COVID-19 Booster Vaccination and Increased Mortality: Detection of a Safety Signal in a Non-Elderly Population*

Data and Code

1. Data

The data used for Hamamatsu City and Matsudo City are stored in https://covid-vaccine-jp.iwmtyss.com/VRS.zip. After extracting the ZIP file, the folder `221309_Hamamatsu` contains:

公開文書`.csv` (Data)

項目`.xlsx` (Description of the data)

The folder `122076_Matsudo` contains:

【松戸市】VRS＋死亡`.xlsx` (Data)

データ内容`.txt` (Description of the data)

These folders should be placed in the same directory as the R code files described below.

2. Code

R codes for the Figures (except Figure 6) are stored in the GitHub repository https://github.com/covid-vaccine-jp/VRS. The structure of the code files is as follows:

Root folder

`JP_wrapper_Japan.R` (Organizes and combines data from Hamamatsu and Matsudo)

`JP_VRS1b_Japan.R` (Estimates all-cause mortality using *IncidencePrevalence*)

`JP_VRS2b_Japan.R` (Estimates all-cause mortality using *popEpi*)

`Hamamatsu.py` (Calculates death counts for Hamamatsu City)

`Matsudo.py` (Calculates death counts for Matsudo City)

`221309_Hamamatsu` folder

`221309_wrapper_Hamamatsu.R` (Organizes the obtained data for Hamamatsu City)

`122076_Matsudo` folder

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`122076_wrapper_Matsudo.R` (Organizes the obtained data for Matsudo City)

3. Execution of R codes

Run the codes in the following order:

1. Execute `221309_wrapper_Hamamatsu.R` and `122076_wrapper_Matsudo.R` (the order does not matter).
2. Execute `JP_wrapper_Japan.R`. Then run `JP_VRS1b_Japan.R` and `JP_VRS2b_Japan.R` (these two can be executed in either order). These scripts generate the source data for the figures used in the paper (except Figure 6).
3. After all of the above codes have been executed, run `JP_VRS2b_results_Japan.qmd`. This will generate the page `JP_VRS2b_results_Japan.html`, which lists all the figures used in the paper and additional figures. It also includes the images of Figure 6, whose source were calculated by the Python codes described below. In addition to the figures included in the paper, Part 3 presents estimates of all-cause mortality based on *popEpi* (corresponding to Figures 2, 3, and 6 in the main text), which are almost identical to those based on *IncidencePrevalence*. The resulting HTML page can be viewed at https://covid-vaccine-jp.iwmtyss.com/VRS/JP_VRS2b_results_Japan.html.

4. Execution of Python codes

Python codes calculate the dead counts, which was presented in Figure 6. Run the codes in the following order.

For Hamamatsu City:

1. Rename the data file for Hamamatsu City as `input.csv` and place it in the same folder as "hamamatu.py."
2. Choose one of the age groups by uncommenting one of the "`OUT = ...`" liens and the corresponding "`age_targets ...`" line.
3. Run the program, then open the `death_hm??-??.csv` file.
4. Each row represents vaccination counts (from 0 to 7) and each column represents a period (from the second half of 2021 to the first half of 2024).

For Matsudo City:

1. Rename the data file for Matsudo City as `Matsudo.xlsx` and place it in the same folder as `matsudo.py`.
2. Choose one of the age groups by uncomment one of the "`OUT = …`" lines and the corresponding "`if row[0] not in …`" line.
3. Run the program, then open the "`death_hm??-??.csv`" file.
4. Each row represents vaccination counts (from 0 to 7) and each column represents a time period (from the second half of 2021 to the first half of 2024).