

Supplementary Table 1: The deaths number of COPD attributable to occupational particulate matter, gases, and fumes in 204 countries

| measu<br>re | locati<br>on      | sex  | age      | cause                         | rei                              | metric | year | val     | upper   | lower  |
|-------------|-------------------|------|----------|-------------------------------|----------------------------------|--------|------|---------|---------|--------|
| Deaths      | China             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 200748  | 260704  | 151898 |
| Deaths      | India             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 148380  | 187391  | 106620 |
| Deaths      | United States of  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 18111.8 | 22406.6 | 13981  |
| Deaths      | Indonesia         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 12960   | 16380.7 | 9935.1 |
| Deaths      | Bangladesh        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 8972.4  | 15685.2 | 6081.9 |
| Deaths      | Pakistan          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 8471.2  | 11551.2 | 5984.1 |
| Deaths      | Brazil            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 8240.9  | 10136.7 | 6603   |
| Deaths      | Nepal             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 6959.9  | 8835.5  | 5009.8 |
| Deaths      | Viet Nam          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 5438.8  | 7246.8  | 2021.6 |
| Deaths      | Democratic People | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 4782.6  | 6092.9  | 3529.7 |
| Deaths      | Mexico            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 4424.9  | 5750.4  | 3238   |
| Deaths      | Myanmar           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 4029.9  | 5077.9  | 2931.6 |
| Deaths      | Russian Federa    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 4014    | 5191.4  | 3073.8 |
| Deaths      | Turkey            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3986.8  | 5312.8  | 2626.1 |

|        |                     |      |          |                               |                                  |        |      |        |        |        |
|--------|---------------------|------|----------|-------------------------------|----------------------------------|--------|------|--------|--------|--------|
| Deaths | Japan               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3804.6 | 5930.6 | 2281.2 |
| Deaths | Philippines         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3642.4 | 4801.3 | 2700.9 |
| Deaths | Germany             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3571.3 | 4702.8 | 2635.6 |
| Deaths | United Kingdom      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3500.8 | 4576.3 | 2562.8 |
| Deaths | Thailand            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 3428.2 | 4856   | 2334.9 |
| Deaths | Nigeria             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 2485.9 | 3286.7 | 1816.1 |
| Deaths | Spain               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 2415.2 | 3503.8 | 1529.2 |
| Deaths | Italy               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 2086   | 2910.5 | 1360.3 |
| Deaths | Democratic Republic | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 2013.7 | 3039   | 1266   |
| Deaths | Argentina           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1963.4 | 2474.3 | 1517.6 |
| Deaths | Colombia            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1762.5 | 2437   | 1175.7 |
| Deaths | Ethiopia            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1700.4 | 2157.9 | 1265.3 |
| Deaths | Egypt               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1665.9 | 2444.5 | 884.3  |
| Deaths | Canada              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1358.3 | 1788.4 | 987.7  |
| Deaths | South Africa        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1347.6 | 1647.4 | 1099.6 |
| Deaths | Iran (Islamic)      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1330.9 | 1677.3 | 1019.5 |

|        |                      |      |          |                               |                                  |        |      |        |        |       |
|--------|----------------------|------|----------|-------------------------------|----------------------------------|--------|------|--------|--------|-------|
| Deaths | Kazakhstan           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1234.2 | 1561.9 | 959   |
| Deaths | Ukraine              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1174.4 | 1706.5 | 850.1 |
| Deaths | Republic of Korea    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1168.8 | 1602.8 | 816.3 |
| Deaths | France               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1140.3 | 1592.8 | 774.3 |
| Deaths | Taiwan (Province of) | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1125.1 | 1588.2 | 745.7 |
| Deaths | Poland               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1117.7 | 1497.1 | 824.8 |
| Deaths | Malaysia             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1010.4 | 1429.5 | 733.4 |
| Deaths | Romania              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 1003.4 | 1321.3 | 717.4 |
| Deaths | Kenya                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 990.9  | 1330.9 | 728.8 |
| Deaths | United Republic of   | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 878.1  | 1103.7 | 662.5 |
| Deaths | Venezuela (Bolivia)  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 765.9  | 1060.9 | 538.3 |
| Deaths | Australia            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 741.7  | 997.7  | 529.6 |
| Deaths | Madagascar           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 739.3  | 1016   | 506.9 |
| Deaths | Ghana                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 731.9  | 954.7  | 427.9 |
| Deaths | Cambodia             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 731    | 915.9  | 541.2 |
| Deaths | Morocco              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 699.3  | 939.2  | 492.9 |

|        |                  |      |          |                               |                                  |             |       |       |       |
|--------|------------------|------|----------|-------------------------------|----------------------------------|-------------|-------|-------|-------|
| Deaths | Sri Lanka        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 664.4 | 924.6 | 426.5 |
| Deaths | Uganda           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 656.3 | 891.9 | 448.1 |
| Deaths | Netherlands      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 642.3 | 865.6 | 449.3 |
| Deaths | Sudan            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 619.2 | 911.3 | 359.8 |
| Deaths | Portugal         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 595.9 | 817.6 | 403.3 |
| Deaths | Hungary          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 551.8 | 718.6 | 417.3 |
| Deaths | Papua New Guinea | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 541.1 | 718.5 | 383.7 |
| Deaths | Cuba             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 504   | 661.6 | 363   |
| Deaths | Greece           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 488.7 | 679   | 319.6 |
| Deaths | Algeria          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 477.3 | 674.8 | 325.1 |
| Deaths | Belgium          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 474.7 | 643.2 | 338.3 |
| Deaths | Afghanistan      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 468.2 | 655.4 | 296.4 |
| Deaths | Cameroon         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 462.5 | 634.3 | 307.7 |
| Deaths | Chile            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 453.3 | 613.5 | 328.1 |
| Deaths | Czechia          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 438.8 | 586.9 | 317.4 |
| Deaths | Mali             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 436.6 | 578   | 312.4 |

|        |               |      |          |                               |                                  |             |       |       |       |
|--------|---------------|------|----------|-------------------------------|----------------------------------|-------------|-------|-------|-------|
| Deaths | Mozambique    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 432.2 | 589.2 | 311.5 |
| Deaths | Yemen         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 394.6 | 571.9 | 266.8 |
| Deaths | Somalia       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 383.5 | 647   | 236.2 |
| Deaths | Peru          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 367.6 | 543.2 | 239   |
| Deaths | Denmark       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 359.7 | 468.3 | 259   |
| Deaths | Uzbekistan    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 356.2 | 489.7 | 271.2 |
| Deaths | Cote d'Ivoire | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 352.2 | 469.3 | 254.8 |
| Deaths | Rwanda        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 349.2 | 464.6 | 255.5 |
| Deaths | Honduras      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 346.2 | 478   | 207.7 |
| Deaths | Serbia        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 344   | 471.3 | 247.4 |
| Deaths | Sweden        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 335.3 | 443.8 | 238.9 |
| Deaths | Lao People's  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 333.9 | 438.6 | 250.2 |
| Deaths | Ecuador       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 331.9 | 467.8 | 220.6 |
| Deaths | Angola        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 329.9 | 439.8 | 245.4 |
| Deaths | Niger         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 318.1 | 481.2 | 212.3 |
| Deaths | Burundi       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 316.4 | 429.4 | 228.1 |

|        |                         |      |          |                               |                                  |        |      |       |       |       |
|--------|-------------------------|------|----------|-------------------------------|----------------------------------|--------|------|-------|-------|-------|
| Deaths | Bolivia (Plurinational) | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 308.5 | 426.2 | 216.8 |
| Deaths | Bulgaria                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 297.9 | 406.6 | 215.4 |
| Deaths | Burkina Faso            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 270.9 | 354.2 | 206.2 |
| Deaths | Austria                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 267.5 | 344   | 200.9 |
| Deaths | Haiti                   | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 263.2 | 386.9 | 155.1 |
| Deaths | Senegal                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 257.6 | 341.4 | 185   |
| Deaths | Switzerland             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 257.3 | 350.3 | 184.6 |
| Deaths | Guatemala               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 257.2 | 366.4 | 176.7 |
| Deaths | Belarus                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 256   | 389.8 | 176.9 |
| Deaths | Malawi                  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 255.8 | 323.7 | 190.4 |
| Deaths | Zambia                  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 255.2 | 326.7 | 188.5 |
| Deaths | Chad                    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 248.6 | 342.9 | 175.1 |
| Deaths | Guinea                  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 248.5 | 333.2 | 173.1 |
| Deaths | Zimbabwe                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 241.9 | 319.7 | 164.2 |
| Deaths | Tunisia                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 227.3 | 331.7 | 145.1 |
| Deaths | Syrian Arab Republic    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 222.5 | 336.1 | 146.8 |

|        |                      |      |          |                               |                                  |        |      |       |       |       |
|--------|----------------------|------|----------|-------------------------------|----------------------------------|--------|------|-------|-------|-------|
| Deaths | Norway               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 220.5 | 285.8 | 156.1 |
| Deaths | Saudi Arabia         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 220   | 289.2 | 160.3 |
| Deaths | Uruguay              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 218   | 281.3 | 165.6 |
| Deaths | Azerbaijan           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 205.8 | 318.6 | 153   |
| Deaths | Kyrgyzstan           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 204.3 | 261.4 | 157.3 |
| Deaths | Benin                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 201.2 | 274.8 | 147.3 |
| Deaths | New Zealand          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 189.2 | 245.7 | 140.3 |
| Deaths | Iraq                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 181.2 | 250.7 | 128.4 |
| Deaths | United Arab Emirates | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 166.4 | 245.4 | 92.2  |
| Deaths | Dominican Republic   | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 164.1 | 227.3 | 113.5 |
| Deaths | Ireland              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 162.9 | 225.6 | 111.5 |
| Deaths | Finland              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 161.8 | 213.1 | 115.9 |
| Deaths | Armenia              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 152   | 201.9 | 109.1 |
| Deaths | Georgia              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 146.1 | 208.1 | 107.1 |
| Deaths | Nicaragua            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 144.5 | 190.6 | 102.5 |
| Deaths | South Sudan          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 142.1 | 200.6 | 92.5  |

|        |                        |      |          |                               |                                  |        |      |       |       |      |
|--------|------------------------|------|----------|-------------------------------|----------------------------------|--------|------|-------|-------|------|
| Deaths | Togo                   | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 138.6 | 190.3 | 97.8 |
| Deaths | Croatia                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 138.6 | 189.4 | 92.8 |
| Deaths | Sierra Leone           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 135.6 | 187.1 | 93.9 |
| Deaths | Costa Rica             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 135.5 | 190.1 | 91.3 |
| Deaths | Paraguay               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 135.3 | 184.7 | 94.7 |
| Deaths | Central Africa         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 126.7 | 181.7 | 83.3 |
| Deaths | El Salvador            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 125.3 | 174.3 | 85.2 |
| Deaths | Israel                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 122.7 | 166.1 | 88   |
| Deaths | Tajikistan             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 122.6 | 190.5 | 91.1 |
| Deaths | Eritrea                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 119   | 159.7 | 83.6 |
| Deaths | Lesotho                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 109.3 | 155.4 | 75.4 |
| Deaths | Slovakia               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 108.6 | 151.2 | 76.3 |
| Deaths | Lebanon                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 95.9  | 137.3 | 58.7 |
| Deaths | Bosnia and Herzegovina | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 89.4  | 122.8 | 61.8 |
| Deaths | Republic of Moldova    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 79.3  | 107   | 58.9 |
| Deaths | Libya                  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number | 2019 | 79.1  | 113.6 | 50.5 |



|        |                 |      |          |                               |                                  |             |      |       |      |
|--------|-----------------|------|----------|-------------------------------|----------------------------------|-------------|------|-------|------|
| Deaths | Bhutan          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 78.8 | 112.7 | 54.1 |
| Deaths | Puerto Rico     | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 77.6 | 112.1 | 51.3 |
| Deaths | Jamaica         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 77.1 | 105.8 | 54.1 |
| Deaths | Panama          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 74.4 | 106.7 | 50.2 |
| Deaths | Congo           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 73.6 | 99    | 49.5 |
| Deaths | Lithuania       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 71.8 | 98.3  | 51.4 |
| Deaths | Namibia         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 66.5 | 89.1  | 46.8 |
| Deaths | Albania         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 63.5 | 92.6  | 41.5 |
| Deaths | Timor-Leste     | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 60.1 | 83.2  | 42.6 |
| Deaths | Jordan          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 56.6 | 78.4  | 40.1 |
| Deaths | Slovenia        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 55.3 | 78.9  | 37.5 |
| Deaths | Singapore       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 54.4 | 76    | 39.6 |
| Deaths | Botswana        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 53.2 | 74.9  | 35.2 |
| Deaths | Liberia         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 49.2 | 70.3  | 34.4 |
| Deaths | North Macedonia | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 46.3 | 62.3  | 32.7 |
| Deaths | Mongolia        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 41.7 | 58.9  | 31.1 |

|        |                     |      |          |                               |                                  |             |      |      |      |
|--------|---------------------|------|----------|-------------------------------|----------------------------------|-------------|------|------|------|
| Deaths | Mauritania          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 41.5 | 55.7 | 29.9 |
| Deaths | Turkmenistan        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 41.2 | 67.7 | 29   |
| Deaths | Mauritius           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 40.2 | 54.9 | 29.3 |
| Deaths | Gambia              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 37.4 | 50.5 | 26.6 |
| Deaths | Cyprus              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 36.8 | 51.5 | 24.5 |
| Deaths | Latvia              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 35.8 | 50.7 | 25.3 |
| Deaths | Guinea - Bissau     | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 34.1 | 46   | 23.5 |
| Deaths | Estonia             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 31   | 42.5 | 21.6 |
| Deaths | Palestine           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 29.6 | 38.9 | 21.9 |
| Deaths | Eswatini            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 27.3 | 37.3 | 19.4 |
| Deaths | Oman                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 24.8 | 32.4 | 17.6 |
| Deaths | Solomon Island      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 24.5 | 32   | 17.7 |
| Deaths | Trinidad and Tobago | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 23.6 | 33.7 | 16.1 |
| Deaths | Gabon               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 21.3 | 29.8 | 14   |
| Deaths | Comoros             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 20   | 26.6 | 14.8 |
| Deaths | Vanuatu             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 19.7 | 26.9 | 14.3 |

|        |                   |      |          |                               |                                  |             |      |      |      |
|--------|-------------------|------|----------|-------------------------------|----------------------------------|-------------|------|------|------|
| Deaths | Fiji              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 17.9 | 24.2 | 13   |
| Deaths | Kuwait            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 16.5 | 22.7 | 11.3 |
| Deaths | Equatorial Guinea | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 14.6 | 23.2 | 8.9  |
| Deaths | Luxembourg        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 13.1 | 17.9 | 9.1  |
| Deaths | Bahrain           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 12.7 | 16.9 | 9.2  |
| Deaths | Maldives          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 11.9 | 16   | 8.8  |
| Deaths | Djibouti          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 11.8 | 17.6 | 7.2  |
| Deaths | Malta             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 11.3 | 16   | 7.6  |
| Deaths | Guyana            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 10.5 | 14   | 7.4  |
| Deaths | Cabo Verde        | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 10.1 | 14.4 | 7.5  |
| Deaths | Iceland           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 9.8  | 13   | 6.8  |
| Deaths | Suriname          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 7.9  | 10.5 | 5.9  |
| Deaths | Samoa             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 7.7  | 10.3 | 5.8  |
| Deaths | Qatar             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 7.5  | 12   | 5.2  |
| Deaths | Belize            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 6.7  | 8.8  | 5    |
| Deaths | Saint Lucia       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 6.1  | 8.2  | 4.5  |

|        |                      |      |          |                               |                                  |             |     |     |     |
|--------|----------------------|------|----------|-------------------------------|----------------------------------|-------------|-----|-----|-----|
| Deaths | Sao Tome and         | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 5.9 | 7.9 | 4.2 |
| Deaths | Montenegro           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 5.6 | 7.7 | 3.8 |
| Deaths | Brunei Darussalam    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 5.1 | 6.7 | 3.8 |
| Deaths | Barbados             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 4.6 | 6.1 | 3.3 |
| Deaths | Micronesia (Feder    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 4.4 | 6.1 | 3.1 |
| Deaths | Guam                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 3.7 | 5.1 | 2.7 |
| Deaths | Tonga                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 3.6 | 4.8 | 2.5 |
| Deaths | Seychelles           | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 3.3 | 4.2 | 2.5 |
| Deaths | Bahamas              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 3   | 4.1 | 2.2 |
| Deaths | Andorra              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 2.8 | 4.1 | 1.8 |
| Deaths | Greenland            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 2.4 | 3.1 | 1.8 |
| Deaths | United States Virgin | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 2.3 | 3.1 | 1.7 |
| Deaths | American Samoa       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 2.2 | 2.9 | 1.8 |
| Deaths | Dominica             | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 2   | 2.7 | 1.4 |
| Deaths | Saint Vincent and    | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.9 | 2.4 | 1.4 |
| Deaths | Grenada              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.7 | 2.1 | 1.3 |

|        |                       |      |          |                               |                                  |             |     |     |     |
|--------|-----------------------|------|----------|-------------------------------|----------------------------------|-------------|-----|-----|-----|
| Deaths | Northern Mariana      | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.6 | 2   | 1.2 |
| Deaths | Bermuda               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.5 | 2   | 1   |
| Deaths | Marshall Island       | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.4 | 2   | 1   |
| Deaths | Kiribati              | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.4 | 1.8 | 1   |
| Deaths | Monaco                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.2 | 1.7 | 0.8 |
| Deaths | Palau                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.1 | 1.5 | 0.8 |
| Deaths | Saint Kitts and Nevis | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 1.1 | 1.4 | 0.9 |
| Deaths | Antigua and Barbuda   | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.8 | 1.1 | 0.6 |
| Deaths | San Marino            | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.7 | 1.1 | 0.4 |
| Deaths | Cook Islands          | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.6 | 0.8 | 0.5 |
| Deaths | Tuvalu                | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.6 | 0.8 | 0.4 |
| Deaths | Nauru                 | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.2 | 0.3 | 0.2 |
| Deaths | Niue                  | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.1 | 0.1 | 0.1 |
| Deaths | Tokelau               | Both | All ages | Chronic obstructive pulmonary | Occupational particulate matter, | Number 2019 | 0.1 | 0.1 | 0   |

Supplementary Table 2: The ASMR of COPD attributable to occupational particulate matter, gases, and fumes in 204 countries

| measure | location            | sex  | age              | cause                         | reimbursement            | metric | year | val  | upper | lower |
|---------|---------------------|------|------------------|-------------------------------|--------------------------|--------|------|------|-------|-------|
| Deaths  | Nepal               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 39   | 50    | 27.7  |
| Deaths  | Bhutan              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 16.9 | 24.5  | 11.3  |
| Deaths  | Papua New Guinea    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 16.4 | 21.7  | 11.5  |
| Deaths  | Democratic People's | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 16.4 | 21    | 12.1  |
| Deaths  | India               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 15.6 | 19.9  | 11.2  |
| Deaths  | Vanuatu             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 14.3 | 19.5  | 10    |
| Deaths  | China               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 12   | 15.7  | 8.9   |
| Deaths  | Solomon Islands     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 10.6 | 13.9  | 7.5   |
| Deaths  | Myanmar             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 10.5 | 13.4  | 7.5   |
| Deaths  | Lesotho             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 10.5 | 14.8  | 7.2   |
| Deaths  | Pakistan            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate   | 2019 | 10.2 | 13.9  | 7.1   |

|        |                          |      |                  |                               |                          |      |      |     |      |     |
|--------|--------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|------|-----|
| Deaths | Lao People's Democra     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 9.9 | 13.2 | 7.3 |
| Deaths | Madagascar               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 9.7 | 13.2 | 6.5 |
| Deaths | Burundi                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 9.3 | 12.6 | 6.7 |
| Deaths | Timor-Leste              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 9.2 | 12.6 | 6.5 |
| Deaths | Nauru                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8.6 | 11.7 | 6.2 |
| Deaths | Micronesia (Federated    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8.4 | 11.3 | 6.1 |
| Deaths | Kazakhstan               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8.3 | 10.7 | 6.4 |
| Deaths | Central African Republic | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8.3 | 12.2 | 5.4 |
| Deaths | Indonesia                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8.1 | 10.4 | 6.2 |
| Deaths | Cambodia                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 8   | 10.1 | 5.7 |
| Deaths | Democratic Republic of   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.9 | 12.2 | 4.9 |
| Deaths | Bangladesh               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.8 | 14   | 5.2 |
| Deaths | Somalia                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.7 | 13   | 4.8 |

|        |                      |      |                  |                               |                          |      |      |     |      |     |
|--------|----------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|------|-----|
| Deaths | Rwanda               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.7 | 10.2 | 5.6 |
| Deaths | Palau                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.5 | 9.9  | 5.4 |
| Deaths | Sao Tome and Princip | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.2 | 9.8  | 5   |
| Deaths | Tuvalu               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.1 | 9.8  | 5.2 |
| Deaths | Viet Nam             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 7.1 | 9.4  | 2.6 |
| Deaths | Honduras             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6.7 | 9.3  | 3.9 |
| Deaths | Marshall Islands     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6.2 | 8.9  | 4.3 |
| Deaths | Samoa                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6.2 | 8.3  | 4.6 |
| Deaths | Eritrea              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6.1 | 8.2  | 4.2 |
| Deaths | Uganda               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6   | 8.1  | 4.2 |
| Deaths | Guinea-Bissau        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6   | 8.2  | 4.2 |
| Deaths | Kenya                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 6   | 8.2  | 4.4 |
| Deaths | Mali                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.9 | 7.8  | 4.3 |



|        |                |      |                  |                               |                          |      |      |     |     |     |
|--------|----------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Eswatini       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.8 | 7.9 | 4.1 |
| Deaths | Ghana          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.8 | 7.6 | 3.4 |
| Deaths | Philippines    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.8 | 7.8 | 4.3 |
| Deaths | American Samoa | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.7 | 7.4 | 4.4 |
| Deaths | Chad           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.5 | 7.7 | 3.9 |
| Deaths | Namibia        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.5 | 7.5 | 3.9 |
| Deaths | Kyrgyzstan     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.5 | 7.2 | 4.2 |
| Deaths | Niger          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.4 | 8.2 | 3.6 |
| Deaths | Guinea         | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.3 | 7.2 | 3.6 |
| Deaths | Benin          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.2 | 7   | 3.8 |
| Deaths | Maldives       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.2 | 7   | 3.7 |
| Deaths | Ethiopia       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.2 | 6.7 | 3.8 |
| Deaths | Botswana       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.1 | 7.1 | 3.4 |

|        |                      |      |                  |                               |                          |      |      |     |     |     |
|--------|----------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Mozambique           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.1 | 7   | 3.7 |
| Deaths | Cameroon             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.1 | 7   | 3.4 |
| Deaths | Zambia               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.1 | 6.5 | 3.7 |
| Deaths | Togo                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5.1 | 6.8 | 3.6 |
| Deaths | South Sudan          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5   | 7.2 | 3.3 |
| Deaths | Haiti                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 5   | 7.3 | 2.9 |
| Deaths | Afghanistan          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.9 | 7   | 3   |
| Deaths | Turkey               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.9 | 6.5 | 3.2 |
| Deaths | United Arab Emirates | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.8 | 3   |
| Deaths | Comoros              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.3 | 3.5 |
| Deaths | Tokelau              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.3 | 3.4 |
| Deaths | Zimbabwe             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.2 | 3.2 |
| Deaths | Tonga                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.3 | 3.3 |

|        |                               |      |                  |                               |                          |      |      |     |     |     |
|--------|-------------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Sierra Leone                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.7 | 6.4 | 3.3 |
| Deaths | Gambia                        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.6 | 6.3 | 3.3 |
| Deaths | Malaysia                      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.6 | 6.5 | 3.3 |
| Deaths | Cote d'Ivoire                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.6 | 6   | 3.2 |
| Deaths | Niue                          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.5 | 6.1 | 3.4 |
| Deaths | Angola                        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.5 | 6.1 | 3.3 |
| Deaths | United Republic of Tanzania   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.4 | 5.6 | 3.3 |
| Deaths | Malawi                        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.4 | 5.6 | 3.2 |
| Deaths | Bolivia (Plurinational State) | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.4 | 6.1 | 3   |
| Deaths | Equatorial Guinea             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.3 | 7   | 2.6 |
| Deaths | Northern Mariana Islands      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.3 | 5.5 | 3.2 |
| Deaths | Nicaragua                     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.2 | 5.7 | 2.9 |
| Deaths | Senegal                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.2 | 5.6 | 3   |

|        |              |      |                  |                               |                          |      |      |     |     |     |
|--------|--------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Mexico       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.2 | 5.5 | 3   |
| Deaths | Greenland    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.2 | 5.4 | 2.9 |
| Deaths | Sudan        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.1 | 6.1 | 2.4 |
| Deaths | Congo        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 4.1 | 5.5 | 2.8 |
| Deaths | Nigeria      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.9 | 5.3 | 2.8 |
| Deaths | Armenia      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.8 | 5.1 | 2.7 |
| Deaths | Yemen        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.8 | 5.6 | 2.5 |
| Deaths | Burkina Faso | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.8 | 5   | 2.8 |
| Deaths | Uruguay      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.7 | 4.7 | 2.9 |
| Deaths | Brazil       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.7 | 4.6 | 2.9 |
| Deaths | Tajikistan   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.6 | 5.8 | 2.6 |
| Deaths | Thailand     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.5 | 5   | 2.4 |
| Deaths | Argentina    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.5 | 4.4 | 2.7 |

|        |                          |      |                  |                               |                          |      |      |     |     |     |
|--------|--------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | South Africa             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.5 | 4.4 | 2.8 |
| Deaths | Seychelles               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.5 | 4.5 | 2.6 |
| Deaths | Brunei Darussalam        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.3 | 4.6 | 2.3 |
| Deaths | Colombia                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.2 | 4.4 | 2.2 |
| Deaths | Egypt                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.2 | 4.8 | 1.7 |
| Deaths | Azerbaijan               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.2 | 5   | 2.3 |
| Deaths | Fiji                     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.2 | 4.4 | 2.3 |
| Deaths | Liberia                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.2 | 4.5 | 2.2 |
| Deaths | United States of America | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3.1 | 3.8 | 2.4 |
| Deaths | Qatar                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3   | 4.6 | 1.9 |
| Deaths | Saint Lucia              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 3   | 4   | 2.2 |
| Deaths | Sri Lanka                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.9 | 4.1 | 1.9 |
| Deaths | Djibouti                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.9 | 4.3 | 1.8 |

|        |                            |      |                  |                               |                          |      |      |     |     |     |
|--------|----------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Bahrain                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.9 | 4   | 2   |
| Deaths | Denmark                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.7 | 2.1 |
| Deaths | Venezuela (Bolivarian)     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 4   | 2   |
| Deaths | Uzbekistan                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 4.3 | 2.1 |
| Deaths | Belize                     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.7 | 2.1 |
| Deaths | Taiwan (Province of China) | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.9 | 1.9 |
| Deaths | Morocco                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.7 | 1.9 |
| Deaths | Hungary                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.6 | 2.1 |
| Deaths | Guatemala                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.8 | 3.9 | 1.9 |
| Deaths | Oman                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.7 | 3.7 | 1.8 |
| Deaths | Costa Rica                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.7 | 3.8 | 1.8 |
| Deaths | Ecuador                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.7 | 3.8 | 1.8 |
| Deaths | Cook Islands               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.5 | 2   |

|        |                      |      |                  |                               |                          |      |      |     |     |     |
|--------|----------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Paraguay             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.6 | 1.8 |
| Deaths | Gabon                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.6 | 1.8 |
| Deaths | Kiribati             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.5 | 1.8 |
| Deaths | Jamaica              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.5 | 1.8 |
| Deaths | Mauritius            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.6 | 1.8 |
| Deaths | Cuba                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.6 | 3.3 | 1.9 |
| Deaths | Romania              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.5 | 3.3 | 1.8 |
| Deaths | Cabo Verde           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.5 | 3.6 | 1.9 |
| Deaths | Mongolia             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.5 | 3.4 | 1.9 |
| Deaths | United Kingdom       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.5 | 3.2 | 1.9 |
| Deaths | Mauritania           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.4 | 3.2 | 1.7 |
| Deaths | Syrian Arab Republic | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.3 | 3.5 | 1.5 |
| Deaths | Georgia              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.3 | 3.2 | 1.7 |

|        |                         |      |                  |                               |                          |      |      |     |     |     |
|--------|-------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | New Zealand             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.2 | 2.9 | 1.7 |
| Deaths | Serbia                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.1 | 3   | 1.5 |
| Deaths | Dominica                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.1 | 2.9 | 1.5 |
| Deaths | Iran (Islamic Republic) | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.1 | 2.7 | 1.6 |
| Deaths | Norway                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.1 | 2.7 | 1.5 |
| Deaths | Ireland                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2.1 | 2.8 | 1.4 |
| Deaths | Saudi Arabia            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.8 | 1.4 |
| Deaths | Guam                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.8 | 1.5 |
| Deaths | Tunisia                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 3   | 1.3 |
| Deaths | Cyprus                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.9 | 1.3 |
| Deaths | Portugal                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.7 | 1.4 |
| Deaths | Spain                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.8 | 1.4 |
| Deaths | Saint Kitts and Nevis   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.6 | 1.6 |



|        |                    |      |                  |                               |                          |      |      |     |     |     |
|--------|--------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Guyana             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.7 | 1.4 |
| Deaths | Czechia            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.6 | 1.4 |
| Deaths | El Salvador        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 2   | 2.7 | 1.3 |
| Deaths | Bulgaria           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.6 | 1.4 |
| Deaths | Algeria            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.8 | 1.3 |
| Deaths | Dominican Republic | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.7 | 1.3 |
| Deaths | Andorra            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.8 | 1.2 |
| Deaths | Chile              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.6 | 1.4 |
| Deaths | Belgium            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.4 | 1.4 |
| Deaths | Lebanon            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.9 | 2.7 | 1.1 |
| Deaths | Libya              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.8 | 2.7 | 1.2 |
| Deaths | Canada             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.8 | 2.4 | 1.3 |
| Deaths | Panama             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.8 | 2.5 | 1.2 |

|        |                        |      |                  |                               |                          |      |      |     |     |     |
|--------|------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Netherlands            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.7 | 2.3 | 1.2 |
| Deaths | Germany                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.7 | 2.1 | 1.3 |
| Deaths | Russian Federation     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.7 | 2.2 | 1.3 |
| Deaths | Grenada                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.7 | 2.1 | 1.3 |
| Deaths | Palestine              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.7 | 2.2 | 1.2 |
| Deaths | North Macedonia        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.6 | 2.3 | 1.1 |
| Deaths | Australia              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.6 | 2.2 | 1.2 |
| Deaths | Greece                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.6 | 2.1 | 1.1 |
| Deaths | Iceland                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.6 | 2.1 | 1.1 |
| Deaths | Belarus                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.6 | 2.4 | 1.1 |
| Deaths | Poland                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.5 | 2   | 1.1 |
| Deaths | Ukraine                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.5 | 2.2 | 1.1 |
| Deaths | Bosnia and Herzegovina | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.5 | 2.1 | 1   |

|        |                               |      |                  |                               |                          |      |      |     |     |     |
|--------|-------------------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Saint Vincent and the Grenadi | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.5 | 1.9 | 1.1 |
| Deaths | Albania                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.5 | 2.1 | 0.9 |
| Deaths | Suriname                      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.9 | 1.1 |
| Deaths | Croatia                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.9 | 1   |
| Deaths | Republic of Korea             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.9 | 1   |
| Deaths | Austria                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.8 | 1.1 |
| Deaths | Republic of Moldova           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.8 | 1   |
| Deaths | Sweden                        | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.4 | 1.8 | 1   |
| Deaths | Trinidad and Tobago           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.3 | 1.9 | 0.9 |
| Deaths | Switzerland                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.3 | 1.7 | 1   |
| Deaths | United States Virgin Islands  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.3 | 1.6 | 0.9 |
| Deaths | Turkmenistan                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.3 | 2.1 | 0.9 |
| Deaths | Luxembourg                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.2 | 1.6 | 0.9 |

|        |           |      |                  |                               |                          |      |      |     |     |     |
|--------|-----------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Finland   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.2 | 1.5 | 0.9 |
| Deaths | Jordan    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.2 | 1.6 | 0.8 |
| Deaths | Slovakia  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.2 | 1.6 | 0.8 |
| Deaths | Italy     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.2 | 1.6 | 0.8 |
| Deaths | Peru      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.1 | 1.7 | 0.7 |
| Deaths | Lithuania | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.1 | 1.5 | 0.8 |
| Deaths | Slovenia  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.1 | 1.6 | 0.8 |
| Deaths | Malta     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.1 | 1.5 | 0.8 |
| Deaths | Monaco    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1.1 | 1.5 | 0.8 |
| Deaths | Estonia   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1   | 1.4 | 0.7 |
| Deaths | Bermuda   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1   | 1.4 | 0.7 |
| Deaths | Iraq      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1   | 1.4 | 0.7 |
| Deaths | Israel    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 1   | 1.3 | 0.7 |

|        |                     |      |                  |                               |                          |      |      |     |     |     |
|--------|---------------------|------|------------------|-------------------------------|--------------------------|------|------|-----|-----|-----|
| Deaths | Kuwait              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.3 | 0.6 |
| Deaths | Puerto Rico         | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.3 | 0.6 |
| Deaths | Antigua and Barbuda | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.3 | 0.7 |
| Deaths | San Marino          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.4 | 0.6 |
| Deaths | Barbados            | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.2 | 0.7 |
| Deaths | Bahamas             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.9 | 1.2 | 0.6 |
| Deaths | Latvia              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.8 | 1.2 | 0.6 |
| Deaths | Japan               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.8 | 1.2 | 0.5 |
| Deaths | Singapore           | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.8 | 1.1 | 0.5 |
| Deaths | France              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.7 | 0.9 | 0.5 |
| Deaths | Montenegro          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate | Rate | 2019 | 0.6 | 0.8 | 0.4 |

Supplementary Table 3: The ASDR of COPD attributable to occupational particulate matter, gases, and fumes in 204 countries

| measure                     | location            | sex  | age              | cause                         | reife                            | metric | year | val   | upper | lower |
|-----------------------------|---------------------|------|------------------|-------------------------------|----------------------------------|--------|------|-------|-------|-------|
| DALYs (Disability-Adjusted) | Nepal               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 724.5 | 894.2 | 549   |
| DALYs (Disability-Adjusted) | Democratic People's | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 329.5 | 410.7 | 253.7 |
| DALYs (Disability-Adjusted) | Papua New Guinea    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 326.2 | 426.7 | 238.2 |
| DALYs (Disability-Adjusted) | Bhutan              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 324.5 | 439.3 | 236.5 |
| DALYs (Disability-Adjusted) | India               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 318.6 | 391.6 | 241.9 |
| DALYs (Disability-Adjusted) | Vanuatu             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 287.3 | 388.4 | 212.6 |
| DALYs (Disability-Adjusted) | Lesotho             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 244.7 | 332.9 | 176.8 |
| DALYs (Disability-Adjusted) | Myanmar             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 230.5 | 282.7 | 179   |
| DALYs (Disability-Adjusted) | Madagascar          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 227.4 | 295   | 169.6 |
| DALYs (Disability-Adjusted) | Solomon Islands     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate   | 2019 | 225.5 | 290.8 | 166.4 |

|                             |                          |      |                  |                               |                                  |      |      |       |       |       |
|-----------------------------|--------------------------|------|------------------|-------------------------------|----------------------------------|------|------|-------|-------|-------|
| DALYs (Disability-Adjusted) | Lao People's Democracy   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 221.7 | 278.4 | 175   |
| DALYs (Disability-Adjusted) | Pakistan                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 217.8 | 284   | 162.1 |
| DALYs (Disability-Adjusted) | China                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 212.5 | 267.3 | 169.2 |
| DALYs (Disability-Adjusted) | Burundi                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 210.9 | 274.3 | 161.3 |
| DALYs (Disability-Adjusted) | Nauru                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 190.4 | 243.3 | 145.8 |
| DALYs (Disability-Adjusted) | Central African Republic | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 188.8 | 260.1 | 133.9 |
| DALYs (Disability-Adjusted) | Timor-Leste              | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 185.4 | 242.7 | 138.9 |
| DALYs (Disability-Adjusted) | Somalia                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 178.8 | 277.9 | 120.3 |
| DALYs (Disability-Adjusted) | Rwanda                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 177.3 | 225.1 | 138.7 |
| DALYs (Disability-Adjusted) | Micronesia (Federated)   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 176.2 | 236.2 | 127.6 |
| DALYs (Disability-Adjusted) | Kazakhstan               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 176   | 214.4 | 140.7 |
| DALYs (Disability-Adjusted) | Bangladesh               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 174.9 | 273.4 | 129.1 |

|                                   |                            |      |                      |                                     |  |      |      |       |       |       |
|-----------------------------------|----------------------------|------|----------------------|-------------------------------------|--|------|------|-------|-------|-------|
| DALYs<br>(Disability-<br>Adjusted | Cambodia                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 173.6 | 211.9 | 136.9 |
| DALYs<br>(Disability-<br>Adjusted | Democratic<br>Republic of  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 172   | 243.3 | 119.7 |
| DALYs<br>(Disability-<br>Adjusted | Indonesia                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 171.9 | 209.1 | 138   |
| DALYs<br>(Disability-<br>Adjusted | Palau                      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 161.6 | 206.6 | 124.7 |
| DALYs<br>(Disability-<br>Adjusted | Sao Tome<br>and<br>Princip | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 160.8 | 204.5 | 123.3 |
| DALYs<br>(Disability-<br>Adjusted | Vietnam                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 160.3 | 204   | 84.9  |
| DALYs<br>(Disability-<br>Adjusted | Mali                       | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 160   | 204.6 | 123.2 |
| DALYs<br>(Disability-<br>Adjusted | Tuvalu                     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 158.5 | 209.1 | 122.7 |
| DALYs<br>(Disability-<br>Adjusted | Eritrea                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 152   | 193.2 | 113.5 |
| DALYs<br>(Disability-<br>Adjusted | Guinea-<br>Bissau          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 151.8 | 194.6 | 114.1 |
| DALYs<br>(Disability-<br>Adjusted | Philippines                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 147.4 | 184.2 | 116.2 |
| DALYs<br>(Disability-<br>Adjusted | Eswatini                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 144.7 | 187.3 | 109.8 |



|                                   |                         |      |                      |                                     |  |      |      |       |       |       |
|-----------------------------------|-------------------------|------|----------------------|-------------------------------------|--|------|------|-------|-------|-------|
| DALYs<br>(Disability-<br>Adjusted | Kenya                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 140.3 | 180.5 | 110.2 |
| DALYs<br>(Disability-<br>Adjusted | Ghana                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 139.7 | 174.3 | 95.6  |
| DALYs<br>(Disability-<br>Adjusted | Uganda                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 139   | 179.8 | 104.9 |
| DALYs<br>(Disability-<br>Adjusted | Cameroon                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 136.4 | 172.3 | 102.2 |
| DALYs<br>(Disability-<br>Adjusted | United Arab<br>Emirates | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 132.8 | 175.5 | 94.6  |
| DALYs<br>(Disability-<br>Adjusted | Togo                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 132.1 | 170.2 | 102.3 |
| DALYs<br>(Disability-<br>Adjusted | Guinea                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 130.8 | 166.5 | 100.4 |
| DALYs<br>(Disability-<br>Adjusted | Benin                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 130.4 | 165.3 | 102.7 |
| DALYs<br>(Disability-<br>Adjusted | Chad                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 130.1 | 170.4 | 97.8  |
| DALYs<br>(Disability-<br>Adjusted | Niger                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 129.3 | 180   | 94.2  |
| DALYs<br>(Disability-<br>Adjusted | Mozambique              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 125.5 | 159.9 | 96.6  |
| DALYs<br>(Disability-<br>Adjusted | Honduras                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 125.2 | 167.6 | 80.3  |

|                                   |                     |      |                      |                                     |  |      |      |       |       |      |
|-----------------------------------|---------------------|------|----------------------|-------------------------------------|--|------|------|-------|-------|------|
| DALYs<br>(Disability-<br>Adjusted | Namibia             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 124.7 | 160.2 | 93.8 |
| DALYs<br>(Disability-<br>Adjusted | Zimbabwe            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 123.8 | 153.2 | 95.9 |
| DALYs<br>(Disability-<br>Adjusted | Marshall<br>Islands | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 122.4 | 167.1 | 88.5 |
| DALYs<br>(Disability-<br>Adjusted | Botswana            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 121.8 | 161.2 | 89.3 |
| DALYs<br>(Disability-<br>Adjusted | Samoa               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 121.3 | 159.6 | 92.9 |
| DALYs<br>(Disability-<br>Adjusted | Zambia              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 120.2 | 149.9 | 94.4 |
| DALYs<br>(Disability-<br>Adjusted | Turkey              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 117.8 | 147.4 | 88.8 |
| DALYs<br>(Disability-<br>Adjusted | Kyrgyzstan          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 117.4 | 145.3 | 93.7 |
| DALYs<br>(Disability-<br>Adjusted | South<br>Sudan      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 116.2 | 154.3 | 84.8 |
| DALYs<br>(Disability-<br>Adjusted | Sierra<br>Leone     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 114.4 | 149.4 | 86.9 |
| DALYs<br>(Disability-<br>Adjusted | Maldives            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 113.8 | 141.2 | 90.8 |
| DALYs<br>(Disability-<br>Adjusted | American<br>Samoa   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 113.4 | 141.4 | 92.1 |

|                                   |                                   |      |                      |                                     |  |      |      |       |       |      |
|-----------------------------------|-----------------------------------|------|----------------------|-------------------------------------|--|------|------|-------|-------|------|
| DALYs<br>(Disability-<br>Adjusted | Tokelau                           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 112.3 | 141.3 | 89   |
| DALYs<br>(Disability-<br>Adjusted | Gambia                            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 112.2 | 144   | 86.1 |
| DALYs<br>(Disability-<br>Adjusted | Afghanistan                       | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 111.8 | 148.5 | 77.3 |
| DALYs<br>(Disability-<br>Adjusted | Cote<br>d'Ivoire                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 111.4 | 140.5 | 86.4 |
| DALYs<br>(Disability-<br>Adjusted | Niue                              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 109.6 | 137.3 | 86.5 |
| DALYs<br>(Disability-<br>Adjusted | Ethiopia                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 109.3 | 134.5 | 85.8 |
| DALYs<br>(Disability-<br>Adjusted | Comoros                           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 109.1 | 139.3 | 87   |
| DALYs<br>(Disability-<br>Adjusted | Malaysia                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 106.9 | 139.4 | 83   |
| DALYs<br>(Disability-<br>Adjusted | Malawi                            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 106.9 | 129.8 | 85.3 |
| DALYs<br>(Disability-<br>Adjusted | United<br>Republic of<br>Tanzania | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 106.3 | 128.8 | 86.1 |
| DALYs<br>(Disability-<br>Adjusted | Angola                            | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 101.6 | 129.9 | 80   |
| DALYs<br>(Disability-<br>Adjusted | Senegal                           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 100.3 | 127.2 | 77.5 |

|                                   |                                   |      |                      |                                     |  |      |      |      |       |      |
|-----------------------------------|-----------------------------------|------|----------------------|-------------------------------------|--|------|------|------|-------|------|
| DALYs<br>(Disability-<br>Adjusted | Burkina<br>Faso                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 97.3 | 121.3 | 78.6 |
| DALYs<br>(Disability-<br>Adjusted | Equatorial<br>Guinea              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 95   | 134.7 | 66   |
| DALYs<br>(Disability-<br>Adjusted | Haiti                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 93.4 | 135.8 | 57.8 |
| DALYs<br>(Disability-<br>Adjusted | Greenland                         | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 93.3 | 116.3 | 71.4 |
| DALYs<br>(Disability-<br>Adjusted | Tonga                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 92.8 | 119   | 69.7 |
| DALYs<br>(Disability-<br>Adjusted | Congo                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 92.7 | 118   | 69.3 |
| DALYs<br>(Disability-<br>Adjusted | Thailand                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 92.2 | 119.1 | 72.4 |
| DALYs<br>(Disability-<br>Adjusted | Sudan                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 91.6 | 128.2 | 60.2 |
| DALYs<br>(Disability-<br>Adjusted | South<br>Africa                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 88.1 | 104.5 | 73.2 |
| DALYs<br>(Disability-<br>Adjusted | Egypt                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 88   | 119.4 | 56.8 |
| DALYs<br>(Disability-<br>Adjusted | Seychelles                        | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 87.9 | 105.4 | 70.9 |
| DALYs<br>(Disability-<br>Adjusted | United<br>States<br>of<br>America | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 87.3 | 103   | 71.5 |

|                                   |                          |      |                  |                               |                                  |      |      |      |       |      |
|-----------------------------------|--------------------------|------|------------------|-------------------------------|----------------------------------|------|------|------|-------|------|
| DALYs (Disability-Adjusted DALYs) | Northern Mariana Islands | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 86.4 | 108   | 68.7 |
| DALYs (Disability-Adjusted DALYs) | Yemen                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 86.3 | 117.8 | 62.6 |
| DALYs (Disability-Adjusted DALYs) | Nigeria                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 85.4 | 106.4 | 66.6 |
| DALYs (Disability-Adjusted DALYs) | Uruguay                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 83.7 | 101.4 | 67.7 |
| DALYs (Disability-Adjusted DALYs) | Liberia                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 80.2 | 105.3 | 60.7 |
| DALYs (Disability-Adjusted DALYs) | Cook Islands             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 78.8 | 95.7  | 64.4 |
| DALYs (Disability-Adjusted DALYs) | Sri Lanka                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 77.8 | 100.9 | 58   |
| DALYs (Disability-Adjusted DALYs) | Mexico                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 76.6 | 96.2  | 60   |
| DALYs (Disability-Adjusted DALYs) | Argentina                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 75.8 | 91.9  | 61.5 |
| DALYs (Disability-Adjusted DALYs) | Brazil                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 75.7 | 89.3  | 62.7 |
| DALYs (Disability-Adjusted DALYs) | Hungary                  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 75.5 | 94.2  | 59.7 |
| DALYs (Disability-Adjusted DALYs) | Tajikistan               | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 74.2 | 111.1 | 56.5 |

|                                   |                               |      |                  |                               |                                  |      |      |      |      |      |
|-----------------------------------|-------------------------------|------|------------------|-------------------------------|----------------------------------|------|------|------|------|------|
| DALYs (Disability-Adjusted DALYs) | Bolivia (Plurinational State) | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 73.7 | 99.1 | 55   |
| DALYs (Disability-Adjusted DALYs) | Armenia                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 73.2 | 91.8 | 56.7 |
| DALYs (Disability-Adjusted DALYs) | Djibouti                      | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 69.6 | 95.5 | 48.9 |
| DALYs (Disability-Adjusted DALYs) | Nicaragua                     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 68.9 | 88.2 | 51.3 |
| DALYs (Disability-Adjusted DALYs) | Denmark                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 68.7 | 83.6 | 54.8 |
| DALYs (Disability-Adjusted DALYs) | Azerbaijan                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 68.3 | 95.7 | 53.5 |
| DALYs (Disability-Adjusted DALYs) | Mauritius                     | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 68.1 | 86.2 | 54.4 |
| DALYs (Disability-Adjusted DALYs) | Cabo Verde                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 65   | 83.3 | 52.8 |
| DALYs (Disability-Adjusted DALYs) | Romania                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 65   | 81.9 | 50.9 |
| DALYs (Disability-Adjusted DALYs) | Morocco                       | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 64.6 | 82.9 | 48.9 |
| DALYs (Disability-Adjusted DALYs) | Saint Lucia                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 62.6 | 78.6 | 49.1 |
| DALYs (Disability-Adjusted DALYs) | Fiji                          | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 62.1 | 82.4 | 46.2 |

|                                   |                            |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|----------------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Qatar                      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 61.9 | 83.8 | 45.3 |
| DALYs<br>(Disability-<br>Adjusted | Colombia                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 61.6 | 79.3 | 45.9 |
| DALYs<br>(Disability-<br>Adjusted | Mauritania                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 61.6 | 77.5 | 48.5 |
| DALYs<br>(Disability-<br>Adjusted | Gabon                      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 61.3 | 80.8 | 44.8 |
| DALYs<br>(Disability-<br>Adjusted | Uzbekistan                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 60.9 | 80.7 | 48.1 |
| DALYs<br>(Disability-<br>Adjusted | Brunei<br>Darussalam       | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 60.6 | 78.3 | 45.8 |
| DALYs<br>(Disability-<br>Adjusted | United<br>Kingdom          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 60.1 | 73.1 | 48.1 |
| DALYs<br>(Disability-<br>Adjusted | Cuba                       | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 60.1 | 76.6 | 46.7 |
| DALYs<br>(Disability-<br>Adjusted | Belize                     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 60   | 76.1 | 47.3 |
| DALYs<br>(Disability-<br>Adjusted | Georgia                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 59.8 | 77.4 | 46.6 |
| DALYs<br>(Disability-<br>Adjusted | Bahrain                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 59.1 | 74.8 | 45.1 |
| DALYs<br>(Disability-<br>Adjusted | Syrian<br>Arab<br>Republic | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 58.4 | 80.5 | 42.8 |

|                             |                         |      |                  |                               |                                  |      |      |      |      |      |
|-----------------------------|-------------------------|------|------------------|-------------------------------|----------------------------------|------|------|------|------|------|
| DALYs (Disability-Adjusted) | Venezuela (Bolivarian)  | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 58.1 | 77.6 | 43.2 |
| DALYs (Disability-Adjusted) | Jamaica                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 58   | 76.3 | 42.8 |
| DALYs (Disability-Adjusted) | Kiribati                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 56.3 | 74.4 | 40.3 |
| DALYs (Disability-Adjusted) | New Zealand             | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 55   | 66.8 | 44.4 |
| DALYs (Disability-Adjusted) | Czechia                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 54   | 67.6 | 41.6 |
| DALYs (Disability-Adjusted) | Tunisia                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 53.6 | 71.2 | 39.6 |
| DALYs (Disability-Adjusted) | Lebanon                 | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 53.5 | 68   | 39.9 |
| DALYs (Disability-Adjusted) | Oman                    | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 53.5 | 67.8 | 40   |
| DALYs (Disability-Adjusted) | Mongolia                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 53.4 | 71   | 41   |
| DALYs (Disability-Adjusted) | Paraguay                | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 53.1 | 70.7 | 39.5 |
| DALYs (Disability-Adjusted) | Iran (Islamic Republic) | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 52.7 | 63.4 | 42.7 |
| DALYs (Disability-Adjusted) | Libya                   | Both | Age-standardized | Chronic obstructive pulmonary | Occupational particulate matter, | Rate | 2019 | 52.3 | 67.7 | 38.4 |



|                                   |                                  |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|----------------------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Serbia                           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 51.7 | 66.3 | 39.3 |
| DALYs<br>(Disability-<br>Adjusted | Saudi<br>Arabia                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 51.3 | 64.4 | 38.9 |
| DALYs<br>(Disability-<br>Adjusted | Bulgaria                         | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 51.3 | 65.4 | 39.7 |
| DALYs<br>(Disability-<br>Adjusted | Taiwan<br>(Province of<br>China) | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 50.3 | 66.2 | 37.9 |
| DALYs<br>(Disability-<br>Adjusted | Norway                           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 50.3 | 61.3 | 38.7 |
| DALYs<br>(Disability-<br>Adjusted | Germany                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 49.7 | 60.7 | 39.6 |
| DALYs<br>(Disability-<br>Adjusted | Costa<br>Rica                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 49.2 | 65.9 | 36.7 |
| DALYs<br>(Disability-<br>Adjusted | Belgium                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 49   | 60.1 | 38.9 |
| DALYs<br>(Disability-<br>Adjusted | Ireland                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 46.7 | 59.3 | 36.4 |
| DALYs<br>(Disability-<br>Adjusted | Saint<br>Kitts<br>and<br>Nevis   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 46.1 | 56.7 | 37.4 |
| DALYs<br>(Disability-<br>Adjusted | Guatemala                        | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 46   | 62.3 | 34.2 |
| DALYs<br>(Disability-<br>Adjusted | Andorra                          | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 45.7 | 60.3 | 34.3 |

|                                   |                       |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|-----------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Netherlands           | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 45.4 | 56.2 | 35.3 |
| DALYs<br>(Disability-<br>Adjusted | Portugal              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 45.2 | 56.5 | 35.4 |
| DALYs<br>(Disability-<br>Adjusted | Guam                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 44.7 | 57.6 | 34.8 |
| DALYs<br>(Disability-<br>Adjusted | Canada                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 43.4 | 53.8 | 35   |
| DALYs<br>(Disability-<br>Adjusted | Guyana                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 43.3 | 56.3 | 32.5 |
| DALYs<br>(Disability-<br>Adjusted | Spain                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 43.1 | 54.5 | 32.9 |
| DALYs<br>(Disability-<br>Adjusted | Dominica              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 42.9 | 56.2 | 32.7 |
| DALYs<br>(Disability-<br>Adjusted | Algeria               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 42.6 | 56   | 31.5 |
| DALYs<br>(Disability-<br>Adjusted | Iceland               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 42.1 | 51.7 | 33.2 |
| DALYs<br>(Disability-<br>Adjusted | Australia             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 42.1 | 52.2 | 32.9 |
| DALYs<br>(Disability-<br>Adjusted | Russian<br>Federation | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 42.1 | 52.2 | 33.3 |
| DALYs<br>(Disability-<br>Adjusted | Poland                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 41.4 | 52   | 32.4 |

|                                   |                       |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|-----------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Greece                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 40.9 | 50.1 | 32   |
| DALYs<br>(Disability-<br>Adjusted | Ukraine               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 40.8 | 53.8 | 30.7 |
| DALYs<br>(Disability-<br>Adjusted | Ecuador               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 40.5 | 53.8 | 29.6 |
| DALYs<br>(Disability-<br>Adjusted | Cyprus                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 39.7 | 51.3 | 29.5 |
| DALYs<br>(Disability-<br>Adjusted | Dominican<br>Republic | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 39.6 | 53.1 | 28.9 |
| DALYs<br>(Disability-<br>Adjusted | Belarus               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 39.1 | 53.8 | 29   |
| DALYs<br>(Disability-<br>Adjusted | Palestine             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 38.9 | 48.6 | 29.9 |
| DALYs<br>(Disability-<br>Adjusted | Austria               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 38.2 | 47.2 | 30.7 |
| DALYs<br>(Disability-<br>Adjusted | Grenada               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 37.9 | 46.2 | 30.8 |
| DALYs<br>(Disability-<br>Adjusted | Chile                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 37.8 | 47.7 | 29.7 |
| DALYs<br>(Disability-<br>Adjusted | Sweden                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 37.5 | 46.7 | 29.9 |
| DALYs<br>(Disability-<br>Adjusted | El<br>Salvador        | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 37.1 | 48.9 | 27.7 |

|                                   |                           |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|---------------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Croatia                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 35.3 | 44.8 | 26.5 |
| DALYs<br>(Disability-<br>Adjusted | Switzerland               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 35   | 43.1 | 27.8 |
| DALYs<br>(Disability-<br>Adjusted | North<br>Macedonia        | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 34.9 | 45.3 | 26   |
| DALYs<br>(Disability-<br>Adjusted | Republic of<br>Korea      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 34.6 | 43.5 | 26.7 |
| DALYs<br>(Disability-<br>Adjusted | Bosnia and<br>Herzegovina | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 34.4 | 45   | 26   |
| DALYs<br>(Disability-<br>Adjusted | Panama                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 33.2 | 45   | 24.6 |
| DALYs<br>(Disability-<br>Adjusted | Luxembourg                | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 33.2 | 41.3 | 25.7 |
| DALYs<br>(Disability-<br>Adjusted | Slovakia                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 32.4 | 42.2 | 24.8 |
| DALYs<br>(Disability-<br>Adjusted | Republic of<br>Moldova    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 32.3 | 40.9 | 25.4 |
| DALYs<br>(Disability-<br>Adjusted | Finland                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 32   | 39.3 | 25.4 |
| DALYs<br>(Disability-<br>Adjusted | Turkmenistan              | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 31.7 | 46.8 | 23.7 |
| DALYs<br>(Disability-<br>Adjusted | Jordan                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 31.4 | 40.3 | 23.6 |

|                                   |   |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|---|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Albania                                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 31.2 | 42.3 | 23   |
| DALYs<br>(Disability-<br>Adjusted | Suriname                                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 31.1 | 39.6 | 24.4 |
| DALYs<br>(Disability-<br>Adjusted | Monaco                                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 30.8 | 39.6 | 23.7 |
| DALYs<br>(Disability-<br>Adjusted | Saint<br>Vincent<br>and the<br>Grenadines | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 30.7 | 38.6 | 24.1 |
| DALYs<br>(Disability-<br>Adjusted | Trinidad<br>and<br>Tobago                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 30.6 | 41.1 | 22.8 |
| DALYs<br>(Disability-<br>Adjusted | San<br>Marino                             | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 29.9 | 39.5 | 21.9 |
| DALYs<br>(Disability-<br>Adjusted | Slovenia                                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 29.1 | 37.7 | 21.7 |
| DALYs<br>(Disability-<br>Adjusted | Malta                                     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 28.5 | 36.6 | 21.7 |
| DALYs<br>(Disability-<br>Adjusted | Lithuania                                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 28.1 | 36.2 | 21.6 |
| DALYs<br>(Disability-<br>Adjusted | United<br>States<br>Virgin<br>Islands     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 28   | 34.8 | 21.7 |
| DALYs<br>(Disability-<br>Adjusted | Italy                                     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 27.3 | 34.3 | 21.1 |
| DALYs<br>(Disability-<br>Adjusted | Estonia                                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 25.9 | 33.8 | 19.8 |

|                                   |                           |      |                      |                                     |  |      |      |      |      |      |
|-----------------------------------|---------------------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted | Israel                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 25.4 | 31.9 | 19.9 |
| DALYs<br>(Disability-<br>Adjusted | Iraq                      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 24.5 | 31.9 | 18.6 |
| DALYs<br>(Disability-<br>Adjusted | Peru                      | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 23.4 | 31.1 | 17.7 |
| DALYs<br>(Disability-<br>Adjusted | Bermuda                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 22.9 | 29.3 | 17.6 |
| DALYs<br>(Disability-<br>Adjusted | Kuwait                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 22.7 | 29.1 | 17.3 |
| DALYs<br>(Disability-<br>Adjusted | Singapore                 | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 22.6 | 28.6 | 17.3 |
| DALYs<br>(Disability-<br>Adjusted | Japan                     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 21.7 | 28.5 | 16.2 |
| DALYs<br>(Disability-<br>Adjusted | Latvia                    | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 21.1 | 27.6 | 16.2 |
| DALYs<br>(Disability-<br>Adjusted | Puerto Rico               | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 20.9 | 27.2 | 15.5 |
| DALYs<br>(Disability-<br>Adjusted | Bahamas                   | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 20.3 | 26.2 | 15.4 |
| DALYs<br>(Disability-<br>Adjusted | Antigua<br>and<br>Barbuda | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 19.4 | 24.7 | 15.2 |
| DALYs<br>(Disability-<br>Adjusted | Barbados                  | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 19.1 | 24.2 | 15   |

|                                    |            |      |                      |                                     |  |      |      |      |      |      |
|------------------------------------|------------|------|----------------------|-------------------------------------|--|------|------|------|------|------|
| DALYs<br>(Disability-<br>Adjusted) | France     | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 17.7 | 21.8 | 13.9 |
| DALYs<br>(Disability-<br>Adjusted) | Montenegro | Both | Age-<br>standardized | Chronic<br>obstructive<br>pulmonary | Occupational<br>particulate<br>matter, | Rate | 2019 | 13.2 | 17.1 | 10   |