

13 - THREATENED BODIES: THE LEGACY OF THE MALARIA ERADICATION CAMPAIGN TO COMBAT THE EPIDEMICS OF DENGUE, ZIKA AND CHIKUNGUNYA IN BRAZIL.

RENATO DA SILVA
UNIGRANRIO – Duque de Caxias, RJ
redslv333@gmail.com

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Introduction

It is undeniable to build a tradition of malaria control and control created in the country, with the eradication of the *Anopheles gambiae* vector in 1940 as a landmark. The National Malaria Service (SNM) and the Special Public Health Service (SESP) created in 1941 and 1942 respectively, instituted routinized malaria control actions in Brazil (Hochman et al., 2006, p.44). The fight against *Anopheles gambiae* occurred in the northeast region of Brazil in the late 1930s. One of the first steps towards institutionalizing the fight against malaria in Brazil was the creation of the Malaria Service of the Northeast (SMNE) in 1939, made possible by the agreement between the Brazilian government and the Rockefeller Foundation. This agreement deepened a relationship begun in the mid-1910s with the International Sanitary Division of the Rockefeller Foundation which had been concerned since the 1920s in combating yellow fever (Gadelha, Packard, 1994).

The War Between Men and Mosquitoes

The mosquito *Anopheles gambiae* was first identified in the Brazilian territory by the entomologist Raymond Shannon of the National Service of Yellow Fever in 1930 in the state of Rio Grande do Norte. The first outbreak of malaria occurred in 1930, in Natal, reaching ten thousand people in a locality of 12 thousand inhabitants. In 1938, the Brazilian Northeast suffered the largest malaria epidemic on the American continents. The states of Rio Grande do Norte and Ceará were the scene of this epidemic that left a tragic mark. In the first, 5 thousand deaths in a population of 240 thousand inhabitants. In the Jaguaribe Valley, in Ceará, in July, 63,000 cases were recorded, of which 8,000 were deaths. In some localities, the impact on the population reached a surprising 90% fatality rate (Benchimol, 1996, p.169).

In 1942 it was finally considered eradicated the vector transmitter *Anopheles gambiae*. This fact would have marked the history of malaria in the country and opened a perspective of eradication of the disease in the world via eradication of a vector. This experience was a first step in the constitution of organizations and a group of specialists in the control of malaria in Brazil. The National Malaria Service (NMS) was created by Decree-Law Number 3.171 in 1941, annexing the Malaria Service of the Baixada Fluminense. Until 1942, the Northeastern Malaria Service remained linked to the Rockefeller Foundation and was later incorporated into NMS (Gadelha et al., 1977).

Dichlorodiphenyl trichloroethane (DDT), an insecticide from the chlorinated hydrocarbon group, was presented by scientists as the most effective weapon against malaria after the end of World War II. The use of DDT in households has become an immediate success in many countries. However, the insecticide had a greater impact in countries where sanitary conditions were more developed, ie in countries or regions where there were no alternative ecological niches for mosquitoes to develop the chain of transmission. In many areas of the world malaria was eradicated, and positive results led international public health authorities to believe that disease eradication was possible (Cueto, 2007).

The year 1947 marked the beginning of large-scale use of the insecticide in Brazil (Hochman, From autonomy to partial alignment ...). The first major campaign took place in the state of Rio de Janeiro and included 1821 locations in 30 municipalities. The campaign, which covered virtually all states from north to south, also reaching the federal capital, served as a model of action to combat malaria in the rest of the country, an unheard-of health action in South America. DDT was considered by many specialists in malaria, a revolutionary weapon in the fight against disease. It combined qualities that had not been presented in any other antimalarial drug: high toxicity to malaria mosquitoes, low toxicity to the applicator, prolonged action with satisfactory chemical stability and low cost (Paulini, 1962).

NMS director Mario Pinotti observed two distinct factors, results of malaria action after five years of DDT use. First, in areas where the insecticide was used on a large scale with rigor, the reduction of malaria reached zero cases, and no cases of the disease were registered for another three years in those regions. A second unplanned but possible factor would be the resistance that mosquitoes could acquire with the long-term use of this weapon. That is, during a certain time of DDT use without effective and conscious planning, the insecticide would lose its effectiveness against the vectors. Mario Pinotti was responsible for creating the malaria control method in areas where the use of DDT was not feasible. In this case, the method involved the combination of an antimalarial to a food or condiment of daily consumption. The so-called "Pinotti Method" used cooking salt mixed with chloroquine, an antimalarial, and was widely used in the Amazon region. In the beginning, the method was thought to be used as a control, but it was also considered as an aid in the perspective of malaria eradication. The expected result was the disappearance of sources of infection in the population that used the chloroquine salt. The transmission would be interrupted in the period of three to four years, thus depleting the parasites in the carriers (Silva; Hochman, 2011).

In this context, the leading malaria experts at the time began a campaign to promote the transformation of control programs into eradication programs in the 1950s. Studies on vector resistance to DDT would be the focus of the XIV Pan American Sanitary Conference in 1954 in Santiago, Chile, and the VIII World Health Assembly in 1955, held in Mexico. These international health meetings resulted in proposals and recommendations to member countries for the conversion of control programs into eradication programs. The insecticide should be the main weapon of this endeavor, however, the area of malaria in the world would be enormous and in heterogeneous regions (Packard, 1997). In the case of Brazil, these heterogeneous regions would present themselves as a great obstacle not only to the eradication program, but also to the control program. Brazilian malariologists have sought an alternative method to combat malaria in areas where the use of DDT was impractical. The chloroquine salt was presented as a complementary method for residual insecticide de-titration and should be used mainly in the Amazon region

The Global Malaria Eradication Campaign was unsuccessful. Malaria has not been eradicated in the world, only a few countries have been successful. The causes and motives that made up this "failure" are not fully known. One of the possible causes for the lack of interest in eradication by richer countries is that they have solved their malaria-related problems. These nations were the main funders of the global campaign (Silva; Paiva, 2015).

Threatened bodies: ancient lessons and new epidemics

In Brazil, mosquitoes lost to men in much of the national territory, but remain endemic in the Amazon region, registering high cases, as in 2000 with more than 600 thousand infected, leading to 245 deaths. According to the Ministry of Health in 2011, 99.7% of transmission cases are concentrated in the states of Pará, Amazonas, Rondônia, Acre, Amapá and Roraima. The wars between the men and the mosquitoes have not ended, the biological transformations are almost proportional to the scientific advances. The wars between men and mosquitoes are actually the war between man and nature.

The first reference to dengue in Brazil dates back to 1846. In the 1980s, dengue fever is a reemerging disease that is considered to be epidemiological, when the epidemic occurs in the State of Rio de Janeiro and rapidly reaches the Northeast Region. In this context, dengue became endemic in Brazil, with increasingly frequent episodes of epidemics, with the appearance of new types and variations of the disease. Between 1986 and 1990, dengue epidemics affected some states in the Southeast (Rio de Janeiro, São Paulo and Minas Gerais) and Northeast (Pernambuco, Alagoas, Ceará and Bahia). In 1990, a new serotype of the disease appears. Dengue type 2 aggravates the situation in the State of Rio de Janeiro (Braga; Vale, 2007). Other types of dengue are emerging in the passage from the XX century to XXI (Dengue type 3- year 2000; Dengue type 4- year 2010).

In 2003, almost half a million cases of dengue fever were reported in the Americas, of which approximately ten thousand were dengue hemorrhagic. Half of the reported cases occurred in South America.

On November 11, 2015, the Ministry of Health recognized the first Zika virus epidemic in Brazil. A new disease in the country that haunted and haunted pregnant women due to complications of the virus that can cause microcephaly in newborns (Mcneil, 2016; Diniz, 2016). Outbreaks of chikungunya in the Southeast region occur from 2015. It becomes epidemic in the Northeast Brazil in 2016. With 60,000 confirmed cases of chikungunya in Ceará, which has the highest index in the country (Agência Brasil, 2017). The epidemics of dengue, zika and chikungunya are becoming more frequent, with each summer beginning an epidemic cycle that can cross the hot season. The clash between men and mosquitoes is increasingly deadly, with significant losses for humans.

Final considerations

In addition to the participation of the WHO malaria eradication campaign in the 1950s, Brazil has also participated in *Aedes aegypti* eradication campaigns in the 40s and 50s of the 20th century promoted by the Organization. There was temporary success in some regions. With the creation of the Superintendency of Public Health Campaigns (Sucam) replacing the Department of Rural Endemics was announced early to eradicate the Dengue vector in 1973. Three years later the disease is back. I consider it vital to establish links between campaigns to combat malaria and dengue, zika and chikungunya. Because I understand that the malaria eradication campaign can tell us a lot about the coping practices of dengue, zika and chikungunya. That is, in the lessons of combat to the anófeles we can know methods to face the aedes.

The wars between the men and the mosquitoes have not ended, the biological transformations are almost proportional to the scientific advances. The wars between men and mosquitoes are actually the war between man and nature. The military discourse on dengue produced by the press seems to weaken the educational character that the epidemic requires to be treated.

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Informações Complementares:

Autor: Renato da Silva

Endereço: Rua Rita Gonçalves, nº 257. Centro – Nova Iguaçu – RJ

E-mail: redslv333@gmail.com

Telefone: 21 – 37736554

THREATENED BODIES: THE LEGACY OF THE MALARIA ERADICATION CAMPAIGN TO COMBAT THE EPIDEMICS OF DENGUE, ZIKA AND CHIKUNGUNYA IN BRAZIL.

Abstract:

The objective of the research is to analyze the lessons of the National Campaign for Eradication of Malaria (1958-1965) and their contributions in the fight against dengue epidemics, zika and chikungunya. The indications and guidelines verticalized policy of the World Health Organization (WHO) on the international level to eradicate malaria have been adjusted because of the particularities that each country had. The interpretation suggested is that in Brazil, planning and uniformity proposed by WHO were modified by a specific social, political contexts and changing a public health tradition and quite consolidated malariology. Historical knowledge of the structures and operations control and eradication of malaria may be relevant in the current situation where we are again haunted by diseases that have as protagonists mosquitoes. The main scenario of the new epidemics of the XXI century is the city and human body, which are constantly threatened. Dengue, zika and chikungunya temporarily disable this body, and in recent years the marks have in some cases become permanent. The main research methodology will be historical analysis through deep exploratory and descriptive literature review of primary and secondary sources in order to interpret the theme. Understanding that education is the most effective way to face the social challenges we intend to assemble Historical Studies Laboratories Epidemics in the municipal and state schools. It follows initially the importance of study that seeks to understand the functioning of public health policies related to past experiences. The construction of this memory can represent more than an important synthesis of our social and political history, it can redirect actions and correct misconceptions in the current context.

Key Words: Body; Malaria; Dengue; Zika and Chikungunya.

ORGANISMES MENACÉS: L'HÉRITAGE DE LA CAMPAGNE D'ÉRADICATION DU PALUDISME POUR LUTTER CONTRE LES ÉPIDÉMIES DE DENGUE, ZIKA ET CHIKUNGUNYA AU BRÉSIL.

Résumé

L'objectif de la recherche est d'analyser les leçons de la Campagne nationale d'éradication du paludisme (1958-1965) et ses contributions possibles dans la lutte contre les épidémies de dengue, de zika et de chikungunya. Les indications et directives de la politique verticale de l'Organisation mondiale de la santé (OMS) sur le plan international d'éradication du paludisme ont été adaptées en raison des spécificités de chaque pays. L'interprétation suggérée est qu'au Brésil, la planification et l'uniformité proposées par l'OMS ont été modifiées par une réalité sociale spécifique, des contextes politiques en transformation et une tradition bien établie de santé publique et de paludologie. La connaissance historique des structures et des opérations de lutte antipaludique et d'éradication peut être pertinente dans le contexte actuel où nous sommes à nouveau hantés par des maladies qui ont comme protagonistes les moustiques. Le scénario principal de la nouvelle épidémie du 21^{ème} siècle est la ville et le corps humain, qui sont constamment menacés. La dengue, le zika et le chikungunya désactivent temporairement ce corps, et ces dernières années, les marques sont parfois devenues permanentes. La principale méthodologie de recherche sera l'analyse historique à travers une profonde revue bibliographique exploratoire descriptive, provenant de sources primaires et secondaires dans le but d'interpréter le thème proposé. Comprenant que l'éducation est le moyen le plus efficace de relever les défis sociaux, nous avons l'intention de mettre en place des laboratoires épidémiologiques d'études historiques dans les écoles municipales et publiques. Nous concluons d'abord l'importance de l'étude qui cherche à comprendre le fonctionnement des politiques de santé publique liées aux expériences du passé. La construction de cette mémoire peut représenter plus qu'une synthèse importante de notre histoire sociale et politique, elle peut réorienter les actions et corriger les idées fausses dans le contexte actuel.

Mots Clés: Corps; Paludisme; Dengue; Zika; Chikungunya.

CORPOS AMENAZADOS: EL LEGADO DE LA CAMPAÑA DE ERRADICACIÓN DE LA MALARIA PARA EL COMBATE A LAS EPIDEMIAS DE DENGUE, ZIKA Y CHIKUNGUNYA EN BRASIL.

Resumen

El objetivo de la investigación es analizar las lecciones de la Campaña Nacional de Erradicación de la Malaria (1958-1965) y sus posibles contribuciones en el combate a las epidemias de dengue, zika y chikungunya. Las indicaciones y directrices de la política vertical de la Organización Mundial de la Salud (OMS), relativas al plan internacional de erradicación de la malaria, sufrieron adaptaciones por las particularidades que cada país presentaba. La interpretación sugerida es que, en Brasil, el planeamiento y la uniformidad propuestos por la OMS fueron modificados por una realidad social específica, contextos políticos en transformación y una tradición de salud pública y malariología bastante consolidada. El conocimiento histórico de las estructuras y operaciones de control y erradicación de la malaria puede ser relevante en la actual coyuntura donde estamos nuevamente asombrados por enfermedades que tienen como protagonistas a los mosquitos. El escenario principal de las nuevas epidemias del siglo XXI es la ciudad y el cuerpo humano, que sufren constantes amenazas. El dengue, zika y chikungunya inutilizan temporalmente ese cuerpo, y en los últimos años las marcas han pasado en algunos casos a ser permanentes. La metodología de investigación principal será análisis histórico a través de una profunda revisión bibliográfica exploratoria descriptiva, de fuentes primarias y secundarias con objetivo a la interpretación del tema propuesto. Comprendiendo que la educación es el camino más eficaz en el enfrentamiento de los desafíos sociales pretendemos montar Laboratorios de Estudios Históricos de Epidemias en escuelas de la red municipal y estatal. Se concluye inicialmente la importancia del estudio que busca comprender el funcionamiento de las políticas de salud pública relacionadas con las experiencias del pasado. La construcción de esa memoria puede representar más que una síntesis importante de nuestra historia social y política, puede reorientar acciones y corregir equívocos en el contexto actual.

Contraseñas: Cuerpo; Malaria; Dengue; Zika; Chikungunya

CORPOS AMEAÇADOS: O LEGADO DA CAMPANHA DE ERRADICAÇÃO DA MALÁRIA PARA O COMBATE ÀS EPIDEMIAS DE DENGUE, ZIKA E CHIKUNGUNYA NO BRASIL.

Resumo

O objetivo da pesquisa é analisar as lições da Campanha Nacional de Erradicação da Malária (1958-1965) e suas possíveis contribuições no combate às epidemias de dengue, zika e chikungunya. As indicações e diretrizes da política verticalizada da Organização Mundial de Saúde (OMS), relativas ao plano internacional de erradicação da malária sofreram adaptações por conta das particularidades que cada país apresentava. A interpretação sugerida é que, no Brasil, o planejamento e a uniformidade propostos pela OMS foram modificados por uma realidade social específica, contextos políticos em transformação e uma tradição de saúde pública e malariologia bastante consolidada. O conhecimento histórico das estruturas e operações de controle e erradicação da malária pode ser relevante na atual conjuntura onde somos novamente

assombrados por doenças que tem como protagonistas os mosquitos. O cenário principal das novas epidemias do século XXI é a cidade e corpo humano, que sofrem constantes ameaças. A dengue, a zika e chikungunya inutilizam temporariamente esse corpo, e nos últimos anos as marcas passaram em alguns casos a serem permanentes. A metodologia de pesquisa principal será análise histórica através de uma profunda revisão bibliográfica exploratória descritiva, de fontes primárias e secundárias com objetivo a interpretação do tema proposto. Compreendendo que a educação é o caminho mais eficaz no enfrentamento dos desafios sociais pretendemos montar Laboratórios de Estudos Históricos de Epidemias em escolas da rede municipal e estadual. Conclui-se inicialmente a importância do estudo que procura compreender o funcionamento das políticas de saúde pública relacionadas às experiências do passado. A construção dessa memória pode representar mais que uma síntese importante da nossa história social e política, ela pode redirecionar ações e corrigir equívocos no contexto atual.

Palavras Chaves: Corpos; Malária; Dengue; Zika; Chikungunya.