

## Historical Perspective

# Past Influenza Pandemics and their Effect in Malta

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## Abstract

The influenza virus type A has caused repeated pandemics throughout the 19<sup>th</sup> and 20<sup>th</sup> century causing significant morbidity and mortality on a worldwide scale. The worst pandemic on record during the 20<sup>th</sup> century was that which occurred during 1917-19, the virus being assisted in its spread by the massive movement of persons brought on by World War I. The present increasing international travel has led to increasing alarm of the possible effects of an emerging pandemic with the WHO issuing guidelines to ensure the preparedness of health authorities. The various Influenza Type A pandemics of the late 19<sup>th</sup> and 20<sup>th</sup> century have had a varying effect on the Maltese community with influenza reaching epidemic proportions during the 1889-90 Asiatic Flu, 1917-19 Spanish Flu, 1957-58 Asian Flu pandemics, and 1968-69 Hong Kong flu, but no apparent effect during the 1977-78 Russian Flu pandemic.

## Introduction

The term "Influenza" was first applied to the specific acute viral respiratory disease in 1803 when the infection caused an epidemic in Britain. The infection is generally characterised by fever, coryza, cough, headache, malaise and inflamed respiratory mucous membranes; however its complications of haemorrhagic bronchitis and pneumonia leads to a significant mortality. Throughout the nineteenth century, a number of influenza pandemics reached European countries including Malta. Early 19<sup>th</sup> century European pandemics that apparently affected the Maltese population included those of 1836-37 and 1847-48. During the 1836-37 epidemic, it was reported that in Malta few persons escaped the infection; while during the 1847-48 epidemic, the Maltese population was apparently significantly affected during the month of November 1847.<sup>1</sup> No statistical data is available for these two epidemics. Compulsory notification of infectious disease was introduced in Malta in 1871; however the original ordinance [Ord. XI of 1871] failed to include influenza in the list of notifiable infections. Influenza was made a notifiable infection on the 20<sup>th</sup> January 1890 with the appearance of the 1889-90 influenza pandemic in Malta.<sup>2</sup> While minor cases of influenza not seeking formal medical care went unreported, the notification records provide an insight into the pattern of epidemic infections in the Maltese Islands.

## Material & Methods

Incidence and mortality data for influenza cases was obtained from various published official sources. The data for 1890-1895 were obtained from the fortnightly "Statements of mortality in Malta and Gozo" and the "Comparative statements of cases of contagious disease reported" published in the *Malta Government Gazette*.<sup>3</sup> After 1896, incidence data was made available in the annual reports published by the Department of Health [1896-1972] and the Central Office of Statistics [1966-1981].<sup>4,5,6,7</sup> The annual reports of the Department of Health also enabled detailed analysis of the 1917-19 epidemic.

## Results

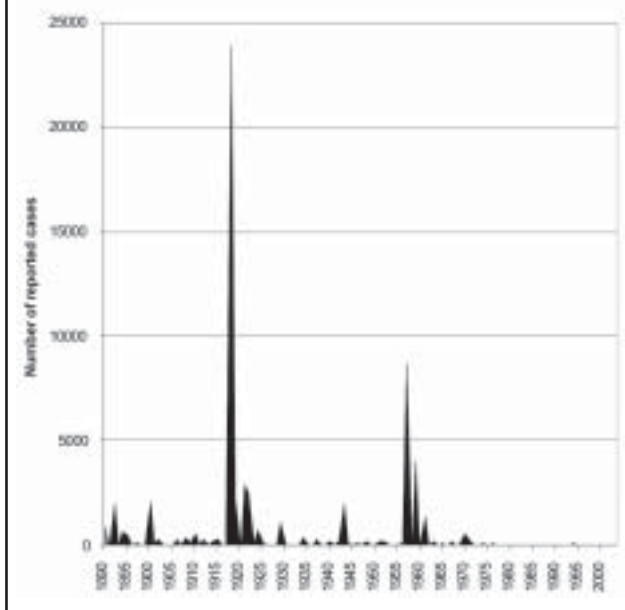
The incidence data suggests that the Maltese population has been affected by a number of epidemic waves causing significant increases in the number of reported influenza cases [Figure 1]. Three of these epidemics were associated with generalised European pandemics notably those of 1889-90, 1917-19, and 1957-58.

## Key words

Epidemic, influenza, incidence, mortality

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**Figure 1: Number of Influenza Cases**  
– Maltese Population, 1890-1980



**1889-90 pandemic – The Asiatic Flu:** The last influenza pandemic of the 19<sup>th</sup> century developed in eastern Russia in 1889 and quickly spread to Asia, Europe and eventually to the American, African and Australian continents. Succeeding waves of this pandemic were more severe than the initial outbreak, and even after it had passed, many countries continued to suffer recurrent influenza epidemics during successive years. A similar situation prevailed in the Maltese Islands where resurgences of epidemic influenza can be noted in the following decade. This pandemic affected the Maltese population assuming unusual proportions and stimulated the local health authorities to include influenza as a notifiable disease for the first time. The infection apparently made its appearance in Malta during the end of December 1889 or the first fortnight of January 1890 when mortality data for that fortnight suggests a total of 24 deaths occurring from influenza. In the latter weeks of January, after the infection was made a notifiable disease, a total of 859 cases were reported with 39 deaths. The disease subsequently abated to disappear completely by the end of March 1890. The case fatality rate approximated 4.0% [Table 1]. A resurgence of the infection became apparent in January-May 1892 with a total of 2017 reported cases and 66 deaths [case fatality rate 3.3%.]<sup>3</sup>

In the subsequent decade, a number of influenza resurgences occurred in the Maltese Islands with a relatively high case load being reported for January-May 1894 [615 cases] with the peak of the epidemic with 265 cases occurring in February; November 1894 – August 1895 [552 cases; 13 deaths; case fatality 2.4%] peaking in April with 268 cases; and February-June 1900 [2160 civilian cases; 78 deaths; case fatality 3.6%] peaking in March with 1814 cases.<sup>3,4</sup>

**Table 1: 1890-1892 Influenza epidemics**  
– Maltese Islands

<i>Month</i>	<i>Cases reported</i>	<i>Deaths reported</i>
December 1889	*	0
1-15 <sup>th</sup> January 1890	*	24
16-31 <sup>st</sup> January 1890	859	39
February 1890	140	1
March 1890	5	0
April 1890 – December 1891	0	0
January 1892	189	1
February 1892	968	30
March 1892	785	28
April 1892	65	7
May 1892	10	0
June – November 1892	0	0

\* Case notification initiated after 20/01/1890

**1917-19 pandemic – The Spanish Flu [H1N1 virus]:**

The 1917-19 influenza pandemic affected a world population that was in the grips of a worldwide conflict that had been raging since the assassination of Archduke Francis Ferdinand and his wife at Sarajevo in June 1914. The effects of this virulent viral infection was to further contribute to the decimation of the world's population, the infection being estimated to have caused the loss of more than 20 million lives – a figure significantly greater than the direct mortality caused by the conflict. The massive movement of troops across the continents helped the spread of infection. An estimated 200-500 million individuals were affected by the infection. The focal origin of the infection remains undetermined; but the first serious point of attack was in Spain where some 8 million Spaniards fell ill during 1917-18. It spread out striking military bases throughout Europe putting tens of thousands combatants out of action. Country after country fell to the ravages of the disease. After the armistice was signed in November 1918, thus ending the war, the pandemic seemed to subside and within a year it was no longer a menace. The Maltese Islands during World War I served as a “Nurse of the Mediterranean” caring for wounded soldiers, as a dockyard for the British Navy, as a place of internment for prisoners-of-war, and as a home for refugees from Egypt and other neighbouring countries. The War also had a major economic impact on the Islands, the disruption of trade causing food shortages and a significant rise in the cost of living. This economic depression, coupled with the increased traffic of combatants through the island, set the stage for the introduction and spread of the virus among the Maltese population.

The 1917-19 influenza pandemic made its appearance in Malta around June 1918 and persisted until June 1919. Influenza is reported to have affected a total of 20388 civilians [incidence 90.8 per 1000 population] with 807 deaths [case fatality rate: 4.0%]

during the period April 1918 – March 1920. The incidence was very much higher in Gozo [108.2 per 1000 pop.] than Malta [88.6 per 1000 pop.]. The case fatality rate in Gozo was also higher at 4.3% than in Malta [3.9%]. A further 5798 cases with 109 deaths affected personnel of the Naval and Military British Services. The relatively low case fatality rate [1.9%] in the latter group is probably accounted for by the population characteristics excluding very young and very old individuals. During the period April 1920 – March 1921, the number of reported influenza cases amounted to only 94 cases with six deaths. The 1918-19 epidemic was subsequently followed by a second smaller scale epidemic during 1921-22.<sup>5</sup>

The 1918-19 epidemic apparently affected the Maltese population in three phases. The first phase of the infection lasted about three months, the epidemic being of a relatively light character. Civilian returns of influenza cases during this period amounted to only 93 cases associated with two deaths [case fatality rate 5.1%]. This first wave was quickly followed by a second more severely contagious phase. During the subsequent two months September-October 1918, the total number of cases in the civil population amounted to 10281 cases [8846 in Malta; 1435 in Gozo] with 402 deaths [case fatality rate: 3.9%]. The epidemic appeared to subside in the subsequent months, only to be followed by resurgence in March 1919 when a total of 4507 cases were registered. This third wave of the epidemic rose rapidly to its culminating point in the middle of March, falling rapidly in April to be almost over by May 1919 [Table 2].<sup>5</sup>

The 1921-22 influenza epidemic was characterised in Malta by a wave of cases starting in March 1921 lasting until June 1921. A second wave of cases assuming epidemic proportions occurred in January – April 1922. This epidemic was responsible for a total of 5508 cases [incidence: 25.6 per 1000 population] with 99 deaths [case fatality rate: 1.8%].<sup>5</sup> The annual case load subsequently fell to low levels until the next major pandemic in 1957-58. Relatively high annual case loads were reported for 1929 [1130 cases; 16 deaths; case fatality 1.4%] and 1943 [2066 cases; 3 deaths; 0.15%].<sup>5,6</sup>

**Table 2:** *Influenza Epidemic 1918-19 – Reported Cases in Maltese Civil Population*

<i>Month</i>	<i>Number of Cases</i>	<i>Number of Deaths</i>
June – October 1918	93	2
November 1918	1546	100
December 1918	599	24
January 1919	748	37
February 1919	546	21
March 1919	4507	99
April 1919	1135	59
May 1919	188	11
June 1919	42	2
July 1919 – January 1920	40	1

In response to the 1918-19 epidemic, the Department of Health undertook a number of precautionary measures to attempt control the spread of the infection. General prophylactic measures included: the prevention of overcrowding in public places, cinemas, theatres and other places of entertainment ensuring also that these localities were kept clean, well aerated, and disinfected; the disinfection of public places including railway carriages and ferry boats; reducing visiting times in the various Charitable Institutions; discontinuing the pawning of clothes at the Monte de Pieta'; the closure of government-run schools; increasing visits to suspect dwellings by Sanitary Inspectors; and temporary surveillance of arrivals from overseas with disinfection of belongings were necessary. Individual prophylactic measures introduced included: a public propaganda campaign to emphasis the contagiousness of the infection, its mode of transmission, the necessity of maintaining personal and domestic cleanliness; and simple isolation at home of early non-severe cases. Severe cases were either forcibly isolated in the home or at the Infectious Disease Hospital with disinfection of their habitations and property. All cases occurring in the Charitable Institutions, prisons, and ships in harbour were isolated at the Infectious Disease Hospital at Manoel Island.<sup>5</sup>

**1957-58 pandemic – The Asian Flu [H2N2]:** The Asian Influenza pandemic of 1957, which affected the Asian, European, North American and African continents, also significantly affected the Maltese population. The infection was first observed in Malta after a ship carrying convalescent cases docked in Malta in August 1957. The epidemic peaked in September and after an apparent decline was characterised by a second wave starting in November, tailing off in December. A total of 8783 cases and 11 deaths were reported [case fatality rate 0.13%], though the case load was probably greater since cases with minor clinical symptoms often did not require professional help.<sup>6</sup> This epidemic remained quiescent throughout 1958 when only 39 cases [with 4 deaths; case fatality 10.3%] of influenza were reported. This was followed by resurges of the infection in 1959 [4124 cases; 10 deaths; case fatality 0.24%] and 1961 [1424 cases; 9 deaths; case fatality 0.63%].<sup>6</sup> There have since been a relatively low case load of influenza cases reported, though the figures do not necessarily reflect the true situation since minor cases might not seek medical attention and medical practitioners may neglect to report what is often considered a minor disturbance. The 1968-69 Hong Kong flu [H3N2 virus] was apparently associated with an increased number of influenza cases during 1969-71 with a total of 1024 cases and 23 deaths [case fatality rate 2.3% - relatively high rate possibly due to case underreporting. The 1977-78 Russian Flu [H1N1 virus] pandemics did not exhibit any particular influence on the Maltese population.<sup>7</sup>

## Conclusions

Regular pandemic outbreaks of influenza have occurred throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries causing a generally high morbidity and mortality. With the last pandemic dating to about thirty years ago, a significant influenza pandemic is now considered to be long overdue. However, the history of previous pandemics and pandemic scares shows that new sub-types of influenza A virus do not appear at regular defined intervals, while not all occurrences of human infection with a new influenza A sub-type lead to a pandemic. The appearance of a sub-type with pandemic capabilities would need a determined response from all health authorities to limit dissemination, especially in the light of increased international travel. Pandemics usually occur in several waves of outbreaks with an interval of about 6-9 months. Hence, prevention programmes involving vaccines or/and anti-viral drugs can be introduced widely to anticipate the second wave of infection. The World Health Organisation is encouraging health authorities to prepare themselves to recognise and manage an influenza pandemic. Planning may help to reduce transmission of the virus, decrease cases, hospitalisation and deaths, maintain essential services, and reduce the social and economic impact. This requires each countries health authority to establish surveillance mechanisms, to initiate public educational programmes to help the public deal with the threat without unnecessary panic, and to ensure the provision of adequate resources of medical personnel, hospital, vaccine and antiviral medications.<sup>8,9</sup>

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