



OPEN Correction: Evaluating the COVID-19 vaccination program in Japan, 2021 using the counterfactual reproduction number

Published online: 28 October 2025

Taishi Kayano, Yura Ko, Kanako Otani, Tetsuro Kobayashi, Motoi Suzuki & Hiroshi Nishiura

Correction to: *Scientific Reports* <https://doi.org/10.1038/s41598-023-44942-6>, published online 18 October 2023

The original version of this Article contained errors.

As a result of an error during figure preparation, the caption of Figure 2 was incorrect. As a result, in the Results section:

“Impact of the primary series of the vaccination program on cases and the effective reproduction number. (A) Number of infections with SARS-CoV-2 from 17 February to 30 November 2021 according to counterfactual vaccination scenarios. Each line represents a different scenario with 95% confidence intervals highlighted as the light colored area; blue dots denote actual numbers of infections. (B) Effective reproduction number by vaccination scenario from 4 March to 30 November 2021. The colors are the same as in Fig. 3A. Blue dots represent the effective reproduction number estimated using the actual estimated infections shown in Fig. 3A. The pink-colored line represents the counterfactual scenario without vaccination. The red dashed line describes the threshold of the effective reproduction number, which is equal to 1. The number of infections was calculated assuming that the reporting coverage is 0.25.”

now reads:

“Impact of the primary series of the vaccination program on cases and the effective reproduction number. (A) Number of infections with SARS-CoV-2 from 17 February to 30 November 2021 according to counterfactual vaccination scenarios. Each line represents a different scenario with 95% confidence intervals highlighted as the light colored area; blue dots denote actual numbers of infections. (B) Effective reproduction number by vaccination scenario from 4 March to 30 November 2021. The colors are the same as in Fig. 2A. Blue dots represent the effective reproduction number estimated using the actual estimated infections shown in Fig. 2A. The pink-colored line represents the counterfactual scenario without vaccination. The red dashed line describes the threshold of the effective reproduction number, which is equal to 1. The number of infections was calculated assuming that the reporting coverage is 0.25.”

In addition, in the Methods section, under the subheading ‘Effective reproduction number’, Equation 9 was incorrectly given as

$$i_t^{total} = R_t \sum_{\tau}^{1-\tau} i_{t-\tau}^{total} g_{\tau}.$$

The correct Equation 9 appears below.

$$i_t^{total} = R_t \sum_{\tau=1}^{t-1} i_{t-\tau}^{total} g_{\tau}.$$

The original Article was corrected.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2025