**Supplementary Table S1.** Relative Risks (RR) by vaccination status, age range 18-39 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 73 | 190.493 | 40,6 | 1 | / | | / |
| February | 40 | 167.248 | 24,8 |
| March | 51 | 183.001 | 29,1 |
| April | 34 | 175.810 | 20,3 |
| May | 26 | 180.720 | 15,3 |
| **1D ≥ 21 Days** | January | 19 | 42.854 | 57,7 | 1,42 | 0,9 | 2,23 | 0,25 |
| February | 15 | 39.313 | 43,8 | 1,77\* | 1,01 | 3,1 |
| March | 19 | 42.486 | 52,9 | 1,82\* | 1,11 | 2,98 |
| April | 11 | 39.111 | 30,7 | 1,51 | 0,79 | 2,91 |
| May | 12 | 38.827 | 42,6 | 2,78\* | 1,51 | 5,12 |
| **2D ≥ 21 Days** | January | 109 | 285.171 | 42,8 | 1,05 | 0,79 | 1,4 | / |
| February | 64 | 232.455 | 31,7 | 1,28 | 0,87 | 1,87 |
| March | 57 | 249.654 | 25,7 | 0,88 | 0,61 | 1,27 |
| April | 55 | 236.715 | 24,8 | 1,22 | 0,81 | 1,85 |
| May | 39 | 238.300 | 18,1 | 1,18 | 0,73 | 1,91 |
| **3D ≥ 21 Days** | January | 93 | 286.765 | 30,5 | 0,75 | 0,55 | 1,02 | 0,15 |
| February | 109 | 388.262 | 27 | 1,09 | 0,76 | 1,56 |
| March | 125 | 454.768 | 26,6 | 0,91 | 0,66 | 1,26 |
| April | 118 | 451.823 | 25,4 | 1,25 | 0,86 | 1,82 |
| May | 106 | 476.178 | 21,4 | 1,4 | 0,92 | 2,13 |

**Supplementary Table S2.** Relative Risks (RR) by vaccination status, age range 40-49 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardised by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 110 | 56.984 | 202,9 | 1 | / | | / |
| February | 57 | 50.959 | 118,3 |
| March | 62 | 56.331 | 117 |
| April | 51 | 54.593 | 99,4 |
| May | 34 | 56.504 | 64,1 |
| **1D ≥ 21 Days** | January | 33 | 8.998 | 384,8 | 1,90\* | 1,3 | 2,77 | / |
| February | 31 | 8.080 | 404 | 3,42\* | 2,23 | 5,23 |
| March | 25 | 8.700 | 308,2 | 2,63\* | 1,68 | 4,12 |
| April | 25 | 8.087 | 317,3 | 3,19\* | 2 | 5,1 |
| May | 21 | 8.161 | 171,5 | 2,68\* | 1,44 | 4,96 |
| **2D ≥ 21 Days** | January | 188 | 86.987 | 222,3 | 1,1 | 0,87 | 1,38 | / |
| February | 117 | 68.430 | 173,4 | 1,47\* | 1,08 | 2 |
| March | 109 | 72.935 | 154,7 | 1,32 | 0,98 | 1,79 |
| April | 97 | 68.890 | 143,5 | 1,44\* | 1,04 | 2,01 |
| May | 72 | 69.537 | 106,4 | 1,66\* | 1,12 | 2,47 |
| **3D ≥ 21 Days** | January | 256 | 252.143 | 99,3 | 0,49\* | 0,39 | 0,61 | 0,17 |
| February | 265 | 284.214 | 92,4 | 0,78 | 0,59 | 1,03 |
| March | 296 | 321.369 | 90,4 | 0,77 | 0,59 | 1,01 |
| April | 276 | 313.419 | 86,6 | 0,87 | 0,65 | 1,17 |
| May | 275 | 325.485 | 83,7 | 1,31 | 0,92 | 1,85 |

**Supplementary Table S3.** Relative Risks (RR) by vaccination status, age range 50-59 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 216 | 37.625 | 579,7 | 1 | / | | / |
| February | 177 | 33.699 | 531,4 |
| March | 136 | 37.284 | 366,9 |
| April | 139 | 36.115 | 389,8 |
| May | 108 | 37.361 | 290,6 |
| **1D ≥ 21 Days** | January | 70 | 5.812 | 1.244,4 | 2,15\* | 1,65 | 2,8 | / |
| February | 51 | 5.221 | 991,9 | 1,87\* | 1,37 | 2,54 |
| March | 50 | 5.645 | 897,8 | 2,45\* | 1,77 | 3,37 |
| April | 38 | 5.271 | 728 | 1,87\* | 1,31 | 2,67 |
| May | 42 | 5.355 | 800,4 | 2,75\* | 1,94 | 3,92 |
| **2D ≥ 21 Days** | January | 567 | 59.445 | 977,1 | 1,69\* | 1,44 | 1,97 | / |
| February | 340 | 47.223 | 739 | 1,39\* | 1,16 | 1,66 |
| March | 304 | 50.435 | 613,5 | 1,67\* | 1,37 | 2,04 |
| April | 271 | 47.657 | 580,5 | 1,49\* | 1,22 | 1,82 |
| May | 195 | 48.202 | 420,7 | 1,45\* | 1,15 | 1,83 |
| **3D ≥ 21 Days** | January | 976 | 403.481 | 237,8 | 0,41\* | 0,35 | 0,48 | 0,1 |
| February | 1.043 | 401.033 | 255 | 0,48\* | 0,41 | 0,56 |
| March | 1.140 | 448.449 | 250 | 0,68\* | 0,57 | 0,81 |
| April | 1.144 | 435.493 | 258 | 0,66\* | 0,56 | 0,79 |
| May | 1.082 | 450.969 | 235,1 | 0,81\* | 0,66 | 0,99 |

**Supplementary Table S4.** Relative Risks (RR) by vaccination status, age range 60-69 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 360 | 21.300 | 1735,2 | 1 | / | | / |
| February | 260 | 19.187 | 1395,5 |
| March | 228 | 21.284 | 1118,8 |
| April | 213 | 20.677 | 1087,5 |
| May | 175 | 21.452 | 865,3 |
| **1D ≥ 21 Days** | January | 111 | 2.778 | 4224,5 | 2,43\* | 1,99 | 2,99 | / |
| February | 65 | 2.478 | 2818,2 | 2,02\* | 1,56 | 2,62 |
| March | 63 | 2.692 | 2475,6 | 2,21\* | 1,69 | 2,89 |
| April | 63 | 2.535 | 2656,8 | 2,44\* | 1,87 | 3,2 |
| May | 52 | 2.585 | 2215,4 | 2,56\* | 1,91 | 3,43 |
| **2D ≥ 21 Days** | January | 995 | 26.946 | 4013,7 | 2,31\* | 2,06 | 2,6 | / |
| February | 598 | 21.570 | 2985,8 | 2,14\* | 1,86 | 2,46 |
| March | 496 | 23.116 | 2321,0 | 2,07\* | 1,78 | 2,41 |
| April | 418 | 21.964 | 2044,5 | 1,88\* | 1,6 | 2,2 |
| May | 327 | 22.352 | 1572,3 | 1,82\* | 1,52 | 2,17 |
| **3D ≥ 21 Days** | January | 2.655 | 385.521 | 689,4 | 0,4\* | 0,36 | 0,44 | 0,09 |
| February | 2.558 | 363.690 | 707,1 | 0,51\* | 0,45 | 0,57 |
| March | 2.942 | 405.343 | 729,7 | 0,65\* | 0,57 | 0,74 |
| April | 2.879 | 393.938 | 735,1 | 0,68\* | 0,59 | 0,77 |
| May | 2.625 | 408.279 | 646,8 | 0,75\* | 0,64 | 0,87 |

**Supplementary Table S5.** Relative Risks (RR) by vaccination status, age range 70-79 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 485 | 10.107 | 5005,0 | 1 | / | | / |
| February | 324 | 9.125 | 3696,0 |
| March | 333 | 10.133 | 3421,8 |
| April | 285 | 9.845 | 2996,5 |
| May | 236 | 10.216 | 2385,0 |
| **1D ≥ 21 Days** | January | 159 | 1.274 | 12656,4 | 2,53\* | 2,14 | 2,99 | / |
| February | 86 | 1.121 | 7820,9 | 2,02\* | 1,69 | 2,65 |
| March | 73 | 1.208 | 6138,2 | 1,79\* | 1,41 | 2,29 |
| April | 92 | 1.140 | 8167,1 | 2,73\* | 2,18 | 3,41 |
| May | 49 | 1.163 | 4302,1 | 1,80\* | 1,34 | 2,43 |
| **2D ≥ 21 Days** | January | 1.634 | 11.357 | 14698,2 | 2,94\* | 2,67 | 3,23 | / |
| February | 850 | 9.091 | 9495,2 | 2,57\* | 2,27 | 2,9 |
| March | 777 | 9.581 | 8294,3 | 2,42\* | 2,14 | 2,74 |
| April | 645 | 8.844 | 7505,5 | 2,50\* | 2,19 | 2,86 |
| May | 445 | 8.790 | 5186,2 | 2,17\* | 1,87 | 2,53 |
| **3D ≥ 21 Days** | January | 6.873 | 340.404 | 2013,6 | 0,4\* | 0,37 | 0,44 | 0,09 |
| February | 6.553 | 312.284 | 2089,2 | 0,57\* | 0,51 | 0,63 |
| March | 7.511 | 347.203 | 2149,7 | 0,63\* | 0,57 | 0,7 |
| April | 7.496 | 336.955 | 2207,6 | 0,74\* | 0,66 | 0,83 |
| May | 6.380 | 349.100 | 1810,8 | 0,76\* | 0,67 | 0,86 |
| **3D < 21 Days** | January | 245 | 4.252 | 5978,0 | 1,19\* | 1,03 | 1,38 | / |
| February | 35 | 671 | 5288,8 | 1,43\* | 1,02 | 2 |
| March | 31 | 391 | 7993,4 | 2,34\* | 1,64 | 3,32 |
| April | 10 | 331 | 2950,5 | 0,98 | 0,53 | 1,85 |
| May | 25 | 273 | 9417,2 | 3,95\* | 2,68 | 5,82 |

**Supplementary Table S6.** Relative Risks (RR) by vaccination status, age range 80-89 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 518 | 3.996 | 12.885,8 | 1 | / | | / |
| February | 365 | 3.580 | 10.085,8 |
| March | 383 | 3.945 | 9.605,4 |
| April | 369 | 3.803 | 9.619,7 |
| May | 258 | 3.918 | 6.491,7 |
| **1D ≥ 21 Days** | January | 164 | 606 | 25.864,2 | 2,01\* | 1,72 | 2,35 | / |
| February | 114 | 528 | 21.319,2 | 2,11\* | 1,75 | 2,56 |
| March | 112 | 564 | 19.632,1 | 2,04\* | 1,69 | 2,48 |
| April | 85 | 528 | 15.731,6 | 1,64\* | 1,31 | 2,04 |
| May | 88 | 528 | 16.296,7 | 2,51\* | 2 | 3,15 |
| **2D ≥ 21 Days** | January | 2.120 | 5.886 | 35.333,9 | 2,74\* | 2,51 | 2,99 | / |
| February | 1.115 | 4.578 | 23.880,3 | 2,37\* | 2,12 | 2,64 |
| March | 982 | 4.756 | 20.353,6 | 2,12\* | 1,9 | 2,37 |
| April | 747 | 4.227 | 17.321,7 | 1,80\* | 1,6 | 2,03 |
| May | 534 | 3.965 | 13.197,2 | 2,03\* | 1,76 | 2,35 |
| **3D ≥ 21 Days** | January | 11.282 | 161.804 | 6.929,1 | 0,54\* | 0,5 | 0,58 | 0,09 |
| February | 10.565 | 148.662 | 7.058 | 0,7\* | 0,63 | 0,77 |
| March | 11.657 | 165.320 | 7.001,9 | 0,73\* | 0,66 | 0,8 |
| April | 11.910 | 160.660 | 7.362 | 0,77\* | 0,69 | 0,84 |
| May | 10.249 | 166.832 | 6.097,8 | 0,94 | 0,83 | 1,06 |
| **3D < 21 Days** | January | 325 | 2.085 | 15.139,5 | 1,17\* | 1,03 | 1,34 | / |
| February | 70 | 380 | 18.298 | 1,81\* | 1,44 | 2,29 |
| March | 27 | 201 | 12.883,6 | 1,34 | 0,92 | 1,95 |
| April | 39 | 262 | 14.403,5 | 1,50\* | 1,1 | 2,04 |
| May | 39 | 269 | 14.002,3 | 2,16\* | 1,57 | 2,97 |

**Supplementary Table S7.** Relative Risks (RR) by vaccination status, age range +90 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Absolute Freq. (Total deaths)** | **Person-years** | **Death rates standardized by age/ 100.000 person-years** | **RR** | **Lower CI** | **Upper CI** | **Angular coefficient** |
| **Unvaccinated** | January | 391 | 1.158 | 33.769,6 | 1 | / | | / |
| February | 254 | 1.031 | 24.636,7 |
| March | 235 | 1.135 | 20.704,8 |
| April | 247 | 1.094 | 22.567,5 |
| May | 174 | 1.126 | 15.448,5 |
| **1D ≥ 21 Days** | January | 110 | 203 | 54.162,9 | 1,60\* | 1,38 | 1,86 | / |
| February | 68 | 175 | 97.595,1 | 1,58\* | 1,27 | 1,96 |
| March | 65 | 187 | 34.829,6 | 1,68\* | 1,34 | 2,11 |
| April | 71 | 172 | 41.387,1 | 1,83\* | 1,49 | 2,26 |
| May | 40 | 168 | 23.815,7 | 1,54\* | 1,14 | 2,09 |
| **2D ≥ 21 Days** | January | 1.290 | 1.832 | 70.404,8 | 2,08\* | 1,91 | 2,27 | / |
| February | 661 | 1.369 | 50.998,3 | 1,96\* | 1,74 | 2,21 |
| March | 581 | 1.402 | 41.454,3 | 2,00\* | 1,76 | 2,28 |
| April | 485 | 1.227 | 39.523 | 1,75\* | 1,54 | 1,99 |
| May | 303 | 1.095 | 27.682,8 | 1,79\* | 1,52 | 2,12 |
| **3D ≥ 21 Days** | January | 7.628 | 34.865 | 21.878,9 | 0,65\* | 0,6 | 0,7 | 0,11 |
| February | 7.129 | 32.412 | 21.995,1 | 0,89\* | 0,8 | 1 |
| March | 7.845 | 36.163 | 21.693,2 | 1,05 | 0,93 | 1,18 |
| April | 7.841 | 35.211 | 22.268,6 | 0,99 | 0,88 | 1,1 |
| May | 6.420 | 36.693 | 17.498,2 | 1,13 | 0,99 | 1,3 |
| **3D < 21 Days** | January | 217 | 783 | 27.727,1 | 0,82\* | 0,71 | 0,94 | / |
| February | 47 | 141 | 33.243,1 | 1,35\* | 1,04 | 1,74 |
| March | 22 | 67 | 32.808,7 | 1,58\* | 1,1 | 2,27 |
| April | 23 | 93 | 24.824,2 | 1,1 | 0,76 | 1,59 |
| May | 21 | 122 | 17.272,2 | 1,12 | 0,74 | 1,69 |

**Supplementary Table S8.** Relative Risks (RR) by vaccination status, age range 15-19 years (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Absolute Freq. (Total deaths)** | **Person-years** | **RR** | **Lower CI** | **Upper CI** |
| **Unvaccinated** | 289 | 1.991.761 | 1 | / | / |
| **1D≥21d** | 81 | 465.610 | 1,2 | 0,93 | 1,54 |
| **6mo<2D≥21d** | 76 | 520.292 | 1,01 | 0,78 | 1,3 |
| **2D≥6mo** | 23 | 63.581 | 2,49\* | 1,63 | 3,82 |
| **3D≥21d** | 32 | 160.272 | 1,38 | 0,95 | 2 |
| **any D** | 212 | 1.209.755 | 1,1 | 0,92 | 1,31 |

**Supplementary Table S9.** Relative Risks (RR) in people vaccinated with 2 doses from ≥21 days to <6 months in comparison to unvaccinated people, all ages, in the first 5 months of 2021 and 2022 (\* = P<0,05 versus respective unvaccinated group).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2021** | | | | | | | | | |
| **Month** | **Total deaths** | | **Persons/year** | | **Age-standardized mortality rates** | | **RR** | **Lower CI** | **Upper CI** |
|  | **Unvaccinated** | **Vaccinated** | **Unvaccinated** | **Vaccinated** | **Unvaccinated** | **Vaccinated** |  |  |  |
| January | 53459 | 82 | 3050246 | 4050 | 2507,6 | 166,1 | 0,07\* | 0,03 | 0,14 |
| February | 19800 | 904 | 2152780 | 31409 | 5261,5 | 455,0 | 0,09\* | 0,03 | 0,23 |
| March | 7622 | 1340 | 1760561 | 45212 | 3307,8 | 597,6 | 0,18\* | 0,16 | 0,20 |
| April | 3850 | 5825 | 1342265 | 196885 | 2298,4 | 748,0 | 0,33\* | 0,31 | 0,34 |
| May | 2810 | 18852 | 1192047 | 793018 | 1718,8 | 866,4 | 0,50\* | 0,48 | 0,52 |
|  | **2022** | | | | | | | | | |
| **Month** | **Total deaths** | | **Persons/year** | | **Age-standardized mortality rates** | | **RR** | **Lower CI** | **Upper CI** |
| **Unvaccinated** | **Vaccinated** | **Unvaccinated** | **Vaccinated** | **Unvaccinated** | **Vaccinated** |  |  |  |
| January | 2166 | 510 | 482035 | 286474 | 1812,0 | 2730,3 | 1,51\* | 1,45 | 1,57 |
| February | 1493 | 268 | 420084 | 208136 | 1384,5 | 2025,5 | 1,46\* | 1,41 | 1,52 |
| March | 1437 | 251 | 457356 | 189310 | 1231,7 | 2252,2 | 1,83\* | 1,76 | 1,90 |
| April | 1349 | 202 | 437563 | 165006 | 1204,6 | 2333,5 | 1,94\* | 1,86 | 2,02 |
| May | 1017 | 133 | 448434 | 159940 | 872,9 | 1815,9 | 2,08\* | 1,98 | 2,18 |