

Typhus in Mexico City in 1915

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Abstract

The year 1915 was particularly difficult; it was characterized by droughts, famines, and outbreaks of diseases including typhus. This text exposes its spread in Mexico City as well as the measures implemented to combat it, carried out before knowing the etiology of the illness, focused on cleaning up the environment and the measures undertaken afterwards with the aim of delousing people. (Gac Med Mex. 2016;152:226-30)

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Introduction

The Mexican Revolution was an armed conflict that started on November 20, 1910 against Porfirio Díaz dictatorship, during which, although it is true that Mexico experienced considerable political stability, there were high economic and social costs to be paid by the most vulnerable strata of society. After intense protests, Díaz left power in May 1911. His mandate was successively followed by those from Francisco León de la Barra, Francisco I. Madero and General Victoriano Huerta. When the latter was overthrown in July, 1914, the war of factions begun, which the country suffered the entire year of 1915 and where not only great regional leaders such as Venustiano Carranza, Álvaro Obregón, Francisco Villa and Emiliano Zapata took part, but also middle and low classes comprised by peasants, agricultural day laborers, ranchers, cowboys, miners and railroad workers. However, problems didn't end with the overthrow of the common enemy,

Huerta, since the victorious groups started competing with each other, Constitutionalists, *Villistas* and *Zapatistas*, since each one of them wanted to enforce its authority at the national level¹.

After multiple armed confrontations, in October 1915, the Constitutionalist faction was victorious and Carranza's administration gained recognition from the US government. Until the end of that year and during 1916, the new leader worked to adjust his national project, which would be subsequently reflected in the Constitution of 1917.

Within the frame of this context, life conditions gradually worsened, there were food and water shortages (trains were carrying soldiers, not provisions), price increases, wage cuts, famine, epidemics, contagions and high mortality, which lead to the creation of first aid stations, health brigades, isolation hospitals and campaigns to fight hunger, gastrointestinal diseases, typhus, smallpox, yellow fever and malaria.

The present exposition focuses on year 1915, known as "the year of the famine", and draws the attention on

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the study of exanthematic typhus, pointing out its epidemiology in Mexico City and the measures implemented to fight it.

Epidemiology

Currently, the causative agent of typhus is currently known to be a parasitic bacterium, *Rickettsia prowasekii* (epidemic exanthematic typhus), which lives in the louse, the vector that transmits the disease. On the other hand, *Rickettsia typhi* (murine typhus) has the rat as its reservoir, with the vector of the disease being its flea². However, in past times there were many doubts about the disease. In Mexico, typhus was known since several centuries ago and was referred to as *matlaza-huatl* by the indigenous population and *tabardillo* or *tabardete* by Europeans.

In the middle of the 19th century, typhus was defined as a contagious and exanthematic fever of a particular nature, which had a regular course and a consistent symptom, stupor with delirium or “typhomania”³. Likewise, the following remained clear: “There is no hygiene failure that has favored more its development than overcrowding of many individuals in tight and poorly ventilated places; this circumstance has given rise to many of the epidemics that have been observed”. In sum, the belief that typhus was generated in unhealthy environments was widespread.

As time passed, the 20th century made its arrival and typhus continued to affect especially the deprived population, but the mechanism was unknown. In 1904, the following note, which reveals the lack of knowledge on the etiology of the disease, was published: “Typhus, a true scourge of the high plateau cities, with the causes of its development and epidemic spread being completely unknown to us and attributed by some to housing, nutrition and customary conditions of our people, and by others to fecal material stagnation and decomposition, and which, even after the splendid sanitation works recently carried out in Mexico, not only does it not disappear, but, on the contrary, it shows an increase rarely seen; there is probably no other origin for the diseases we have described, than the bite of some insect [...] perhaps bedbugs play some role in the propagation of typhus”⁴.

The situation was exacerbated by civilians and troops mobilizations, and national interest was not focused on diseases, but on military battles, war itself, the revolution. Precisely owing to its prevalent epidemiology, several investigators focused on studying the origin of typhus, including Charles Nicolle, Hans Zins-

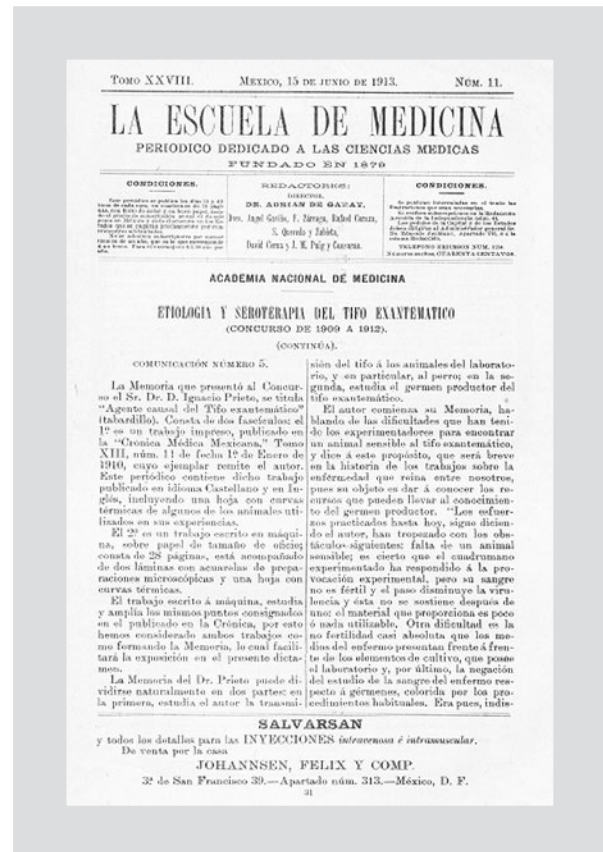


Figure 1. Contest organized by the National Academy of Medicine to identify the origin of typhus.

ser and Howard Taylor Ricketts; the latter, from the Chicago Northwestern University, was carrying out an investigation at the National Bacteriological Institute when he contracted the disease and died in Mexico in May 3, 1910, bequeathing science the certainty that the agent transmitting the disease was the louse, which lived in clothing. On the other hand, also in an attempt to clarify the causes of typhus, the National Academy of Medicine and The Ministry of Public Instruction opened contests on repeated occasions (Fig. 1).

Typhus in 1925

In 1925, typhus went out of control and appeared in the Valley of Mexico, spreading more heavily in the second semester and even more in the first half of 1926, mainly in particular domiciles, military quarters and prisons, with no doubt owing to poor hygiene conditions. Reformatory schools for males and females, as well as the Atzacapotzalco penitentiary were disinfected; with regard to sick prisoners, it should be noted that they were not admitted at the General Hospital

due to their condition of detainees: “because there are no safety conditions at all to be held accountable in case of evasion of any of them”⁵. On the other hand, a frequent problem was the scarcity of vehicles to drive so many typhus-infected persons to the hospitals every day, since there were difficulties to acquire the fodder for the horses that pulled the vehicles⁶.

According to the 1910 population census⁷, Mexico City had 471,066 inhabitants, and including the municipalities, the population added up to 720,753 persons; based on investigations conducted by Molina del Villar⁸, the sum of typhus-infected persons reached the figures shown in table 1.

Beltrán Rabadán⁹, exclusively referring to Mexico City in 1915-1917, reported the numbers shown in table 2.

Typhus became epidemic in winter due to malnutrition, lack of personal and environmental hygiene, poorness and overcrowding conditions a large part of the Mexican capital city inhabitants lived in. Only in 1915, the General Hospital gave medical care to 600 typhus-infected patients.

Pani, in the book *Hygiene in Mexico* (1916), noted that a single household could be the origin of an epidemic and, hence, housing sanitation was the most important part of urban hygiene. He added that all hygienists agreed on considering thorough cleansing as the first barrier against contagious diseases, and explained their causes: “dirtiness and swarming of parasites, such as bedbugs, fleas, lice, etc., with the latter seemingly playing, according to studies conducted in our own hospitals by Ricketts and Goldberger, a decisive role in the mechanism of typhus transmission”¹⁰. He added: “Therefore, observing the nauseating appearance shown by nearly all our tenement block houses is enough to establish, without hesitation, the lack of cleanness as one of the determining causes, particularly of typhus-associated mortality”.

As a matter of fact, the disease developed with more intensity in non-urbanized, insalubrious neighborhoods with great housing agglomeration, such as Tepito, La Merced, Peralvillo and Los Portales¹¹. The antithesis was located at the Juárez, Roma, Condesa and Cuauhtémoc neighborhoods, which had drainage network, fresh water supply, paving and electric light¹².

With regard to unhealthiness, the doctor and General José María Rodríguez, chairman of the Public Health Higher Council, addressed the Distrito Federal Governor pointing out: “In view of the high dirtiness found at the Tabacaleros Alley and having recorded some cases of typhus in houses there located, I humbly request from you to have the police remove all fried food stands

Table 1. Typhus in Mexico City and municipalities

Year	Typhus-affected persons
1912	2,040
1913	1,422
1914	1,178

Table 2. Typhus in Mexico

Year	Morbidity	Mortality
August-December 1915	6,262	1,183
1916	10,923	1,830
1917	4,407	462
Total	21,592	3,475

that have been installed there”¹³. Thus, the Ministry of Internal Affairs saw the way to clean up the environment and, in consideration of the typhus outbreak, proceeded to remove all barracks, stands and peddlers established in the surroundings of markets¹⁴. In turn, the Public Health Higher Council analyzed the way to dispose of the trash collected in the urban area. He indicated that the trash collecting carts should be kept sealed during their travels from the places they collected trash to the concentration sites or piers, where vessels from the trolley company would carry the wastes to at least 5-km distance to bury the trash in trenches. After carrying the wastes, the carts would be cleaned, “washed and sprayed with lime slurry”. To combat typhus, the collection of old rags and paper was prohibited, and old rags recycling shops and stuffing and mattress factories were closed¹⁵ (Fig. 2).

On the other hand, on December 1915, Rodríguez asked the commander in chief of the Constitutionalist army, Venustiano Carranza, to order all doctors serving at offices depending on State Ministries to lend their help in the campaign against typhus¹⁶.

In view of the worrying situation, the church also offered to lend help, since parish priests were “alarmed by the terrifying development of typhus, which has taken its toll among priests” and, therefore, they were willing to cooperate in the campaign. They argued that priests directly knocked at the doors of conscience, whereas the delegates had no other persuasion elements but scientific explanations. They emphasized that the Church could campaign from the pulpits, at



Figure 2. José María Rodríguez (1870-1946), Venustiano Carranza's personal physician, undertook the campaign against typhus by the end of 1915 (adapted from Álvarez Amézquita et al.⁹)

the confessional, at bedside of the patient and inside the homes¹⁷.

In January 1926, José María Rodríguez published in the *Public Health Higher Council Bulletin* that, finally, the etiology of typhus had been revealed: "Indeed, by the foreign publications that the Council's Secretary handed to me since November last year, I was able to learn that typhus was transmitted exclusively by lice. This notion was considered in Europe as definitively acquired, and all prophylactic measures the French government had taken, by means of a decree issued on May 31, 1915, relied on it"¹⁸. After clarifying his ideas about typhus, all he had left to do was to organize a well outlined plan.

Measures implemented against typhus

In October 1925, at the conclusion of the factional struggle, the authorities paid more attention to the public health emergency; therefore, in order to fight it, José María Rodríguez undertook a campaign, which was to be led by the physician Alfonso Pruneda making use of updated methods, based on recent knowledge on the transmission of typhus by lice.

On December 9, 1925, the Ministry of Internal Affairs issued a decree promulgated by the Federal Executive Power in the *El Constitucionalista* newspaper with the rules that had to be obeyed to fight against typhus in the capital city and its surroundings. The document read: "A special hygiene police is established; retail sale of *pulque* remains prohibited; retail sale of any kinds of alcoholic beverages is forbidden; public gathering centers should close before 11 p.m.; balls, fairs, soirees and meetings are forbidden; the meetings known as "wakes" are also forbidden; keeping pigeons, chicken, dogs and other animals in the households is forbidden; access to public places is forbidden to persons of any social class that due to notorious untidiness may carry on their bodies or clothing parasitic animals that are transmittable"¹⁹.

In light of the knowledge on typhus etiology, Rodríguez noted: "Thus, the campaign to be undertaken against the epidemic, and to say it concretely, had to be de-lousing. How to carry it out? Here is the plan I want for it to adhere to"¹⁸.

- "To make the public know the truth on the ways the disease is transmitted in order for people to take due precautions". Flyers or inserts were printed, in addition to a publication in the *El Demócrata* newspaper, although Rodríguez used to say: "the lack of culture and apathy of our people make them unfitted to assimilate these truths".
- "To detect all infected persons", by performing a census of those who had the disease and those suspected of having it.
- "To act upon them, with no delay, delousing them and their families"; parasites had to be destroyed on the person itself, but also on its clothes and, thus, physicians, barbers, de-lousers, isolation guardians and transportation means were required.
- "To move, outside the city, all of those not offering absolute guarantee on their isolation"; Rodríguez said: "most affected individuals are people that, owing to their poverty and lack of education and discipline, are not able or willing to obey the highly important order that the patient should not be approached by persons with parasites".
- "To effectively isolate those who stayed in the city"; an *ad hoc* isolation hospital was implemented in Tlalpan, where, in addition to isolating them, they were deloused, bathed and given new clothes.
- "To delouse all healthy carriers of the parasite"; this required cooperation of general public, the Council and the District Government. The Council looked for people with lice at cinemas, theaters,

trolleys, churches, public shelters, senior residences and other places where people gather in large numbers.

To carry out the campaign, in January 1916, the sanitary police was required, which was comprised by the following elements: 29 medical inspectors, 10 sanitation engineers, 246 agents, 57 barbers and 50 petroleum-applying boys²⁰.

To make efforts against typhus more effective, early in 1926, Rodríguez proposed for sanitary police officers to be appointed at theaters, cinemas and churches, and suggested for the salary of these employees to be paid by the entrepreneurs and priests, by upfront handing over the amount to the Council cash register²¹.

Once the campaign was started, José María Rodríguez closed the January 31, 1916 issue of the *Boletín* saying: "since the last week of December until the date I write these lines, morbidity has decreased by nearly fifty percent"¹⁸.

Final considerations

1915 was a particularly difficult year; it was characterized by overcrowding, unhealthiness, hunger, disease, misery and unemployment. Sanitary measures in response to this situation were insufficient owing to the armed conflicts that mobilized, disorganized and nullified many of the already existing health services. With regard to the strictly political subject, the fight between factions ended in October 1915, and the authorities paid more attention to the sanitary emergency. On December of same year, Rodríguez stated and diffused that the etiology of the disease was in the louse. From then on, the campaign against typhus was categorically undertaken and sick persons were detected, isolated and cleaned up, and rooms, houses, clothes and vehicles were disinfected with sulfur, creolin, petroleum, iron sulfate, lime and wood.

The campaign appeared to be quite comprehensive at the moment, even if it disrupted the citizens' socio-economic life and became rather aggressive. Such description was noticed every time sick persons were ordered to be hospitalized and who, due to the uncertainty, refused to obey; when typhus-infected persons had their places destroyed and were moved to other city, although, allegedly, they were remunerated. Looking for shelter and job in other town, also affected by warfare, must not have been easy. In turn, the economy, lacerated as it was by the armed movement,

directly impacted on workers when shops and businesses were closed; everything seemed to be in a vicious circle where war, disease and a stagnant economy appeared to be mutually obstructing each other. Since our study is restricted to the year of 1915, we will only point out that the typhus epidemic was exacerbated the following year and was counteracted with an energetic campaign until 1917.

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