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Brief Report

Resurgence of different influenza types in China and the US in 2021

Boqiang Chen[1], Zhizhou Zhu[1], Qiong Li[2] and Daihai He[1,*]

[1] Department of Applied Mathematics, Hong Kong Polytechnic University, Hong Kong, China
[2] BNU-HKBU United International College, Zhuhai, China

* **Correspondence:** Email: daihai.he@polyu.edu.hk.

Supplementary

1. Classification method

The data derived from FluNet contains reported cases from unspecified influenza subtypes, and we needed to manually classify them into influenza A subtypes and influenza B lineages. By observing data after 2015, we found that only AH1N1, AH3, B/Yamagata and B/Victoria have nonzero records. There is a problem with the data column storing undetermined cases. Conforming to universal findings, therefore, we decided to assign those unclassified cases to the above four known and statistically significant groups.

We chose data from 2014 till the latest available, and our analysis focused on the tuples from 2015 onwards after data modifications. Starting from the first item recorded in 2015, we did as follows:

a. Record the total number of detected cases within influenza A group and influenza B group of the timeline from the 42nd week in 2014 till the last week in 2014. Calculate the case ratios within each influenza A and influenza B group respectively. In the case where all zero records exist, fairly assign weights 0.5:0.5 to Influenza A and B groups respectively. Otherwise, if one lineage, for example, the sum of B/Yamagata from week 42 to 52 is 0 then we set the weight for B/Victoria to be 1.

b. Assign the data of not classified cases of the first week in 2015 by the ratios we have calculated as above.

c. Record the ratios of different subtypes within influenza A subtypes and influenza B lineages, respectively. In case the cases of one subtype or lineage are 0 in the week, we use the nearest weight for allocation.

d. Repeat the process till the end.

Additionally, according to what WHO reported in 2022, no confirmed B/Yamagata detections were reported since March 2020, which indicates that B/Yamagata has temporarily perished. We thereby merged all undetermined influenza B cases into the B/Victoria lineage for the year 2021 onwards. Then, we have a well-rearranged data set that constitutes originally documented cases and statistically reassigned cases that are originally undetermined.

2. Limitation of this classification method

Some countries reported zero case for specific subtypes, while undetermined cases still exist. It is thereby robust to infer what actual proportion of each subtype accounts for these undetermined cases. Therefore, errors would occur when discussing the specific number of cases of influenza A subtypes and influenza B lineages.

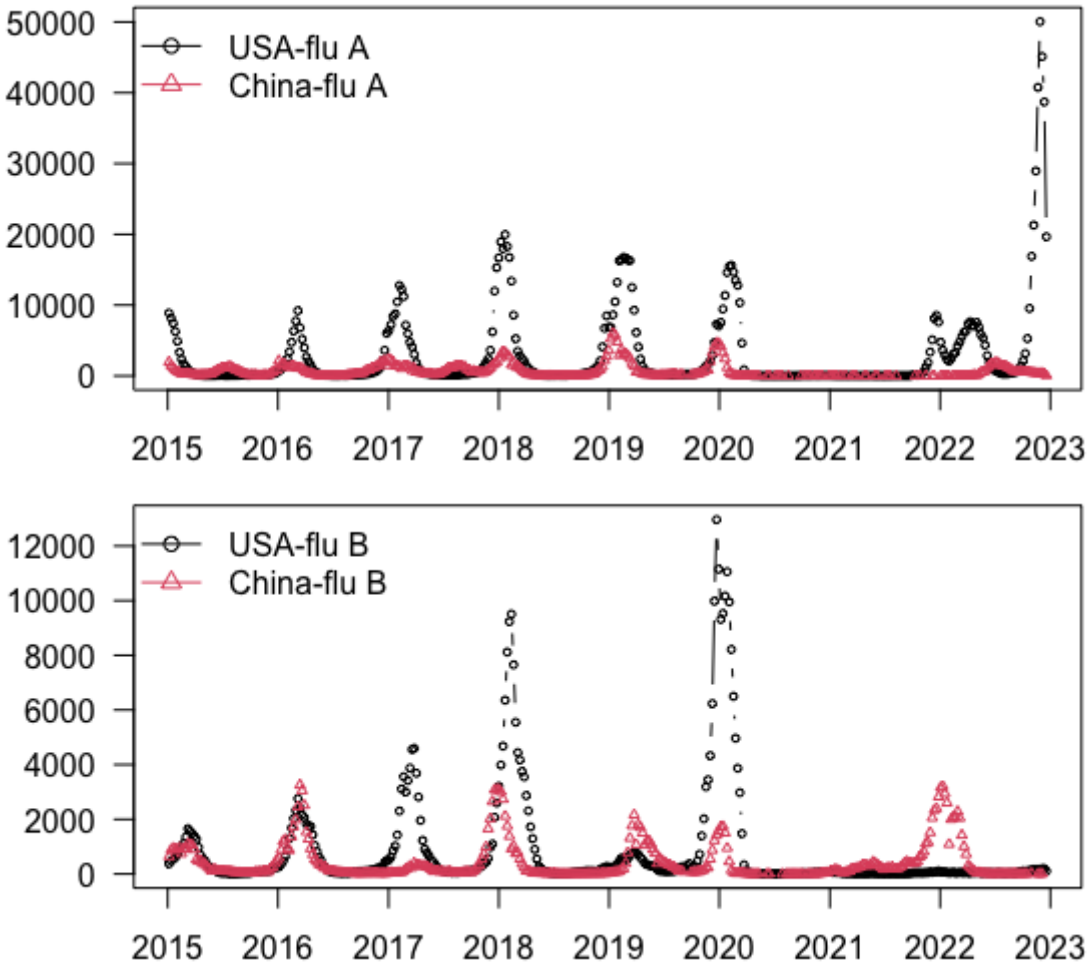

Figure S1. Comparison of Influenza A and Influenza B cases between the US and China from 2017 to 2023.

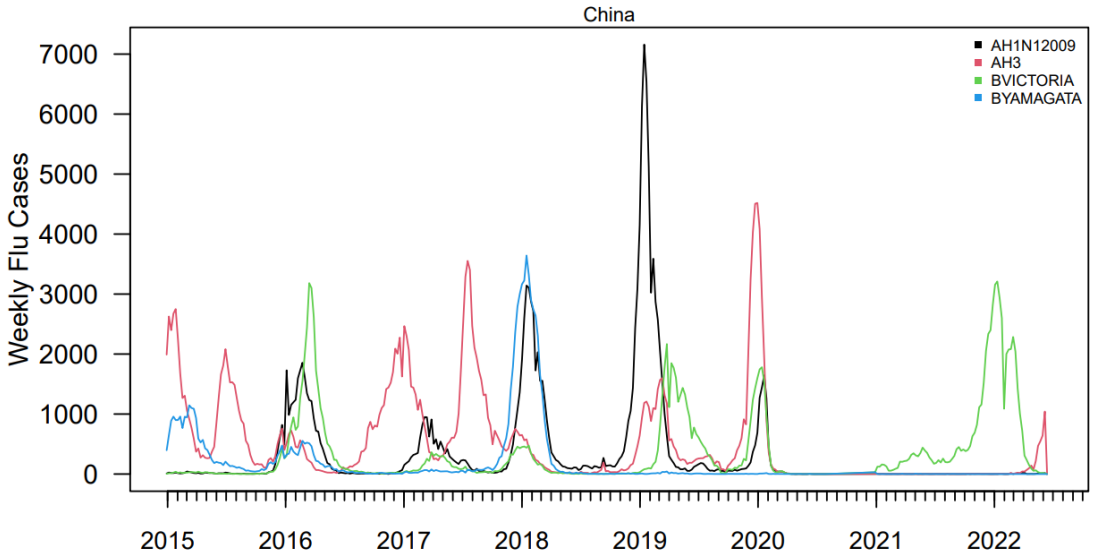

Figure S2. AH1N1, AH3, B/Yamagata and B/Victoria weekly flu cases in China during 2015-2022. The black line, red line, green line and blue line represent reported cases of AH1N1, AH3, B/Victoria and B/Yamagata, respectively.

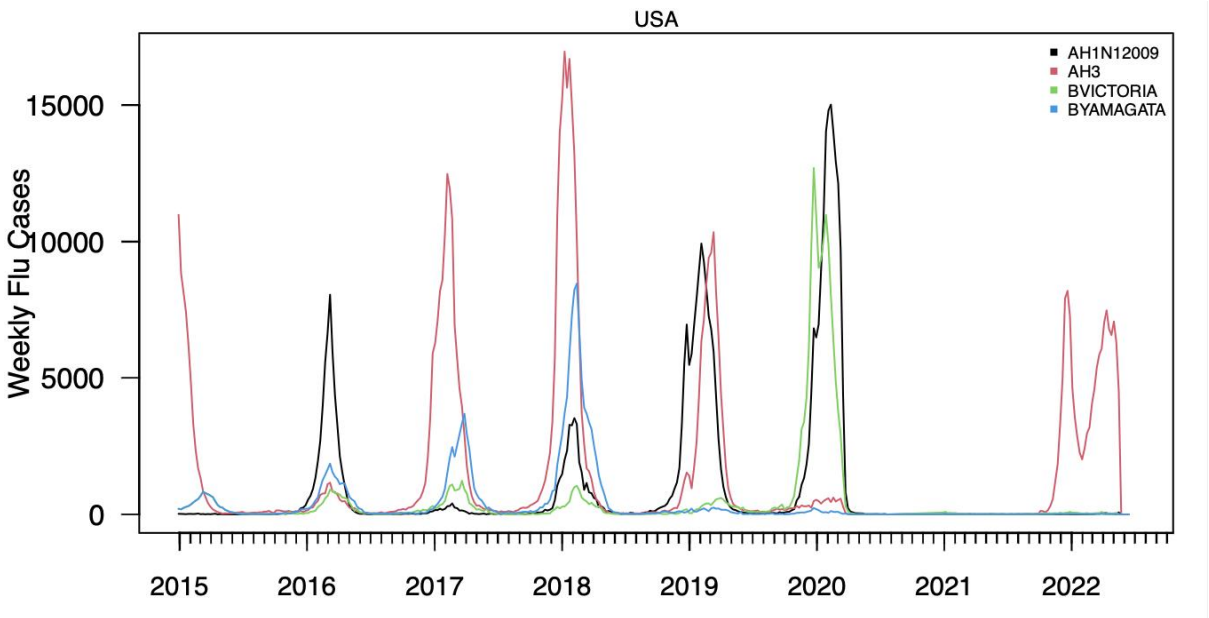

Figure S3. AH1N1, AH3, B/Yamagata and B/Victoria weekly flu cases in the US during 2015-2022. The black line, red line, green line and blue line represent reported cases of AH1N1, AH3, B/Victoria and B/Yamagata, respectively.