

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

Submitted to *Osteoporosis International*

Authors: Connie M. Weaver, PhD; Heike A. Bischoff–Ferrari, DrPH; Christopher J. Shanahan

Address for correspondence

Connie M. Weaver, PhD
Distinguished Professor
Department of Nutrition Science
College of Health and Human Sciences
Purdue University
700 W State Street
West Lafayette, IN 47907-2059
Phone: 765-494-8231
Fax: 765-496-9606
E-mail: weavercm@purdue.edu

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

<i>US State</i>	<i>Overall population > 50 years of age, n</i>	<i>Number (%) with osteoporosis</i>	<i>Number osteoporotic fractures annually</i>	<i>Annual fracture incidence, %</i>	<i>Total annual cost, US \$</i>	<i>NNT</i>	<i>Absolute risk reductio n, %</i>	<i>Avoided fractures per year, n</i>	<i>Avoided hospital costs, US \$</i>	<i>Total annual supplement cost, US \$</i>	<i>Annual net cost benefit, US \$</i>
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 osteoporotic fractures annually	Annual fracture incidence, %	Total annual cost, US \$	NNT	Absolute risk reductio n, %	Avoided fractures per year, n	Avoided hospital costs, US \$	Total annual supplement cost, US \$	Annual net cost benefit, US \$
Illinois	4,023,241	414,054 (10.3)	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	223,251 (10.3)	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	111,135 (10.2)	27,404	24.7	308,374,803	29	3.4	3,803	42,798,067	5,864,843	36,933,224
Kansas	956,175	97,505 (10.2)	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	155,003 (10.3)	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	149,471 (10.3)	27,888	18.7	309,179,082	39	2.6	3,870	42,909,689	7,983,811	34,925,878
Maine	516,623	52,265 (10.1)	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	202,883 (10.4)	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	240,108 (10.3)	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	340,518 (10.2)	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	184,929 (10.2)	46,346	25.1	601,420,373	29	3.5	6,432	83,468,652	10,547,783	72,920,870
Mississippi	953,321	97,776 (10.3)	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	214,539 (10.3)	49,924	23.3	559,492,574	31	3.2	6,929	77,649,666	11,208,339	66,441,327
Montana	391,941	39,731 (10.1)	10,976	27.6	129,962,827	26	3.8	1,523	18,037,005	2,187,151	15,849,854
Nebraska	624,218	63,480 (10.2)	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 reductio n, %	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	186,983	22.4	1,948,723,712	32	3.1	25,951	270,455,325	47,103,542	223,351,783

<i>US State</i>	<i>Overall population > 50 years of age, n</i>	<i>Number (%) with osteoporosis</i>	<i>Number osteoporotic fractures annually</i>	<i>Annual fracture incidence, %</i>	<i>Total annual cost, US \$</i>	<i>NNT</i>	<i>Absolute risk reductio n, %</i>	<i>Avoided fractures per year, n</i>	<i>Avoided hospital costs, US \$</i>	<i>Total annual supplement cost, US \$</i>	<i>Annual net cost benefit, US \$</i>
		(10.2)									
Utah	756,113	76,554 (10.1)	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