

Results of COVID-19 Vaccine Effectiveness Studies: An Ongoing Systematic Review

Forest Plots

Updated October 14, 2021

Prepared by:

International Vaccine Access Center,
Johns Hopkins Bloomberg School of Public Health
and
World Health Organization



For comments or questions, please contact: Melissa Higdon at mhigdon@jhu.edu.

TABLE OF CONTENTS

Methods for Inclusion in Forest Plots	3
Abbreviations	4
Forest Plots by Vaccine	5
Ad26.COV2.S (Janssen)	5
AZD1222 (AstraZeneca).....	6
BNT162b2 (Pfizer)	7
CoronaVac (Sinovac)	8
mRNA-1273 (Moderna).....	9
Heterologous schedules.....	10
Forest Plots by Disease Outcome.....	11
Death.....	11
Severe Disease	11
Symptomatic Disease	12
Any Infection	12
Asymptomatic Infection.....	13
Forest Plots by Variant of Concern.....	14
Alpha	14
Beta	14
Gamma.....	15
Delta	15

METHODS FOR INCLUSION IN FOREST PLOTS

Vaccine Effectiveness (VE) estimates included in these plots are from an ongoing systematic review of COVID-19 vaccine effectiveness studies. Complete details on the method of the systematic review as well as a summary table of results can be found on the VIEW-hub Resources Page (<https://view-hub.org/resources>):

- “COVID-19 Vaccine Effectiveness and Impact Studies Review Methods”
- “COVID-19 Vaccine Effectiveness Results Summary Table”

The VE estimates included in the plots are a large subset of the estimates abstracted from the systematic literature review. A single study can include many VE estimates. In an effort to not overrepresent the amount of evidence that exists for each vaccine, the following criteria are used to determine which VE estimates are displayed in the forest plots located on the VIEW-hub resources page (<https://view-hub.org/resources>). There are some instances when more than one estimate from a study will be displayed in the same plot (e.g. a study includes VE estimates from two distinct populations or estimates for different variants). Reference numbers are included for each VE estimate displayed so users can identify when a study is represented more than once within a plot. More information on each reference can be found in the weekly literature review summary table located on VIEW-HUB (<https://view-hub.org/resources>).

- Complete vaccination is defined as ≥ 7 days post final dose; partial vaccination is defined as ≥ 14 days post first dose of a 2-dose vaccine.
- If a study reports results for the same outcome for both combined and individual vaccines, only individual vaccine VE estimates are displayed. This criterion only applies to studies evaluating VE of BNT162b2 (Pfizer) and mRNA-1273 (Moderna) vaccines.
- If a study reports results from 2 different evaluation designs (e.g. test-negative design and cohort design) on the same population, VE estimates from the primary analysis only are displayed.
- If a study reports overall VE as well as variant-specific VE estimates for the same disease outcome, overall VE estimates are included in the ‘By Vaccine’ and ‘By Disease Outcome’ plots. However, if a study reports only variant-specific VE estimates, then all variant VE estimates are displayed and labeled. For the ‘By Variant’ plots, variant-specific estimates are included from all studies in which they are available. Note that studies may be conducted in the context of circulating variants, however, if variant-specific estimates (i.e. VE is stratified by variant) are not provided, estimates are labeled as ‘overall’ VE estimates, unless otherwise noted.
- If a study reports VE estimates for the same disease outcome for different populations, the general population VE estimate is displayed when available. If a general population estimate is not available, the VE from each population is displayed (exception is when there are estimates for similar age groups in which case the more stable VE estimate will be displayed).
- If a study reports VE estimates on more than one ‘severe’ disease outcome (e.g. ‘severe disease’, ‘hospitalization’, and ‘ICU admission’), the more inclusive disease outcome including a larger population is displayed. These different types of severe outcomes are labeled as ‘severe disease’ in the plots, however it is important to keep in mind that the definition of severe disease varies and may explain some differences in VE estimates for severe disease outcomes.

ABBREVIATIONS

asypm = asymptomatic

HCW = healthcare workers

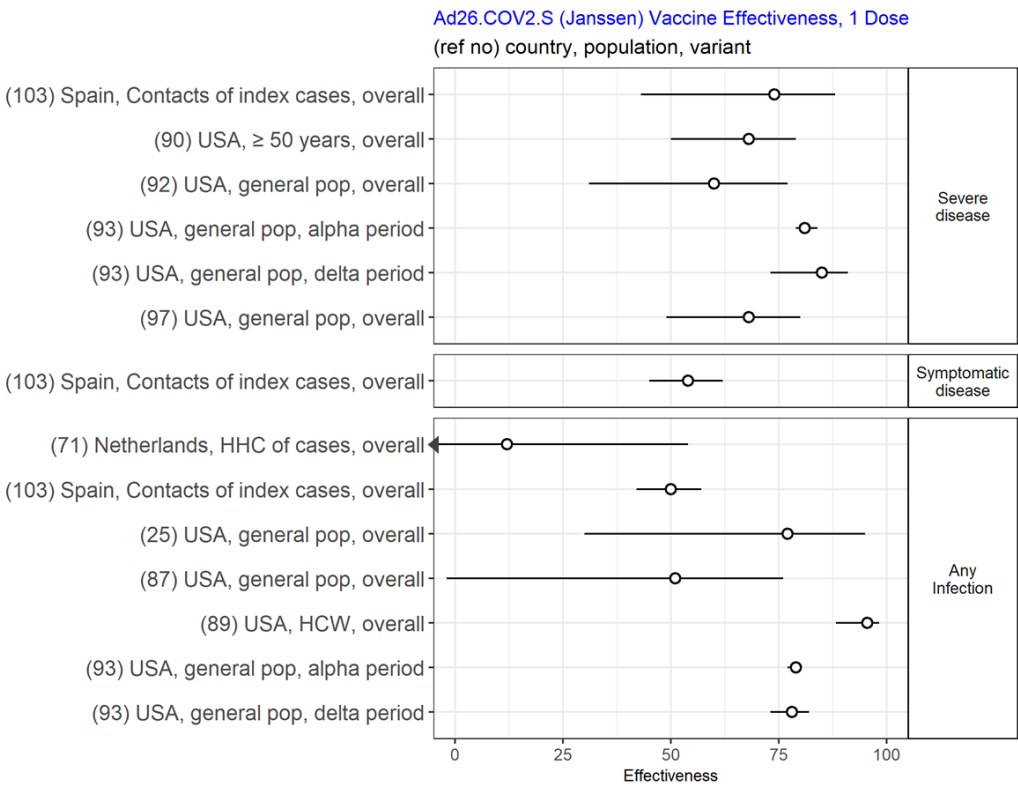
HHC = household contacts

LTCF = long-term care facility

pop = population

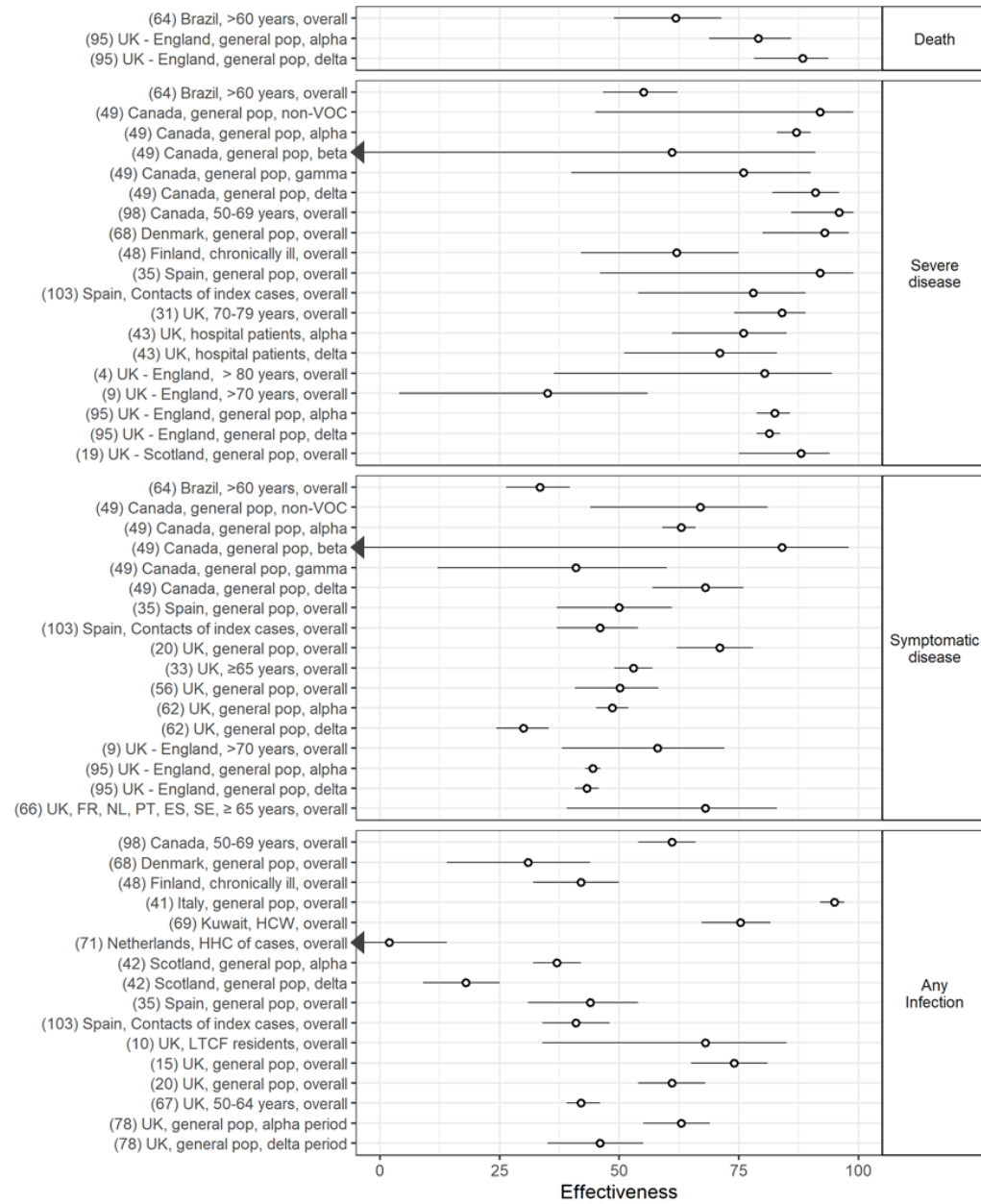
SNF= skilled nursing facility

VOC = variant of concern



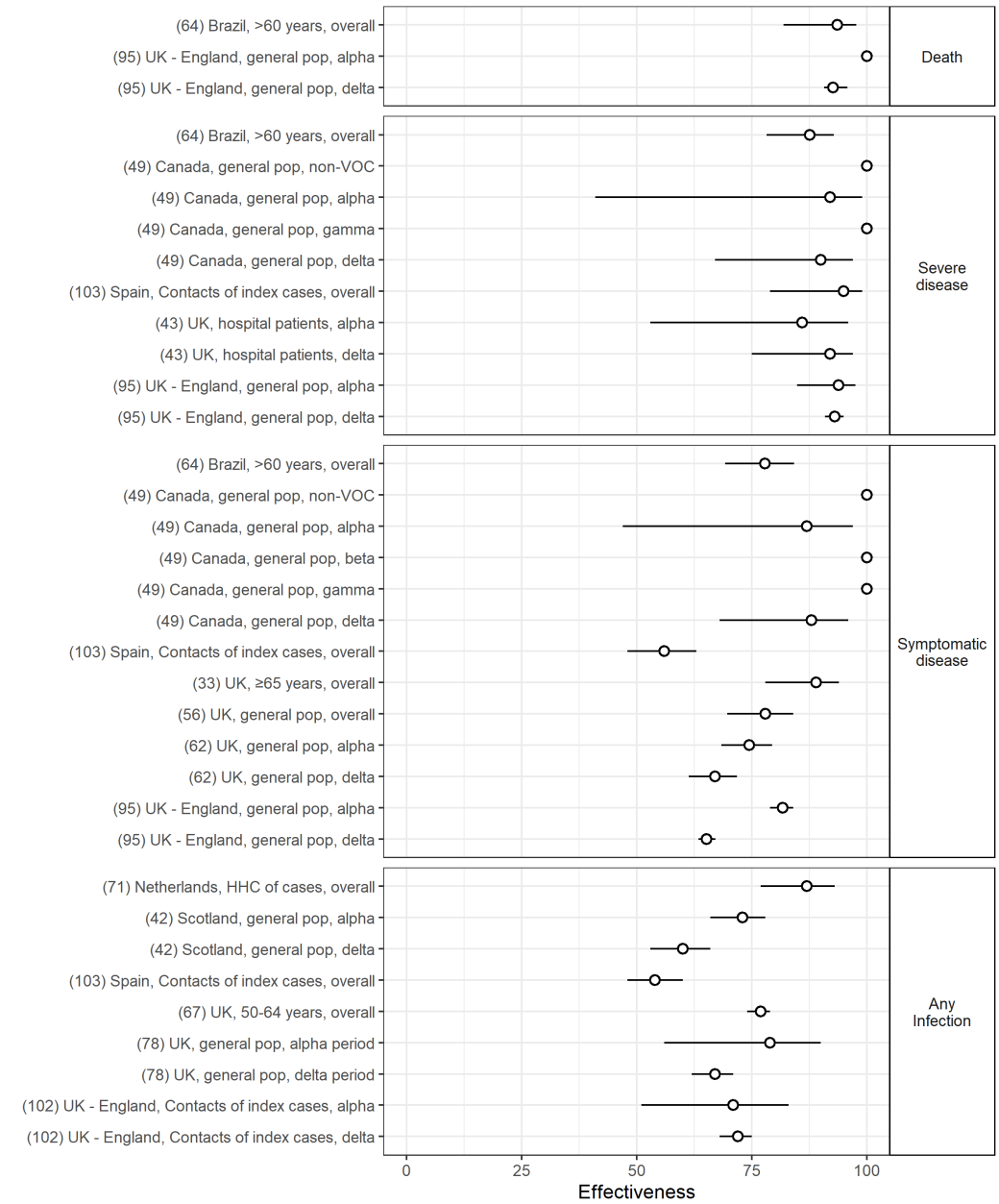
AZD1222 (AstraZeneca) Vaccine Effectiveness, 1 Dose

(ref no) country, population, variant



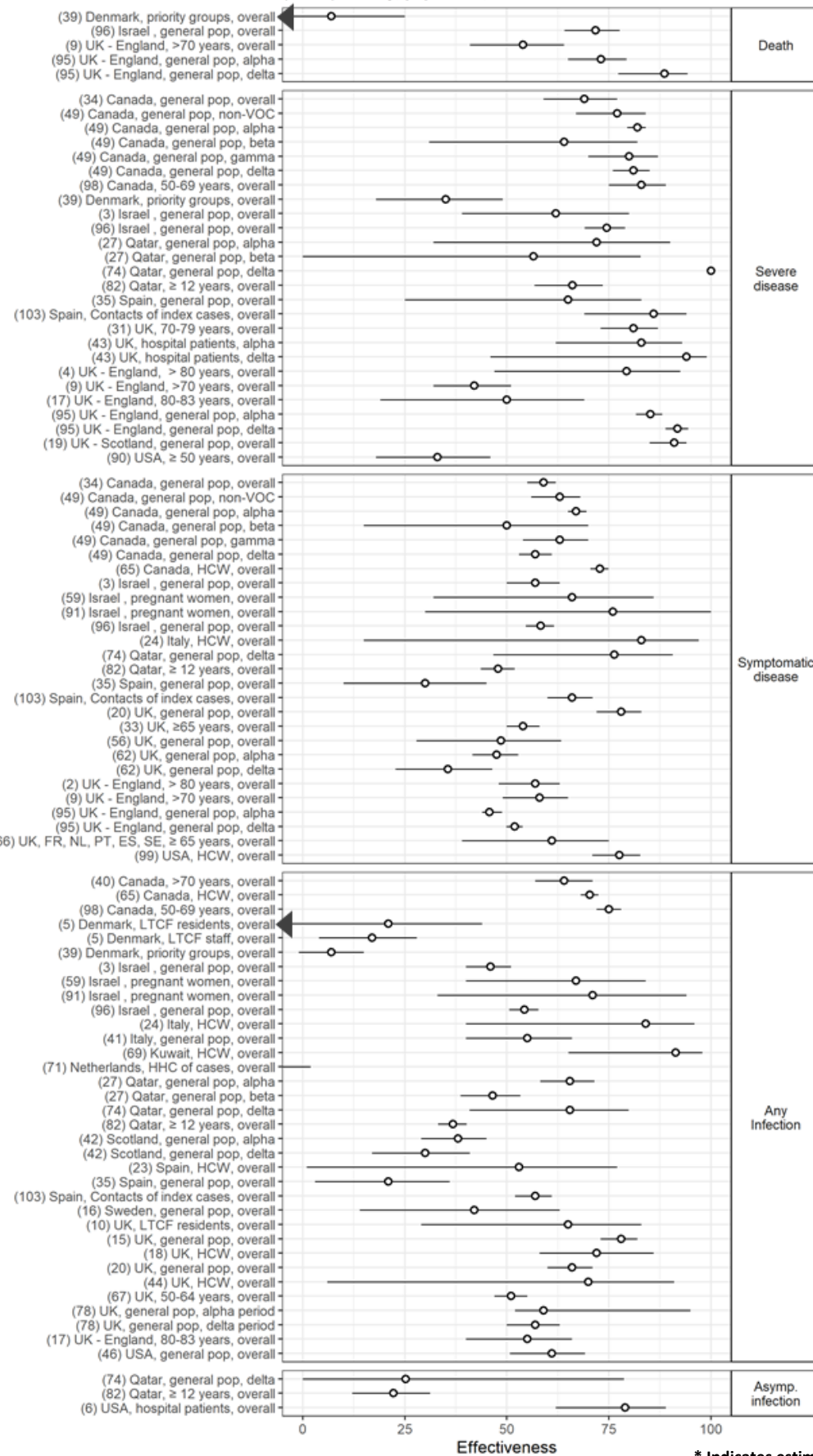
AZD1222 (AstraZeneca) Vaccine Effectiveness, 2 Doses

(ref no) country, population, variant



BNT162b2 (Pfizer) Vaccine Effectiveness, 1 Dose

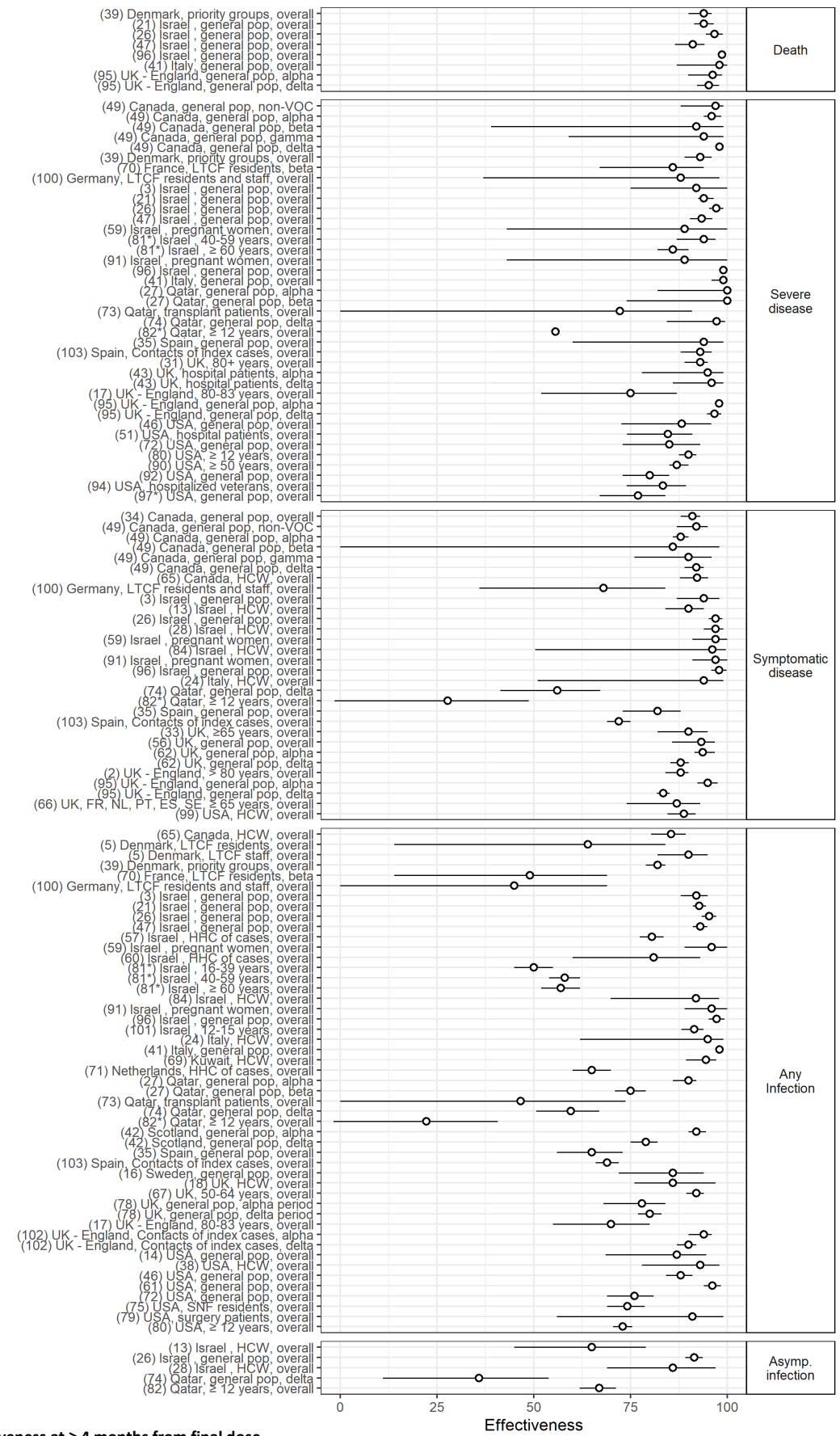
(ref no) country, population, variant



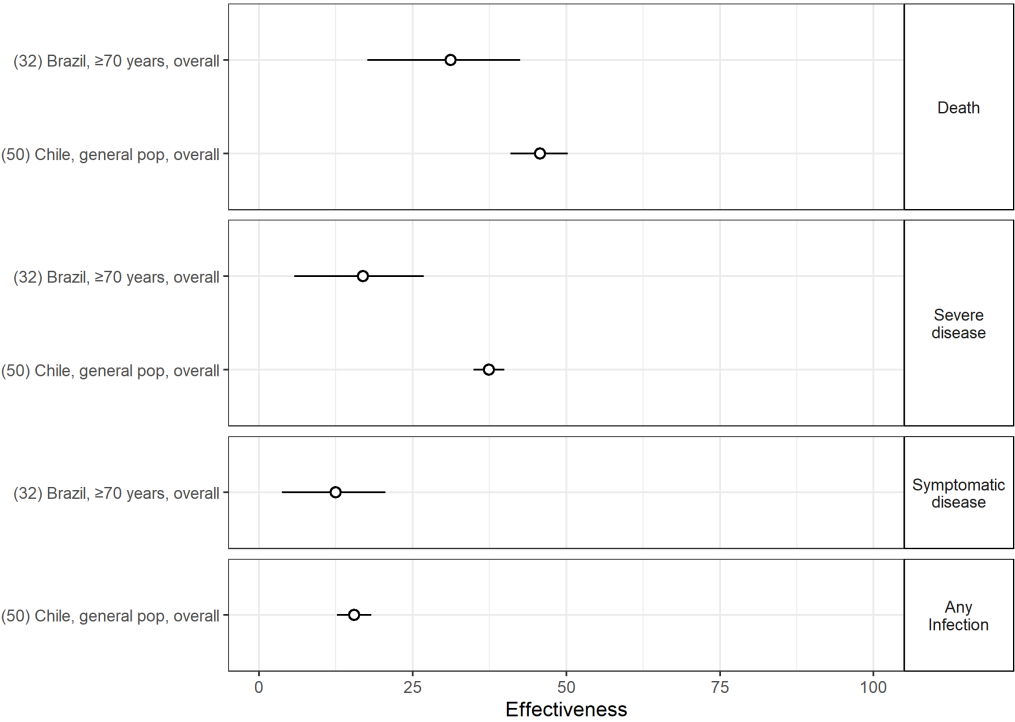
* Indicates estimates evaluating vaccine effectiveness at ≥ 4 months from final dose

BNT162b2 (Pfizer) Vaccine Effectiveness, 2 Doses

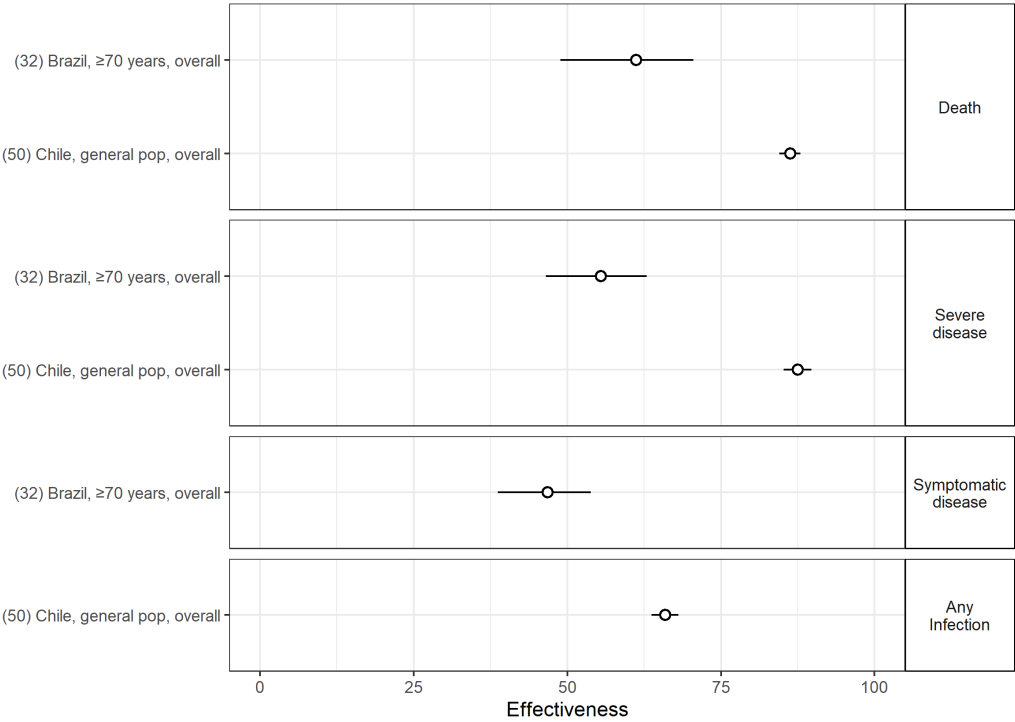
(ref no) country, population, variant



CoronaVac (Sinovac) Vaccine Effectiveness, 1 Dose
(ref no) country, population, variant

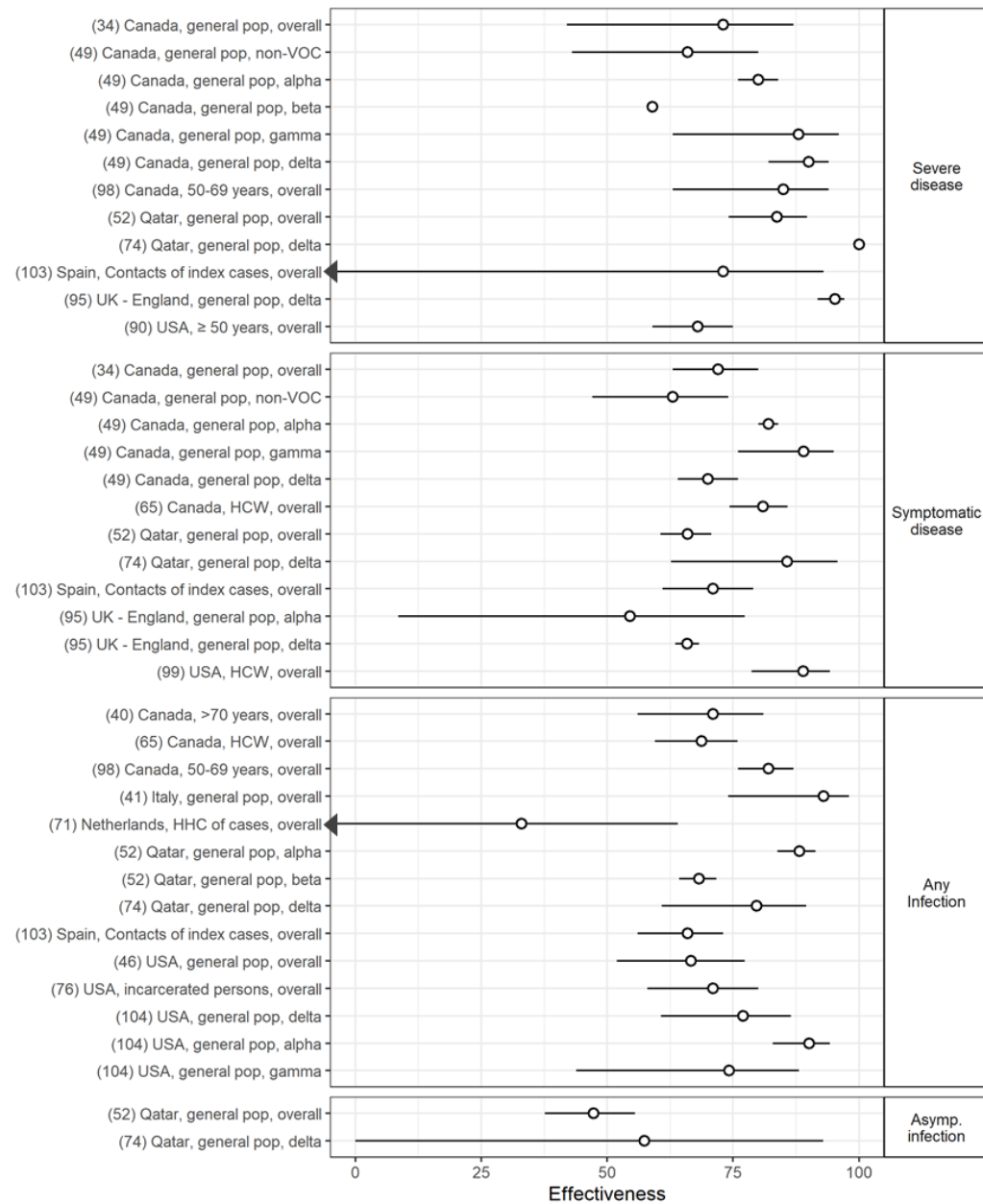


CoronaVac (Sinovac) Vaccine Effectiveness, 2 Doses
(ref no) country, population, variant



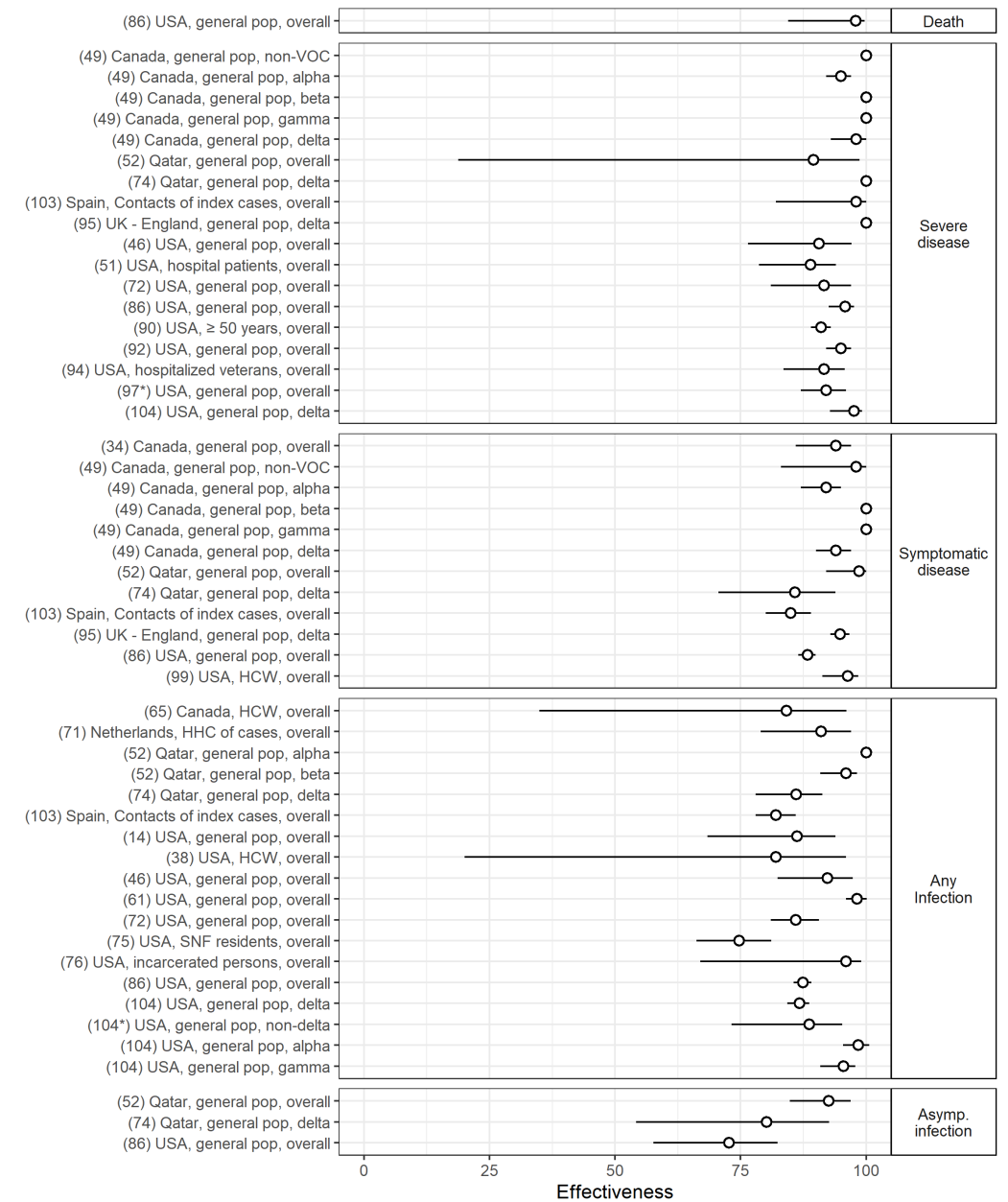
mRNA-1273 (Moderna) Vaccine Effectiveness, 1 Dose

(ref no) country, population, variant

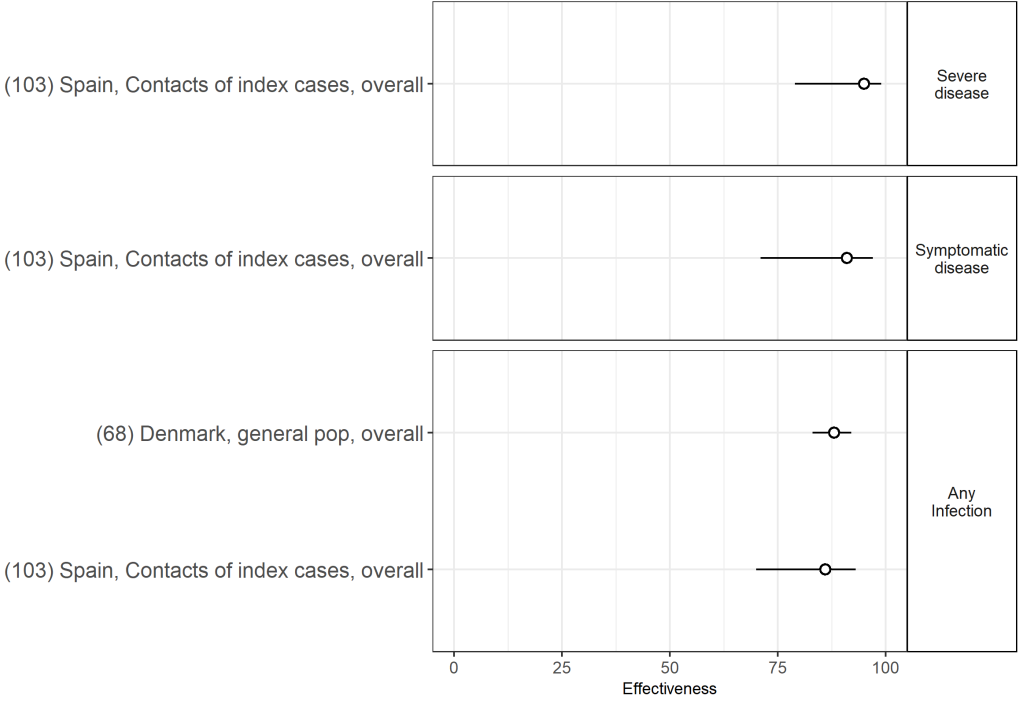


mRNA-1273 (Moderna) Vaccine Effectiveness, 2 Doses

(ref no) country, population, variant



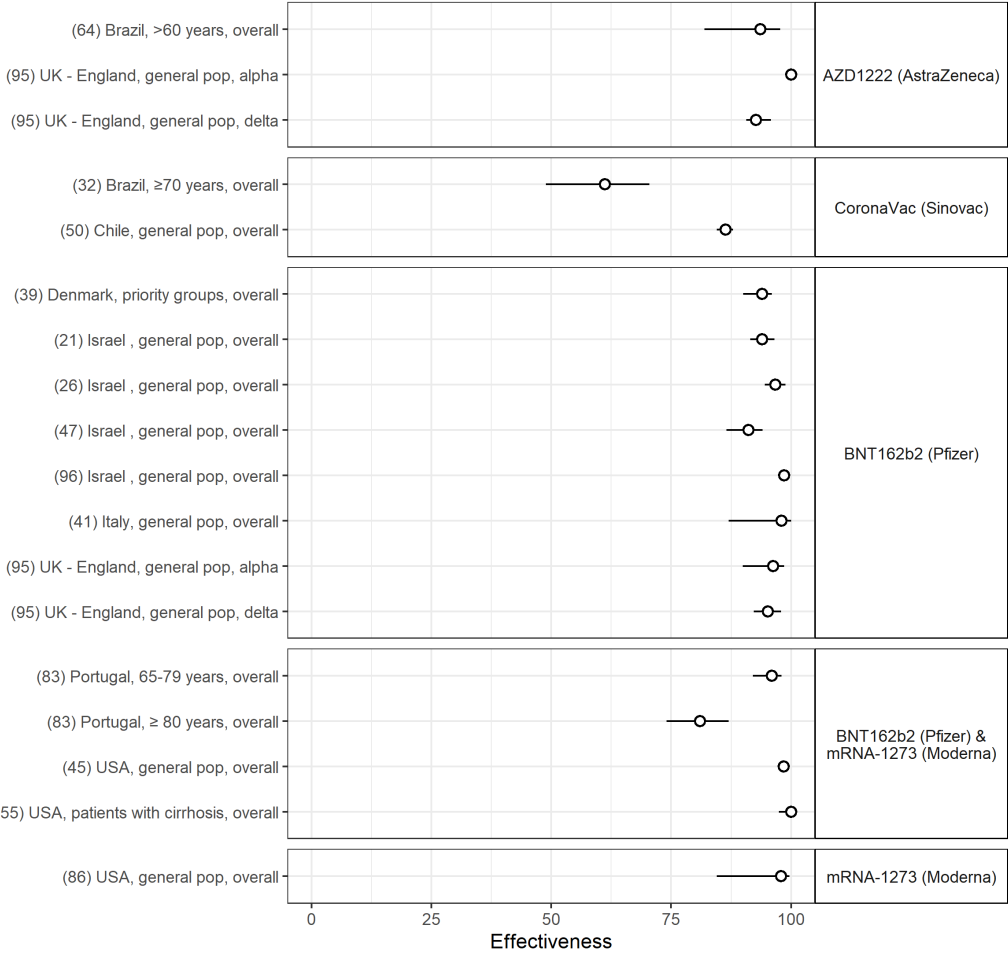
AZD1222 (AstraZeneca) 1st dose plus BNT162b2 (Pfizer) or mRNA-1273 (Moderna) 2nd dose Vaccine Effectiveness
(ref no) country, population, variant



BY DISEASE OUTCOME

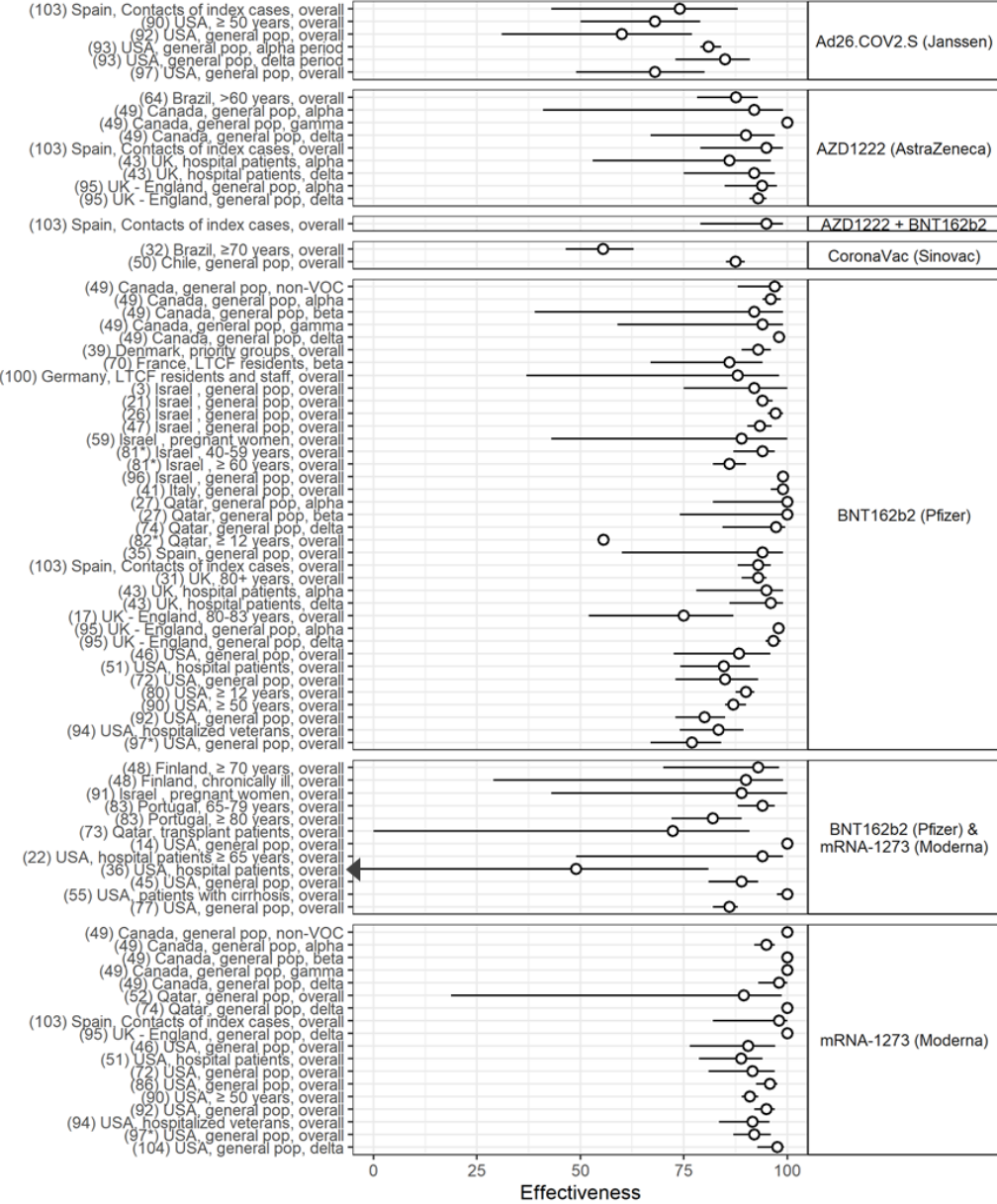
Vaccine Effectiveness against Death due to COVID-19,
Complete Vaccination

(ref no) country, population, variant



Vaccine Effectiveness against COVID-19 Severe Disease,
Complete Vaccination

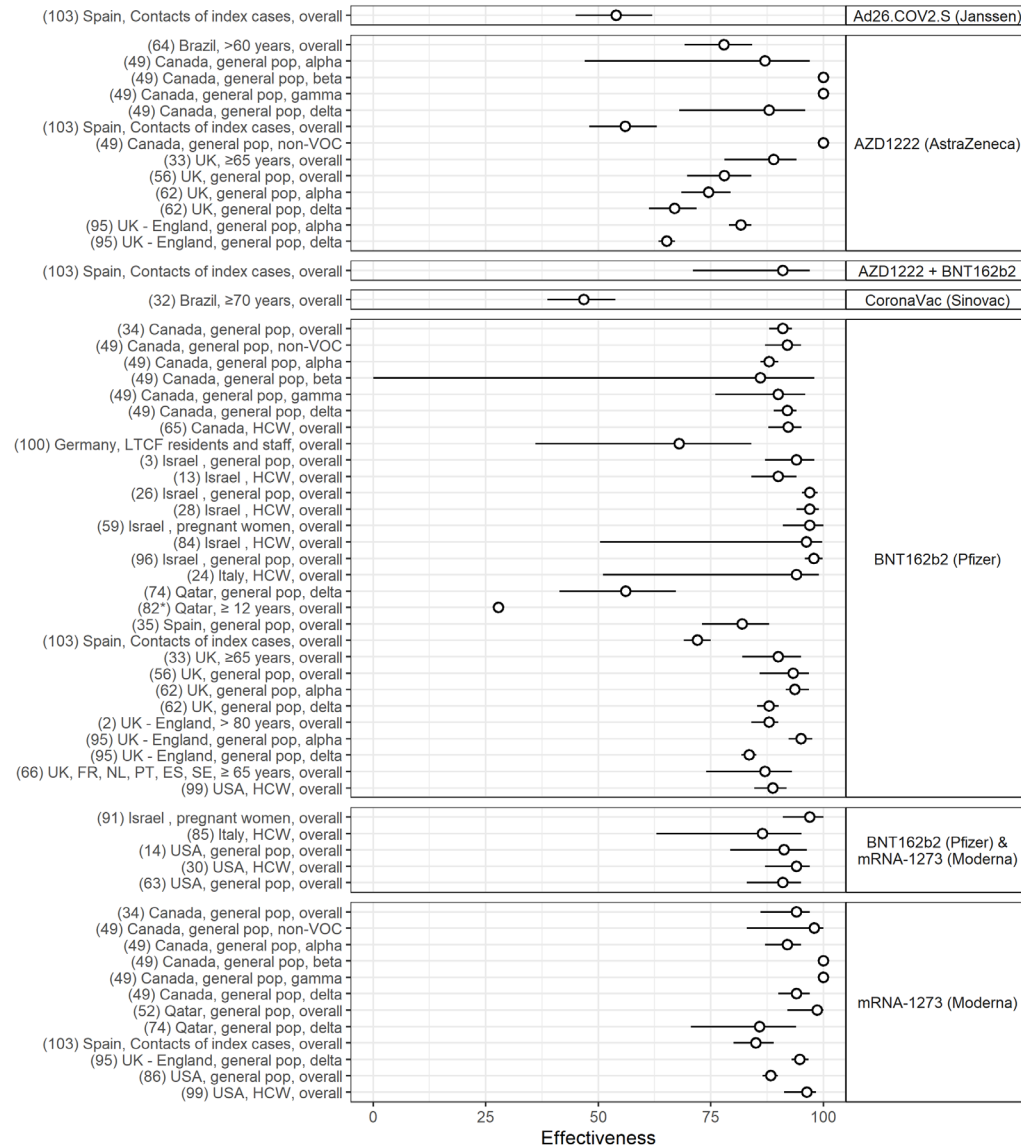
(ref no) country, population, variant



* Indicates estimates evaluating vaccine effectiveness at ≥ 4 months from final dose

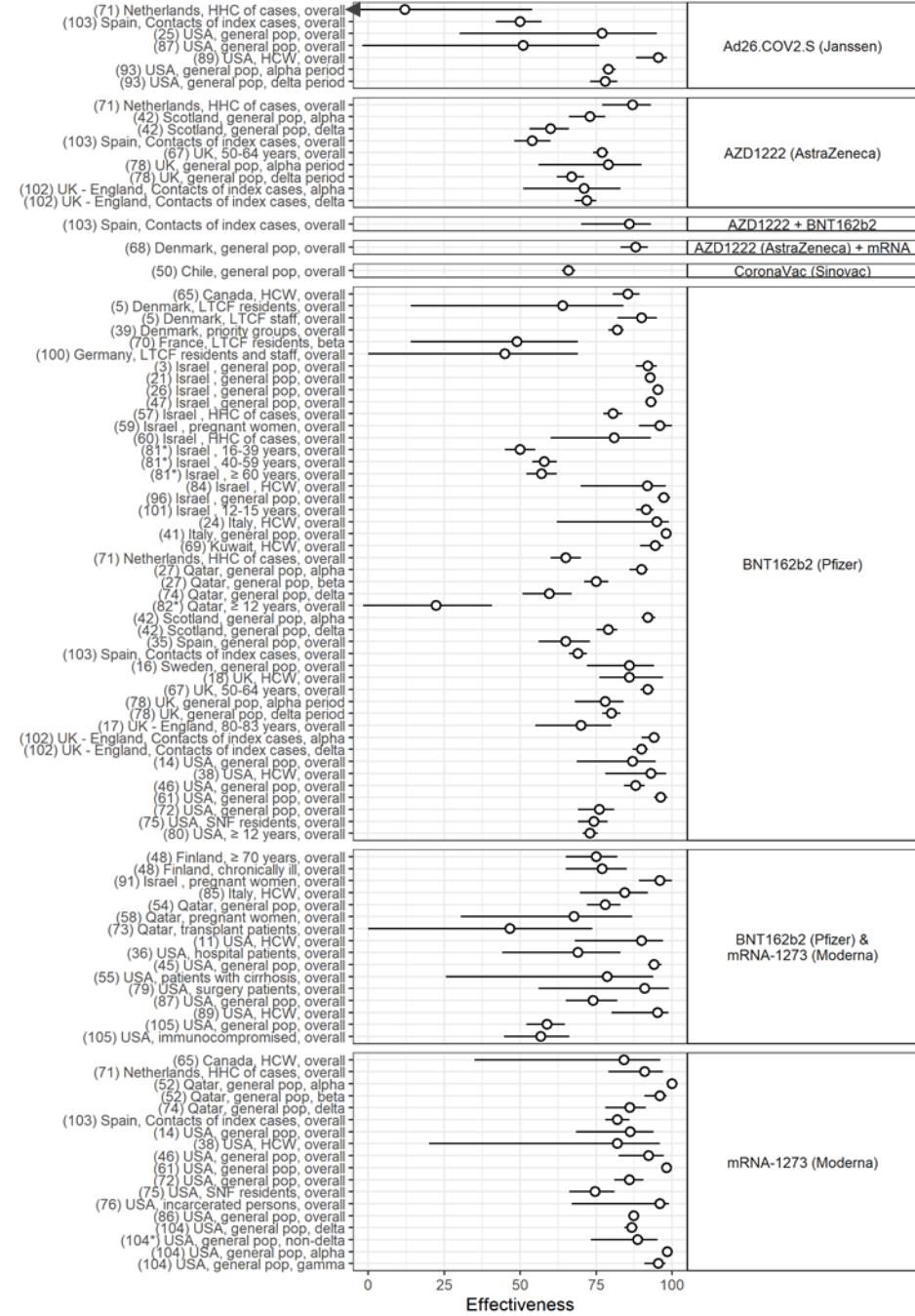
Vaccine Effectiveness against COVID-19 Symptomatic Disease, Complete Vaccination

(ref no) country, population, variant



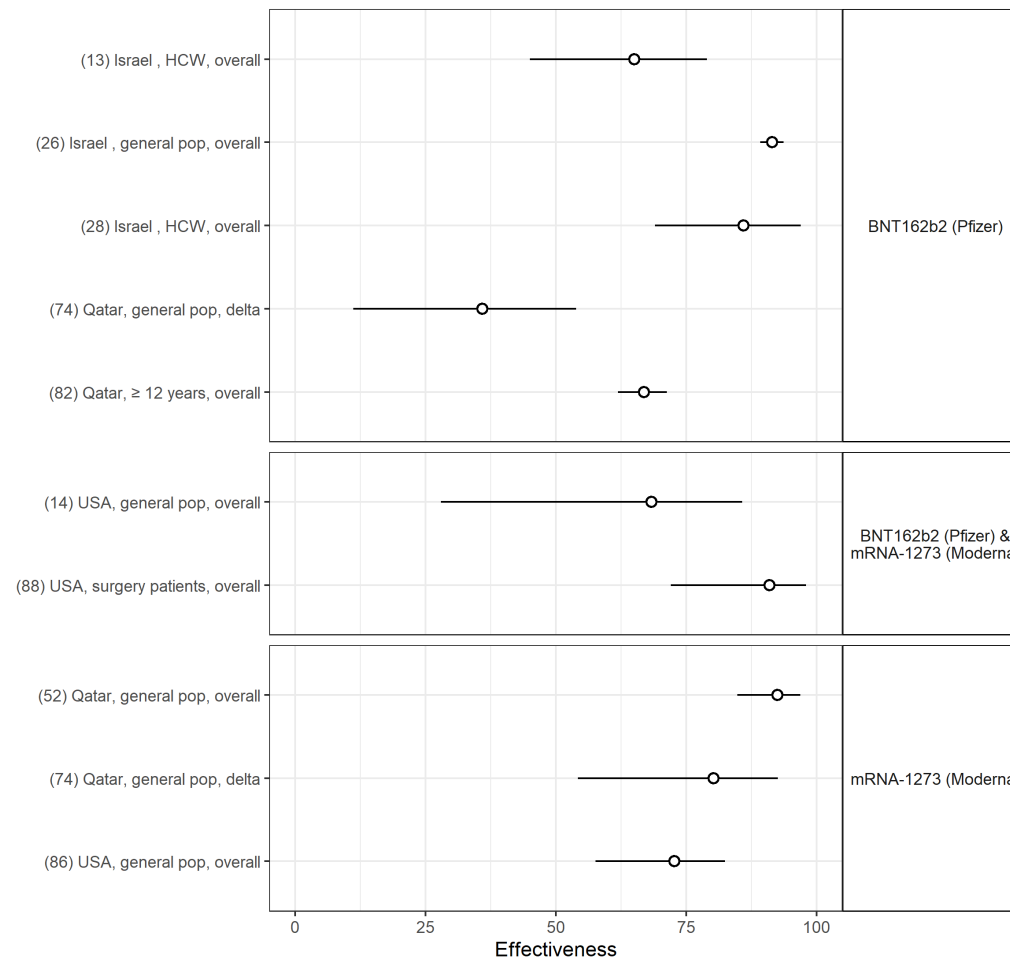
Vaccine Effectiveness against COVID-19 Infection (Any), Complete Vaccination

(ref no) country, population, variant



Vaccine Effectiveness against COVID-19 Asymptomatic Infection, Complete Vaccination

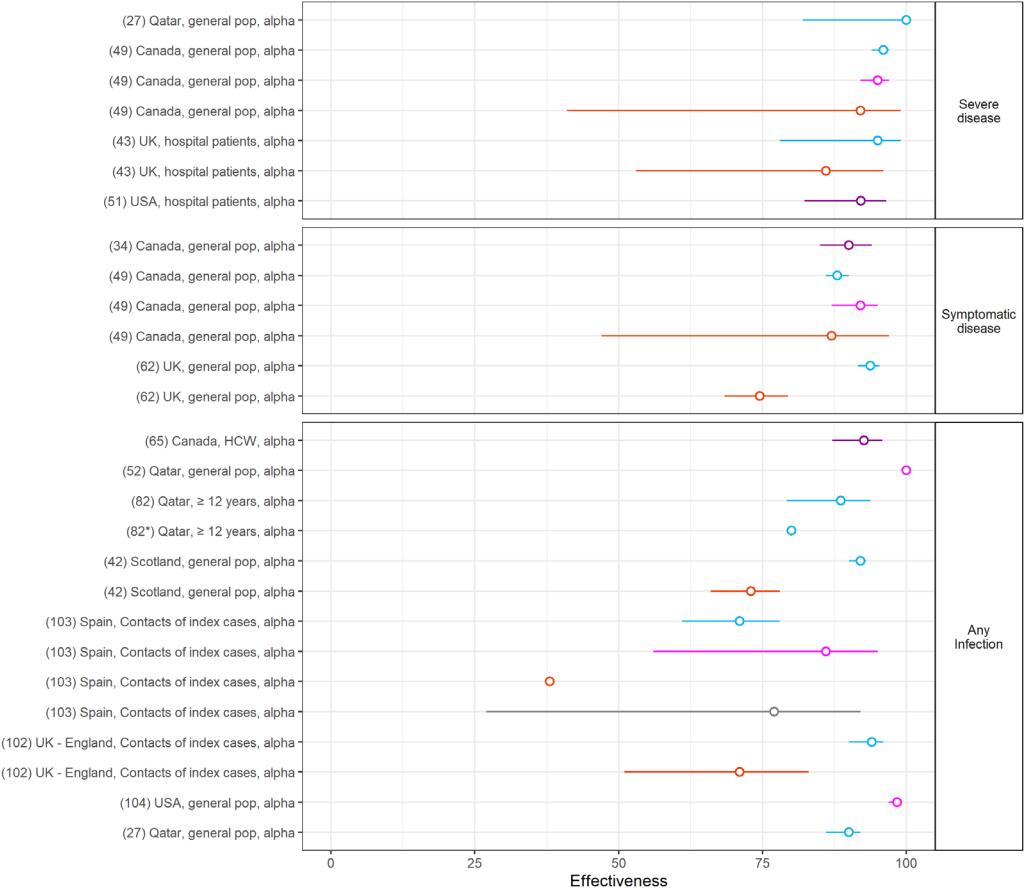
(ref no) country, population, variant



BY VARIANT OF CONCERN

Vaccine Effectiveness against Alpha Variant, Complete Vaccination

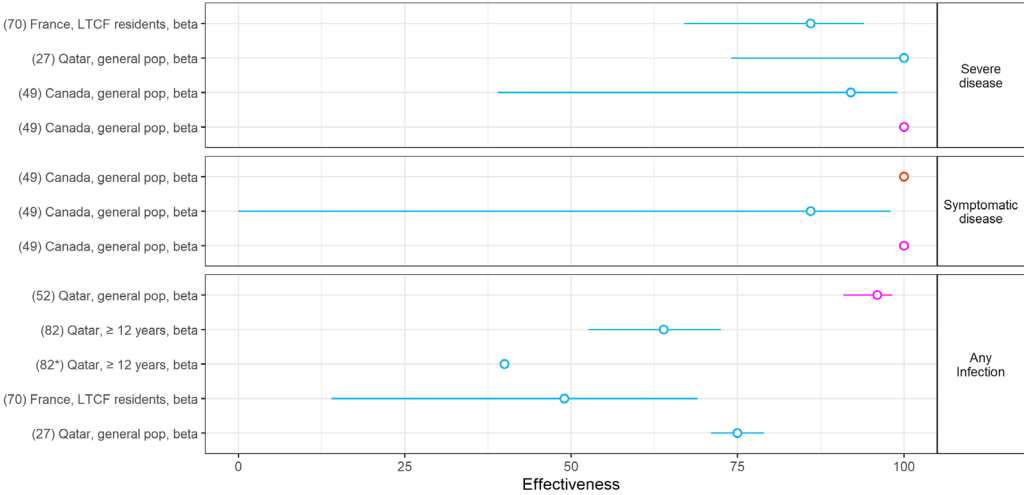
(ref no) country, population, variant



Vaccine AZD1222 (AstraZeneca) BNT162b2 (Pfizer) BNT162b2 (Pfizer) & mRNA-1273 (Moderna) CoronaVac (Sinovac) mRNA-1273 (Moderna) AZD1222 (AstraZeneca) + BNT162b2 (Pfizer)

Vaccine Effectiveness against Beta Variant, Complete Vaccination

(ref no) country, population, variant

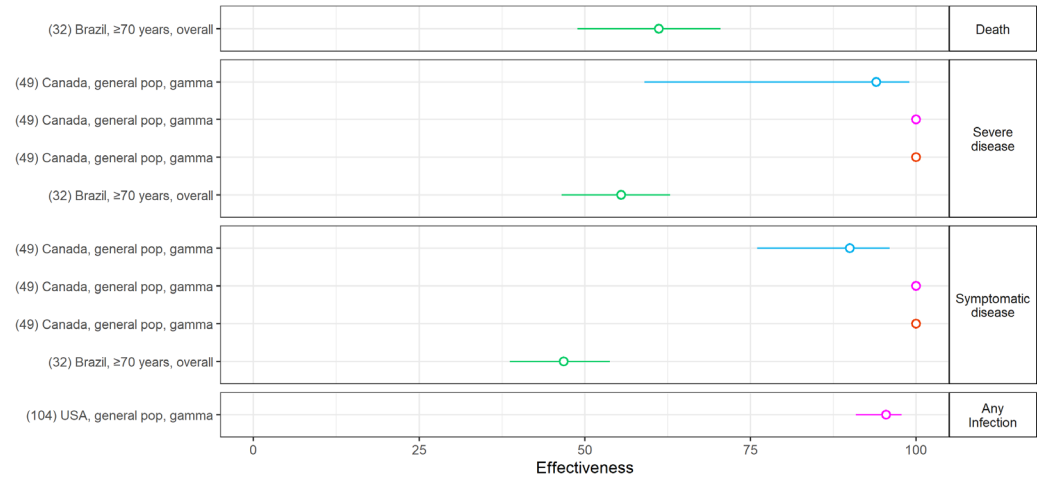


Vaccine AZD1222 (AstraZeneca) BNT162b2 (Pfizer) BNT162b2 (Pfizer) & mRNA-1273 (Moderna) mRNA-1273 (Moderna)

* Indicates estimates evaluating vaccine effectiveness at ≥ 4 months from final dose

Vaccine Effectiveness against Gamma Variant, Complete Vaccination

(ref no) country, population, variant

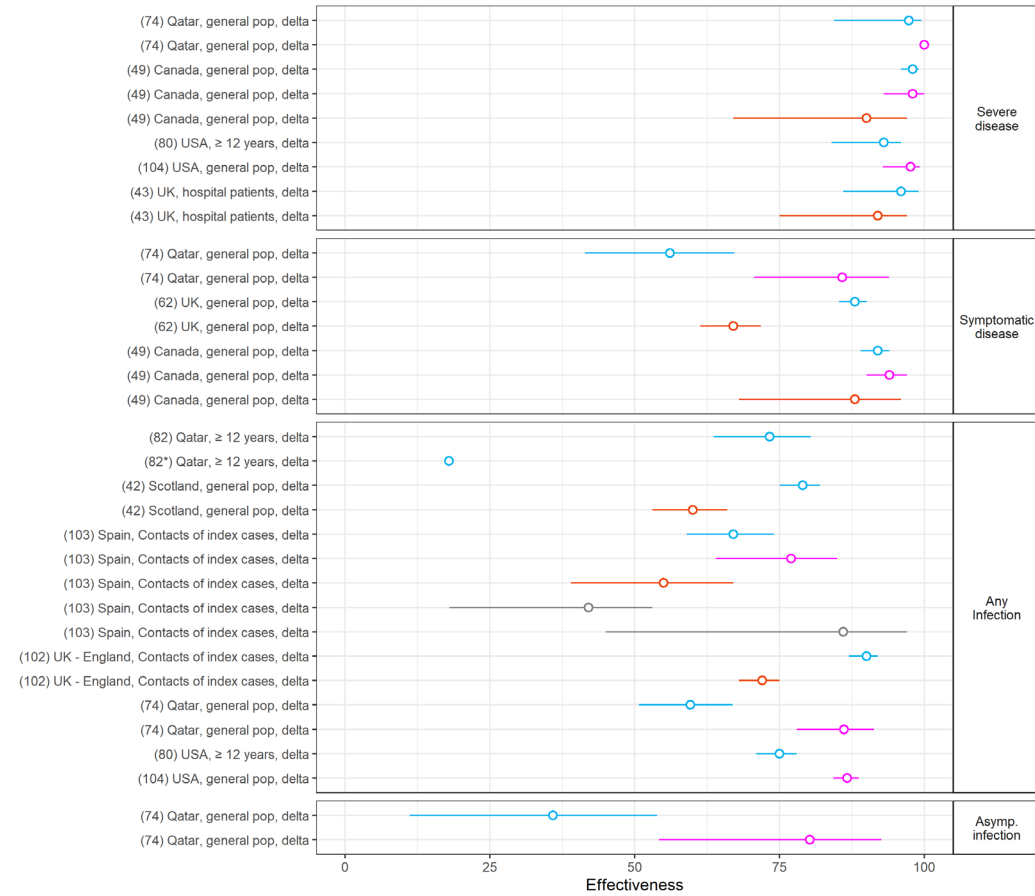


Vaccine AZD1222 (AstraZeneca) BNT162b2 (Pfizer) BNT162b2 (Pfizer) & mRNA-1273 (Moderna) mRNA-1273 (Moderna) CoronaVac (Sinovac)

Note: Gamma-specific VE not available for CoronaVac. Study conducted in context of high Gamma prevalence (79%).

Vaccine Effectiveness against Delta Variant, Complete Vaccination

(ref no) country, population, variant



Vaccine AZD1222 (AstraZeneca) BNT162b2 (Pfizer) BNT162b2 (Pfizer) & mRNA-1273 (Moderna) CoronaVac (Sinovac) mRNA-1273 (Moderna) AZD1222 (AstraZeneca) + BNT162b2 (Pfizer)