



Institute for Health Metrics and Evaluation

Data Release Information Sheet

Data Summary

Dataset name: Past SARS-CoV-2 Infection Protection Against Reinfection Systematic Review and Meta-Analysis Estimates

Date of release: February 21, 2023

Date of update: March 28, 2023

Summary:

Researchers at IHME systematically reviewed, identified, and extracted data from scientific literature studies that estimated the reduction in risk of COVID-19 among individuals with a past SARS-CoV-2 infection in comparison to those without a previous infection. The outcomes assessed were reinfection, symptomatic reinfection, and severe reinfection (hospitalization or death). Extracted SARS-CoV-2 lineages were ancestral, mixed (two different specified variants – e.g., ancestral and Alpha), Alpha (B.1.1.7), Beta (B.1.351), Delta (B.1.617.2), and Omicron (BA.1) and its sub-lineages (BA.2, BA.4/BA.5). A total of 65 studies from 19 different countries were identified. The researchers also produced a meta-analysis of the effectiveness of past infection by outcome (infection, symptomatic disease, and severe disease), variant, and time since infection.

Relevant publications and visualizations:

COVID-19 Forecasting Team. Past SARS-CoV-2 infection protection against re-infection: a systematic review and meta-analysis. *The Lancet*. 16 February 2023.

Acknowledgements

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- Institute for Health Metrics and Evaluation (IHME)

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Data Files Information

File Inventory

File Name	Description	Version Date
COVID_19_PAST_INF_EXTRACTED_DATA_Y2023M02D21.XLSX	Extracted data - systematic review [XLSX]	February 21, 2023
COVID_19_PAST_INF_META_REGRESSION_RESULTS_Y2023M02D21.CSV	Meta regression results [CSV]	February 21, 2023
COVID_19_PAST_INF_META_REGRESSION_CODEBOOK_Y2023M02D21.CSV	Meta regression results codebook [CSV]	February 21, 2023
COVID_19_PAST_INF_META_REGRESSION_RESULTS_Y2023M02D21.XLSX	Meta regression results [XLSX]	February 21, 2023
COVID_19_PAST_INF_VS_VACCINATION_Y2023M03D28.CSV	Protection efficacy: past COVID-19 infection versus vaccination (by vaccine type and dose) [CSV]	March 28, 2023
COVID_19_PAST_INF_VS_VACCINATION_CODEBOOK_Y2023M03D28.CSV	Protection efficacy: past COVID-19 infection versus vaccination codebook [CSV]	March 28, 2023
COVID_19_PAST_INF_DATA_INPUTS_Y2023M02D21.XLSX	Data inputs - systematic review [XLSX]	February 21, 2023
COVID_19_PAST_INF_INFO_SHEET_Y2023M03D28.PDF	Data Release Information Sheet	March 28, 2023
CODE.zip	Code used to generate results	February 21, 2023

Data Update

This dataset was updated on 03/28/2023 to include estimates of protection efficacy from past COVID-19 infection versus protection from vaccination (by vaccine type and dose), which inform Figure 4 in the related publication.

Variable Information

Extracted Data

Variable	Variable Description
Study ID	One unique identifier for each study,
Author	Last name of first author of study
Text Description	Short text description of study or source
Study Design	Study Design
Source	DOI or URL of source
Location ID	Unique numeric ID used by IHME for each location
Location ID 2	For rows with more than one location id, which did not run on MR-BRT
Location Name	Location name from modeling hierarchy
Primary Infection Variant	Primary infection COVID-19 variant
Variant	subsequent COVID-19 variant
Symptom Severity	Severity of COVID-19 symptoms
Symptom Severity Description	Describe the study's definition of symptom severity level
Severity	Summarized severity of COVID-19 symptoms
IHME Symptom Classification	Summarized IHME Symptom Classification
Severe	Dummy variable
Moderate	Dummy variable
Mild	Dummy variable
Sex ID	Unique numeric ID used by IHME for each sex. 3 = Both sexes
Age Start	Minimum age of study participants
Age End	Maximum age of study participants
Age Mean	Mean age of study participants
Over 65	Dummy of whether the study was subset to persons over 65
Sample Size	How many people were included in this main or subanalysis? (combining both intervention and control arm)
Efficacy Mean	Mean protection of past COVID-19
Efficacy Lower	Lower bound of 95% CI of protection
Efficacy Upper	Upper bound of 95% CI of protection
Past Infection	Baseline previous infection (=0) or week after previous infection (=1) or average time since infection (=2)
Average Time Since Infection	Average Time (weeks) since primary infection
Start Interval	First week after infection period
End Interval	Last week after infection period
Past Infection Evaluation	Method for determining past infection
Adjustment	Whether the analysis was adjusted for confounding factors: numeric: 0 = no adjustment/matching 1 = adjusted or matched for age and sex 2 = adjusted or matched for age, sex, and other variable 3 = adjusted or matched for other variables
Notes	Notes

Meta Regression Estimates and Past Infection Versus Vaccination Estimates

Variable	Variable Label	Variable Definition
week_after_infection	Week After Infection	The number of weeks after COVID-19 infection.
measure	Measure	The measure (indicator) for the estimate.
val	Value	Mean estimate.
lower	95% Uncertainty Interval (Lower Bound)	2.5% percentile estimate.
upper	95% Uncertainty Interval (Upper Bound)	97.5% percentile estimate.

Additional Information

Terms and Conditions

<http://www.healthdata.org/about/terms-and-conditions>

Contact Information

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These files may be updated periodically, so we appreciate hearing feedback or additional information about how these data are being used.