

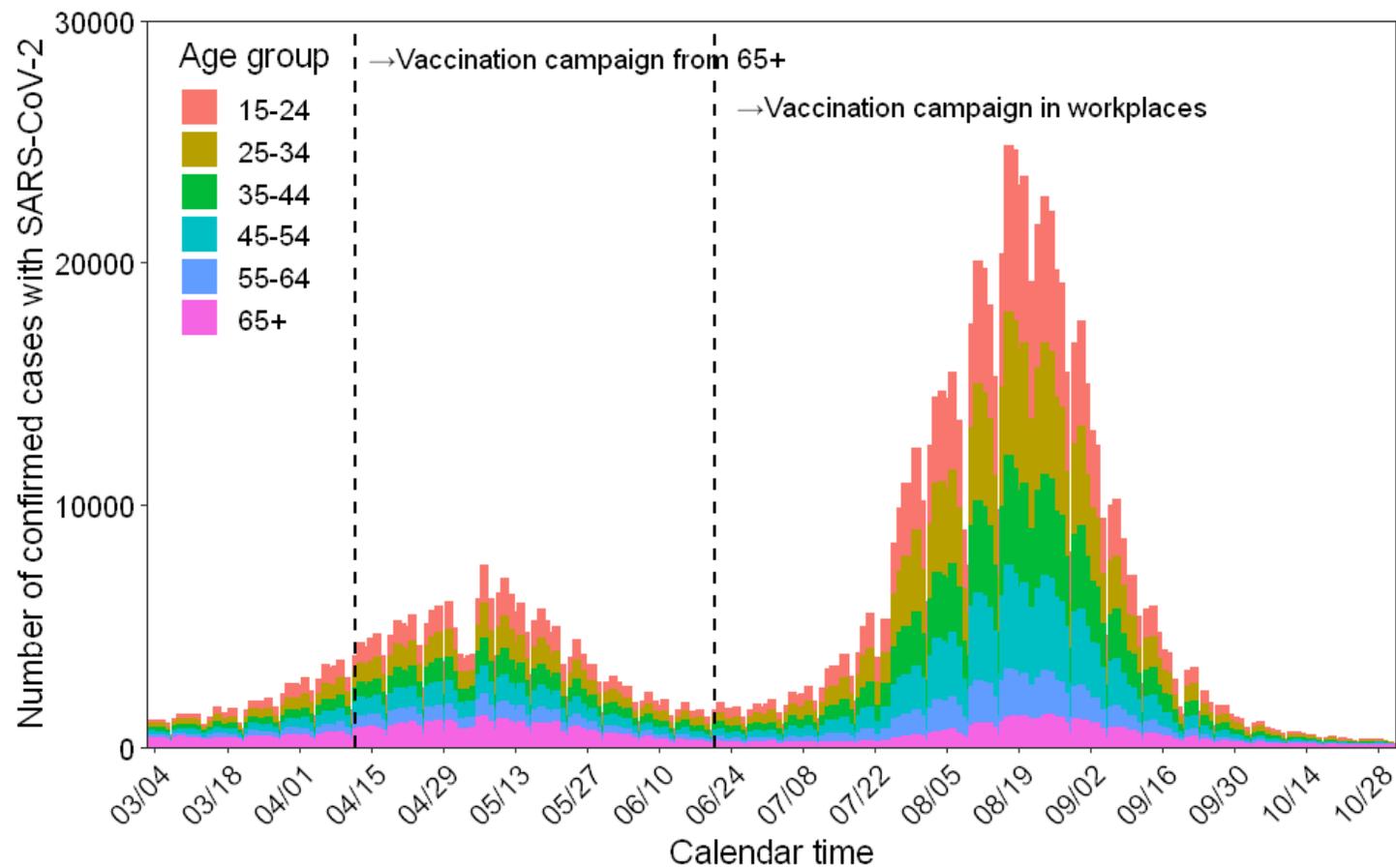
IDO webinar: 9 March 2022

Averted number of COVID-19 cases and deaths directly attributed to vaccination program in Japan

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Epidemic surges in Japan



Objective

- To estimate **the averted number of COVID-19 cases and deaths** directly attributable to mass vaccination campaign by age and sex using a simple statistical model

Data

Calculating difference of cumulative incidences between unvaccinated and at least partly vaccinated people

- ***Vaccination rate % (cumulative proportion of vaccinated people)***
 - Two monitoring systems for vaccination: VRS and V-SYS
- ***Epidemiological data of COVID-19: vaccination rollout ~ the end of 5th wave***
 - Cases: obtaining from the national database (HER-SYS) with vaccination status
 - Deaths: publicly available data allocated to each age group and sex, and vaccination history according to distributions of registered deaths in HER-SYS

Statistical model

- Total averted cases or deaths of age a sex b at least partly vaccinated given by

31 Oct or 21 Nov 2021

$$\sum$$

3 or 24 Mar 2021

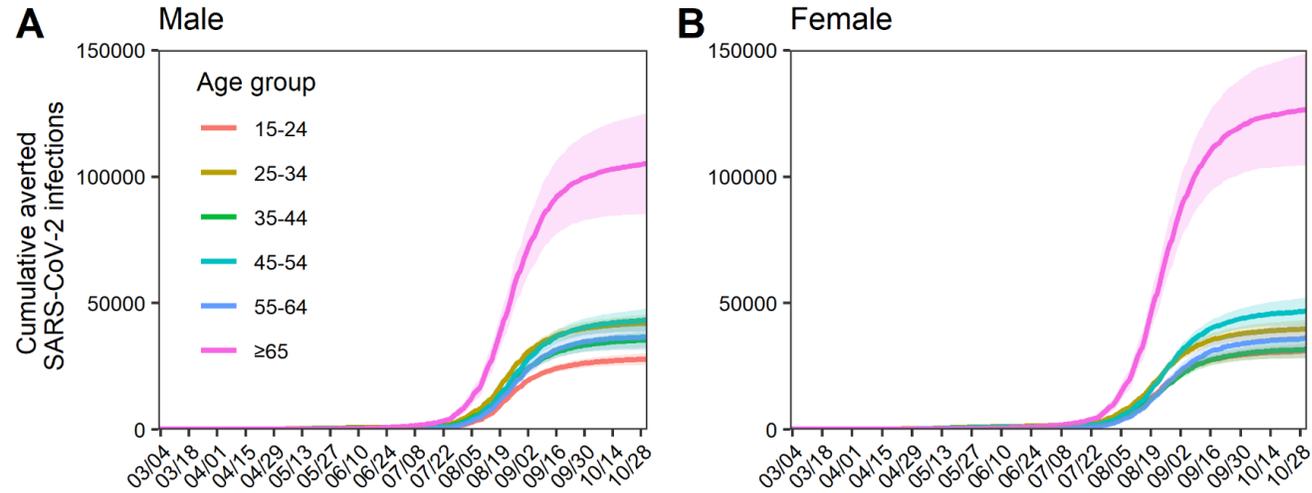
$$N_{a,b} V_{\geq 1 \text{ dose}, a, b} (\hat{R}_{unvac, a, b} - \hat{R}_{\geq 1 \text{ dose}, a, b})$$

Population size those who are at least partly vaccinated

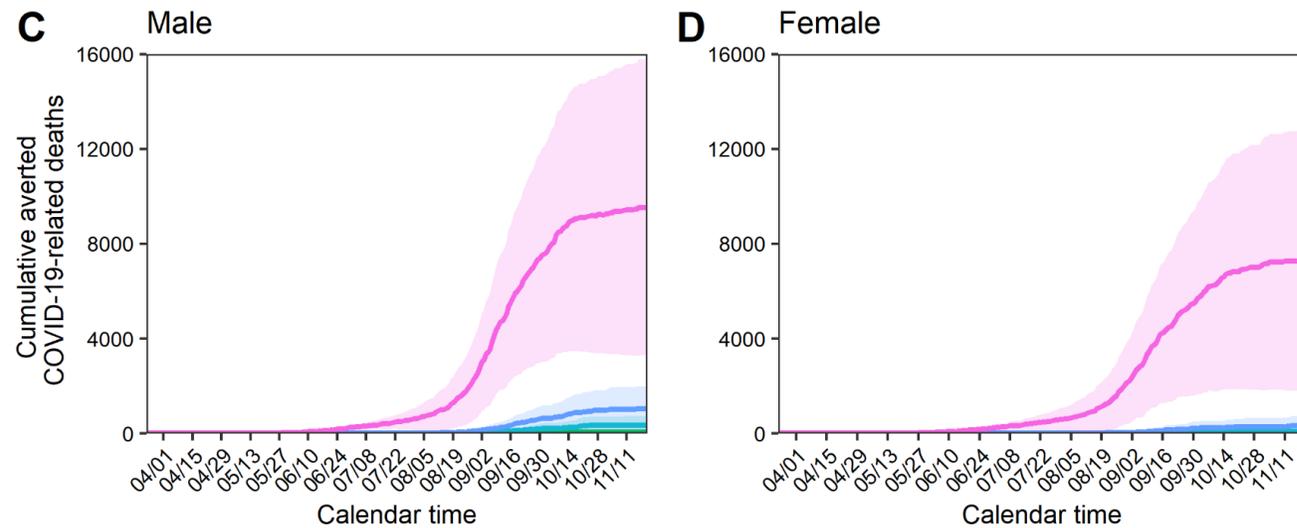
Absolute risk difference of cumulative incidences resulted from vaccination (outcome: cases or deaths)

Averted cases and deaths

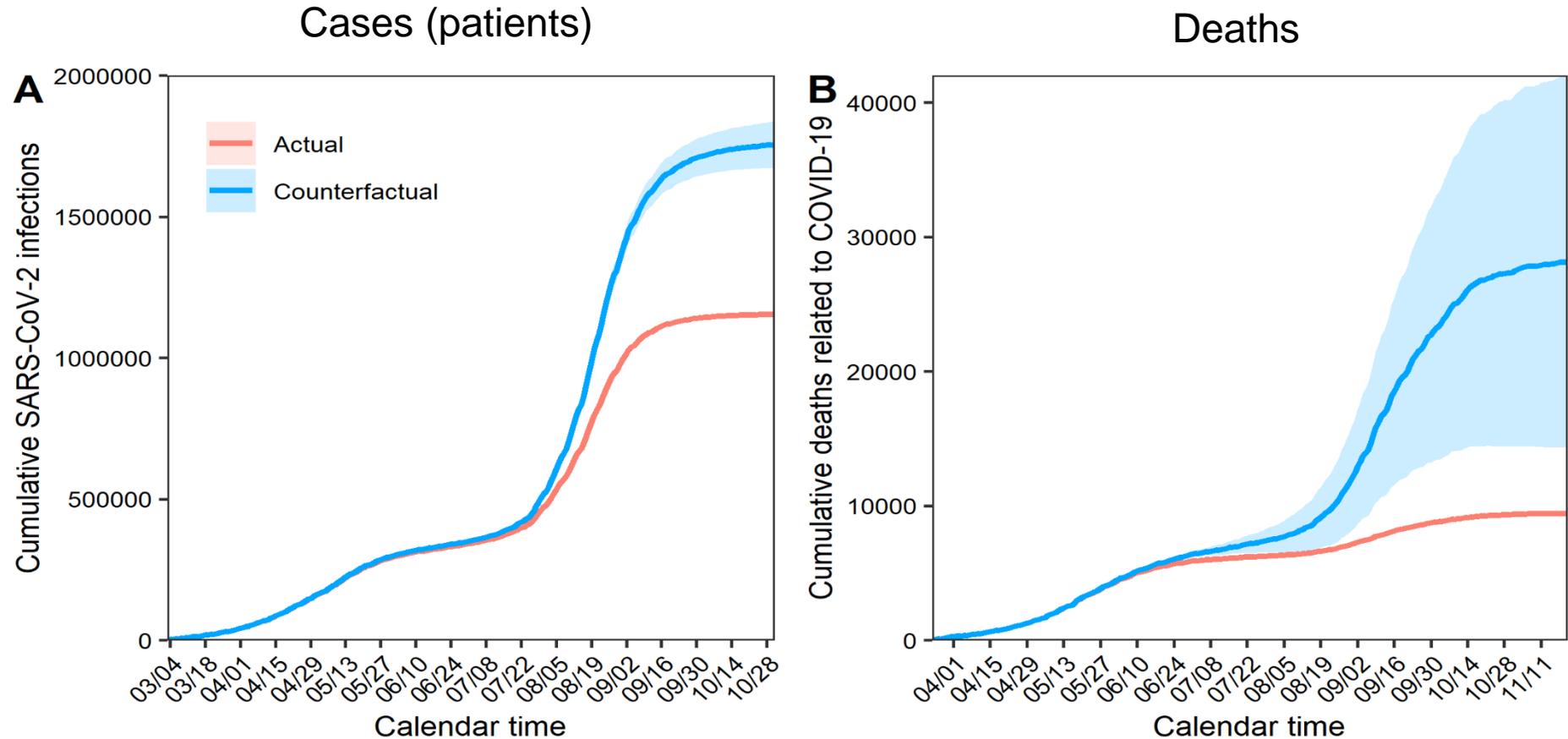
Cases
(patients)



Deaths



Total population: observed vs counterfactual



Discussion

- By the end of October 2021, 600,000 cases and 18,000 deaths were averted due to vaccination
 - Reducing the number of cases with SARS-CoV-2 by 34%
 - COVID-19-related deaths by 67%
- Estimated effects under the state of emergency
 - Jul – Sep 2021
 - Preventive effects will be further accumulated as the epidemic process moves forward
- Indirect effects not considered