

THE SPANISH FLU IN SÃO PAULO

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ABSTRACT

The objective of this study is to demonstrate the gravity of the Spanish flu in São Paulo city through the number of cases and deaths of the Brazilians and European immigrants. The data to the studied period were collected from the newspaper "A Gazeta" from 1918 and 1919. São Paulo had in 1918, 523,196¹ inhabitants and 107,512 cases notified due to Spanish flu. The number of lethality was very high, the ratio varies in different outbreaks but in the city there were as much as to 4.5 deaths in 100 notified cases (4,814 deaths). For the city 0.99% of the population died, since October 15 until December 20 in São Paulo 1918. The peak of morbidity occurred after 21 days of the epidemic beginning and the peak of mortality after 27 days. After the peaks the hard onset appeared and on December 20 the pandemic dissipated. In the first week the deaths were almost normal, but in the week of 21/10 the Spanish flu raised. From 18/11 to 24/11 the flu was 81% of all deaths. The deaths occurred equally for males and females. The Europeans immigrant's deaths are 23% of all death, for the city they are in 1910 21% of the population.

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¹ From Fundação SEADE estimative of population to São Paulo city 1894 to 1998.

KEY WORDS: spanish influenza; mortality; morbidity

INTRODUCTION

On September 1918, when flu had begun in São Paulo, everybody people knew they had to rush things up. The entire world was in Spanish flu pandemic, known in São Paulo as “Gripe Espanhola”.

São Paulo had in 1918, 523,196 inhabitants² and 107,512 cases notified due to Spanish flu. The number of lethality was very high, the ratio varies in different outbreaks but in the city there were as much as to 4.5 deaths in 100 notified cases (4,814 deaths). For the city 0.99% of the population died.

Everybody knows the common flu; symptoms are headache, general feeling of illness, chilliness and feverishness and than it turns into a mild depression. In about two-thirds of the cases the first symptoms onset suddenly, but sometimes they get worse. In the classical disease the fever lasts three days but this may vary from one to six days. If the body temperature remains high after the fourth or fifth day it probably means there are pulmonary complications. In most of the cases the illness are due to Influenza virus type A which is indistinguishable from that due to the type B virus that is often milder (HOPE-SIMPSON, 1992).

The most striking feature of the flu epidemic behavior is that periodically pandemics occur and affect a large part of the world's population. In 1918 the flu surprised the world by its lethality and until now it has been researched and the theories are being reviewed following the technology (CROSBY, 1989; REID, FANNING, HULTIN; TAUBENBERGER, 1999; REID, FANNING, JANCZEWSKI; TAUBENBERGER, 2000).

OBJECTIVE

The objective of this study is to demonstrate the importance of the Spanish flu in São Paulo city through the number of cases and deaths of the Brazilians and European immigrants.

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2 From Fundação SEADE estimative of population to São Paulo city 1894 to 1998.

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Flu is a zoonotic disease that affects many species of birds and mammals. Phylogenetically, the 1918 gene seems to be an intermediate between mammals and birds, suggesting that it was introduced into mammals just before the 1918 pandemic. The researches mention the introduction of the human pandemic at about 1905, and microbiologic analysis of genes from human and swine viruses point to 1900. Protein analysis of the 1918 virus suggests that some genes possibly were being adapted in mammalian host some time before emerging in pandemic form (REID, et al.; TAUBENBERGER, 2000; BASLER et al. 2001).

In 1918 came the greatest pandemic of Spanish flu that caused dreadful mortality and tremendous social and economic disruption. This pandemic was exceptionally severe, killing 20-40 million people worldwide, with unusually high death rates among young and healthy adults (BASLER, et al. 2001). The disease emerged and swept the world in six months. Some studies say that in the USA, a mild wave of flu appeared in the spring and summer of 1918. It caused few deaths but in August, a virulent form of the disease emerged (CROSBY, 1989; HOPE-SIMPSON, 1992; DONALDSON, 1922).

Even in the severe American autumn wave 80% of patients suffered only 3 to 5 day illness. However, sudden onset was more striking than usual. It was commonly found that about 20 per cent of cases developed pneumonia and a considerable proportion of these people ended fatally (CROSBY, 1989).

By 1918 most doctors had already accepted the germ theory of infectious diseases and it was known that microbes that were smaller than bacteria caused some diseases. When researches were concentrated on trying to find a bacterial cause of flu, in Germany, Pfeiffer discovered a particular bacterium present in great numbers in the throats of patients with flu. It was called 'Pfeiffer's influenza bacillus', but not everyone was convinced that it was the cause of the disease. So experiments were undertaken to ascertain that the cause of Spanish influenza was a virus, but the technical methods then available were crude (REID; FANNING; HULTIN; TAUBENBERGER, 1999).

The cause of flu was discovered not by a direct attack on the human disease but in studies on an animal disease. Koen, a veterinarian of Fort Dodge, Iowa, working as an inspector of the USA Bureau of Animal Industry, observed a disease in pigs which he believed was the same disease as Spanish flu. He describes his diagnosis, written in 1919, as "It looked like flu, and until proved it was not flu, I shall stand by that diagnosis" (HOPE-SIMPSON, 1993).

In 1928, veterinarians in the Bureau of Animal Industry led by

McBryde successfully transmitted flu from pig to pig. About this time Shope, was working at Rockefeller Institute for Comparative Pathology at Princeton, New Jersey, repeated McBryde's experiments under strict experimental conditions.

In 1935, Smith discovered a method to cultivate the virus and it has been studied until now.

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THE IMMIGRANTS

The Brazilian economy in the beginning of the 20th century was based on the agricultural exporting model. São Paulo was the Capital of a prosperous and important Province of São Paulo where remained the patterns of urban life of colonial period. The republic had occurred in 1889 and the slaves' freedom in 1888. The explosion of the coffee growing production brought to the city most people who lived on the region of Vale do Paraíba – the first intensive culture in the Province. These people stayed together with the ex slaves that lived in the outskirts of the city. The money of the coffee brought to Sao Paulo innovations to urban progress, like streets paved with stones, new public streets, gaslight lamps, telegraph and piped water network (FAUSTO, 1999).

São Paulo had facilities for public health and public school. It was far from Rio de Janeiro that was famous due to plagues like yellow fever, bubonic plague, diarrhea and small pox (COTRIM, 1999). São Paulo government focused on coffee, railroads and immigration to make it one of the most outstanding centers of Brazil. The geoclimatic conditions were favorable to increase the coffee production. São Paulo government Province provided the construction of several railroads to crops transportation from distant areas. It was necessary to provide manpower. The European immigrants were able to deal with agricultural techniques in substitution to slaves (FAUSTO, 1999).

The immigrants were invited to settle on farms and won free tickets to come here. They entered São Paulo city from Santos harbor and were registered to go to different farms and regions in "Hospedaria dos imigrantes". The coffee monoculture forced the people to look for food in urban centers once foodstuffs were no longer produced on the farms. São Paulo city became bigger and bigger, the trade, commerce and industry appeared.

Provincial Law of March 30 1871 authorized the emission of

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government bonds to cover the cost of boat fares for the immigrants. In August of this year, the Association for the Aid of Colonization was created to provide resources for those who would look for employment on farms and for their families. Ten years later, with the success of this initiative, the manpower recruited by the prosperous urban commerce and by a progressive industrialization of the Capital. To further stimulate this process, Provincial Law of February 1881, increased the resources of each settler in order to reimburse traveling expenses and created Immigrant Hostel in the Capital to shelter them until they were employed.

An evolution of the results of the immigration policy during the Imperial period shows that according to the censuses of 1872 and 1886, the proportion of Europeans in the population of the province grew from 1.2 to 4.4%. The effects of immigration on the industrial and commercial expansion of the Capital during the same period indicated more intense growth, from 8 to 25%. The European immigrants were highly mobile and many of them became aware of the disparity between urban and rural opportunities. Thus, many of them started to settle in the Capital, which was beginning to show its progress towards a metropolis: 23,243 inhabitants in 1872, 44,030 in 1890 and 192,409 in 1893 (PILAGALLO, 2002; FAUSTO; TRUZZI; GRUN; SAKURAI, 1995).

Coffee, railroads and immigration were the three factors responsible for the progress of São Paulo and it increased Brazil exports and brought a more dynamic economy for the country as a whole. This also intensified the Capital, which became the second most important center of the national scene within a short period of time.

The population movements that occurred during the period of 1900-1930 were subjected to the continuity and intensification of this process.

The migratory process would be increased in 1808 by the arrival of approximately one million people to the harbor of Santos (FAUSTO, 1999). The immigrants opted to emigrate because of the bad condition in their countries but they didn't find what was shown in the propaganda, which stimulated them, to come. The immigrants from Portugal, Japan and Eastern Europe remained in Brazil despite the bad conditions.

The flow in and out of the Capital was intensified by the lower stability of urban immigrants compared to rural. It attracted the rural population to the increasing opportunities.

Many epidemics that rampaged through Brazil at this time disappointed and scared them who were known to be susceptible to tropical diseases for immunological reasons. Yellow fever and

typhoid fever ironically seemed to prefer foreigners to Brazilians (SALLES, 1997).

The process in São Paulo was unique in South America. The State intervention in public health adopted sanitary measures for economic reasons. The government of European countries blocked the immigration because of the tropical diseases (CERRI, 1997; PILAGALLO, 2002). The Brazilian government created hospitals and institutions dedicated to experimental medicine to vaccination and to the production of medication.

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THE SPANISH FLU HISTORY IN SÃO PAULO³

It has become usual to describe the 1918 pandemic as having arrived in three different waves, the first from April to July 1918, the second October and November 1918, and the third February and March 1919. These waves increased mortality in many areas of the world (HOPE-SIMPSON, 1992).

In Brazil the epidemic suddenly appeared with shocking morbidity and mortality during a short period of time between October and December (1918). On October 9 the newspaper “A Gazeta” reported that some ships arrived in Rio de Janeiro harbor with suspicious cases of Spanish flu, and into the army appeared the first cases. In Rio de Janeiro the deaths began on October 15, while in São Paulo on October 21.

The newspapers related the devastating pandemic in Rio de Janeiro and Santos. These cities are both, until now, important seaports and had received the cases of flu by ships. São Paulo’s newspaper continued showing news from these cities. The entrance of the Spanish flu in São Paulo was reported without certainty that the flu was brought from Rio de Janeiro by the soccer players who were in the city because of a local cup on October 16. One day after appeared 29 cases.

On October 18 the Red Cross and Medicine University made a speech on the newspapers to present a plan to face the epidemic. The medicines’ prices rose suddenly. The newspaper noticed, “The flu is a good answer to the lazy”. On October 21 the authorities closed the theaters, public schools and transformed the schools in

³ The data to the studied period were collected from the newspaper “A Gazeta” from September to December.

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provisory hospitals to attend to the people. On the following days the authorities closed São Francisco University (Law Studies) and lottery games “bicho”, they put telephones in all provisory hospitals to answer calls. On the news appeared the ideas to isolate the city from Rio de Janeiro and Santos.

The number of cases incredibly raised and on October 24 they decreed holiday. At this time all trains to the countryside regions were crowded. The newspaper reported on October 30 that it was impossible to the sanitary service take care of all the sick and some of them died without attention. The same news related some calls for burials, which weren't.

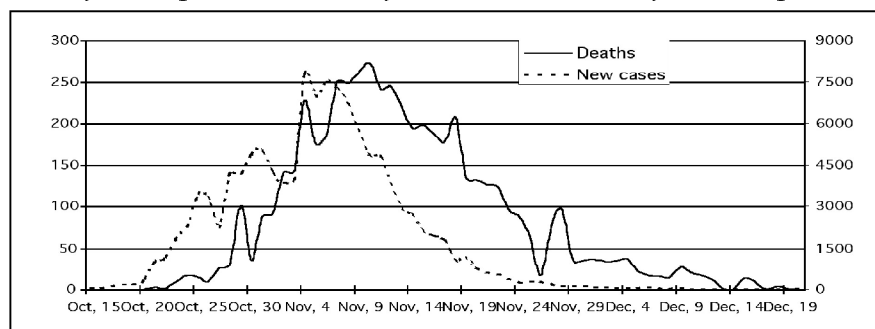
Many doctors and nurses became ill, and cemeteries were closed to visitation. The funerary services stuff off and the corpses were buried improperly conditions. The epidemic was real and the people saw in October a phenomenon that possibly would be unique in human history.

On November 4 the sanitary service argued with the journalists and stopped giving the directly information for some days.

In Rio de Janeiro and Santos the deaths almost disappeared in the middle of November but in São Paulo it occurred in the middle of December. The newspaper changed the issues and the lives went on. Like an awful nightmare the city returned to its routine. It is a question of interpretation because all of the people kept forever in mind the idea of the plague.

Since October 15 until December 19 the newspaper reported day by day the number of new cases and the name of the deceased.

FIGURE 1 shows the cases and death due to Spanish flu since October 15 until December 20 in São Paulo 1918. It compares the curves of mortality and morbidity. These curves were about all people and it was possible to verify that between the curves there is a gap of six days. The peak of morbidity occurred after 21 days of the epidemic



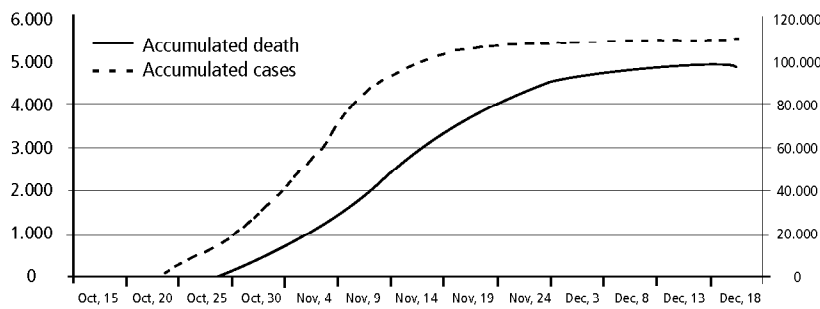
beginning and the peak of mortality after 27 days. After the peaks the hard onset appeared and on December 20 the pandemic dissipated.

FIGURE 1 – Mortality and Morbidity due to Spanish flu in São Paulo, 1918.

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The elected president of Brazil, Rodrigues Alves, died due Spanish flu, the State of São Paulo governor and the mayor of Sao Paulo city stayed with flu during this time.

FIGURE 2 shows the accumulated cases and deaths due to Spanish flu since October 15 until December 20 in São Paulo 1918. The incidence diminished to new cases during the week of November 19 and to deaths on December 3. After these periods the



hard onset appeared and the pandemic stopped. It was observed that 4,47% of the cases died.

FIGURE 2 – Accumulated numbers in each five days period to Mortality and Morbidity in São Paulo, 1918.

The Hospedaria dos Imigrantes was turned into a provisory hospital after the emergence of 80 flu cases in one day. The European immigrants, who were part of the city, became ill and nothing were properly related about them. In my own family (Portuguese immigrants) died my grandfather's brothers and sister in law who was pregnant. All families have some histories to tell.

The effect of the flu on the overall mortality in this period is in

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TABLE 1. During the epidemic there were some lacks into the sanitary statistics, so for some weeks there are no data (TABLE 1). In the first week the deaths were almost normal, but in the week of 21/10 the Spanish flu raised. From 18/11 to 24/11 the flu was 81% of all deaths.

Death	30/9 to 6/10	7/10 to 13/10	21/10 to 27/10	28/10 to 3/11	18/11 to 24/11	2/12 to 8/12	9/12 to 15/12
Spanish Flu	3	0	62	575	905	169	114
All causes	162	160	283	904	1112	428	390
Male	94	80	166	491	556	225	191
Female	68	80	117	413	556	202	199
All sex	162	160	283	904	1112	428	390
Brazilians	129	107	200	624	862	348	311
Immigrants	33	53	63	275	226	80	73
All people	162	160	283	904	1112	428	390

TABLE 1 – Deaths in São Paulo city occurred in the period of Spanish influenza (1918) to some weeks due to Spanish flu and all cases.

Datas from Demographia Sanitária - A Gazeta 1918

The deaths occurred equally for males and females. The Europeans immigrant's deaths are 23% of all death, for the city they are in 1910 21% of the population.

It is almost obvious that the immigrants died in the same pattern of all the population. The Kruskal Wallis statistic points no differences in the Spanish flu deaths to males, females, Brazilians and immigrants ($p = 0,17$).

The Serviço Médico Legal (Medical law) verified in São Paulo, in 1918, 4,198 exams. In the period of 1908 to 1936 were observed the annual deaths means 1,118 (643 sd). Today observing the mortality of all the century this period was the highest one.

CONCLUSION

There are no scales to measure losses of lives and dreams. For the immigrants that were trying to be adapted to the new life the Spanish flu brought them desperation. At this time the newspaper reported some suicides and the facts demonstrated a little part of the social and economic effects. All population cannot try to measure the cost of the disease in human misery or estimate the tragedies. Until now the researches have been doing an effort to develop drugs that act on the virus but it's also still limited.

In 1929, W. M. Scott of the British Ministry of Health wrote, "there is little hope that the difficulties will ever be overcome in the case of flu" (SCOTT, 1929). This speech just emphasizes until now the situation.

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RESUMO

O objetivo deste estudo é demonstrar a gravidade da gripe espanhola na cidade de São Paulo através do número de casos e mortes para os brasileiros e imigrantes europeus que viviam nessa cidade no ano de 1918. Os dados foram coletados do jornal "A Gazeta" no ano de 1918 e retratam a passagem da pandemia pela cidade.

São Paulo tinha, em 1918, 523.1964 habitantes e foi onde ocorreram 107.512 casos notificados de gripe. A letalidade foi extremamente alta e as taxas variaram em diferentes surtos ao redor do mundo, para São Paulo calculou-se 4,5 mortes em 100 casos notificados, totalizando 4.814 mortes. Na cidade se estima que morreram 0.99% da população pela gripe espanhola, no período de 15 de outubro a 20 de dezembro de 1918. O pico de morbidade ocorreu após 21 dias do primeiro caso notificado e o pico de mortalidade após 27 dias da primeira notificação de caso vivo. Após os picos, o declínio foi extremamente brusco, desaparecendo em 20 de dezembro. Na primeira semana de epidemia, as mortes demonstram o padrão normal da cidade, mas em 21/10 a epidemia fez com que as mortes aumentassem bruscamente. De 18/11 a 24/11 a gripe espanhola representou 81% das mortes por todos os tipos de causas. As mortes foram equitativas para homens e mulheres. Vinte e três por cento das mortes ocorreram em imigrantes europeus, que representavam 21% da população da cidade.

PALAVRAS-CHAVE: gripe espanhola; mortalidade; morbidade

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