

The Impact of Anti-Epidemic Measures against COVID-19 on the Dynamics of Seasonal Influenza Epidemic 2020

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Coronavirus of new type causing COVID-19 disease emerged at the end of 2019 in China. On 11 March 2020, the number of laboratory-confirmed cases of COVID-19 was 114,000 in 110 countries worldwide. In some countries, unprecedented anti-epidemic measures have been carried out to stop the spread of infection.

Both influenza virus and coronaviruses are respiratory pathogens with similar routes of infection and related pathogenesis. As the emergence of COVID-19 coincides in time with epidemics of seasonal influenza in the Northern hemisphere, it is possible to assess efforts of health services to controlling coronavirus using the dynamics of influenza epidemics in certain countries.

The World Health Organization weekly updates data on the confirmed influenza cases in each country (https://www.who.int/influenza/gisrs_laboratory/flunet/charts/en/). Our short communication demonstrates data analysis on several countries of the Northern hemisphere.

Specifically, in China, the highest rate of the influenza epidemic was registered in the second week of 2020 (more than 7000 cases per week). On 25 January, i.e., the fourth week of 2020 anti-epidemic measures were tightened. Up to the seventh week in China with a population of 1.4 billion people influenza sick rate decreased as low as indices typical of the inter-epidemic period (less than 400 per week) and to the eighth week – lower than background level (less than 20 events per week) (Figure 1).

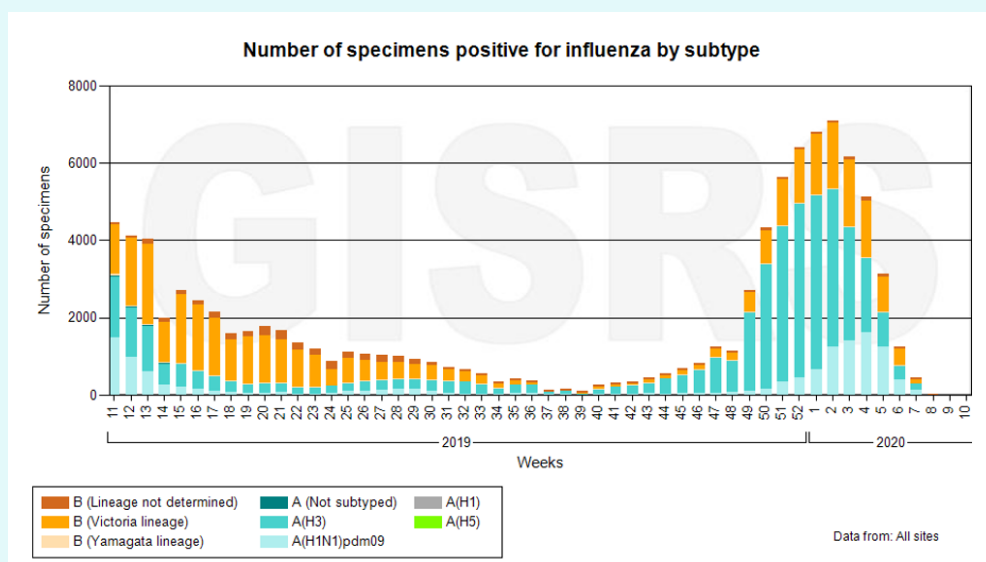


Figure 1: Number of specimens positive for influenza in 2019–2020 in China.

In Singapore, the influenza epidemic peak was registered in the third week of 2020 (more than 100 cases per week). In month morbidity was less than two confirmed cases per week. It should be noted that in countries of South-East Asia influenza is detected all year round; and usually does not decrease lower than 10 cases per week in Singapore (Figure 2).

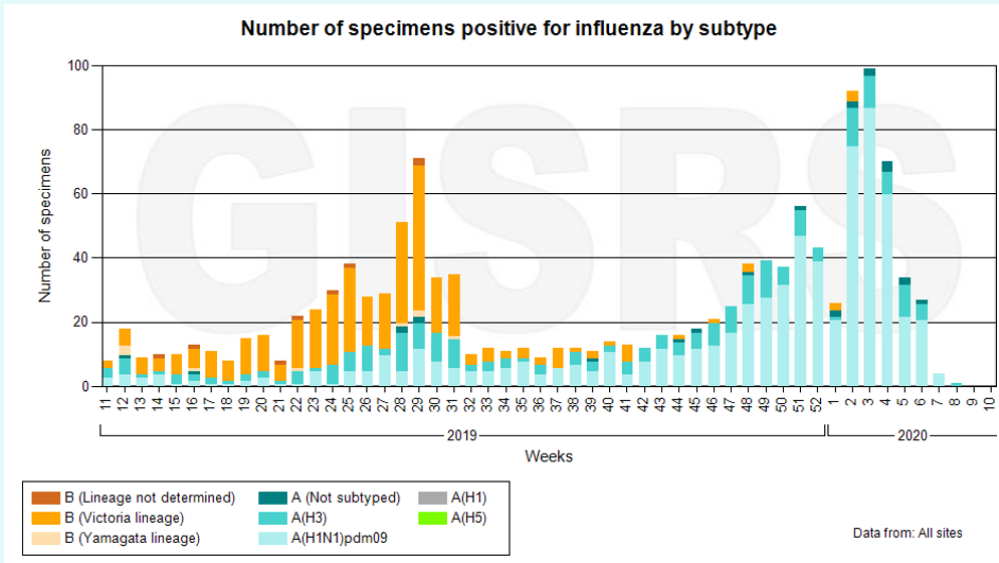


Figure 2: Number of specimens positive for influenza in 2019–2020 in Singapore.

In Italy, the influenza epidemic peak was registered between the fifth and seventh weeks of 2020. Concurrently COVID-19 has begun to be detected. Two weeks later influenza morbidity decreased approximately three-fold.

In the Republic of Korea, the highest rate of influenza epidemic was observed in the fourth week of 2020 (140 events per week). Fourteen days later only 40 laboratory-confirmed cases per week were registered.

In Iran, the influenza epidemic has begun in the 52nd week of 2019. Starting the first week of 2020 to the present day influenza B virus cases have been registered at the level of 100 events per week. Thus, anti-epidemic measures in the country are believed to be insufficient for the decrease of influenza morbidity lower than abovementioned values.

In Germany and France, the influenza epidemic peak was observed in the fifth and sixth weeks of 2020, respectively. Up to the tenth week, there was no significant decrease.

Thus, we conclude that anti-epidemic measures can stop the seasonal influenza epidemic and consequently even pandemic caused by respiratory viruses provided that those measures are efforts of all or at least of the majority of countries worldwide.

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