;49:90. DOI:10.1590/S0034-8910.2015049006058
151. Sato APS. Programa Nacional de Imunização: Sistema Informatizado como opção a novos desafios. *Rev Saude Publica*. 2015;49:39. DOI:10.1590/S0034-8910.2015049005925
152. Schatzmayr HG, Filippis AMB, Friedrich F. Erradicação da poliomielite no Brasil: a contribuição da Fundação Oswaldo Cruz. *Hist Cienc Saude Manguinhos*. 2002;9(1):11-24. DOI:10.1590/S0104-59702002000100002

153. Selig L, Kritski AL, Cascão AM, Braga JU, Trajman A, Carvalho RM. Proposta de vigilância de óbitos por tuberculose em sistemas de informação. *Rev Saude Publica*. 2010;44(6):1072-8. DOI:10.1590/S0034-89102010000600012
154. Serufo JC, Souza AM, Tavares VA, Jammal MC, Silva JG. Dengue na região sudeste do Brasil: análise histórica e soropidemiológica. *Rev Saude Publica*. 1993;27(3):157-67. DOI:10.1590/S0034-89101993000300002
155. Shaw J, Lainson R, Fraiha H. Considerações sobre a epidemiologia dos primeiros casos autóctones de doença de Chagas registrados em Belém, Pará, Brasil. *Rev Saude Publica*. 1969;3(2):153-7. DOI:10.1590/S0034-89101969000200005
156. Sichiari R, de Lolio CA, Correia VR, Everhart JE. Variações geográficas no padrão de mortalidade proporcional por doenças crônico-degenerativas no Brasil. *Rev Saude Publica*. 1992;26(6):424-30. DOI:10.1590/S0034-89101992000600008
157. Silva LJ. Crescimento urbano e doença: a esquistossomose no município de São Paulo (Brasil). *Rev Saude Publica*. 1985;19(1):1-7. DOI:10.1590/S0034-89101985000100001
158. Silva LJ. A globalização da doença. *Rev Saude Publica*. 2003;37(3):273-4. DOI:10.1590/S0034-89102003000300001
159. Silva AA, Gomes UA, Tonial SR, Silva RA. Cobertura vacinal e fatores de risco associados à não-vacinação em localidade urbana do Nordeste brasileiro, 1994. *Rev Saude Publica*. 1999;33(2):147-56. DOI:10.1590/S0034-89101999000200006
160. Silva VN, d'Oliveira AF, Mesquita F. Vulnerabilidade ao HIV entre mulheres usuárias de drogas injetáveis. *Rev Saude Publica*. 2007;41(Suppl 2):22-30. DOI:10.1590/S0034-89102007000900006
161. Souza WV, Albuquerque MF, Barcellos CC, Ximenes RA, Carvalho MS. Tuberculose no Brasil: construção de um sistema de vigilância de base territorial. *Rev Saude Publica*. 2005;39(1):82-9. DOI:10.1590/S0034-89102005000100011
162. Souza RP, Rocco IM, Maeda AY, Spenassatto C, Bisordi I, Suzuki A et al. Dengue Virus Type 4 Phylogenetics in Brazil 2011: looking beyond the Veil. *PLoS Negl Trop Dis*. 2011;5(12):e1439. DOI:10.1371/journal.pntd.0001439
163. Souza-Lopes OSS et al. Emergency of a new arbovirus disease in Brazil. II Epidemiological Study on 1975 Epidemic. *Amer J Epidemiol*. 1978;108(5):394-401.
164. Tauil P. Urbanização e ecologia do dengue. *Cad Saude Publica*. 2001;17(Supl):99-102. DOI:10.1590/S0102-311X2001000700018
165. Tauil PL. Aspectos críticos do controle da febre amarela no Brasil. *Rev Saude Publica*. 2010;44(3):555-8. DOI:10.1590/S0034-89102010005000014
166. Teixeira MG, Costa MCN, Barreto F, Barreto ML. Dengue: vinte e cinco anos da reemergência no Brasil. *Cad Saude Publica*. 2009; 25(Sup 1):S7-18. DOI:10.1590/S0102-311X2009001300002
167. Thuler LC, Hatherly AL, Goes PN, Silva JRA. Infecção pelo HIV: descritores de mortalidade em pacientes hospitalizados. *Rev Saude Publica*. 1998;32(6):572-8. DOI:10.1590/S0034-89101998000600011
168. Vasconcelos PF, Lima JW, Rosa AP, Timbó MJ, Rosa ES, Lima HR et al. Epidemia de dengue em Fortaleza, Ceará: inquérito soro-epidemiológico aleatório. *Rev Saude Publica*. 1998;32(5):447-54. DOI:10.1590/S0034-89101998000500007
169. Vasconcelos PFC. Febre amarela no Brasil: reflexões e hipóteses sobre a emergência em áreas previamente livres. *Rev Saude Publica*. 2010;44(6):1144-9. DOI:10.1590/S0034-89102010005000046
170. Vaz JF, Teles HM, Leite SP, Corrêa MA, Dal Fabbro AL, Rosa WS. Levantamento planorbídico do Estado de São Paulo: sexta Região Administrativa. *Rev Saude Publica*. 1986;20(5):352-61. DOI:10.1590/S0034-89101986000500004
171. Vaz JF, Mantegazza E, Teles HM, Leite SP, Moraes LV. Levantamento planorbídico do Estado de São Paulo (Brasil): 4a Região Administrativa. *Rev Saude Publica*. 1987;21(5):371-9. DOI:10.1590/S0034-89101987000500003
172. Vermelho LL, Jorge MH. Mortalidade de jovens: análise do período de 1930 a 1991 (a transição epidemiológica para a violência). *Rev Saude Publica*. 1996;30(4):319-31. DOI:10.1590/S0034-89101996000400005

173. Vieira AC, Miranda AE, Vargas PR, Maciel EL. Prevalência de HIV em gestantes e transmissão vertical segundo perfil socioeconômico, Vitória, ES. *Rev Saude Publica*. 2011;45(4):644-51. DOI:10.1590/S0034-89102011005000041
174. Wanderley DMV, Andrade JCR, Meneguetti LC, Chinelatto MJ, Dutra AP. Malária no Estado de São Paulo, Brasil, 1980 a 1983. *Rev Saude Publica*. 1985;19(1):28-36. DOI:10.1590/S0034-89101985000100004
175. Wanderley DM, Gonzales TT, Pereira MS, Nascimento RD, Moraes-Souza H. Controle da hemoterapia e da doença de Chagas transfusional: 1988 e 1990. *Rev Saude Publica*. 1993;27(6):430-5. DOI:10.1590/S0034-89101993000600005
176. Wanderley DM, Litvoc J. Doença de Chagas como causa básica de óbito na região sudeste do Brasil: presença de causas contributórias. *Rev Saude Publica*. 1994;28(1):69-75. DOI:10.1590/S0034-89101994000100008
177. Waldman EA, Barbosa V, Fujita M, Waldman CC, Gonzaga de Lacerda JP. Aspectos epidemiológicos e imunitários da poliomielite em crianças menores de um ano em área da região da Grande São Paulo, Brasil. *Rev Saude Publica*. 1983;17(1):9-22. DOI:10.1590/S0034-89101983000100003
178. Waldman EA, Barradas RCB, Moraes JC, Guibu IA, Timenestsky MCST. Gastroenterites e infecções respiratórias agudas em menores de 5 anos, em área da região sudeste do Brasil, 1986-1987. II - Diarréias. *Rev Saude Publica* 1997;31(1):62-70. DOI:10.1590/S0034-89101997000100009
179. Waldman EA, Antunes JLF, Nichiata LYI, Takahashi RF, Cacavallo RC. Cholera in Brazil during 1991-1998: socioeconomic characterization of affected areas. *J Health Popul Nutr*. 2002;20(1):85-92.
180. Waldman EA, Luhm KR, Monteiro SA, Freitas FR. Vigilância de eventos adversos pós-vacinação e segurança de programas de imunização. *Rev Saude Publica*. 2011;45(1):173-84. DOI:10.1590/S0034-89102011000100020
181. Waldman EA; Sato APS; Fortaleza CMCB. Doenças infecciosas no Brasil: das endemias rurais às modernas pandemias. In: Monteiro CA, Levy RB, organizadores. Velhos e novos males da saúde no Brasil: de Geisel a Dilma. São Paulo (SP): Hucitec; 2015. v.1, p. 234-311.
182. Wasserman S, Tambyah PA, Lim PL. Yellow fever cases in Asia: primed for an epidemic. *Intern J Infect Dis*. 2016;48 98-103. DOI:10.1016/j.ijid.2016.04.025
183. Werneck GL. Leishmaniose visceral no Brasil: fundamentos e preocupações em relação ao controle de reservatórios. *Rev Saude Publica*. 2014;48(5):851-6. DOI:10.1590/S0034-8910.2014048005615
184. Yang HM, Ferreira MU. Quantificando os efeitos do aquecimento global e das condições socioeconômicas locais na transmissão de malária. *Rev Saude Publica*. 2000;34(3):214-22. DOI:10.1590/S0034-89102000000300002
185. Yang HM. Modelo de transmissão de malária em diferentes níveis de imunidade e de parâmetros temperatura-dependentes (vetor). *Rev Saude Publica*. 2000;34(3):223-31. DOI:10.1590/S0034-89102000000300003

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