Supplemental Online Content

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eReferences

This supplemental material has been provided by the authors to give readers additional information about their work.
Records identified from PubMed (n = 7,256)
Records identified from medRxiv (n = 926)

Records removed before screening:
Records published through June 17, 2021, the last search date of our previous review (n = 6,085)

Records screened on title and abstract (n = 2,097)

Records excluded (n = 1,974)
- No data on uninfected contacts (n = 22)
- No data on household contacts (n = 19)
- Reported prevalence or overall household attack rate, which includes index cases (n = 10)
- Tested household contacts using antibody tests (n = 9)
- No original data (n = 4)
- Overlapping study population with another article included in meta-analysis (n = 2)
- Restricted to households with at least one confirmed case among household contacts (n = 1)

Reports assessed for eligibility (n = 123)

New studies included (n = 58)

Total studies included in review (n = 135)
eFigure 2. Funnel Plots of Studies Reporting Household Secondary Attack Rates With Midpoints in 2021 and Through April 2020

Begg & Mazumdar rank correlation test: studies with midpoints in 2021-2022 (P<0.001); midpoints through April 2020 (P=0.508). Excluding one study in 2021 that had a relatively low SAR of 10.1% improved the funnel plot symmetry and resulted in a SAR of 38.6% (95%CI, 34.5%-42.8%) for studies with midpoints in 2021-2022.
eFigure 3. Funnel Plots of Studies Reporting Household Secondary Attack Rates for Alpha (B.1.1.7) and Delta (B.1.617.2) Variants

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eFigure 4. Household Secondary Attack Rates for Omicron (B.1.1.529), Alpha (B.1.1.7), Delta (B.1.617.2), and Beta (B.1.351) Variants From Unvaccinated Index Cases to Unvaccinated Household Contacts

Three studies included did not disaggregate household secondary attack rates by vaccination status. Watanapokasin et al. reported that 83% of index cases were unvaccinated. Vaccination status was not provided for contacts. Dougherty et al. reported that only 17 of 194 (8.8%) exposed individuals in the study were fully vaccinated. Cohen et al. reported that vaccine uptake was low in study sites reaching 5% fully vaccinated by the end of follow up. Point sizes are an inverse function of the precision of the estimates, and bars correspond to 95% CIs. Diamonds represent summary SAR estimates with corresponding 95% CIs.
### eFigure 5. Household Secondary Attack Rates by Index Case Vaccination Status With All Contacts Are Included Regardless of Vaccination Status

| Author et al., Location | Infected | Total | Estimates | Point sizes are an inverse function of the precision of the estimates, and bars correspond to 95%CIs. Diamonds represent summary SAR estimates with corresponding 95%CIs. |
|--------------------------|----------|-------|-----------|---------------------------------------------------------------------------------------------------------------------------------|
| Baker et al., U.S.A.     |          |       |           |                                                                                                                                |
| Unvaccinated             | 89       | 108   | 0.56 (0.53, 0.60) |                                                                                                                                |
| Partially vaccinated     | 1        | 1     | 1.00 (0.69, 1.00) |                                                                                                                                |
| Fully vaccinated         | 103      | 200   | 0.51 (0.45, 0.58) |                                                                                                                                |
| De Gier et al., Netherlands |        |       |           |                                                                                                                                |
| Unvaccinated             | 4366     | 139902| 0.31 (0.31, 0.31) |                                                                                                                                |
| Partially vaccinated     | 587      | 2032  | 0.29 (0.27, 0.31) |                                                                                                                                |
| Fully vaccinated         | 79       | 706   | 0.11 (0.06, 0.14) |                                                                                                                                |
| De Gier et al., 2, Netherlandes |    |       |           |                                                                                                                                |
| Unvaccinated             | 711      | 4022  | 0.18 (0.17, 0.19) |                                                                                                                                |
| Partially vaccinated     | 35       | 735   | 0.08 (0.06, 0.10) |                                                                                                                                |
| Fully vaccinated         | 294      | 2379  | 0.12 (0.11, 0.14) |                                                                                                                                |
| Del Águila-Mejía, Cantabria, Spain |      |       |           |                                                                                                                                |
| Unvaccinated             | 766      | 1472  | 0.53 (0.49, 0.55) |                                                                                                                                |
| Fully vaccinated         | 604      | 1309  | 0.44 (0.41, 0.47) |                                                                                                                                |
| Gealet et al., Israel    |          |       |           |                                                                                                                                |
| Unvaccinated             | 1025     | 2814  | 0.36 (0.34, 0.37) |                                                                                                                                |
| Fully vaccinated         | 21       | 268   | 0.30 (0.05, 0.11) |                                                                                                                                |
| Harris et al., England, U.K. |     |       |           |                                                                                                                                |
| Unvaccinated             | 9658     | 95705 | 0.10 (0.10, 0.10) |                                                                                                                                |
| Partially vaccinated     | 567      | 9363  | 0.08 (0.06, 0.07) |                                                                                                                                |
| Jakol et al., Norway     |          |       |           |                                                                                                                                |
| Unvaccinated             | 345      | 749   | 0.46 (0.43, 0.50) |                                                                                                                                |
| Partially vaccinated     | 92       | 235   | 0.41 (0.38, 0.47) |                                                                                                                                |
| Fully vaccinated         | 460      | 1073  | 0.46 (0.43, 0.49) |                                                                                                                                |
| Layan et al., Israel     |          |       |           |                                                                                                                                |
| Unvaccinated             | 261      | 641   | 0.41 (0.37, 0.45) |                                                                                                                                |
| Fully vaccinated         | 6        | 43    | 0.18 (0.08, 0.32) |                                                                                                                                |
| Lyngsø et al., Denmark   |          |       |           |                                                                                                                                |
| Unvaccinated             | 8562     | 38338 | 0.22 (0.22, 0.23) |                                                                                                                                |
| Fully vaccinated         | 3089     | 15548 | 0.20 (0.19, 0.21) |                                                                                                                                |
| Meyer et al., Germany    |          |       |           |                                                                                                                                |
| Unvaccinated             | 12       | 22    | 0.35 (0.33, 0.37) |                                                                                                                                |
| Fully vaccinated         | 2        | 8     | 0.22 (0.01, 0.58) |                                                                                                                                |
| Ng et al., Singapore     |          |       |           |                                                                                                                                |
| Unvaccinated             | 127      | 552   | 0.23 (0.20, 0.27) |                                                                                                                                |
| Partially vaccinated     | 13       | 63    | 0.21 (0.11, 0.32) |                                                                                                                                |
| Fully vaccinated         | 29       | 138   | 0.21 (0.15, 0.28) |                                                                                                                                |
| Singanayagam et al., U.K. |         |       |           |                                                                                                                                |
| Unvaccinated             | 23       | 110   | 0.23 (0.15, 0.33) |                                                                                                                                |
| Partially vaccinated     | 13       | 35    | 0.37 (0.22, 0.54) |                                                                                                                                |
| Fully vaccinated         | 17       | 69    | 0.25 (0.15, 0.38) |                                                                                                                                |
eFigure 6. Funnel Plots of Studies Reporting Household Secondary Attack Rates From Unvaccinated or Fully Vaccinated Index Cases to All Contacts Regardless of Vaccination Status

Begg & Mazumdar rank correlation test: unvaccinated ($P=0.542$); fully vaccinated ($P=0.879$)

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eFigure 7. Household Secondary Attack Rates by Index Case Vaccination Status With Only Unvaccinated Contacts Included

| Author, Location       | Infected | Total  | Estimates | SAR (95% CI) |
|------------------------|----------|--------|-----------|--------------|
| De Gier et al1.,...   |          |        |           |              |
| Unvaccinated           | 42382    | 135974 |           | 0.31 [0.31, 0.31] |
| Partially vaccinated   | 432      | 1517   |           | 0.28 [0.26, 0.31] |
| Fully vaccinated       | 68       | 604    |           | 0.11 [0.09, 0.14] |
| De Gier et al2.,...   |          |        |           |              |
| Unvaccinated           | 547      | 2517   |           | 0.22 [0.20, 0.23] |
| Partially vaccinated   | 21       | 121    |           | 0.17 [0.11, 0.25] |
| Fully vaccinated       | 38       | 303    |           | 0.13 [0.09, 0.17] |
| Gazit et al.,...      |          |        |           |              |
| Unvaccinated           | 930      | 2423   |           | 0.38 [0.36, 0.40] |
| Fully vaccinated       | 2        | 11     |           | 0.18 [0.00, 0.47] |
| Harris et al.,...     |          |        |           |              |
| Unvaccinated           | 96898    | 960765 |           | 0.10 [0.10, 0.10] |
| Partially vaccinated*  | 567      | 9363   |           | 0.06 [0.06, 0.07] |
| Singanayagam et al.,...|         |        |           |              |
| Unvaccinated           | 8        | 20     |           | 0.40 [0.19, 0.63] |
| Fully vaccinated       | 4        | 17     |           | 0.24 [0.06, 0.47] |

*For Harris et al., most of the vaccinated index cases (93%) had received only the first dose of vaccine and secondary attack rates were not disaggregated by dose. Point sizes are an inverse function of the precision of the estimates, and bars correspond to 95%CIs. Diamonds represent summary SAR estimates with corresponding 95%CIs.
### eFigure 8. Household Secondary Attack Rates by Contact Vaccination Status With All Index Cases Included Regardless of Vaccination Status

| Author, Location       | Infected | Total | Estimates | SAR (95% CI)          |
|------------------------|----------|-------|-----------|-----------------------|
| Baker et al., U.S.A.   | 69       | 129   | 0.53 [0.45, 0.62] |
| Unvaccinated           |          |       |           |                       |
| Partially vaccinated   | 8        | 15    | 0.53 [0.28, 0.78] |
| Fully vaccinated       | 88       | 154   | 0.57 [0.49, 0.65] |
| De Groot et al., Netherlandes | 32088 | 91528 | 0.35 [0.35, 0.35] |
| Unvaccinated           | 573      | 1617  | 0.30 [0.28, 0.33] |
| Partially vaccinated   | 280      | 2528  | 0.11 [0.10, 0.12] |
| Fully vaccinated       | 506      | 2941  | 0.21 [0.15, 0.27] |
| Gauthier et al., Israel | 457   | 4189  | 0.11 [0.10, 0.13] |
| Fully vaccinated       | 1060     | 2427  | 0.37 [0.36, 0.39] |
| Gaylor et al., Norway  | 486      | 1589  | 0.43 [0.40, 0.46] |
| Unvaccinated           | 338      | 619   | 0.53 [0.49, 0.57] |
| Fully vaccinated       | 90       | 183   | 0.49 [0.42, 0.56] |
| Layegh et al., Israel  | 247      | 559   | 0.44 [0.40, 0.48] |
| Fully vaccinated       | 19       | 122   | 0.46 [0.40, 0.52] |
| Lyngsøe et al., Denmark | 7615  | 27486 | 0.28 [0.25, 0.32] |
| Fully vaccinated       | 3816     | 26388 | 0.15 [0.14, 0.15] |
| Martinez-Bax et al., Navarra, Spain | 2859 | 6494 | 0.44 [0.43, 0.45] |
| Unvaccinated           | 507      | 2318  | 0.23 [0.21, 0.24] |
| Fully vaccinated       | 1248     | 7402  | 0.17 [0.16, 0.18] |
| Ng et al., Singapore   | 137      | 530   | 0.26 [0.22, 0.30] |
| Unvaccinated           | 15       | 133   | 0.11 [0.06, 0.17] |
| Partially vaccinated   | 17       | 60    | 0.12 [0.11, 0.24] |
| Fully vaccinated       |          |       |           |                       |
| Seehofer et al., San Francisco, U.S.A. | 5    | 16    | 0.33 [0.13, 0.58] |
| Unvaccinated           | 2        | 15    | 0.13 [0.05, 0.38] |
| Fully vaccinated       | 12       | 38    | 0.32 [0.18, 0.47] |
| Singanayagam et al., U.K. | 15   | 40    | 0.37 [0.23, 0.53] |
| Unvaccinated           | 7        | 19    | 0.18 [0.07, 0.37] |
| Fully vaccinated       | 31       | 135   | 0.25 [0.18, 0.33] |
| Yi et al., Jeju, South Korea | 5    | 16    | 0.28 [0.05, 0.51] |
| Unvaccinated           | 5        | 20    | 0.25 [0.09, 0.47] |
| Fully vaccinated       | 1        | 9     | 0.12 [0.00, 0.46] |

Point sizes are an inverse function of the precision of the estimates, and bars correspond to 95% CIs. Diamonds represent summary SAR estimates with corresponding 95% CIs.
eFigure 9. Funnel Plots of Studies Reporting Household Secondary Attack Rates to Unvaccinated or Fully Vaccinated Contacts From All Index Cases Regardless of Vaccination Status

Begg & Mazumdar rank correlation test: unvaccinated ($P=0.311$); fully vaccinated ($P=0.638$)
**eFigure 10. Household Secondary Attack Rates by Contact Vaccination Status With Only Unvaccinated Index Cases Included**

| Author, Location       | Unvaccinated | Partially vaccinated | Fully vaccinated | SAR (95% CI) |
|------------------------|--------------|---------------------|-----------------|-------------|
| **De Gier et al., Netherlands** | 31694        | 432                 | 255             | 0.35 [0.35, 0.36] |
| Unvaccinated           | 90066        | 1508                | 2320            | 0.29 [0.26, 0.31] |
| Fully vaccinated       | 432          | 1508                | 2320            | 0.11 [0.10, 0.12] |
| **De Gier et al., Netherlands** | 547          | 164                 | 1505            | 0.22 [0.20, 0.23] |
| Unvaccinated           | 2517         | 1505                | 1505            | 0.11 [0.09, 0.13] |
| Fully vaccinated       | 164          | 1505                | 1505            | 0.11 [0.09, 0.13] |
| **Gazit et al., Israel** | 930          | 12                  | 140             | 0.38 [0.36, 0.40] |
| Unvaccinated           | 2423         | 140                 | 140             | 0.38 [0.36, 0.40] |
| Fully vaccinated       | 12           | 140                 | 140             | 0.09 [0.04, 0.14] |
| **Singanayagam et al., U.K.** | 8            | 3                   | 12              | 0.40 [0.19, 0.63] |
| Unvaccinated           | 20           | 17                  | 63              | 0.40 [0.19, 0.63] |
| Partially vaccinated   | 3            | 17                  | 63              | 0.18 [0.03, 0.40] |
| Fully vaccinated       | 12           | 63                  | 63              | 0.19 [0.10, 0.30] |

Point sizes are an inverse function of the precision of the estimates, and bars correspond to 95%CIs. Diamonds represent summary SAR estimates with corresponding 95%CIs.
eFigure 11. Household Secondary Attack Rates by Vaccination Status of the Index Cases and Contacts

The number of studies included in each analysis is shown.
### eTable 1. Electronic Databases and Search Strategy for Household Secondary Attack Rate of SARS-CoV-2

| Database: PubMed | medRxiv: 306 retrieved | "2021/06/18"[Date - Publication]: "3000"[Date - Publication] |
|------------------|------------------------|--------------------------------------------------|
| #1: "SARS-CoV-2" [All Fields] OR "COVID-19" [All Fields] OR "severe acute respiratory syndrome" [All Fields] OR "SARS" [All Fields] OR "SARS-CoV" [All Fields] OR "coronavirus" [All Fields] OR "variant" [All Fields] OR "vaccination" [All Fields] OR "immunization" [All Fields] | #2: "secondary attack rate" [All Fields] OR "secondary infection rate" [All Fields] OR "household" [All Fields] OR "family contacts" [All Fields] OR "close contacts" [All Fields] OR "index case" [All Fields] OR "contact transmission" [All Fields] OR "contact attack rate" [All Fields] OR "family transmission" [All Fields] | #1 AND #2 AND #3 |
### eTable 2. Description of Studies Identified From June 18, 2021 to March 8, 2022

| Authors      | Location         | Study period                                      | No. index cases | Index case symptom status          | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total)     |
|--------------|------------------|---------------------------------------------------|-----------------|------------------------------------|------------------------------|---------------------------------|-------------------------------------|-------------------------------|-----------------------------------|
| Afonso et al. | Goiânia, Brazil  | June 15 – October 28, 2020                        | 187             | Symptomatic and asymptomatic       | 14                           | RT-PCR                          | Universal                          | 1                             | Untyped: 25.1% (67/267)           |
| Baker et al.  | USA              | November 2021 – February 2022                    | 183             | Symptomatic and asymptomatic       | 7                            | Nucleic acid amplification test or antigen test | Universal                          | 1                             | Omicron: 52.7% (227/431)         |
| Bistaraki et al. | Greece         | October 1 – December 9, 2020                   | –               | Symptomatic and asymptomatic       | –                            | –                               | –                                   | –                             | Untyped: 18.3% (10,247/55,991)    |
| Burke et al.  | USA              | January 14 – April 4, 2020                      | 69              | Symptomatic                       | 14                           | Symptom-based diagnosis          | Symptomatic                        | 0                             | Untyped: 32% (62/193)            |
| Calvani et al. | Rome, Italy     | October 16 – December 19, 2020                  | 28              | Symptomatic and asymptomatic       | –                            | –                               | Universal                          | 1                             | Untyped: 30.6% (22/72)           |
| Cheng et al.  | Hong Kong        | April – May, 2021                               | –               | Symptomatic and asymptomatic       | 14 or 21                      | RT-PCR and whole genome sequencing | Universal                          | 4                             | Beta: 28.0% (7/25)               |
| Chu et al.    | Georgia, USA     | July 17 – August 24, 2020                        | 224             | Symptomatic and asymptomatic       | –                            | Antigen test                     | Universal                          | At least 1                     | Untyped: 12.2% (46/377)          |
| Clifford et al. | England         | February 2, 2021 – September 10, 2021          | 195             | Symptomatic and asymptomatic       | 14                           | RT-PCR & genomic sequencing      | Universal                          | 3                             | Alpha: 49% (95% CI: 34-63%) Delta: 81% (95% CI: 57%-96%) Numerator/denominator provided for overall only: 40.6% (113/278) |
| Cohen et al.  | South Africa     | July 16, 2020 –                                 | 103             | Symptomatic and asymptomatic       | 14                           | RT-PCR                          | Universal                          | Multi ple                      | Alpha: 57.1% (4/7) Beta: 22.1% (81/366) Delta: 32.0% (115/359) |

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| Authors                  | Location      | Study period                          | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Num of tests per contact | Household SAR (infected/total) |
|-------------------------|---------------|---------------------------------------|-----------------|---------------------------|------------------------------|---------------------------------|---------------------------------------|--------------------------|---------------------------------|
| _De Gier et al._¹¹       | Netherlands   | March 31, 2021                         |                 |                           |                              |                                 | Universal                           | –                        | Wild type: 10.5% (16/153)       |
| _De Gier et al._¹²       | Netherlands   | February 1 – May 27, 2021              | 85,210          | Symptomatic               | 14                           | RT-PCR, loop mediated isothermal amplification or antigen test | Universal                           | –                        | Untyped: 30.7% (43,735/142,540) |
| _Del Águila-Mejía et al._¹³ | Cantabria, Spain | December 2021                          | 622             | Symptomatic and asymptomatic | 9                            | RT-PCR and whole-genome sequencing | Universal                           | 2                        | Omicron: 49.3% (263/533) Delta: 48.0% (1129/2350) |
| _Dougherty et al._¹⁴     | Oklahoma, U.S.A. | April 15 – May 3, 2021                 | 21              | Symptomatic and asymptomatic | 14                           | Sequencing                      | Universal                           | 1                        | Delta: 52.5% (42/80)           |
| _Dub et al._¹⁵           | Helsinki, Finland | March 24, 2020 – June 17, 2020       | 39              | Symptomatic and asymptomatic | 28                           | RT-PCR                          | Universal                           | 4                        | Untyped: RT-PCR: 32.2% (28/87) |
| _Friedman-Klabanoff et al._¹⁶ | U.S.A.       | March – August 2020                   |                 |                           | 14                           | RT-PCR                          | Universal                           | 14                       | Untyped: 15.2% (86/567)        |
| Authors       | Location                | Study period             | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total) |
|---------------|-------------------------|--------------------------|-----------------|---------------------------|------------------------------|---------------------------------|----------------------------------------|-----------------------------|-------------------------------|
| Gazit et al.  | Israel                  | December 20, 2020 – March 17, 2021 | 2,827 | Symptomatic and asymptomatic | 10 | RT-PCR | Universal | 1 | Untyped: 34.1% (1,373/4,024) |
| Ge et al.     | Zhejiang Province, China | January 8 – July 30, 2020 | 370 | Symptomatic and asymptomatic | 14 | RT-PCR | Universal | Multiple | Untyped: 10.1% (260/2,565) |
| Gorgels et al.| Netherlands             | March – April, 2021      | 97  | Symptomatic and asymptomatic | 14 | RT-PCR or antigen test | Universal | At least 1 | Alpha: 39.8% (99/249) |
| Hwang et al.  | Daejeon, South Korea    | June 22 – July 31, 2021  | 23  | Symptomatic and asymptomatic | 14 | RT-PCR | Universal | 3 | Delta: 64.2% (52/82). |
| Jagdale et al.| Pune City, India        | April 1 – May 15, 2020   | 119 | Symptomatic and asymptomatic | 14 | RT-PCR | Universal | 1 | Untyped: 35% (198/565) |
| Jalali et al. | Norway                  | December 14, 2021 – January 23, 2022 | 1122 | Symptomatic and asymptomatic | 10 | RT-PCR or whole genome sequencing | Universal | – | 1299 contacts * 0.41 SAR = 662 Omicron: 41.0% (662/1299) 870 contacts * 0.36 SAR = 313 Delta: 36.0% (313/870) |
| Kang et al.   | Guangdong, China        | May 21 – June 18, 2021   | 73  | Symptomatic and asymptomatic | 14 | RT-PCR | Universal | Multiple | Delta: 22.0% (38/173) |
| Karumanagoundar et al. | Tamil Nadu, India | March 14, 2020 – May 30, 2020 | 931 | Symptomatic and asymptomatic | 14 | RT-PCR | Universal | 1 | Untyped: 13.4% (464/3,474) |
| Layan et al.  | Israel                  | December 31 2020 – April 26 2021 | 212 | Symptomatic and asymptomatic | 10 | RT-PCR | Universal | 2 | Untyped: 41% (261/641) |
| Li et al.     | Hubei, China            | January 23 – February 25, 2020 | 476 | Symptomatic               | 14 | RT-PCR | Symptomatic | 1 | Untyped: 10.8% (110/1,020) |
| Authors       | Location         | Study period                     | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total) |
|---------------|------------------|----------------------------------|-----------------|---------------------------|-----------------------------|---------------------------------|-------------------------------------|-----------------------------|--------------------------------|
| Liu et al.    | Los Angeles, USA | December 2020 – February 2021    | 15              | Symptomatic               | 14                          | RT-PCR                         | Universal                          | 5                           | Untyped: 34.0% (17/50)        |
| Loss et al.   | Germany          | October 2020 – June 2021         | 24              | Symptomatic and asymptomatic | 12                          | RT-PCR                         | Universal                          | Multiple                    | Untyped: 53.3% (24/45)        |
| Lyngse et al. | Denmark          | June 21, 2021 – October 26, 2021| 8,262           | Symptomatic and asymptomatic | 14                          | RT-PCR and antigen tests       | Universal                          | At least 1                  | Delta: 21.7% (11,631/53,584)  |
| Lyngse et al. | Denmark          | December 9, 2021 – December 21, 2021| 11,939          | Symptomatic and asymptomatic | 7                           | RT-PCR and antigen tests       | Universal                          | At least 1                  | Delta: 21.3% (4,923/23,156) Omicron: 31.2% (1,474/4,718) |
| Lyngse et al. | Denmark          | December 20, 2021 – January 11, 2022| 8,541           | Symptomatic and asymptomatic | 7                           | RT-PCR and antigen tests       | Universal                          | At least 1                  | Omicron: 31.8% (5,702/17,945) |
| Ma et al.     | Guangzhou, China | May 21, 2021 – June 18, 2021     | 69              | Symptomatic and asymptomatic | 14                          | RT-PCR                         | Universal                          | 1                           | Delta: 9.3% (15/162)          |
| Martinez et al.| Baltimore, USA  | June 11, 2020 – May 20, 2021     | 277             | Symptomatic               | 14                          | RT-PCR                         | Universal                          | 1                           | Untyped: 45.8% (292/638)      |
| Martinez-Baz et al. | Navarre, Spain | April – August 2021 | –               | Symptomatic and asymptomatic | 10                          | RT-PCR                         | Universal                          | 2                           | Untyped: 28.5% (4,639/16,305) |
| Meena et al.  | Madurai, Tamil Nadu, India | March – May, 2020         | 139             | Symptomatic and asymptomatic | >7 days                      | RT-PCR                         | Universal                          | 1                           | Untyped: 8.1% (42/521)        |
| Authors            | Location          | Study period                          | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total) |
|--------------------|-------------------|---------------------------------------|-----------------|---------------------------|------------------------------|---------------------------------|-------------------------------------|-----------------------------|------------------------------|
| Meyer et al.       | Germany           | December 31, 2020 – April 26, 2021    | 14              | Symptomatic and asymptomatic | 14                           | RT-PCR                          | Universal                          | 2                           | Untyped: 45.2% (14/31)      |
| Miller et al.      | England           | March 30, 2020 – November 17, 2020    | 181             | Symptomatic               | 14                           | RT-PCR                          | Universal                          | 2                           | Untyped: 21.1% (91/431) (PCR only) |
| Ministry of Health NZ | New Zealand      | August, 2021                          | –               | –                          | –                            | –                               | Delta                              | –                           | Delta: 45.6% (902/1976)     |
| Montecucco et al.  | Genoa, Italy      | October 1, 2020 – March 31, 2021      | 6               | Symptomatic and asymptomatic | –                            | RT-PCR                          | Universal                          | 1                           | Untyped: 33.3% (17/51)      |
| Musa et al.        | Bosnia and Herzegovina | August 3 – December 23, 2020       | 360             | Symptomatic               | 14                           | RT-PCR or symptom-based diagnosis | –                                 | –                           | Untyped: 15.9% (119/747)    |
| Ng et al.          | Singapore         | September 1, 2020 and May 31, 2021    | 301             | Symptomatic               | 14                           | RT-PCR & whole-genome sequencing | Universal                          | 2                           | Delta: 22.4% (169/753) Other: 13.3% (33/248) |
| Ng et al.          | Negeri Sembilan, Malaysia | February 1, 2020 – December 31, 2020 | 185             | Symptomatic and asymptomatic | 14                           | RT-PCR                          | Universal                          | At least 1                  | Untyped: 55.0% (466/848)    |
| Ogata et al.       | Tschiura, Japan   | August 2020 – February 2021           | 236             | Symptomatic and asymptomatic | –                            | RT-PCR                          | Universal                          | At least 1                  | Untyped: 25.2% (125/496)    |
| Authors               | Location          | Study period              | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total) |
|----------------------|-------------------|---------------------------|-----------------|---------------------------|-----------------------------|-----------------------------------|-------------------------------------|-------------------------------|---------------------------------|
| Rajmohan et al.⁴⁴    | Thrissur, India   | January 1, 2021 – February 28, 2021 | 101             | Symptomatic and asymptomatic | 14                          | RT-PCR or Rapid Antigen Test     | Universal                          | 1                             | Untyped: 40.7% (185/387)       |
| Ratovoson et al.⁴⁵   | Madagascar        | March 19 – July 30, 2020  | 33              | Symptomatic and asymptomatic | 21                          | RT-PCR                           | Universal                          | 4                             | Untyped: 38.8% (56/179)        |
| Remón-Berrade et al.⁴⁶ | Navarre, Spain    | March 2 – May 26, 2020    | 89              | Symptomatic                | –                           | RT-PCR or Antigen Test          | Universal                          | 1                             | Untyped: 14.1% (46/326)        |
| Sachdev et al.⁴⁷     | San Francisco, USA| January 29 – July 2, 2021 | 105             | Symptomatic and asymptomatic | 14                          | RT-PCR, loop-mediated amplification, or antigen Test | Universal                          | –                             | Overall: 28.2% (20/71) Delta: 33.3% (5/16) Alpha: 25.0% (2/8) Gamma: 0% (0/3) Beta: 20.0% (1/5) Iota: 55.6% (5/9) Kappa: 0% (0/2) |
| Singanagam et al.⁴⁸   | U.K.              | Sept 13, 2020 – Sept 15, 2021 | 138             | Symptomatic                | 14-20                       | RT-PCR & whole-genome sequencing | Universal                          | Daily                         | Delta: 25.9% (53/205)          |
| Smith-Jeffcoat et al.⁴⁹ | New York City, USA| November 18 – December 20, 2021 | 16              | Symptomatic                | 14                          | RT-PCR and antigen tests        | Universal                          | 1                             | Omicron: 33.3% (6/18)          |
| Song et al.⁵⁰        | South Korea       | November – December 2021  | 25              | Symptomatic and asymptomatic | 14                          | –                                 | Universal                          | –                             | Omicron: 50% (18/36)           |
| Sorioano-Arandes et al.⁵¹ | Catalonia, Spain  | July 1, 2020 – October 31, 2020 | 80              | Symptomatic and asymptomatic | –                           | RT-PCR or antigen testing        | Universal                          | –                             | Untyped: 64.8% (560/864)       |
| Authors                  | Location            | Study period                  | No. index cases | Index case symptom status | Duration of follow-up (days) | Test used to diagnose contacts | Universal testing or only symptomatic | Number of tests per contact | Household SAR (infected/total) |
|-------------------------|---------------------|-------------------------------|----------------|---------------------------|------------------------------|-------------------------------|--------------------------------------|----------------------------|--------------------------------|
| Tanaka et al.⁵²         | Osaka Prefecture, Japan | December 1–20, 2020 & April 20, 2021 – May 3, 2021 | 307            | Symptomatic               | 14                           | RT-PCR                        | Universal                           | At least 1                  | Pre-existing virus: 19.3% (56/290) Alpha: 38.7% (48/124) |
| Rehman et al.⁵³         | Islamabad, Pakistan | March 21 – April 4, 2020      | –              | Symptomatic               | 14                           | RT-PCR                        | Universal                           | 1                          | Untyped: 36.8% (14/38)                                    |
| Watanapokasin et al.⁵⁴  | Bangkok, Thailand   | May 1 – June 30, 2021         | 30             | Symptomatic               | 14                           | RT-PCR                        | Universal                           |                            | Alpha: 48.6% (17/35) Delta: 34.9% (15/43).                   |
| Yi et al.⁵⁵             | Jeju, South Korea   | August 3 – August 10, 2021    | 25             | Symptomatic and asymptomatic | 14                           | RT-PCR                        | Universal                           | 1                          | Delta: 23.9% (11/46)                                      |
eTable 3. References for Studies Included in Figure 1 of SAR Over Time

| Studies                                                                 | % (95% CI)       | Number of studies | References                  |
|------------------------------------------------------------------------|------------------|-------------------|------------------------------|
| All                                                                    | 22.9% (20.3%-25.8%) | 135               | 1-135                        |
| - New studies identified (between June 18, 2021 and March 8, 2022)    |                  | 58                | 1-58                         |
| - Studies from previous review through June 17, 2021^a                 |                  | 77                | 59-135                       |
| Midpoints in 2021 or 2022                                             | 37.3% (32.7%-42.1%) | 33                | 1,3,7,9,14,17,19,20,22,23,25,27-31,34,36,38,41,44,47,48,50,52,54,55,57,98 |
| Midpoints through April 2020                                           | 15.5% (13.2%-18.2%) | 63                | 5,18,21,24,26,35,53,63-68,70-72,74,76-79,82-86,89,91,93-97,99,100,102-107,109,110,112,114,115,117,119,121,123,125-135 |
| Midpoints from January 2020 to June 2020                               | 16.7% (14.3%-19.3%) | 80                | 5,15,16,18,21,24,26,35,45,46,53,59-61,63-72,74,76-79,81-97,99-107,109,110,112,117,119,121-123,125-135 |
| Midpoints from July 2020 to December 2020                              | 32.2% (25.4%-39.8%) | 21                | 2,4,6,8,27,33,39,40,42,43,51,56,58,62,80,108,111,116,120,124 |
| Midpoints from January 2021 to June 2021                               | 35.3% (29.9%-41.1%) | 23                | 1,7,9-11,14,17,19,23,25,27,28,32,34,36,41,44,47,48,52,54,57,98 |
| Midpoints > June 2021                                                  | 40.6% (33.1%-48.6%) | 12                | 3,12,13,20,22,29-31,38,49,50,55 |

^a5 studies were excluded that did not include laboratory-confirmed infections and 1 that included only asymptomatic index cases
Table 4. Risk of Bias Assessment for Studies Included in Review of Household Transmissibility of SARS-CoV-2 Using the Same Modified Version of the Newcastle–Ottawa Quality Assessment Scale for Observational Studies Used by Fung et al143

| Author                     | Selection | Comparability | Outcome | Total points | Risk of bias |
|---------------------------|-----------|---------------|---------|--------------|--------------|
| Baker et al3              | ++        | +             | ++      | 0            | 7            | Low          |
| Cheng et al7              | +         | +             | 0       | +            | 7            | Low          |
| Cohen et al10             | ++        | +             | +       | ++           | +            | 9            | Low          |
| Del Águila-Mejía et al13  | +         | +             | +       | +            | 7            | Low          |
| Dougherty et al14         | ++        | +             | 0       | +            | 0            | 5            | Moderate     |
| Gazit et al17             | +         | +             | 0       | +            | 7            | Low          |
| Harris et al1             | ++        | +             | ++      | +            | 9            | Low          |
| Hwang et al20             | ++        | +             | 0       | +            | 7            | Low          |
| Jalali et al22            | ++        | +             | ++      | +            | 8            | Low          |
| Kang et al23              | ++        | +             | 0       | ++           | 7            | Low          |
| Layen et al25             | +         | +             | +       | +            | 7            | Low          |
| Loenenbach et al38        | +         | +             | 0       | ++           | 0            | 5            | Moderate     |
| Lyngse et al29            | ++        | +             | ++      | +            | 8            | Low          |
| Lyngse et al30            | ++        | +             | +       | +            | 7            | Low          |
| Lyngse et al31            | ++        | +             | +       | +            | 7            | Low          |
| Lyngse et al57            | ++        | +             | +       | ++           | 8            | Low          |
| Ma et al52                | +         | +             | 0       | ++           | 0            | 5            | Moderate     |
| Martinez-Baz et al34      | ++        | +             | +       | ++           | 8            | Low          |
| Meyer et al36             | 0         | +             | ++      | ++           | +            | 6            | Moderate     |
| Ministry of Health NZ28   | ++        | 0             | 0       | 0            | 0            | 3            | High         |
| Ng et al41                | ++        | +             | +       | +            | +            | 9            | Low          |
| Sachdev et al47           | +         | +             | 0       | ++           | 0            | 6            | Moderate     |
| Singanayagam et al48      | +         | +             | 0       | ++           | +            | 7            | Low          |
| Smith-Jeffcoat et al49    | 0         | +             | ++      | ++           | 0            | 5            | Moderate     |
| Study                | ++ | +  | 0  | +  | +  | +  | +  | 5  | Moderate |
|----------------------|----|----|----|----|----|----|----|----|----------|
| Song et al.          | 0  | +  | 0  | +  | +  | +  | +  | 5  | Moderate |
| Tanaka et al.        | ++ | +  | 0  | +  | +  | ++ | +  | 8  | Low      |
| Watanapokasin et al. | 0  | +  | 0  | +  | +  | ++ | 0  | 5  | Moderate |
| Yi et al.            | 0  | +  | 0  | +  | +  | +  | ++ | 0  | Moderate |

*++: Representative of COVID-19 cases in region; +: Somewhat representative; 0: Poorly described or not representative of cases in region*

*++: Index case identified by date of onset of symptoms and/or test dates; +: First case not clearly defined;
++: ≥300 contacts; 0: <300 contacts

*++: Secondary attack rate disaggregated by ≥1 covariate; 0: Secondary attack rate not disaggregated by any covariates

*++: >14 days; +: 7 days; 0: <7 days or not specified

*++: ≥2 tests; 0: 1 test or not described

*SARS: SARs for Omicron (42.7%; 95%CI, 34.3%-51.5%) (5 studies21,23,39,31), Alpha (35.8%; 95%CI, 32.9%-38.9%) (7 studies10,11,17,19,25,52,57), Delta (29.1%; 95%CI, 21.7%-37.8%) (10 studies10,12,13,20,22,23,29,30,41,48), and Beta (22.5%; 95%CI, 18.6%-26.9%) (2 studies7,10) did not significantly change from those reported in Figure 2 when restricting to studies with low risk of bias.*
### Table 5. Pairwise Analyses of Index Case Vaccination Status Using Only Studies in Which SARs Were Reported From Both Relevant Subgroups

| Variant | Subgroup estimates: % (95%CI) | Number of study pairs | References |
|---------|--------------------------------|----------------------|------------|
| **To all contacts regardless of vaccination status** | | | |
| All | Fully vaccinated: 22.8% (15.3%-32.7%)  
Unvaccinated: 35.5% (27.3%-44.6%) | 11 | 3,11-13,17,22,25,29,36,41,48 |
| All | Partially vaccinated: 26.2% (11.5%-49.2%)  
Unvaccinated: 28.0% (17.3%-42.0%) | 7 | 1,3,11,12,22,41,48 |
| All | Fully vaccinated: 24.9% (14.6%-39.2%)  
Partially vaccinated: 31.7% (15.0%-55.0%) | 6 | 3,11,12,22,41,48 |
| Alpha | Fully vaccinated: 10.7% (9.0%-12.8%)  
Unvaccinated: 36.3% (31.3%-41.6%) | 4 | 11,17,25,36 |
| Delta | Fully vaccinated: 24.8% (17.2%-34.3%)  
Unvaccinated: 28.3% (19.9%-38.6%) | 6 | 12,13,22,29,41,48 |
| Delta | Partially vaccinated: 22.5% (11.2%-40.1%)  
Unvaccinated: 24.6% (18.1%-32.6%) | 4 | 12,22,41,48 |
| Delta | Fully vaccinated: 21.9% (14.4%-32.0%)  
Partially vaccinated: 22.5% (11.2%-40.1%) | 4 | 12,22,41,48 |
| Omicron | Booster vaccinated: 38.0% (29.9%-46.8%)  
Unvaccinated: 52.5% (40.2%-64.5%) | 3 | 3,22,31 |
| Omicron | Fully vaccinated: 50.8% (47.9%-53.8%)  
Unvaccinated: 55.5% (48.4%-62.3%) | 3 | 3,13,22 |
| Omicron | Partially vaccinated: 76.8% (7.7%-99.2%)  
Unvaccinated: 58.6% (53.9%-63.1%) | 2 | 3,22 |
| Omicron | Booster vaccinated: 38.0% (29.9%-46.8%)  
Fully vaccinated: 50.8% (47.9%-53.8%) | 3 | 3,22,31 |
| Omicron | Booster vaccinated: 44.1% (37.6%-50.9%)  
Partially vaccinated: 76.8% (7.7%-99.2%) | 2 | 3,22 |
| Omicron | Fully vaccinated: 51.0% (47.8%-54.3%)  
Partially vaccinated: 76.8% (7.7%-99.2%) | 2 | 3,22 |
| **To unvaccinated contacts only** | | | |
| All | Fully vaccinated: 12.0% (10.0%-14.2%)  
Unvaccinated: 30.9% (23.9%-38.8%) | 4 | 11,12,17,48 |
| All | Partially vaccinated: 14.8% (6.7%-29.4%)  
Unvaccinated: 19.5% (11.1%-31.8%) | 3 | 1,11,12 |
| All          | Fully vaccinated: 11.7% (9.8%-13.9%) | Partially vaccinated: 23.9% (16.7%-32.9%) | 2  | 11,12 |
|--------------|-------------------------------------|------------------------------------------|----|-------|
# eTable 6. Pairwise Analyses of Household Contact Vaccination Status Using Only Studies in Which SARs Were Reported From Both Relevant Subgroups

| Variant | Subgroup estimates: % (95%CI) | Number of study pairs | References |
|---------|--------------------------------|-----------------------|------------|
| **From all index cases regardless of vaccination status** | | | |
| All | Fully vaccinated: 18.8% (12.6%-27.1%) Unvaccinated: 36.5% (30.5%-43.0%) | 12 | 3,11,12,17,22,25,29,34,41,47,48,55 |
| All | Partially vaccinated: 27.8% (20.0%-37.1%) Unvaccinated: 39.6% (32.3%-47.4%) | 8 | 3,12,22,34,41,47,48,55 |
| All | Fully vaccinated: 23.9% (14.7%-36.4%) Partially vaccinated: 27.8% (20.0%-37.1%) | 8 | 3,12,22,34,41,47,48,55 |
| Alpha | Fully vaccinated: 10.5% (7.9%-13.8%) Unvaccinated: 38.4% (34.4%-42.5%) | 3 | 11,17,25 |
| Delta | Booster vaccinated: 11.3% (9.8%-13.0%) Unvaccinated: 36.1% (24.2%-50.0%) | 2 | 22,30 |
| Delta | Fully vaccinated: 17.1% (11.6%-24.6%) Unvaccinated: 30.1% (23.2%-38.1%) | 6 | 12,22,29,41,48,55 |
| Delta | Partially vaccinated: 23.6% (17.2%-31.6%) Unvaccinated: 34.7% (25.5%-45.1%) | 4 | 22,41,48,55 |
| Delta | Fully vaccinated: 21.0% (12.8%-32.5%) Partially vaccinated: 23.6% (17.2%-31.6%) | 4 | 22,41,48,55 |
| Omicron | Booster vaccinated: 32.7% (24.5%-42.2%) Unvaccinated: 43.9% (32.2%-56.2%) | 4 | 3,22,30,31 |
| Omicron | Fully vaccinated: 51.2% (47.8%-54.7%) Unvaccinated: 57.4% (52.8%-61.9%) | 2 | 3,22 |
| Omicron | Partially vaccinated: 56.6% (48.2%-64.7%) Unvaccinated: 57.4% (52.8%-61.9%) | 2 | 3,22 |
| Omicron | Booster vaccinated: 41.7% (34.9%-48.9%) Fully vaccinated: 51.2% (47.8%-54.7%) | 2 | 3,22 |
| Omicron | Booster vaccinated: 41.7% (34.9%-48.9%) Partially vaccinated: 56.6% (48.2%-64.7%) | 2 | 3,22 |
| Omicron | Fully vaccinated: 51.2% (47.8%-54.7%) Partially vaccinated: 56.6% (48.2%-64.7%) | 2 | 3,22 |
| **From unvaccinated index cases only** | | | |
| All | Fully vaccinated: 11.0% (10.1%-12.0%) Unvaccinated: 32.3% (24.7%-40.6%) | 4 | 11,12,17,48 |
|                  | Unvaccinated: 35.2% (34.9%-35.5%) | 2       | 11,48 |
|------------------|----------------------------------|---------|-------|
| All              | Fully vaccinated: 11.2% (10.0%-12.5%) | 2       | 11,48 |
|                  | Partially vaccinated: 28.5% (26.3%-30.8%) |         |       |
### eTable 7. Household Secondary Attack Rates by Vaccine Type and Contact Vaccination Status With All Index Cases Included Regardless of Vaccination Status

| Vaccine    | SAR (95% CI)         | Number of studies | References       |
|------------|----------------------|-------------------|------------------|
| **Full vaccination** |                        |                   |                  |
| Ad26.COV2.S | 34.2% (14.4%-61.5%)  | 4                 | 12,29,34,47      |
| BNT162b2   | 15.2% (14.6%-16.0%)  | 4                 | 12,29,34,47      |
| ChAdOx1-S  | 13.6% (7.4%-23.7%)   | 3                 | 12,29,34         |
| mRNA-1273  | 9.5% (8.6%-10.6%)    | 4                 | 12,29,34,47      |
| **Partial vaccination** |                    |                   |                  |
| BNT162b2   | 30.5% (18.5%-45.9%)  | 2                 | 12,34            |
| ChAdOx1-S  | 29.5% (24.0%-35.7%)  | 2                 | 12,34            |
| mRNA-1273  | 17.5% (13.7%-22.3%)  | 2                 | 12,34            |
| **Unvaccinated** |                    |                   |                  |
|             | 35.4% (29.0%-42.5%)  | 4                 | 12,29,34,47      |
## Table 8. Vaccination Status Definitions for Studies That Reported Household Secondary Attack Rates by Vaccination Status of Index Cases or Contacts

| Study                          | Vaccination definitions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *Baker et al.*<sup>3</sup>    | Received a booster dose was defined as having received an additional dose after completion of the primary COVID-19 vaccination series before the index date. Fully vaccinated was defined as completion of the primary vaccination series ≥2 weeks before the index date and stratified into completion <5 months or ≥5 months before the index date. Some persons who were fully vaccinated had unknown dates for completion of their primary vaccination series. Partially vaccinated was defined as having only 1 dose of a 2-dose series or completing the primary vaccination series <2 weeks before the index date. |
| *De Gier et al.*<sup>11</sup> | Partly vaccinated was defined as having received the first dose of a two-dose schedule at least 14 days before onset of symptoms. Fully vaccinated was defined as having completed a two-dose schedule at least 7 days or the one-dose Janssen schedule at least 14 days before symptom onset.                                                                                                                                                                                                                                    |
| *De Gier et al.*<sup>12</sup> | Full vaccination defined as 14 or more days after the second-dose of Comirnaty (BNT162b2 mRNA; BioNTech-Pfizer, Mainz, Germany/New York, United States), Spikevax (mRNA-1273, Moderna, Cambridge, United States) or Vaxzevria (ChAdOx1 nCoV-19; Oxford-AstraZeneca, Cambridge, United Kingdom) or 28 or more days after one-dose of Janssen COVID-19 vaccine (Ad26.COV2-S, Janssen-Cilag International NV, Beerse, Belgium).                                                                                     |
| *Del Águila-Mejía et al.*<sup>13</sup> | Vaccination status was dichotomized to either non vaccinated or fully vaccinated as per each vaccine’s protocol.                                                                                                                                                                                                                                                                                                                                 |
| *Harris et al.*<sup>1</sup>   | Vaccinated index cases defined as having been vaccinated 21 days or more prior to testing positive for COVID-19 based on evidence of the time needed for the vaccine to provide a sufficient level of immunity. Non-vaccinated index cases were defined as not having received a vaccine prior to testing positive. Households where the index case received the vaccine less than 21 days before testing positive were excluded from this analysis. Most of the vaccinated index patients (93%) had received only the first dose of vaccine.                                      |
| *Gazit et al.*<sup>17</sup>   | Participants were classified into one of three vaccination-status groups at the time of the index case (the confirmed exposure): Unvaccinated; Recently Vaccinated Once, i.e. those vaccinated with the first vaccine dose within 0-7 days before the index infection, and Fully Vaccinated, i.e. those who were 7 or more days post the second dose by the time of the confirmed exposure. |
| *Jalali et al.*<sup>22</sup>  | To define the vaccine status of the household contacts, they used the test date of the primary case and compared it with the contacts vaccination dates: 1.Unvaccinated: A contact was considered unvaccinated if the primary case’s test date is before the contact’s first dose. 2.Partially vaccinated: A contact was considered partially vaccinated if he/she had received 1 dose of vaccine (mRNA Vaccines or AstraZeneca vaccine) prior to the test date of his/her primary case. Contacts who had received dose 2 within the last week before the primary case’s test date were also considered partly vaccinated. 3.Fully vaccinated: A contact was considered fully vaccinated if he/she had received dose 2 (mRNA) at least 1 week prior to the test date of his/her primary case. 4.Booster vaccinated: A contact was considered booster vaccinated if he/she had received dose 3 at least 1 week prior to the test date of his/her primary case. The time interval between the second and the third doses should be ≥ 120 days. The vaccine status of the primary cases was defined based on their test date and their vaccination dates. Individuals with J&J vaccine were excluded from the study. We excluded households where two individuals tested positive on the same day to ensure a unique index case in each household. |
| Source                  | Definition                                                                 |
|------------------------|---------------------------------------------------------------------------|
| Layan et al.\(^{25}\)  | Cases were considered vaccinated if their infection occurred >7 days after the 2nd dose. Similarly, household contacts were considered vaccinated if their exposure to the index case occurred >7 days after the 2nd dose. |
| Lyngse et al.\(^{29}\) | Individuals who had not received a first dose were classified as not vaccinated. The definitions of full vaccinations were: Comirnaty (Pfizer/BioNTech): 7 days after second dose; Vaxzevria (AstraZeneca): 15 days after second dose; Spikevax (Moderna): 14 days after second dose; COVID-19 vaccine Janssen (Johnson & Johnson): 14 days after vaccination. If an individual was cross vaccinated (mainly first dose of Vaxzevria and second dose of Comirnaty), the definition of the second dose vaccination was used. Individuals that were in the period between the first dose and fully vaccinated were defined as partially vaccinated and excluded. Any individual that had received a booster vaccination was also excluded. Lastly, all households with a previous infection (positive RT-PCR test) were excluded. |
| Lyngse et al.\(^{30}\) | Individuals were classified by vaccination status into three groups: i) unvaccinated; ii) fully vaccinated (defined by the vaccine used, Comirnaty (Pfizer/BioNTech): 7 days after second dose; Vaxzevria (AstraZeneca): 15 days after second dose; Spikevax (Moderna): 14 days after second dose; Janssen (Johnson & Johnson): 14 days after vaccination, and 14 days after the second dose for cross vaccinated individuals) or 14 days after previous infection; or iii) booster-vaccinated (defined by 7 days after the booster vaccination. Partially vaccinated individuals were regarded as unvaccinated in this study. |
| Lyngse et al.\(^{31}\) | The vaccination status of all individuals was classified into three groups: i) unvaccinated (including partially vaccinated individuals); ii) fully vaccinated (defined by the vaccine used, Comirnaty (Pfizer/BioNTech): 7 days after second dose; Vaxzevria (AstraZeneca): 15 days after second dose; Spikevax (Moderna): 14 days after second dose; Janssen (Johnson & Johnson): 14 days after vaccination, and 14 days after the second dose for cross vaccinated individuals) or 14 days after previous infection; or iii) booster-vaccinated, defined by 7 days after the booster vaccination. |
| Martinez-Baz et al.\(^{34}\) | A person was considered fully vaccinated ≥ 14 days after receiving one dose of Janssen or the second dose of other vaccines, and partially vaccinated ≥ 14 days after receiving only the first dose of Spikevax, Comirnaty or Vaxzevria. |
| Meyer et al.\(^{36}\) | Not defined, but the two secondary cases found among household contacts of vaccinated index cases were diagnosed 25 days after the second vaccination. |
| Ng et al.\(^{41}\) | Both index cases and close contacts were considered partially vaccinated if they had received one vaccine dose before the day the quarantine order was issued, or were within 14 days of the second dose on the day the quarantine order was issued. If more than 14 days had elapsed after their second dose, they were taken to be fully vaccinated. |
| Sachdev et al.\(^{47}\) | Partially vaccinated patients were defined as patients who received at least 1 dose of vaccine but were not fully vaccinated. Fully vaccinated patients were defined as patients who had received a second mRNA vaccine dose or a single-dose viral vector vaccine ≥14 days from symptom onset or collection of a positive specimen. |
| Singanayagam et al.\(^{48}\) | Participant defined as unvaccinated if they had not received a single dose of a COVID-19 vaccine at least 7 days before enrolment, partially vaccinated if they had received one vaccine dose at least 7 days before study enrolment, and fully vaccinated if they had received two doses of a COVID-19 vaccine at least 7 days before study enrolment. |
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