Supplementary file for the paper
Post-covid medical complaints following infection with SARS-CoV-2
Omicron vs Delta variants
By Magnusson et al., 2022

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Supplementary Table 1. Data sources in Beredt C19 used in this study and information obtained from each source.

| Name of data source                                         | Information obtained                                                                                                                                                                                                 |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The National Population Register                            | Resident of Norway December 1st 2021<br>Age<br>Sex (assigned to all participants at birth and registered as male or female in the The National Population Register)<br>Birth country (Norway vs abroad) |
| Statistics Norway                                           | Education status (no school, primary school, upper secondary school and college/university in four categories)                                                                                                |
| The Norwegian Surveillance System for Communicable Diseases  | Date of sample of SARS-CoV-2 positive test<br>Classification of SARS-CoV-2 variants by targeted commercial or in-house PCR analyses for variant detection, Sanger sequencing of selected parts of the viral genome or whole genome sequencing. For continuous surveillance purposes, 25% of SARS-CoV-2 positive samples or up to 100 samples per week per local laboratory is sent to a reference laboratory for whole genome sequencing. When Omicron emerged in Norway in late November 2021, the laboratories were requested to perform variant analyses locally on all positive samples. If this was not possible for capacity reasons, samples suspected to contain the Omicron variant was prioritized for variant analyses. |
| The National Immunization Register                          | Vaccination status with mRNA vaccines prior to test date, 2 or 3 doses.                                                                                                                                               |
| Norway Control and Payment of Health Reimbursement (KUHR) Database | All cause-specific medical records (in-person and remote) registered in all Norwegian general practitioner and emergency wards, from 14 to up to 126 days after the PCR test date. The codes include diseases, disorders, signs, symptoms, and/or complaints as classified by the physician consulted. |
| The Norwegian Patient Register                              | The number of comorbidities, based on risk conditions for severe COVID-19 that were defined by an expert panel in ethics and prioritization for vaccination, with data identified in data from the Norwegian Patient Register (reference #1). Hospitalization for severe COVID-19 from -2 to +14 days from the test date. |

Information was linked at the individual level using the unique personal identification number (encrypted version) provided to every Norwegian resident at birth or upon immigration (reference #1).
Supplementary Figure 1. The day-by-day proportion (prop.) of screened tests that were confirmed as the SARS-CoV-2 Omicron or Delta variants, assessed for each of the 25 days included in the inclusion period. Source data are provided as a Source Data file.
Supplementary Table 2. Person-days, numbers of failures and incidence rates per 100 000 person-days by diagnosis in primary care from 14 to up to 126 days after test date for SARS-CoV-2.

| Diagnosis                  | Person-days | SARS-CoV-2 omicron | SARS-CoV-2 delta | Tested negative without censoring* | Untested, without censoring* | Tested negative or untested, with censoring* |
|----------------------------|-------------|--------------------|------------------|------------------------------------|-----------------------------|---------------------------------------------|
| Any complaint              |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 349 804   | 2 360 779          | 10 660 007       | 122 000 000                        | 124 800 000                 |                                             |
| Failures                   | 2240        | 4507               | 17 410           | 156 395                            | 161 515                     |                                             |
| Incidence rate             | 166         | 191                | 163              | 128                                | 129                         |                                             |
| (95%CI)                    | 159-173     | 185-197            | 160-166          | 127-129                            | 129-130                     |                                             |
| Musculoskeletal pain       |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 435 796   | 2 535 206          | 11 257 065       | 126 700 000                        | 129 500 000                 |                                             |
| Failures                   | 1083        | 2246               | 9241             | 91 283                             | 94 105                      |                                             |
| Incidence rate             | 75          | 89                 | 82               | 72                                 | 73                          |                                             |
| (95%CI)                    | 71-80       | 85-92              | 80-84            | 72-73                              | 72-73                       |                                             |
| Fatigue                    |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 488 372   | 2 643 932          | 11 714 347       | 131 700 000                        | 134 300 000                 |                                             |
| Failures                   | 177         | 353                | 1543             | 9548                               | 9 656                       |                                             |
| Incidence rate             | 12          | 13                 | 13               | 7                                  | 7                           |                                             |
| (95%CI)                    | 10-14       | 12-15              | 13-14            | 7-7                                | 7-7                         |                                             |
| Cough                      |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 492 734   | 2 653 465          | 11 757 502       | 139 000 000                        | 134 400 000                 |                                             |
| Failures                   | 72          | 163                | 635              | 5528                               | 5706                        |                                             |
| Incidence rate             | 5           | 6                  | 5                | 4                                  | 4                           |                                             |
| (95%CI)                    | 4-6         | 5-7                | 4-6              | 4-4                                | 4-4                         |                                             |
| Heart palpitations         |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 491 170   | 2 647 117          | 11 759 958       | 131 900 000                        | 134 400 000                 |                                             |
| Failures                   | 107         | 285                | 613              | 5137                               | 5091                        |                                             |
| Incidence rate             | 7           | 11                 | 5                | 4                                  | 4                           |                                             |
| (95%CI)                    | 6-9         | 10-12              | 5-6              | 4-4                                | 4-4                         |                                             |
| Shortness of breath        |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 472 305   | 2 611 713          | 11 574 431       | 130 100 000                        | 132 600 000                 |                                             |
| Failures                   | 423         | 884                | 3648             | 34772                              | 36 362                      |                                             |
| Incidence rate             | 29          | 34                 | 32               | 27                                 | 27                          |                                             |
| (95%CI)                    | 26-32       | 32-36              | 30-33            | 26-27                              | 27-27                       |                                             |
| Anxiety/depression         |             |                    |                  |                                    |                             |                                             |
| Person-days                | 1 494 863   | 2 658 461          | 11 775 821       | 132 000 000                        | 134 600 000                 |                                             |
| Failures                   | 29          | 49                 | 231              | 1942                               | 2023                        |                                             |
| Incidence rate             | 2           | 2                  | 2                | 1                                  | 2                           |                                             |
| (95%CI)                    | 1-3         | 1-2                | 1-2              | 1-2                                | 1-2                         |                                             |

Failures represent the first medical record registered at the general practitioner or emergency ward with the diagnoses in question (musculoskeletal pain, fatigue etc. assuming no competing risk between the different diagnoses), from 14 to up to 126 days after the test date.
## Supplementary Table 3. Estimated hazard ratios of post-covid diagnoses in primary care from 14 to up to 126 days after testing for SARS-CoV-2, for persons with the omicron variant vs the delta variant.

| Outcome                | SARS-CoV-2 status | Crude | 95% CI       | Adjusted* | 95% CI* | Adjusted* + adj. for vaccination | 95% CI       |
|------------------------|-------------------|-------|--------------|-----------|--------|----------------------------------|--------------|
| Any complaint          | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.88  | [0.83,0.93]  | 0.96      | 0.91   | 0.92                            | [0.91,1.02]  |
| Musculoskeletal pain   | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.88  | [0.81,0.95]  | 0.99      | 0.92   | 0.91                            | [0.91,1.06]  |
| Fatigue                | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 1.02  | [0.92,1.12]  | 1.02      | 0.92   | 0.94                            | [0.94,1.15]  |
| Cough                  | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.98  | [0.81,1.18]  | 1.03      | 0.85   | 0.84                            | [0.84,1.24]  |
| Heart palpitations     | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.85  | [0.64,1.13]  | 0.84      | 0.63   | 0.62                            | [0.62,1.11]  |
| Shortness of breath    | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.75  | [0.60,0.95]  | 0.77      | 0.61   | 0.60                            | [0.60,0.97]  |
| Anxiety/depression     | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 0.89  | [0.79,1.01]  | 0.92      | 0.81   | 0.83                            | [0.83,1.05]  |
| Brain fog              | Delta             | 1     | 1            | 1         | 1      | 1                                |              |
|                        | Omicron           | 1.09  | [0.67,1.75]  | 1.1       | 0.68   | 0.66                            | [0.66,1.73]  |

*Adjusted for age, sex, education status, country of birth, the number of comorbidities, the number of negative tests prior to the selected test date and the number of primary care visits prior to the selected test date. Stratified on calendar week of testing.
Supplementary Table 4. Estimated hazard ratios of post-covid diagnoses in primary care from 14 to up to 126 days after testing for SARS-CoV-2, for persons with Omicron or Delta, both compared to persons testing negative.

| Outcome          | SARS-CoV-2 status | Crude | 95% CI          | Adjusted* | 95% CI* | Adjusted* + adj. for vaccination | 95% CI          |
|------------------|-------------------|-------|-----------------|-----------|---------|----------------------------------|-----------------|
| Any complaint    | Tested negative   | 1     | 1               | 1         | 1       | 1                                | 1               |
|                  | Delta             | 1.16  | [1.12,1.20]     | 1.08      | 1.07    | [1.03,1.11]                      |                 |
|                  | Omicron           | 1.02  | [0.98,1.07]     | 1.04      | 1.03    | [0.99,1.08]                      |                 |
| Musculoskeletal  | Tested negative   | 1     | 1               | 1         | 1       | 1                                | 1               |
| pain             | Delta             | 1.06  | [1.01,1.11]     | 1.02      | 1.02    | [0.97,1.07]                      |                 |
|                  | Omicron           | 0.93  | [0.87,0.99]     | 1.01      | 1       | [0.94,1.07]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Fatigue          | Delta             | 1.36  | [1.28,1.45]     | 1.26      | 1.24    | [1.16,1.33]                      |                 |
|                  | Omicron           | 1.39  | [1.27,1.51]     | 1.28      | 1.29    | [1.18,1.40]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Cough            | Delta             | 0.98  | [0.87,1.10]     | 0.93      | 0.93    | [0.83,1.05]                      |                 |
|                  | Omicron           | 0.96  | [0.81,1.12]     | 0.95      | 0.95    | [0.81,1.12]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Heart palpitations| Delta           | 1.16  | [0.98,1.38]     | 1.1       | 1.12    | [0.93,1.34]                      |                 |
|                  | Omicron           | 0.98  | [0.76,1.27]     | 0.92      | 0.93    | [0.72,1.20]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Shortness of breath| Delta         | 1.75  | [1.52,2.02]     | 1.69      | 1.69    | [1.46,1.96]                      |                 |
|                  | Omicron           | 1.32  | [1.07,1.64]     | 1.3       | 1.29    | [1.04,1.61]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Anxiety/depression| Delta          | 1.06  | [0.99,1.14]     | 1         | 0.98    | [0.91,1.05]                      |                 |
|                  | Omicron           | 0.95  | [0.85,1.05]     | 0.92      | 0.91    | [0.82,1.01]                      |                 |
|                  | Tested negative   | 1     | 1               | 1         | 1       |                                  |                 |
| Brain fog        | Delta             | 1.03  | [0.76,1.41]     | 0.89      | 0.92    | [0.66,1.26]                      |                 |
|                  | Omicron           | 1.12  | [0.75,1.68]     | 0.98      | 0.98    | [0.65,1.47]                      |                 |

*Adjusted for age, sex, education status, country of birth, the number of comorbidities, the number of negative test prior to the selected test date and the number of primary care visits prior to the selected test date. Stratified on calendar week of testing.
Supplementary Figure 2. Risks of complaints from 14 to up to 126 days after SARS-CoV-2 infection with the omicron or delta variant, adjusted for age, sex, education, comorbidities, test and care activity and vaccination. Reference category: persons who were never tested for SARS-CoV-2 prior to a randomly assigned test date (N=1180716) (dashed vertical line). Data are presented as Hazard Ratios (HR) with 95% confidence interval (CI) and examined over 8 independent experiments, one for each post-covid outcomes. Blue squares represent the estimates for the Delta variant compared to untested individuals. Red triangles represent the estimates for the Omicron variant compared to untested individuals. Musc. pain=musculoskeletal pain. Source data are provided as a Source Data file.
Supplementary Figure 3. Risks of complaints from 14 to up to 126 days after SARS-CoV-2 infection with the delta or omicron variant, adjusted for age, sex, education, comorbidities, test and care activity and vaccination, with censoring of observations from the date of positive test and onwards. Reference category: persons who tested negative in the inclusion period and persons who were never tested for SARS-CoV-2 prior to a randomly assigned test date (N=1 286 013) (dashed vertical line). Blue squares represent the estimates for the Delta variant compared to individuals testing negative and untested individuals. Red triangles represent the estimates for the Omicron variant compared to individuals testing negative and untested individuals. Musc. pain=musculoskeletal pain. Data are presented as Hazard Ratios (HR) with 95% confidence interval (CI) and examined over 8 independent experiments, one for each post-covid outcomes. Source data are provided as a Source Data file.
Supplementary Figure 4. Weekly proportions having post-covid complaints per 10 000 individuals, in the acute (14-29 days), sub-acute (30-89 days) and chronic (≥90 days) post-covid phases, as distinguished by vertical lines for days 14, 30 and 90, with censoring of observations from the date of positive test and onwards among non-infected. Data are presented as the number of individuals visiting primary care for the outcome in question at least once a week per 10 000 individuals in each group (colored lines), with 95% confidence intervals (shaded area). Estimates are predicted probabilities from a logit model with standard errors clustered on person level, adjusted for age, sex, education, comorbidities, test and care activity and vaccination. Source data are provided as a Source Data file.
Supplementary Figure 5. Weekly proportions having any post-covid complaint per 10 000 individuals, in the acute (14-29 days), sub-acute (30-89 days) and chronic (≥90 days) post-covid phases, as distinguished by vertical lines for days 14, 30 and 90, stratified by vaccination status. Data are presented as the number of individuals visiting primary care for the outcome in question at least once a week per 10 000 individuals in each group (colored lines), with 95% confidence intervals (shaded area). The vaccinated individuals received the last dose 14-210 days prior to SARS-CoV-2 test (inclusion) date. The unvaccinated did not receive the last dose 14-210 days prior to SARS-CoV-2 test (inclusion) date. Estimates are predicted probabilities from a logit model with standard errors clustered on person level, adjusted for age, sex, education, comorbidities, test and care activity. Source data are provided as a Source Data file.
Supplementary Table 5. The differences between the group being infected with Omicron and the group being infected with Delta in prevalence of different post-covid complaints over time, stratified by vaccination status.

|                      | Acute COVID-19 | Acute post-covid period | Sub-acute post-covid period | Chronic post-covid period | Whole post-covid period |
|----------------------|----------------|-------------------------|-----------------------------|---------------------------|-------------------------|
|                      | 1-13 days      | 14-29 days              | 30-89 days                  | 90 days and more          | 14 to 126 days          |
| Unvaccinated         | -140           | -43                     | -49                         | -81                       | -56                     |
|                      | -199 to -84    | -97 to 11               | -91 to -8                   | -129 to -33               | -93 to -18              |
|                      | -6             | 2                       | -22                         | -36                       | -20                     |
| Vaccinated           | -47 to 35      | -36 to 40               | -53 to 8                    | -70 to -1                 | -5 to 7                 |

Estimates are group differences in prevalence per 10 000 persons in the respective groups, with 95% confidence intervals, representing the group testing positive with Omicron minus the group testing positive with Delta, calculated from a logit model with standard errors clustered on person level, adjusted for age, sex, education, comorbidities, test and care activity. The vaccinated individuals received the last dose 14-210 days prior to SARS-CoV-2 test (inclusion) date. The unvaccinated did not receive the last dose 14-210 days prior to SARS-CoV-2 test (inclusion) date.
Supplementary References

1) Norwegian Institute of Public Health. The Norwegian Emergency Preparedness Register (BEREDT C19), 2020. https://www.fhi.no/en/id/infectious-diseases/coronavirus/emergency-preparedness-register-for-covid-19/