Estimating Mortality From the Influenza Pandemic of 1918–19 in Suriname and the Dutch Caribbean

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To cite this article: MacDonald, A., Rosenbaum-Feldbrügge, M., & Quanjer, B. (2025). Estimating Mortality From the Influenza Pandemic of 1918–19 in Suriname and the Dutch Caribbean. *Historical Life Course Studies*, *15*, 237–246. https://doi.org/10.51964/hlcs22374

HISTORICAL LIFE COURSE STUDIES

Histories of Health

VOLUME 15, SPECIAL ISSUE 7

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HISTORICAL LIFE COURSE STUDIES
VOLUME 15 (2025), 237–246, published 29-08-2025

Estimating Mortality From the Influenza Pandemic of 1918–19 in Suriname and the Dutch Caribbean

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ABSTRACT

This paper reassesses the extent of the 1918–19 influenza pandemic in the former Dutch colonies of Suriname and the Dutch Caribbean islands. Although both colonies were under Dutch rule, local context, statistical registration practices, and available source material varied considerably. We use data derived from the Colonial Reports (*Koloniale Verslagen*) and from the recently digitised civil registration data. Whenever possible, we apply the cause-specific excess mortality approach to estimate the number of fatalities caused by the epidemic. Alternatively, all-cause excess mortality will be calculated. We estimate that the 1918–19 influenza caused about 2,200 deaths in Suriname and around 210 deaths on the Dutch Caribbean islands. In Suriname, contract labourers from the Dutch East Indies and from British India had higher influenza-related mortality rates than the creole population originating from the African continent. As influenza was endemic in Suriname, the creole population might have been better protected than the Asian contract labourers against the 1918–19 influenza.

Keywords: 1918–19 Influenza pandemic, Suriname, Curaçao, Mortality, Colonial reports, Pandemic, Spanish flu

e-ISSN: 2352-6343
DOI article: https://doi.org/10.51964/hlcs22374

1 INTRODUCTION

The recent COVID-19 pandemic sparked renewed interest in the characteristics, spread, and mortality patterns of the 1918–19 influenza pandemic (Athukorala & Athukorala, 2022), which was characterized by high levels of morbidity and mortality particularly among young adults (Johnson & Mueller, 2002). It is estimated to have affected 500 million persons, about one third of the global population at that time and caused between 40 and 100 million deaths (Johnson & Mueller, 2002; Rijpma et al., 2022).

Whereas much data has been collected and much contemporary research conducted on the impact of the 1918–19 influenza in Western countries, less is known on how much non-Western countries in general and colonies in particular were affected by the pandemic. The Kingdom of the Netherlands is a good example in this regard. It is estimated that around 41,000 individuals died from the 1918–19 influenza in the Netherlands, most of them during the autumn wave of 1918 (Quanjer, 1921; Rijpma et al., 2022). Estimates for the former Dutch colonies, the Dutch East Indies (present day Indonesia), Suriname, and Curaçao and its dependencies[1], in contrast, are much less precise or even lacking. For instance, modern fatality estimates for the Dutch East Indies range from 1.5 million for the entire colony (Brown, 1987) to 4.3 million for the most populated island of Java alone (Chandra, 2013). For Suriname and Curaçao and its dependencies no modern estimates of the number of affected persons or fatalities exist at all.

In this article, we will estimate mortality from the influenza pandemic of 1918–19 in Suriname and the Dutch Caribbean. We will estimate excess mortality, mortality rates and the total number of fatalities for each colony. The quality of data collection in colonial contexts is typically lower than in the colonizing countries and is often divided by ethnic lines. Special emphasis is therefore given to the possibilities and challenges of the different types of population statistics available in each colony. We use official data from the Colonial Reports (*Koloniale Verslagen, KV*) publicly available at the time of the pandemic, and digitised civil registration data that were recently collected by the Historical Database of Suriname and the Caribbean project (HDSC).

2 BACKGROUND

2.1 THE POPULATION OF SURINAME AND THE DUTCH CARIBBEAN IN THE EARLY 20TH CENTURY

At the beginning of the 20th century the Kingdom of the Netherlands included two colonies in the Americas that were shaped by the European colonisation: Suriname, located on the North Coast of South America, and Curaçao and its dependencies (Aruba, Bonaire, Saba, Sint Eustatius, and Sint Maarten), consisting of six small islands located, as two groups of three islands, roughly 1,000 miles apart, within the Lesser Antilles in the Caribbean. In Suriname and Curaçao and dependencies up to the abolition of slavery in 1863 the main legal distinction was between the free and enslaved population. With the abolition of slavery all residents, in principle, were subject to the same legislation and had the same rights and obligations.

Since the mid-19th century, the population of Suriname had become ethnically highly diverse. In addition to the established population consisting of people of European, African, and Amerindian descent, large numbers of migrants from Madeira, China, British India, and the Dutch East Indies had been contracted to work on the Surinamese plantations in the second half of the 19th and the beginning of the 20th century. From 1906 onwards, the colonial reports presented statistical information of the population by *landaard*, i.e. by national origin or ethnic group (Europeans, people from Dutch East India, people from British India, Natives (*inboorlingen*), Others, and from 1911 onwards also Chinese). The term "Natives" incorrectly referred to the population of African descent and was restricted to the creole population that was under the authority of colonial rule. It did not cover the maroon population who were the descendants of enslaved Africans who escaped from the plantations and settled in the

1 "Curaçao and its dependencies" was the official name used for the colony including the larger Southern Caribbean islands Curaçao, Aruba, and Bonaire, and the smaller Leeward islands Saba, Sint Eustatius, and Sint Maarten. We will use this term to indicate this administrative region within this paper.

inland of Suriname, as they were not registered by the colonial government during the study period. Because of its incorrect terminology, instead of the term "Natives" in this article we use the term "Creole" to describe the largest population group of the colony.

At the end of 1917, the population of Suriname was estimated to be around 92,000, with roughly 40% living in the capital and only city Paramaribo. The largest population groups were the creoles originating from the African continent (52,000) followed by the contract labourers from British India (25,000) and from the Dutch East Indies (10,000). People belonging to the 'Other' category, which included the migrants from Madeira and the Middle East, represented 3.3% of the total population, whereas persons from European and Chinese descent formed around 1% each of the population (KV, 1918, II, Supplement A, Table b).

Unlike Suriname, Curaçao and dependencies were not plantation colonies and therefore did not experience the immigration of Asian contract workers. In the Colonial Reports, no information of the ethnic background of the population is provided, but the population groups were classified according to their place of birth and more than 97% of the population was born in the Caribbean, most of them from African descent. Less than 1% of the population was born in Europe. At the end of 1917, the population of Curaçao and its dependencies was estimated to be around 58,000, with roughly 60% living on the main island Curaçao, followed by Aruba (16%) and Bonaire (12%).

2.2 THE 1918–19 INFLUENZA PANDEMIC IN SURINAME AND THE DUTCH CARIBBEAN

2.2.1 SURINAME

Suriname had been affected by influenza epidemics in the 19th century, and influenza was endemic in the early 20th century. According to the Colonial Reports of 1919, the influenza pandemic entered the country at the Eastern border with French Guiana in mid-November 1918 and by the end of the year there were large numbers of infected persons and approximately 500 fatalities (KV, 1919, II, col. 18). The 1920 Colonial Reports stated that the "Spanish influenza which had affected the country at the end of last year and claimed many victims, especially among the lower classes of the population, ended in March" (KV, 1920, II, col. 15). No further statistics on the number of infected persons or fatalities were provided.

As Dutch Guiana, Suriname was included in a publication of the English Ministry of Health which aimed to report on the global character of the 1918–19 influenza pandemic. It reported monthly details of fatalities for 1919 with 48 fatalities in January, 116 in February, and 7 in March 1919 (Ministry of Health, 1920, p. 342).

2.2.2 CURAÇAO AND DEPENDENCIES

Neither the Colonial Reports nor *Amigoe di Curaçao*, the leading newspaper, reported comprehensively on the 1918–19 influenza. The Colonial Reports of 1919 stated that for the most populated island Curaçao, "the state of health was for most of the year not unsatisfactory. In October and November there was a severe influenza epidemic, which however was quite benign" (KV, 1919, III, col. 9). Elsewhere in the report, however, it is mentioned that in the military hospital 36% of the personnel was admitted for treatment, which was attributed to the influenza epidemic (KV, 1919, III, col. 6).

On 26 October 1918, *Amigoe di Curaçao* informed that the influenza epidemic had affected Curaçao, and probably also Aruba, and that the authorities had taken preventive measures to control the spread of the disease. On 23 November 1918, it reported "that yesterday official sources stated that the influenza epidemic had almost come to a standstill", but that there were still patients recovering and caution should be exercised. It reported that in the urban district Willemstad between 24 October and 20 November a total of 100 persons had died, probably most of them due to influenza. In its edition of 14 December 1918, it reported the deaths of two re-infected persons.

For the other islands the Colonial Reports mentioned 31 influenza deaths on Aruba and 37 deaths on Bonaire related to the influenza epidemic (KV, 1919, III, col. 10). On the smaller Leeward islands, no incidences of influenza were reported for 1918, but Sint Maarten and Sint Eustatius each reported two influenza deaths for February 1919, and Saba counted three influenza deaths in March and April of the same year (KV, 1920, III, col. 11–12).

3 DATA

In the Dutch colonies, in principle the same administrative ethos and organisational rules were applied, and several Dutch administrative structures, institutions and procedures dealing with governance, public administration, health, and education were introduced. These included a statistical service, a civil registration system, and a health service system. In practice, there was a considerable difference in the introduction of those principles and practices, affecting the availability of data that can be used to measure the incidence and fatalities of the 1918–19 influenza epidemic.

From 1848, the Dutch government had to inform parliament annually about the situation and conditions in the colonies. Over the years these annual reports had a few different official titles but were generally referred to as the Colonial Reports. They contained secondary statistical information on all aspects of relevance to the management of the colony: population and its movements, security, military and the judiciary, education, health, trade, agriculture, mining, etc., and are available for the Dutch East Indies (I), Suriname (II), and Curaçao and its dependencies (III).

3.1 SURINAME

Suriname had a well-established statistical data collection system based on the civil registration and several other registers kept by different governmental agencies. During 1913–1921 in Suriname six nationality or ethnic groups were distinguished. The main groups are the creoles, the contract labourers from British India, and the contract labourers from the Dutch East Indies, with very small numbers of Other, Europeans, and Chinese.

Mortality data were disaggregated by location, sex and age, and date of occurrence. From 1904 to 1919, sex disaggregated causes of deaths for the capital and only city Paramaribo were recorded and published in the local media and the Colonial Reports (see for instance KV, 1919, II, Appendix H). As the influenza mortality data of Paramaribo do not indicate the ethnic group of the deceased, the three smallest population groups (amounting to 5.3% of the total population), for statistical reasons, are merged with the creoles who accounted for the large majority of the population in Paramaribo (about 90%), forming a synthetic Creoles+ group. Using the influenza and related mortality for Paramaribo, and the data from the migrant groups the number of deaths and the mortality rate for the Creoles+ is obtained.

In addition, from 1909 to 1919 data on the causes of deaths of the labourers from British India and the Dutch East Indies who were under contract in that particular year were produced (see for instance KV, 1919, II, col. 26). Most of these contract labourers lived in the rural districts, which comprised of all parts of Suriname except for the capital Paramaribo, and which were dominated by plantation agriculture. Those statistics do not include the larger population of migrants from British India and the Dutch East Indies who had stayed in the colony after their contract ended after typically five years. The total number of contract workers from British India decreased rapidly in our study period because on 17 March 1917 the British Government cancelled the treaty allowing the immigration of free labourers from India. Since 1916 therefore only labourers from the Dutch East Indies were recruited and their number increased considerably. It is possible to use these causes of death data to estimate the fatality numbers and mortality rates of the 1918–19 influenza in Suriname, for the total population, the main location (Paramaribo and the districts), and the main ethnic groups for 1918 and 1919. Population information disaggregated by age is not available for Suriname, which makes it impossible to calculate age-specific mortality rates.

In addition to the information provided in the Colonial Reports, we use the recently digitised and transcribed death certificates of the capital Paramaribo for the period 1916–1920 (van Oort et al., 2024).[2] These certificates have been transcribed within the scope of the HDSC project which aims to publish all Surinamese civil certificates for the period 1828–1950. The transcription process rests on the help of hundreds of engaged citizen scientists using an online transcription platform (hetvolk.org). The death certificates do not contain causes of death, but using the age distribution at death will allow some inference to be made on the magnitude of the fatalities caused by the 1918–19 influenza.

2 The published death certificates only cover the period until 1915 so far. For the period until 1928, the death certificates have been transcribed but not yet controlled. Because we are only interested in sex and month and age of death, we are certain that the missing controls do not affect our results. The death certificates of the period until 1928 will be published with the National Archives of Suriname once the controls have been carried out.

They also allow us to identify periods of high numbers of excess deaths and to judge the quality of information provided in the Colonial Reports.

3.2 CURAÇAO AND DEPENDENCIES

For Curaçao and dependencies we use aggregated death statistics as published in the Colonial Reports. In addition, the digitised civil registration data allow us to examine the incidence of influenza in greater detail. Population information disaggregated by age is not available for Curaçao and dependencies, which makes it impossible to calculate age-specific mortality rates.

It is expected that the available data somewhat underestimate the total number of deaths because there was no legal requirement to register deaths in Curaçao and dependencies (Waterman, 1919). Furthermore, the 1921 Colonial Reports note that the so called *begrafenisverordening* (burial ordinance) was not implemented, which implied that all provided statistics in the reports were based on the assessments of doctors and civil servants rather than on reliable causes of death statistics (KV, 1921, III, col. 9). Nevertheless, the number of individual death certificates approximately matches death statistics reported in the Colonial Reports, which indicates that the use of these sources will produce similar reliable outcomes.

4 METHODS

In this article, the disease-specific excess mortality approach will be used to estimate the number of fatalities caused by the epidemic. Whenever possible, the excess mortality of the influenza-linked diseases, tuberculosis, organic heart diseases, bronchitis and pneumonia will also be considered. Ideally, the number of persons affected by the diseases during the period in which the epidemic is active will be compared with a period before and after. However, it is not always possible to have information of the period after the epidemic. In Suriname for the contract labourers no causes of death statistics were published after 1919.

For the population of Paramaribo and the two contract labourer groups from British and Dutch India, disease specific causes of death statistics for 1918 and 1919 will be compared with the period 1913–1917. To calculate influenza excess mortality rates, we use the end of year population of 1918 which is available by ethnic group in the Colonial Reports. For Curaçao and dependencies, disease-specific information is not available and the all-cause mortality for 1918 and 1919 will be compared with the averages of 1913–1917 as reference.

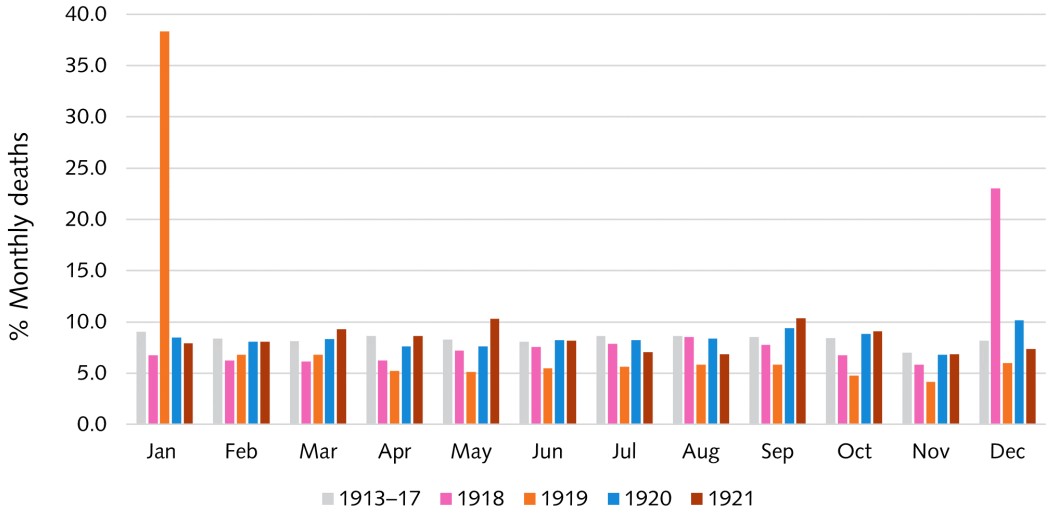
Based on the results of the first (modern) population census of Suriname in 1921 it is known that the population data used in the preparation of the statistical information for the years 1913–1919 were under-estimates. Moreover, during the period there were also British Indian contract labourers from neighbouring countries, mostly present-day Guyana and Trinidad and Tobago, in Suriname looking for employment or transport back to India. These persons were separately registered by the office of the Agent General, and for 1918 and 1919 their numbers were estimated to be around 1,900. In the reference population they were added to the number of free workers from British India.

5 RESULTS

5.1 SURINAME

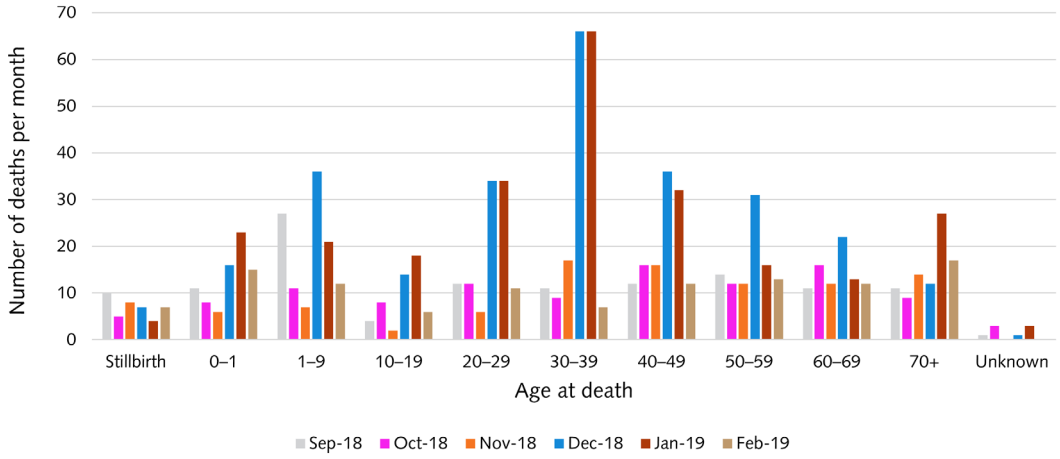
To identify the number of waves of the epidemic in Suriname, we used two different sources: The Colonial Reports of Suriname (see Figure 1) and the recently transcribed Paramaribo death certificates (see Figure 2). Both sources indicate high levels of excess deaths in December 1918 and January 1919. Figure 2 suggests that those aged 20–29, 30–39, and 40–49 were confronted with the largest mortality peaks which is typical for the 1918–19 influenza. In addition, the data indicate that excess deaths were larger among the male than among the female population of Paramaribo (not shown here).

Figure 1 *The average monthly number of deaths of the period 1913–1917 and the years 1918–1921 for Suriname*



Sources: Colonial reports of Suriname, 1913–1921.

Figure 2 *Monthly number of deaths by age group in Paramaribo, for period September 1918 to February 1919*



Source: Paramaribo death certificates.

Table 1 provides an overview of the average number of deaths caused by influenza and related diseases for the reference period 1913–1917 and for the years 1918 and 1919 for the population of Paramaribo and the contract workers from British India and the Dutch East Indies. The number of influenza-related deaths is indeed significantly larger for the periods under study. Among the population of Paramaribo, the number of influenza-related deaths increased from an average of 279 in the years 1913–1917 to 456 in 1918 and 393 in 1919. As most contract workers lived in the districts and experienced higher numbers of influenza-related deaths in 1919 than in 1918, this indicates that the pandemic spread from the (port) city to the countryside.

In Table 2, the distribution of the reference population is presented, the estimated number of deaths caused by the influenza pandemic for 1918 and 1919, and the estimated total influenza mortality rate per 1,000, by ethnic group and location. The total number of influenza fatalities in 1918 was 743 cases, nearly 50% more than the number reported in the Colonial Reports of 1919, "appearing in November it caused, till the end of the year, about 500 deaths" (KV, 1919, II, col. 14). The number of fatalities in 1919 is nearly twice (1,460) as much as in 1918; this is due to an increase of mortality in the districts (1,313 fatalities against 545 in 1918). Using the end of year population of 1918, the mortality rate of influenza and related diseases for the period November 1918–March 1919 for Suriname is 20.6 per 1,000; the corresponding rate for Paramaribo and the districts is 9.3 per 1,000 and 26.7 per 1,000, respectively. For the ethnic groups, the values are 7.6 per 1,000 for the Creoles+, 34.7 per 1,000 for the population originating from British India, and 42.7 per 1,000 for the population originating from Dutch East India.

Table 1 *The average number of deaths of the period 1913–1917 and the number of deaths in 1918–1919 caused by influenza and related diseases of residents of Paramaribo and plantation contract workers from Dutch East Indies and British India*

Data type & source	**Mortality data**								
	Paramaribo			Dutch East Indians			British Indians		
Cause of death	Average 1913–17	1918	1919	Average 1913–17	1918	1919	Average 1913–17	1918	1919
Influenza	2	48	127	1	42	145	3	25	56
Pulmonary Tuberculosis	116	97	88	2	4	10	5	2	3
Organic heart diseases	87	160	109	0	1	0	1	0	0
Acute Bronchitis	13	12	11	NA	NA	NA	NA	NA	NA
Chronic bronchitis	10	13	8	NA	NA	NA	NA	NA	NA
Bronchitis	NA	NA	NA	1	1	32	2	0	8
Pneumonia	51	126	50	0	2	27	1	2	6
Total Influenza & related deaths	279	456	393	4	50	214	12	29	73
Unknown causes	111	117	105	13	16	9	13	16	9
All other causes	679	783	936	16	20	10	38	12	36
Total deaths	1,068	1,356	1,434	37	86	233	63	57	118

Source: Colonial Reports of Suriname, 1914–1920.

Table 2 *Distribution of the reference population at the end of 1918, the estimated number of influenza deaths for 1918 and 1919, and the mortality rate by ethnic group and location*

Reference population 1918

Ethnic group	Creoles+		British Indian origin		Netherlands Indian origin		Total	
	Number	% Grand total	Number	% Grand total	Number	% Grand total	Number	% Grand total
Paramaribo	35,322	33.06	1,671	1.56	284	0.27	37,277	34.89
Districts	23,636	22.12	34,017	31.84	11,911	11.15	69,564	65.11
Suriname	58,958	55.18	35,688	33.4	12,195	11.41	106,841	100

Estimated number of influenza deaths in 1918 and 1919

Ethnic group	Creoles+		British Indian origin		Netherlands Indian origin		Total	
	1918	1919	1918	1919	1918	1919	1918	1919
Paramaribo	179	91	14	46	4	10	198	147
Districts	114	61	310	867	121	386	545	1,313
Suriname	293	152	325	913	125	396	743	1,460

Estimated number of total influenza deaths and total influenza mortality rate per 1,000

Ethnic group, Location & Category	Creoles+		British Indian origin		Netherlands Indian origin		Total	
	Number	Mortality rate per 1,000	Number	Mortality rate per 1,000	Number	Mortality rate per 1,000	Number	Mortality rate per 1,000
Paramaribo	270	7.6	60	35.9	14	*	345	9.3
Districts	175	7.4	1,177	34.6	507	42.6	1,858	26.7
Suriname	445	7.6	1,237	34.7	521	42.7	2,203	20.6

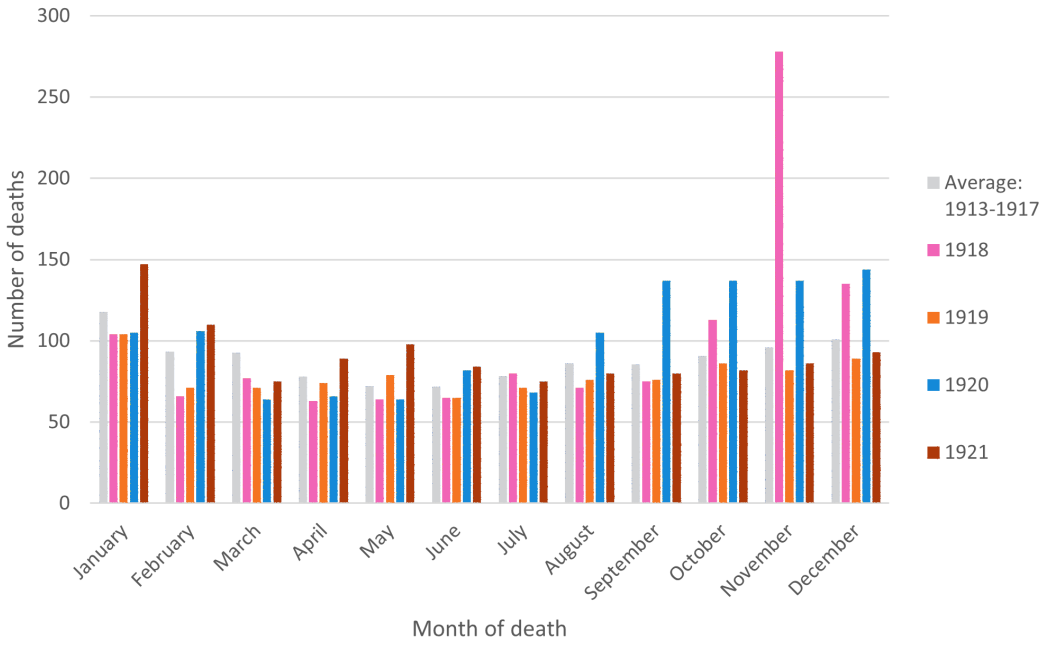
Sources: Colonial Reports of Suriname, 1918–1919; own calculations.

*Note: * Numbers too small for meaningful calculations.*

5.2 CURAÇAO AND DEPENDENCIES

There is little information on the number of waves, or the fatalities caused by the pandemic. Figure 3 shows the total number of deaths per month based on the death certificates of Curaçao, Aruba, Bonaire, Saba, and Sint Eustatius (on the certificates for Sint Maarten month of death is not available). The number of deaths started rising in October and peaked in November when it almost tripled compared to the normal rate. However, from the figure we can deduce that the number of deaths remained somewhat elevated in December as well. The elevated number of deaths a year later, in autumn 1920, is ascribed to a measles outbreak on Curaçao and Aruba which resulted in bronchopneumonia as leading cause of death according to the Colonial Reports (KV, 1921, III, col. 10).

Figure 3 *Number of deaths per month for 1913–1917 (average), 1918–1921, Curaçao and dependencies*



Source: Death certificates of Aruba, Bonaire, Curaçao, Saba, and Sint Eustatius.

Table 3 *Average number of deaths in the months October, November, and December of the period 1913–1917, and the number of deaths and excess deaths in the months October, November, and December of 1918 by age groups in Curaçao*

	Age groups								
Average number of deaths 1913–17	0	1–9	10–19	20–29	30–39	40–49	50–59	60–69	70+
October	11	3	2	6	5	5	5	5	8
November	13	4	2	5	7	5	7	5	10
December	16	5	3	8	6	5	7	6	8
Number deaths 1918	0	1–9	10–19	20–29	30–39	40–49	50–59	60–69	70+
October	13	2	5	13	10	2	6	4	6
November	27	17	18	36	25	11	15	8	14
December	21	5	3	5	3	7	6	7	14
Excess deaths 1918	0	1–9	10–19	20–29	30–39	40–49	50–59	60–69	70+
October	2	0	3	7	5	0	1	0	0
November	14	13	16	31	18	6	8	3	4
December	5	0	0	0	0	2	0	1	6

Source: Curaçao Civil Registration Dataset 1913–1918.

Table 3 deals with the situation in Curaçao only and shows that in December 1918 there were no excess deaths in the age groups 1–9 to 30–39; hence it is unlikely that the 1918–19 influenza was active during that month. The age distribution of deaths for October, and especially for November, shows high frequencies of death in the middle age groups consistent with the 1918–19 influenza epidemic. Accordingly, the influenza pandemic was most likely active in October and November 1918 only.

The available death certificates additionally allow us to construct monthly mortality trends. The timing of the 1918–19 influenza was relatively similar for Curaçao, Aruba, and Bonaire. On Aruba and Bonaire, the pandemic seemed to have peaked in November and December and was not active in October. For these islands, the number of excess deaths for November and December combined (41 and 32) are slightly different compared to the reported influenza deaths in the Colonial Reports (31 and 37). The excess mortality peak on Sint Eustatius during the same period could also reflect an outbreak of influenza. However, mainly children below age five died which would be atypical. The same holds for the elevated mortality levels during the fall of 1920. That mainly children below age five were affected indicates that this was indeed most likely an outbreak of measles.

To sum up, according to our excess-mortality calculations, the 1918–19 influenza caused 130 fatalities on Curaçao, 41 on Aruba and 32 on Bonaire in the period October–December 1918, which results in a comparatively low influenza mortality rate of around 4 per 1,000 for the Southern islands Curaçao, Aruba, and Bonaire. For the Leeward islands Saba, Sint Eustatius and Sint Maarten, the number of deaths is too low to calculate reliable estimates.

6 DISCUSSION AND CONCLUSION

The current article studied the extent of the 1918–19 influenza within Suriname and the Dutch Caribbean, with an emphasis on the possibilities and limitations posed by the availability of population statistics. Although both colonies had been dealing with the same colonising power since the late 1600s, the functioning of key administrative institutions such as population statistics and the civil registration differed considerably. This in turn resulted in colonial population statistics of different levels of completeness and diversity which affected our capabilities to adequately measure the incidence and fatalities of the 1918–19 influenza pandemic. Accordingly, different estimation methods for the incidence and fatality of the pandemic had to be used. Although our preferred method was the disease specific excess mortality approach, the lack of disease specific cause of death statistics made it necessary to use the all-cause excess method, particularly for the Dutch Caribbean islands.

The information in the Colonial Reports and the digitised civil registration data of Paramaribo indicate that Suriname experienced only one influenza wave in the months December 1918 and January 1919. The pandemic entered the country in the most Eastern district, spread to the capital (and only) city Paramaribo and to the districts where mainly workers from British and Dutch East India were located. The population of Paramaribo experienced highest excess mortality in December 1918, whereas the population in the districts experienced highest mortality levels in January 1919, after which the influenza epidemic died down quickly and never returned. Taken together, we estimate that around 2,200 people died from the 1918–19 influenza in Suriname, and as expected particularly adults aged 20–49 were heavily affected. The influenza mortality rates were considerably higher among the British and Dutch East Indian contract labourers than among the creole population. As influenza was endemic in Suriname, the creole population might have been better protected than the more recently arrived Asian contract labourers, especially those from the Dutch East Indies, against the 1918–19 influenza.

Given the low number of inhabitants of Curaçao and the dependencies, epidemics can easily affect the reference years to assess excess mortality. Despite this limitation, the number of excess deaths for Aruba and Bonaire is relatively close to the number of deaths reported in the Colonial Reports. This is quite surprising as the contemporary sources emphasize the flawed death registration on the islands. In sum, the 1918–19 influenza caused about 200 deaths (on a population of 50,912, 4 per 1,000) in the fall of 1918 on the Southern islands Curaçao, Aruba, and Bonaire and less than 10 deaths (on a population of 6,689, 1.5 per 1,000) on the Leeward islands in spring 1919. Most likely only one wave of influenza affected the islands, yet any second wave might be clouded by the outbreak of various infectious diseases during the following years.

To put our findings in perspective, in their study on the impact of the 1918–19 influenza in 12 European countries plus New Zealand and British India, Spreeuwenberg and colleagues (2018) calculated an average excess death rate of 7.9 per 1,000 in 1918 and of 1.3 per 1,000 in 1919, with British India having by far the largest excess mortality rates. Our results demonstrate that the Dutch Caribbean population was, on average, affected less heavily by the 1918–19 influenza (between 1.5 and 4 per 1,000), whereas the excess mortality rate among the total Surinamese population was considerably higher than average (20.6 per 1,000 overall). As the mortality rate of the Creoles+ population of Paramaribo was significantly lower (7.6 per 1,000) than the mortality rate of the population originating from British India (34.7 per 1,000) and the Dutch East Indies (42.7 per 1,000), it becomes obvious that the relatively large mortality rate was driven by the Asian contract labourers.

To conclude, although our overall estimates are the best possible given the nature of the data, we should be aware that a diverse population lies beneath these figures and that inequality is very much rooted within a colonial society. In both colonies reference was made to the fact that the most vulnerable members of society were most susceptible to be victims of the pandemic (KV, 1919, II, col. 15; KV, 1919, III, col. 9), such as the contract labourers from Dutch East India in Suriname. Accordingly, we consider our present article as a necessary first step in revealing health inequalities in colonial contexts. In line with Ravando (2022), we also call for more qualitative research into what preventive medical and socio-economic measures were taken by society, colonial government, and particularly cultural and religious groups to control the spread of the 1918–19 influenza among non-Western populations.

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