Title: Cost-Benefit Analysis of Calcium and Vitamin D Supplements

Submitted to Osteoporosis International

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### Online Resource 3. Calcium and vitamin D supplementation: cost analysis by US state, all genders and all age cohorts

| US State       | Overall population > 50 years of age, n | Number (% with osteoporosis) | Number osteoporotic fractures annually | Annual fracture incidence, % | Total annual cost, US $ | NNT | Absolute risk reduction, % | Avoided hospital costs, US $ | Avoided fractures per year, n | Total annual supplement cost, US $ | Annual net cost benefit, US $ |
|----------------|----------------------------------------|------------------------------|----------------------------------------|------------------------------|--------------------------|-----|---------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|
| Alabama        | 1,676,350                              | 172,581 (10.3)              | 37,122                                 | 21.5                         | 367,217,201              | 33  | 3.0                       | 5,152                         | 50,964,560                      | 8,854,809                      | 42,109,752                    |
| Alaska         | 216,224                                | 20,854 (9.6)                | 5,026                                  | 24.1                         | 90,000,773               | 30  | 3.3                       | 698                           | 12,490,836                      | 1,288,142                      | 11,202,694                    |
| Arizona        | 2,250,923                              | 229,096 (10.2)             | 48,902                                 | 21.3                         | 463,649,979              | 34  | 3.0                       | 6,787                         | 64,348,068                      | 12,906,937                     | 51,441,131                    |
| Arkansas       | 1,033,441                              | 105,258 (10.2)             | 24,523                                 | 23.3                         | 246,531,059              | 31  | 3.2                       | 3,403                         | 34,215,029                      | 5,382,158                      | 28,832,870                    |
| California     | 11,660,385                             | 1,192,271 (10.2)           | 196,991                                | 16.5                         | 2,534,248,608            | 44  | 2.3                       | 27,340                        | 351,717,910                     | 78,314,367                     | 273,403,542                   |
| Colorado       | 1,757,681                              | 178,315 (10.1)             | 50,819                                 | 28.5                         | 529,835,707              | 25  | 4.0                       | 7,053                         | 73,533,712                      | 10,629,085                     | 62,904,627                    |
| Connecticut    | 1,258,781                              | 129,550 (10.3)             | 25,497                                 | 19.7                         | 411,828,844              | 37  | 2.7                       | 3,539                         | 57,156,026                      | 8,237,322                      | 48,918,704                    |
| Delaware       | 332,936                                | 34,817 (10.5)              | 7,696                                  | 22.1                         | 122,016,121              | 33  | 3.1                       | 1,068                         | 16,934,114                      | 2,073,257                      | 14,860,858                    |
| District of Columbia | 170,000                              | 18,000 (10.6)              | 2,412                                  | 13.4                         | 51,723,028               | 54  | 1.9                       | 335                           | 7,178,426                       | 1,242,376                      | 5,936,049                     |
| Florida        | 7,800,893                              | 801,793 (10.3)             | 181,987                                | 22.7                         | 2,231,941,575            | 32  | 3.2                       | 25,257                        | 309,761,964                     | 46,434,222                     | 263,327,741                   |
| Georgia        | 3,096,492                              | 319,710 (10.3)             | 69,824                                 | 21.8                         | 653,796,936              | 33  | 3.0                       | 9,691                         | 90,737,780                      | 17,188,456                     | 73,549,323                    |
| Hawaii         | 511,589                                | 52,359 (10.2)              | 6,703                                  | 12.8                         | 85,777,754               | 56  | 1.8                       | 930                           | 11,904,741                      | 3,573,753                      | 8,330,988                     |
| Idaho          | 536,188                                | 53,731 (10.0)              | 15,996                                 | 29.8                         | 157,631,057              | 24  | 4.1                       | 2,220                         | 21,876,964                      | 2,932,686                      | 18,944,278                    |
| US State  | Overall population > 50 years of age, n | Number (%) with osteoporosis | Number of osteoporotic fractures annually | Annual fracture incidence, % | Total annual cost, US $ | NNT | Absolute risk reduction, % | Avoided fractures per year, n | Avoided hospital costs, US $ | Total annual supplement cost, US $ | Annual net cost benefit, US $ |
|-----------|---------------------------------------|-------------------------------|------------------------------------------|-------------------------------|-------------------------|-----|-----------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------------------|
| Illinois  | 4,023,241 (10.3)                       | 414,054                       | 72,772                                   | 17.6                          | 932,069,104             | 41  | 2.4                         | 10,100                        | 129,358,026                    | 24,367,890                      | 104,990,136                     |
| Indiana   | 2,173,047 (10.3)                       | 223,251                       | 53,414                                   | 23.9                          | 625,178,499             | 30  | 3.3                         | 7,413                         | 86,765,945                     | 11,924,680                      | 74,841,264                     |
| Iowa      | 1,088,499 (10.2)                       | 111,135                       | 27,404                                   | 24.7                          | 308,374,803             | 29  | 3.4                         | 3,803                         | 42,798,067                     | 5,864,843                      | 36,933,224                     |
| Kansas    | 956,175 (10.2)                         | 97,505                        | 22,039                                   | 22.6                          | 234,547,266             | 32  | 3.1                         | 3,059                         | 32,551,847                     | 5,168,414                      | 27,383,434                     |
| Kentucky  | 1,503,953 (10.3)                       | 155,003                       | 38,320                                   | 24.7                          | 422,887,125             | 29  | 3.4                         | 5,318                         | 58,690,759                     | 8,034,774                      | 50,655,985                     |
| Louisiana | 1,456,831 (10.3)                       | 149,471                       | 27,888                                   | 18.7                          | 309,179,082             | 39  | 2.6                         | 3,870                         | 42,909,689                     | 7,983,811                      | 34,925,878                     |
| Maine     | 516,623 (10.1)                         | 52,265                        | 12,376                                   | 23.7                          | 172,987,831             | 30  | 3.3                         | 1,718                         | 24,008,267                     | 2,965,714                      | 21,042,554                     |
| Maryland  | 1,958,725 (10.4)                       | 202,883                       | 38,876                                   | 19.2                          | 558,413,929             | 38  | 2.7                         | 5,395                         | 77,499,965                     | 13,077,973                     | 64,421,992                     |
| Massachusetts | 2,319,994 (10.3)            | 240,108                       | 54,048                                   | 22.5                          | 919,647,356             | 32  | 3.1                         | 7,501                         | 127,634,063                    | 15,028,308                     | 112,605,754                    |
| Michigan  | 3,325,460 (10.2)                       | 340,518                       | 65,221                                   | 19.2                          | 755,854,453             | 38  | 2.7                         | 9,052                         | 104,901,921                    | 18,725,749                     | 86,176,173                     |
| Minnesota | 1,821,658 (10.2)                       | 184,929                       | 46,346                                   | 25.1                          | 601,420,373             | 29  | 3.5                         | 6,432                         | 83,468,652                     | 10,547,783                     | 72,920,870                     |
| Mississippi | 953,321 (10.3)                      | 97,776                        | 17,903                                   | 18.3                          | 184,617,273             | 39  | 2.5                         | 2,485                         | 25,622,270                     | 4,954,100                      | 20,668,170                     |
| Missouri  | 2,089,150 (10.3)                       | 214,539                       | 49,924                                   | 23.3                          | 559,492,574             | 31  | 3.2                         | 6,929                         | 77,649,666                     | 11,208,339                     | 66,441,327                     |
| Montana   | 391,941 (10.1)                         | 39,731                        | 10,976                                   | 27.6                          | 129,962,827             | 26  | 3.8                         | 1,523                         | 18,037,005                     | 2,187,151                      | 15,849,854                     |
| Nebraska  | 624,218 (10.2)                         | 63,480                        | 15,491                                   | 24.4                          | 180,097,239             | 30  | 3.4                         | 2,150                         | 24,994,953                     | 3,360,899                      | 21,634,054                     |
| US State      | Overall population > 50 years of age, n | Number (%) with osteoporosis | Number osteoporotic fractures annually | Annual fracture incidence, % | Total annual cost, US $ | NNT | Absolute risk reduction, % | Avoided fractures per year, n | Avoided hospital costs, US $ | Total annual supplement cost, US $ | Annual net cost benefit, US $ |
|--------------|----------------------------------------|------------------------------|----------------------------------------|------------------------------|--------------------------|-----|--------------------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|
| Nevada       | 941,301                                | 93,901 (10.0)               | 21,745                                 | 23.2                         | 220,249,164              | 31  | 3.2                       | 3,018                         | 30,567,473                    | 5,361,580                       | 25,205,893                      |
| New Hampshire| 473,895                                | 48,501 (10.2)               | 11,608                                 | 23.9                         | 176,047,371              | 30  | 3.3                       | 1,611                         | 24,432,888                    | 2,981,695                       | 21,451,193                      |
| New Jersey   | 2,969,942                              | 307,517 (10.4)              | 56,442                                 | 18.4                         | 870,675,200              | 39  | 2.5                       | 7,833                         | 120,837,419                   | 20,576,262                      | 100,261,157                     |
| New Mexico   | 722,083                                | 73,595 (10.2)               | 10,355                                 | 14.1                         | 109,079,911              | 51  | 2.0                       | 1,437                         | 15,138,751                    | 4,085,964                       | 11,052,787                      |
| New York     | 6,477,323                              | 672,040 (10.4)              | 119,760                                | 17.8                         | 2,062,109,642            | 40  | 2.5                       | 16,621                        | 286,191,690                   | 45,440,271                      | 240,751,419                     |
| North Carolina| 3,462,063                              | 358,380 (10.4)              | 88,030                                 | 24.6                         | 899,948,903              | 29  | 3.4                       | 12,217                        | 124,900,196                   | 19,205,607                      | 105,694,588                     |
| North Dakota | 259,992                                | 25,999 (10.0)               | 8,145                                  | 31.3                         | 111,485,619              | 23  | 4.3                       | 1,130                         | 15,472,629                    | 1,390,240                       | 14,082,389                      |
| Ohio         | 4,003,674                              | 411,385 (10.3)              | 87,037                                 | 21.2                         | 1,041,595,318            | 34  | 2.9                       | 12,079                        | 144,558,717                   | 21,469,308                      | 123,089,409                     |
| Oklahoma     | 1,304,003                              | 133,523 (10.2)              | 28,771                                 | 21.5                         | 307,096,329              | 33  | 3.0                       | 3,993                         | 42,620,633                    | 7,030,439                       | 35,590,193                      |
| Oregon       | 1,415,200                              | 144,846 (10.2)              | 34,888                                 | 24.1                         | 419,965,569              | 30  | 3.3                       | 4,842                         | 58,285,289                    | 8,380,169                       | 49,905,120                      |
| Pennsylvania | 4,671,557                              | 481,783 (10.3)              | 104,027                                | 21.6                         | 1,444,950,981            | 33  | 3.0                       | 14,438                        | 200,538,786                   | 27,649,419                      | 172,889,366                     |
| Rhode Island | 357,127                                | 37,385 (10.5)               | 6,778                                  | 18.1                         | 96,651,955               | 40  | 2.5                       | 941                           | 13,413,926                    | 2,156,327                       | 11,257,599                      |
| South Carolina| 1,710,777                              | 176,403 (10.3)              | 43,347                                 | 24.6                         | 440,486,687              | 29  | 3.4                       | 6,016                         | 61,133,330                    | 9,329,409                       | 51,803,921                      |
| South Dakota | 296,220                                | 30,271 (10.2)               | 7,876                                  | 26.0                         | 93,803,215               | 28  | 3.6                       | 1,093                         | 13,018,561                    | 1,556,688                       | 11,461,874                      |
| Tennessee    | 2,296,602                              | 236,334 (10.3)              | 60,192                                 | 25.5                         | 619,875,615              | 28  | 3.5                       | 8,354                         | 86,029,979                    | 12,458,404                      | 73,571,575                      |
| Texas        | 8,183,184                              | 834,387 (10.3)              | 186,983                                | 22.4                         | 1,948,723,712            | 32  | 3.1                       | 25,951                        | 270,455,325                   | 47,103,542                      | 223,351,783                     |
| US State     | Overall population >50 years of age, n | Number (%) with osteoporosis | Number osteoporotic fractures annually | Annual fracture incidence, % | Total annual cost, US $ | NNT | Absolute risk reduction, n, % | Avoided fractures per year, n | Avoided hospital costs, US $ | Total annual supplement cost, US $ | Annual net cost benefit, US $ |
|--------------|----------------------------------------|-------------------------------|---------------------------------------|------------------------------|--------------------------|-----|-----------------------------|-------------------------------|-------------------------------|---------------------------------|-------------------------------|
| Utah         | 756,113                                | 76,554 (10.2)                | 24,735                                | 32.3                         | 215,294,461              | 22  | 4.5                         | 3,433                         | 29,879,830                    | 4,339,691                       | 25,540,139                     |
| Vermont      | 234,885                                | 24,091 (10.3)                | 5,713                                 | 23.7                         | 88,790,744               | 30  | 3.3                         | 793                           | 12,322,901                    | 1,424,820                       | 10,898,081                     |
| Virginia     | 2,759,680                              | 283,072 (10.3)               | 63,900                                | 22.6                         | 756,234,213              | 32  | 3.1                         | 8,868                         | 104,954,627                   | 16,972,129                      | 87,982,498                     |
| Washington   | 2,440,783                              | 247,698 (10.1)               | 63,108                                | 25.5                         | 781,711,064              | 28  | 3.5                         | 8,758                         | 108,490,454                   | 15,025,375                     | 93,465,079                     |
| West Virginia| 715,213                                | 73,043 (10.2)                | 17,885                                | 24.5                         | 233,153,875              | 29  | 3.4                         | 2,482                         | 32,358,464                    | 3,794,677                       | 28,563,787                     |
| Wisconsin    | 1,981,844                              | 200,982 (10.1)               | 47,148                                | 23.5                         | 578,334,101              | 31  | 3.3                         | 6,544                         | 80,264,604                    | 10,969,796                     | 69,294,808                     |
| Wyoming      | 210,134                                | 21,237 (10.1)                | 6,435                                 | 30.3                         | 79,347,393               | 24  | 4.2                         | 893                           | 11,012,297                    | 1,193,929                      | 9,818,368                      |
| Total US     | 106,148,314                            | 10,887,910 (10.3)            | 2,331,405                             | 21.4                         | 28,436,539,418           | 34  | 3.0                         | 323,566                        | 3,946,589,993                 | 634,353,741                    | 3,312,236,252                  |

NNT, number needed to treat; US, United States