Supplementary information

Long COVID after breakthrough SARS-CoV-2 infection

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Supplementary Information

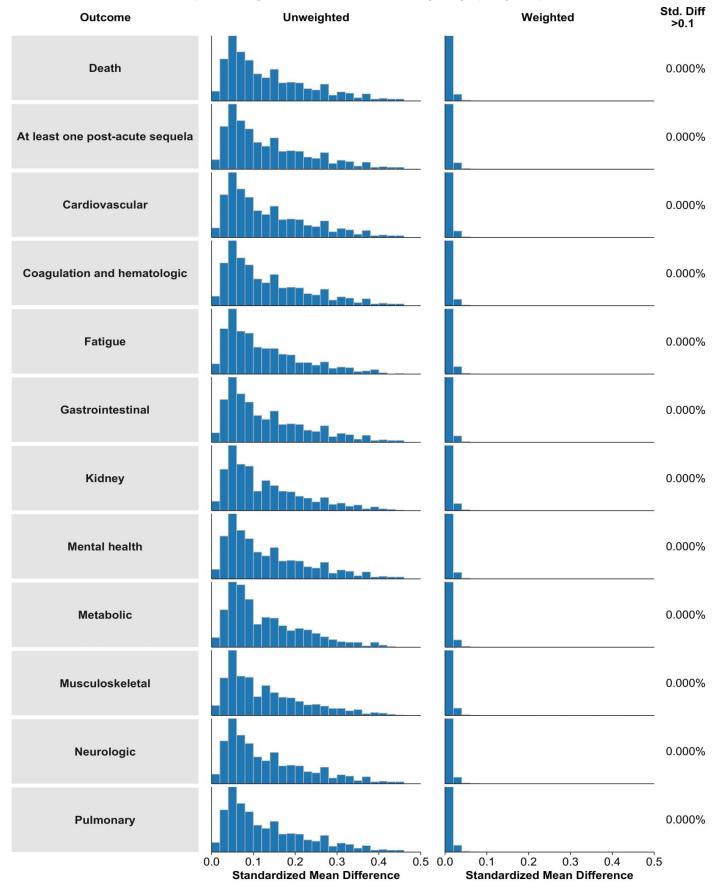
Long COVID after breakthrough SARS-CoV-2 infection

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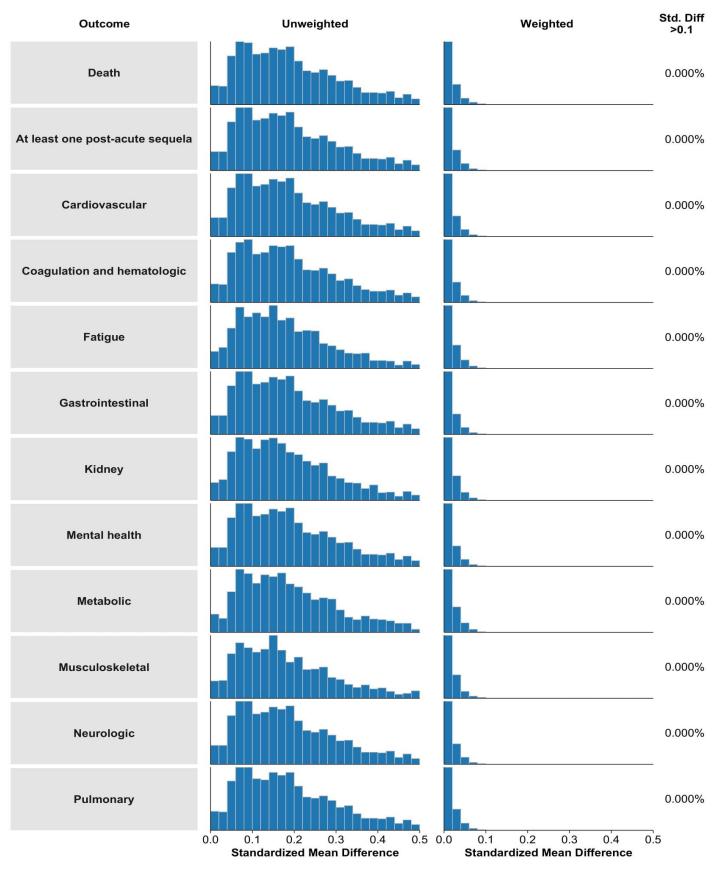
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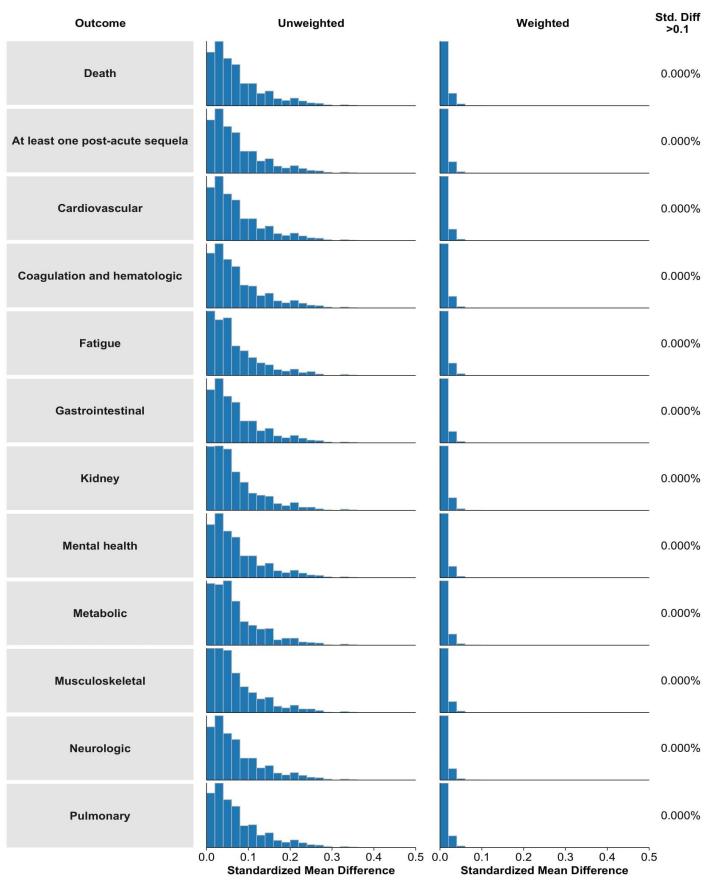
Supplementary Figure 1: Standardized mean differences between those with breakthrough SARS-CoV-2 infection and the contemporary control group before and after weighting by organ system.



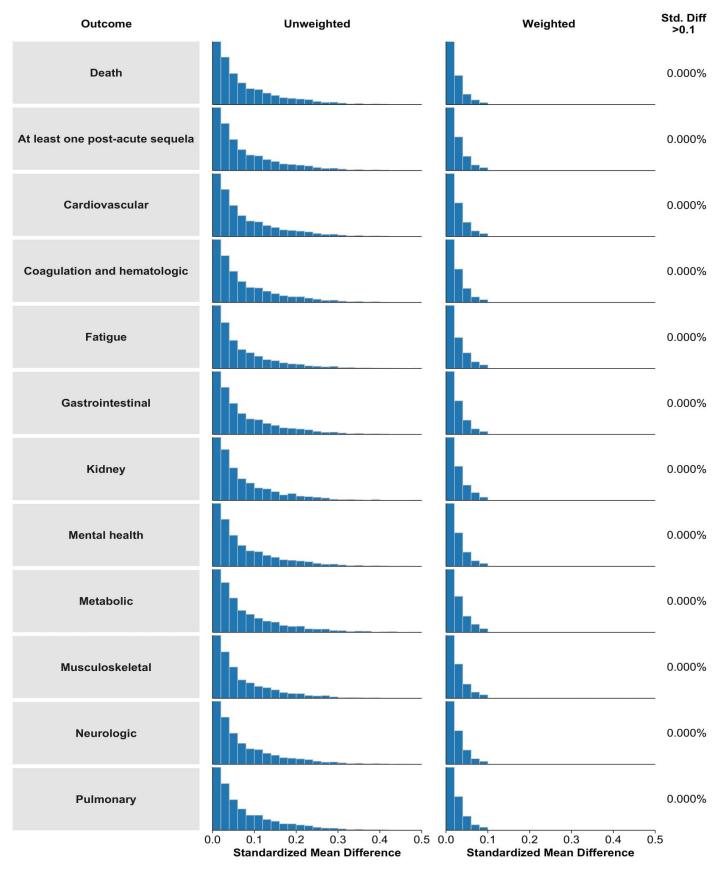
Supplementary Figure 2: Standardized mean differences between those with breakthrough SARS-CoV-2 infection that were non-hospitalized, hospitalized, and admitted to the intensive care unit during the acute phase of the disease and the contemporary control group before and after weighting by organ system.



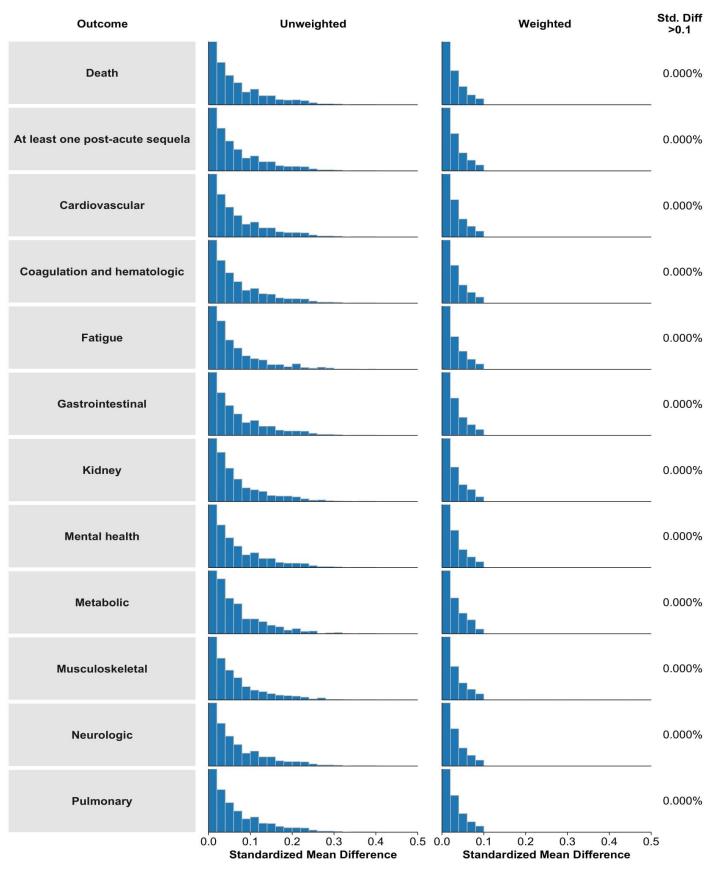
Supplementary Figure 3: Standardized mean differences between those with breakthrough SARS-CoV-2 infection and those with SARS-COV-2 infection without prior vaccination by organ system.



Supplementary Figure 4: Standardized mean differences between those with breakthrough SARS-CoV-2 infection and those with SARS-COV-2 infection without prior vaccination that were non-hospitalized, hospitalized, and admitted to the ICU during the acute phase of the disease by organ system.

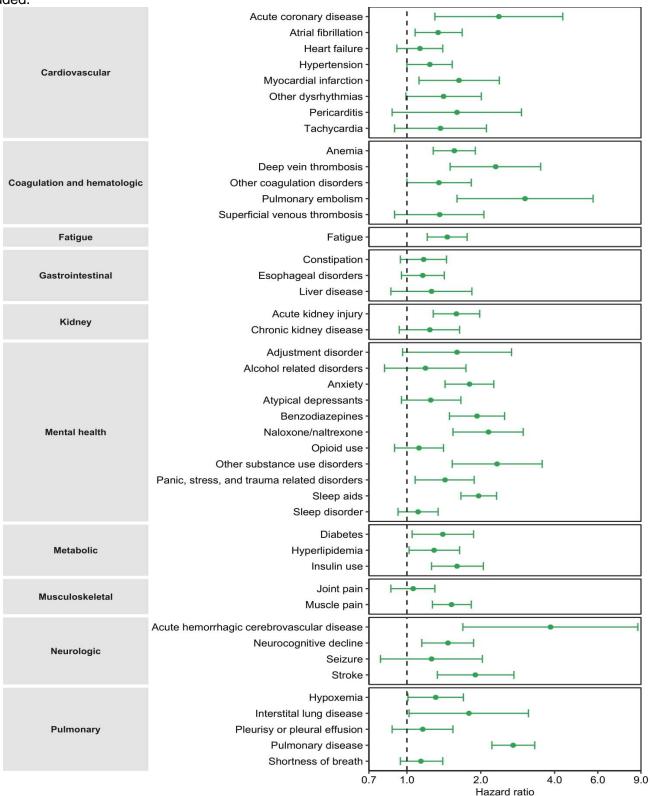


Supplementary Figure 5: Standardized mean differences between those with breakthrough SARS-CoV-2 infection hospitalized during the acute phase of the illness and those hospitalized with seasonal influenza before and after weighting by organ system.

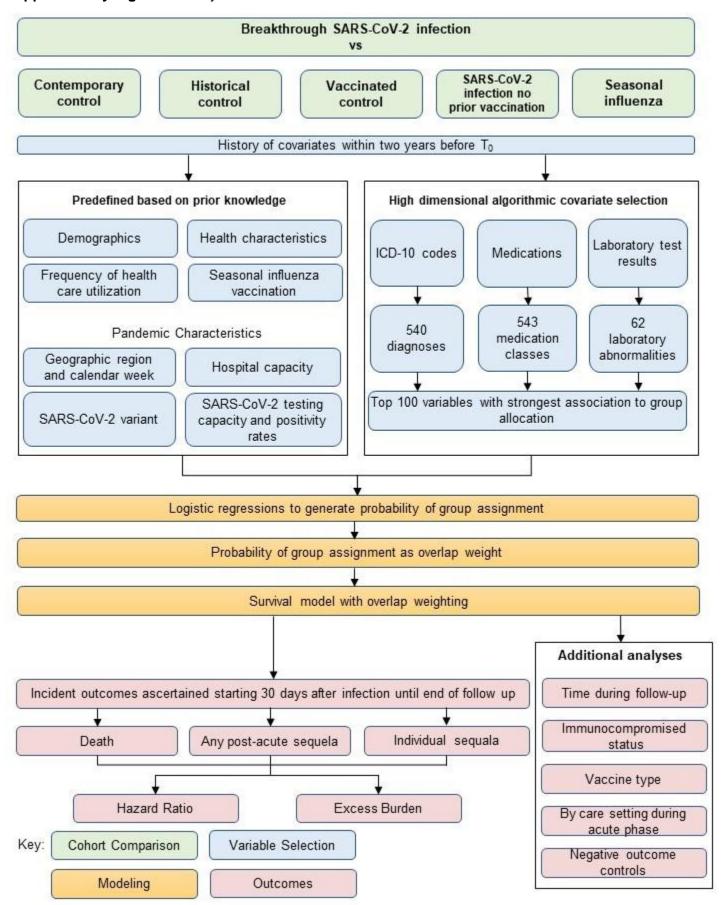


Supplementary Figure 6: Risk of post-acute sequelae in people who were hospitalized during the acute phase of breakthrough SARS-CoV-2 infection compared to those hospitalized with seasonal influenza.

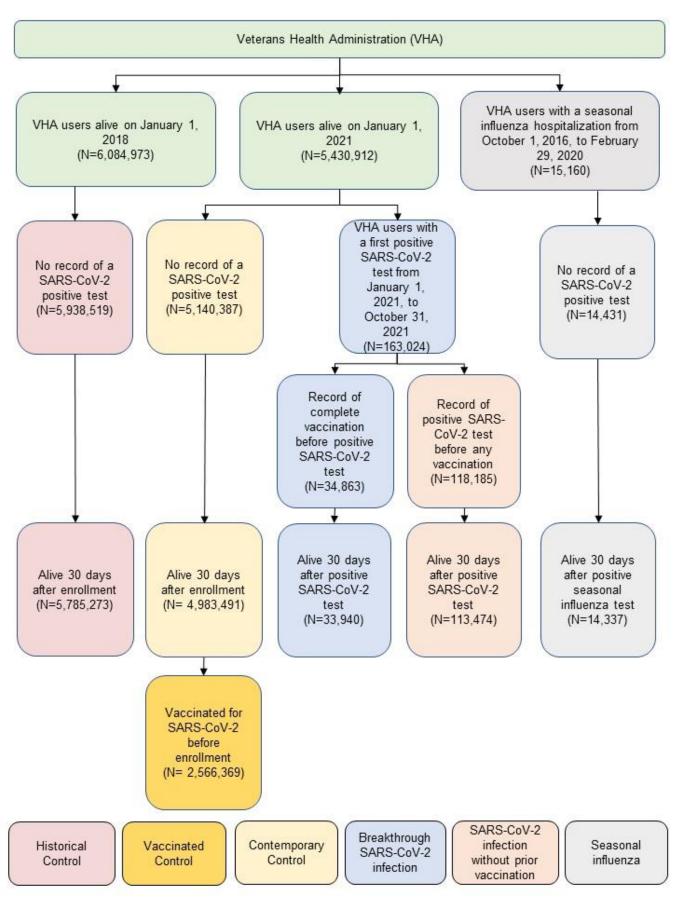
Incident outcomes were assessed from 30 days after the positive SARS-COV-2 infection test to end of follow-up. Results are in comparison of those hospitalized with breakthrough SARS-CoV-2 infection (n=3,667) to those hospitalized with seasonal influenza (n=14,337). Adjusted hazard ratios (dots) and 95% confidence intervals (error bars) are presented. Outcomes that occurred in less than 10 participants in a group were excluded.



Supplementary Figure 7: Analytic flowchart.



Supplementary Figure 8: Cohort flowchart.



Breakthrough SARS-CoV-2 infection VS No evidence of SARS-CoV-2 infection

Rationale and interpretation of the comparative analyses

Contemporary Control

Evaluate risk compared to contemporaries who were exposed to the broader changes of the pandemic but did not contract SARS-CoV-2

Historical Control

Evaluate risk compared to people from a pre-pandemic era — which represents a baseline of health and disease that is undisrupted by the pandemic

Vaccinated Control

Evaluate risk compared to contemporaries with similar health behavior toward SARS-CoV-2 vaccines and were subject to similar putative long-term impacts of the vaccination itself

Breakthrough SARS-CoV-2 infection VS SARS-CoV-2 infection with no prior vaccination

Evaluate the putative risk reduction conferred by SARS-CoV-2 vaccination in people who subsequently contract SARS-CoV-2

Breakthrough SARS-CoV-2 infection VS Seasonal influenza

Disentangle the putative risks that are due to SARS-CoV-2 infection from those of post seasonal influenza respiratory viral illness