

Vision Problems in the U.S.

Prevalence of Adult Vision Impairment and Age-Related Eye Disease in America



2008 Update to the Fourth Edition



100 Years. Our Vision Is Vision.™

Founded in 1908, Prevent Blindness America is the nation's leading volunteer eye health and safety organization dedicated to fighting blindness and saving sight. Focused on promoting a continuum of vision care, Prevent Blindness America touches the lives of millions of people each year through public and professional education, advocacy, certified vision screening, training, community and patient service programs and research.

These services are made possible through the generous support of the American public. Together with a network of affiliates, divisions and chapters, Prevent Blindness America is committed to eliminating preventable blindness in the U.S.



The National Eye Institute (NEI), a component of the National Institutes of Health (NIH), supports and conducts research aimed at improving the prevention, treatment, and rehabilitation of diseases that affect the eye and vision. The NIH, a Federal government agency, is part of the U.S. Department of Health and Human Services. Research is conducted on the NIH campus in Bethesda, Maryland, and at universities, medical schools, hospitals, and other institutions throughout the United States and abroad.

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Vision Impairment and Blindness

The term "blindness" can have many connotations and is difficult to define precisely. To many people, blindness refers to the complete loss of vision with no remaining perception of light. However, this ultimate form of complete blindness is rare. Far more people have permanent loss of some, but not all, of their eyesight. The severity of vision loss can vary widely and may result in equally varying degrees of functional impairment.

"Legal blindness" represents an artificial distinction and has little value for rehabilitation, but it is significant in that it determines eligibility for certain disability benefits from the federal government. In the United States, it is typically defined as visual acuity with best correction in the better eye worse than or equal to 20/200 or a visual field extent of less than 20 degrees in diameter. These overly simple criteria for visual impairment are far from comprehensive in defining the visual function deficits that can cause difficulties for daily living tasks.

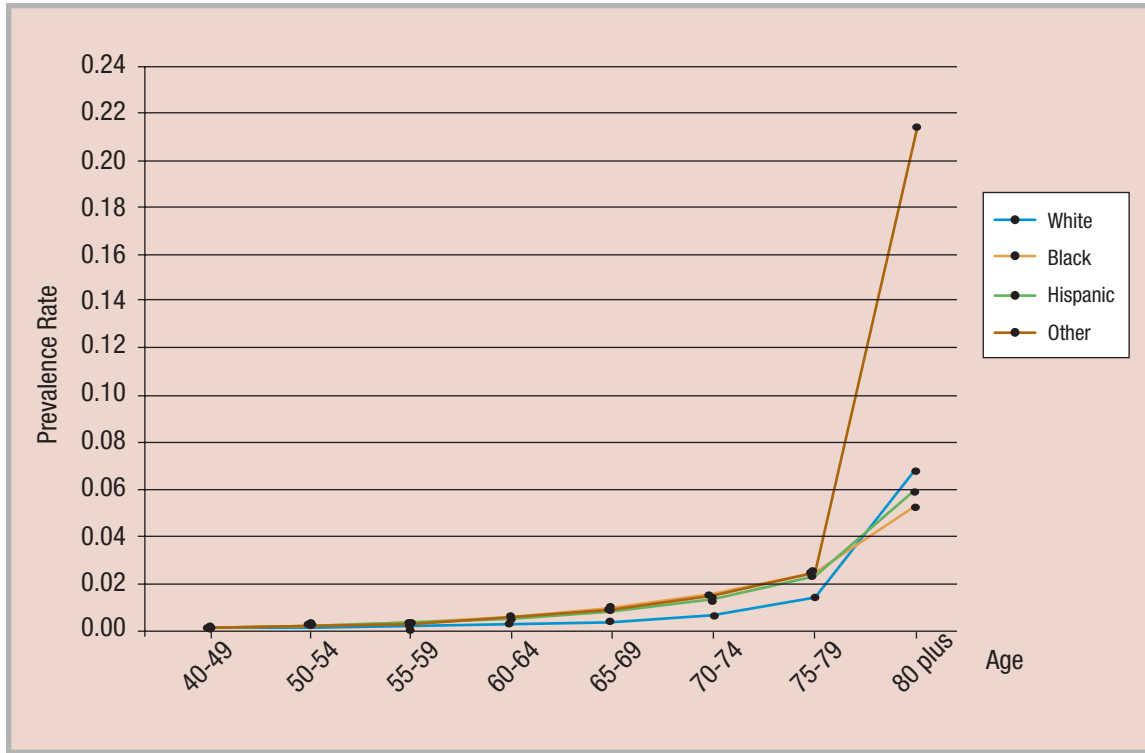
Vision impairment is defined as having 20/40 or worse vision in the better eye even with eyeglasses. People with the least degree of vision impairment may still face challenges in everyday life. For instance, people with vision worse than 20/40 cannot obtain an unrestricted driver's license in most states.

Almost everyone with blindness or vision impairment can benefit from vision rehabilitation, which can help make the most of whatever vision remains.

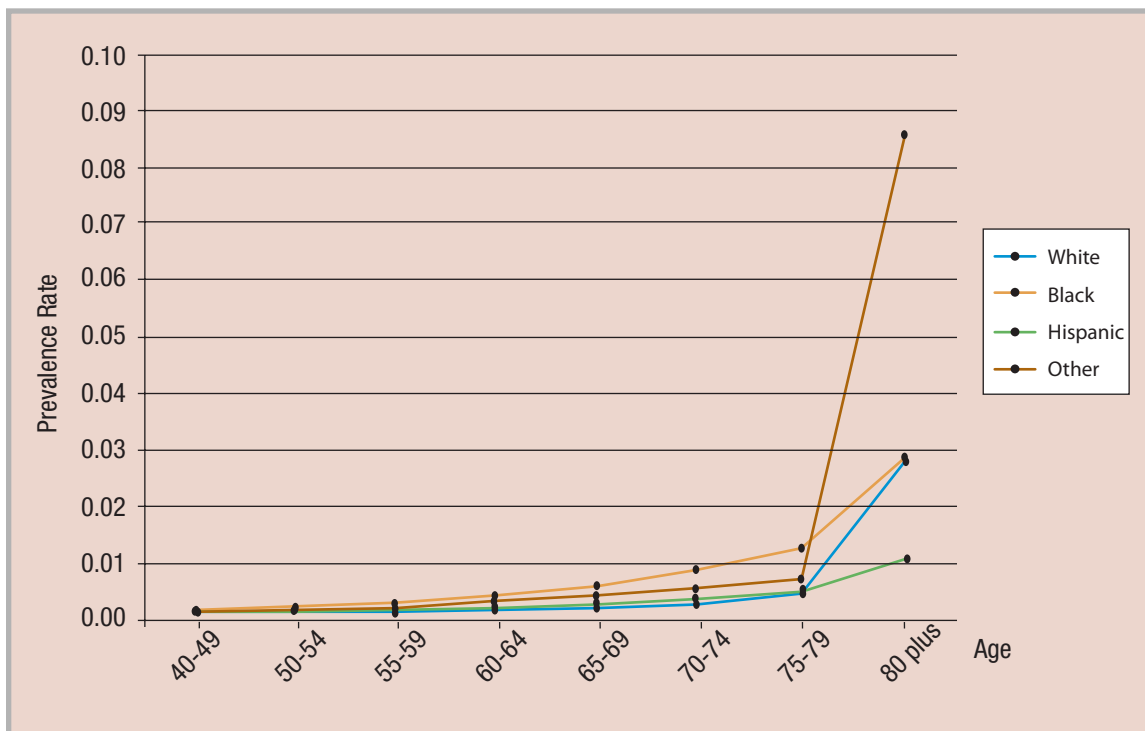
Unfortunately, blindness and vision impairment represent a significant burden, not only to those affected by sight loss, but to our national economy as well. Prevent Blindness America's 2007 study, *The Economic Impact of Vision Problems: The Toll of Major Adult Eye Disorders, Visual Impairment and Blindness on the U.S. Economy* estimates the costs associated with adult vision problems in the United States at \$51.4 billion.

Blindness, as defined above, affects more than one million Americans age 40 and older (see table on pages 8 and 9). The visually impaired, including those who are blind, total more than 3.6 million older Americans (see table on pages 6 and 7). Blindness affects Blacks more frequently than Whites and Hispanics (see chart on page 5). Hispanics, however, have higher rates of vision impairment than other races. The prevalence of blindness and vision impairment increases rapidly in the later years, particularly after age 75.

Estimated Specific Prevalence Rates for Vision Impairment and Blindness



Vision Impairment



Blindness

Estimated Number of Cases of Vision Impairment (including Blindness) in the U.S. Population Age 40 and Older by State, Race and Sex

State	Total	Female	Male	White	Black	Hispanic	Other
Total U.S.	3,638,186	2,380,848	1,257,338	2,829,010	303,016	226,139	280,021
Alabama	52,935	34,399	18,536	40,545	11,150	437	803
Alaska	4,692	2,943	1,749	2,665	101	92	1,834
Arizona	67,811	43,406	24,405	54,371	1,239	7,110	5,091
Arkansas	33,898	22,388	11,510	29,142	3,781	366	609
California	447,807	286,641	161,166	255,851	20,236	63,380	108,340
Colorado	43,715	28,557	15,158	35,939	1,184	4,425	2,167
Connecticut	50,957	34,242	16,715	45,308	2,525	1,744	1,380
Delaware	10,102	6,515	3,587	8,323	1,296	167	316
District of Columbia	7,061	4,139	2,922	1,875	4,604	258	324
Florida	275,412	175,135	100,277	217,181	18,809	33,257	6,165
Georgia	77,450	50,149	27,301	56,253	17,172	1,564	2,461
Hawaii	40,343	25,504	14,839	4,129	123	439	35,652
Idaho	14,999	9,727	5,272	14,057	25	370	547
Illinois	154,097	102,057	52,040	122,765	16,342	6,811	8,179
Indiana	73,682	49,506	24,176	67,013	4,562	1,059	1,048
Iowa	43,716	29,648	14,068	42,516	405	352	443
Kansas	35,912	23,924	11,988	32,802	1,264	874	972
Kentucky	46,133	31,050	15,083	42,638	2,683	297	515
Louisiana	49,218	31,266	17,952	34,645	12,265	1,053	1,255
Maine	17,655	11,802	5,853	17,361	44	67	183
Maryland	65,204	41,564	23,640	46,579	12,728	1,399	4,498
Massachusetts	89,861	60,970	28,891	80,917	2,809	2,037	4,098
Michigan	123,101	80,826	42,275	105,210	12,916	1,691	3,284
Minnesota	62,252	41,618	20,634	58,867	763	506	2,116
Mississippi	31,505	20,217	11,288	21,997	8,778	267	463
Missouri	72,234	48,018	24,216	64,498	5,573	679	1,484
Montana	12,012	7,849	4,163	11,167	18	109	718
Nebraska	22,959	15,336	7,623	21,668	482	383	426
Nevada	23,018	14,168	8,850	17,033	1,288	1,943	2,754
New Hampshire	15,109	10,022	5,087	14,675	55	111	268
New Jersey	118,155	78,243	39,912	91,913	10,130	7,732	8,380
New Mexico	23,122	14,872	8,250	12,814	318	7,128	2,862
New York	259,421	171,568	87,853	188,443	27,377	21,297	22,304
North Carolina	94,758	62,098	32,660	73,944	16,428	1,183	3,203
North Dakota	9,495	6,401	3,094	9,133	2	36	324
Ohio	148,515	98,864	49,651	131,722	12,897	1,309	2,587
Oklahoma	44,909	29,472	15,437	35,853	2,069	731	6,256
Oregon	46,769	30,712	16,057	42,504	445	982	2,838
Pennsylvania	193,167	130,152	63,015	174,171	12,851	2,221	3,924
Rhode Island	16,566	11,316	5,250	15,280	366	466	454
South Carolina	46,972	30,160	16,812	34,626	11,138	452	756
South Dakota	11,162	7,474	3,688	10,432	22	56	652
Tennessee	65,673	43,632	22,041	56,354	7,778	562	979
Texas	210,636	135,861	74,775	139,023	18,671	43,497	9,445
Utah	19,289	12,311	6,978	17,255	92	832	1,110
Vermont	7,664	5,085	2,579	7,497	20	54	93
Virginia	81,444	52,555	28,889	61,953	13,320	1,531	4,640
Washington	74,493	48,709	25,784	62,717	1,341	1,640	8,795
West Virginia	24,651	16,506	8,145	23,506	737	134	274
Wisconsin	70,901	47,650	23,251	66,728	1,739	827	1,607
Wyoming	5,548	3,592	1,956	5,141	27	213	167

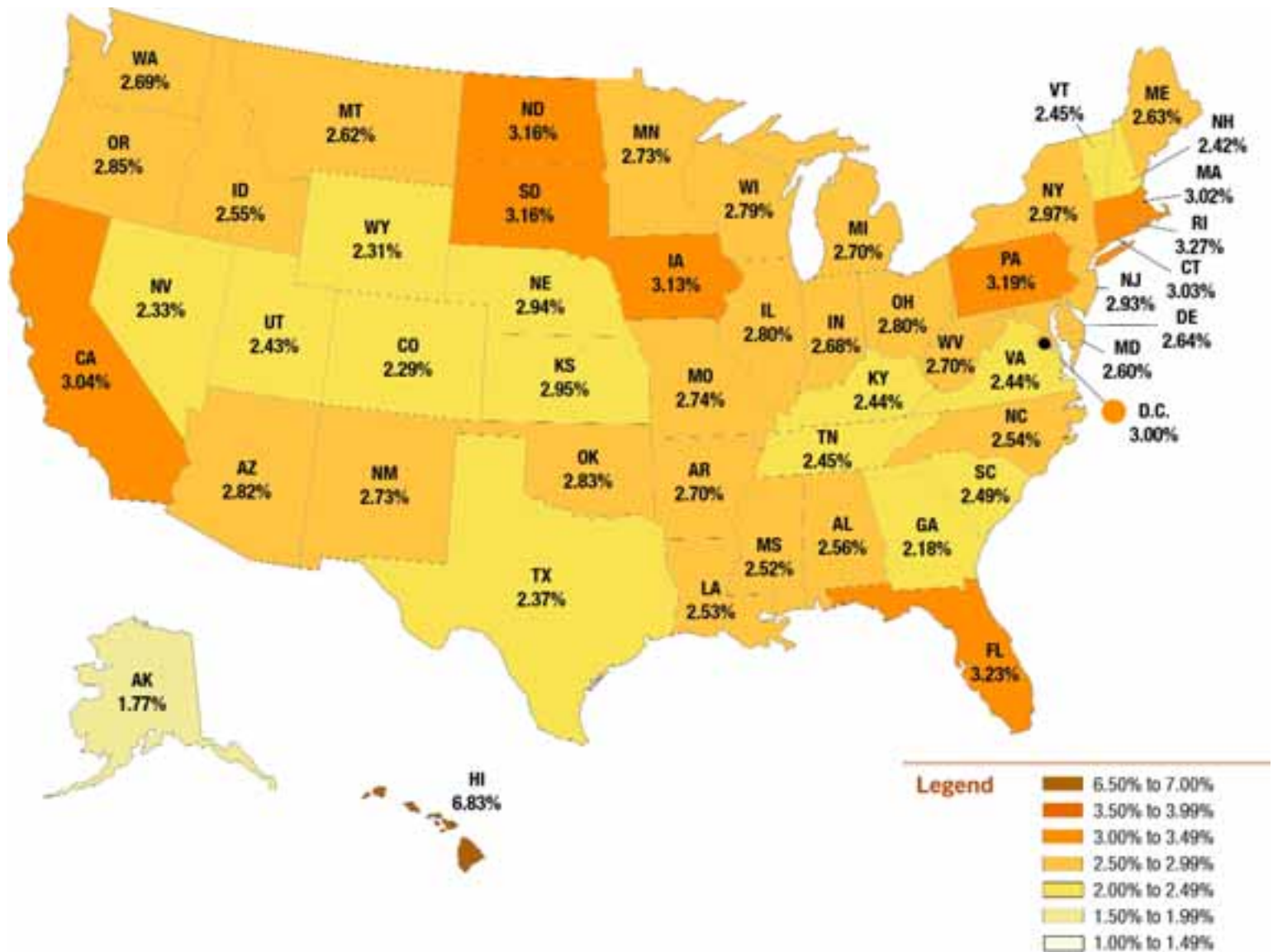
White Female	White Male	Black Female	Black Male	Hisp. Female	Hisp. Male	Other Female	Other Male	State
1,904,562	924,448	156,904	146,112	145,130	81,009	174,252	105,769	Total U.S.
27,655	12,890	5,977	5,173	268	169	499	304	Alabama
1,649	1,016	42	59	55	37	1,197	637	Alaska
35,084	19,287	570	669	4,487	2,623	3,265	1,826	Arizona
19,774	9,368	2,026	1,755	215	151	373	236	Arkansas
169,324	86,527	10,025	10,211	40,605	22,775	66,687	41,653	California
23,866	12,073	549	635	2,774	1,651	1,368	799	Colorado
30,950	14,358	1,310	1,215	1,138	606	844	536	Connecticut
5,574	2,749	657	639	101	66	183	133	Delaware
1,236	639	2,506	2,098	178	80	219	105	District of Columbia
140,165	77,016	9,398	9,411	21,797	11,460	3,775	2,390	Florida
38,552	17,701	9,146	8,026	931	633	1,520	941	Georgia
2,588	1,541	46	77	278	161	22,592	13,060	Hawaii
9,167	4,890	8	17	214	156	338	209	Idaho
84,373	38,392	8,416	7,926	4,130	2,681	5,138	3,041	Illinois
45,902	21,111	2,313	2,249	626	433	665	383	Indiana
28,976	13,540	193	212	212	140	267	176	Iowa
22,152	10,650	624	640	534	340	614	358	Kansas
29,162	13,476	1,393	1,290	178	119	317	198	Kentucky
23,506	11,139	6,315	5,950	710	343	735	520	Louisiana
11,623	5,738	18	26	44	23	117	66	Maine
31,384	15,195	6,503	6,225	921	478	2,756	1,742	Maryland
55,684	25,233	1,425	1,384	1,332	705	2,529	1,569	Massachusetts
71,256	33,954	6,511	6,405	1,025	666	2,034	1,250	Michigan
39,656	19,211	342	421	300	206	1,320	796	Minnesota
15,193	6,804	4,584	4,194	165	102	275	188	Mississippi
43,752	20,746	2,919	2,654	422	257	925	559	Missouri
7,298	3,869	7	11	68	41	476	242	Montana
14,605	7,063	235	247	224	159	272	154	Nebraska
10,679	6,354	573	715	1,191	752	1,725	1,029	Nevada
9,763	4,912	21	34	71	40	167	101	New Hampshire
62,757	29,156	5,251	4,879	5,059	2,673	5,176	3,204	New Jersey
8,375	4,439	144	174	4,524	2,604	1,829	1,033	New Mexico
128,590	59,853	14,876	12,501	14,506	6,791	13,596	8,708	New York
50,473	23,471	8,839	7,589	687	496	2,099	1,104	North Carolina
6,164	2,969	1	1	23	13	213	111	North Dakota
89,823	41,899	6,590	6,307	810	499	1,641	946	Ohio
23,914	11,939	1,029	1,040	430	301	4,099	2,157	Oklahoma
28,121	14,383	212	233	587	395	1,792	1,046	Oregon
119,480	54,691	6,872	5,979	1,400	821	2,400	1,524	Pennsylvania
10,552	4,728	173	193	311	155	280	174	Rhode Island
23,482	11,144	5,901	5,237	275	177	502	254	South Carolina
6,989	3,443	7	15	36	20	442	210	South Dakota
38,560	17,794	4,106	3,672	342	220	624	355	Tennessee
92,856	46,167	9,491	9,180	27,729	15,768	5,785	3,660	Texas
11,105	6,150	34	58	516	316	656	454	Utah
4,988	2,509	6	14	34	20	57	36	Vermont
41,816	20,137	6,835	6,485	983	548	2,921	1,719	Virginia
41,526	21,191	587	754	977	663	5,619	3,176	Washington
15,850	7,656	402	335	85	49	169	105	West Virginia
45,238	21,490	862	877	493	334	1,057	550	Wisconsin
3,344	1,797	10	17	130	83	108	59	Wyoming

Estimated Number of Cases of Blindness in the U.S. Population Age 40 and Older by State, Race and Sex

State	Total	Female	Male	White	Black	Hispanic	Other
Total U.S.	1,035,100	652,292	382,808	794,099	129,790	31,009	80,202
Alabama	16,232	9,709	6,523	11,254	4,686	60	232
Alaska	1,336	829	507	744	49	17	526
Arizona	18,145	11,464	6,681	15,143	558	987	1,457
Arkansas	9,929	6,296	3,633	8,108	1,592	53	176
California	120,684	74,639	46,045	72,218	8,811	8,693	30,962
Colorado	11,857	7,621	4,236	10,088	534	613	622
Connecticut	14,564	9,607	4,957	12,841	1,087	238	398
Delaware	2,999	1,834	1,165	2,322	563	23	91
District of Columbia	2,547	1,171	1,376	530	1,892	32	93
Florida	75,132	45,801	29,331	60,705	8,190	4,470	1,767
Georgia	24,022	14,186	9,836	15,676	7,412	223	711
Hawaii	11,464	7,213	4,251	1,163	60	62	10,179
Idaho	4,169	2,718	1,451	3,944	12	54	159
Illinois	44,885	28,444	16,441	34,594	6,975	966	2,350
Indiana	21,210	13,947	7,263	18,802	1,956	150	302
Iowa	12,359	8,412	3,947	12,001	181	50	127
Kansas	10,205	6,729	3,476	9,252	551	123	279
Kentucky	13,225	8,740	4,485	11,889	1,146	44	146
Louisiana	15,414	8,802	6,612	9,659	5,252	141	362
Maine	4,935	3,322	1,613	4,856	20	7	52
Maryland	20,140	11,796	8,344	13,122	5,536	190	1,292
Massachusetts	25,531	17,166	8,365	22,854	1,220	281	1,176
Michigan	36,295	22,859	13,436	29,571	5,543	236	945
Minnesota	17,664	11,819	5,845	16,620	360	72	612
Mississippi	10,009	5,734	4,275	6,102	3,736	37	134
Missouri	20,958	13,558	7,400	18,072	2,367	93	426
Montana	3,360	2,211	1,149	3,129	8	17	206
Nebraska	6,490	4,322	2,168	6,097	213	55	125
Nevada	6,339	3,772	2,567	4,705	577	276	781
New Hampshire	4,245	2,830	1,415	4,124	26	18	77
New Jersey	33,721	21,461	12,260	25,922	4,329	1,059	2,411
New Mexico	5,509	3,417	2,092	3,575	141	971	822
New York	73,787	46,436	27,351	53,031	11,494	2,864	6,398
North Carolina	28,636	17,533	11,103	20,611	6,931	171	923
North Dakota	2,671	1,817	854	2,574	1	3	93
Ohio	43,417	27,980	15,437	37,008	5,484	181	744
Oklahoma	12,786	8,251	4,535	9,989	900	106	1,791
Oregon	13,123	8,633	4,490	11,972	199	139	813
Pennsylvania	55,869	36,829	19,040	49,057	5,374	308	1,130
Rhode Island	4,691	3,185	1,506	4,334	162	64	131
South Carolina	14,639	8,544	6,095	9,630	4,727	64	218
South Dakota	3,145	2,120	1,025	2,941	12	5	187
Tennessee	19,383	12,307	7,076	15,700	3,321	79	283
Texas	55,635	33,747	21,888	38,825	8,117	5,974	2,719
Utah	5,308	3,388	1,920	4,826	46	117	319
Vermont	2,142	1,433	709	2,101	10	4	27
Virginia	24,595	14,815	9,780	17,338	5,710	213	1,334
Washington	21,081	13,720	7,361	17,705	621	234	2,521
West Virginia	6,942	4,630	2,312	6,539	305	18	80
Wisconsin	20,147	13,488	6,659	18,797	769	118	463
Wyoming	1,527	991	536	1,435	12	30	50

White Female	White Male	Black Female	Black Male	Hisp. Female	Hisp. Male	Other Female	Other Male	State
539,404	254,695	47,246	82,544	15,923	15,086	49,719	30,483	Total U.S.
7,752	3,502	1,784	2,902	29	31	144	88	Alabama
466	278	13	36	8	9	342	184	Alaska
9,864	5,279	174	384	494	493	932	525	Arizona
5,560	2,548	605	987	24	29	107	69	Arkansas
48,163	24,055	3,029	5,782	4,456	4,237	18,991	11,971	California
6,758	3,330	168	366	305	308	390	232	Colorado
8,843	3,998	397	690	125	113	242	156	Connecticut
1,571	751	200	363	11	12	52	39	Delaware
354	176	735	1,157	19	13	63	30	District of Columbia
39,507	21,198	2,848	5,342	2,369	2,101	1,077	690	Florida
10,852	4,824	2,795	4,617	102	121	437	274	Georgia
734	429	15	45	31	31	6,433	3,746	Hawaii
2,596	1,348	1	11	23	31	98	61	Idaho
23,985	10,609	2,529	4,446	459	507	1,471	879	Illinois
12,994	5,808	694	1,262	69	81	190	112	Indiana
8,254	3,747	59	122	23	27	76	51	Iowa
6,305	2,947	188	363	60	63	176	103	Kansas
8,211	3,678	418	728	21	23	90	56	Kentucky
6,614	3,045	1,900	3,352	77	64	211	151	Louisiana
3,280	1,576	5	15	4	3	33	19	Maine
8,918	4,204	1,989	3,547	100	90	789	503	Maryland
15,863	6,991	432	788	148	133	723	453	Massachusetts
20,209	9,362	1,955	3,588	112	124	583	362	Michigan
11,298	5,322	108	252	33	39	380	232	Minnesota
4,263	1,839	1,374	2,362	18	19	79	55	Mississippi
12,374	5,698	875	1,492	45	48	264	162	Missouri
2,066	1,063	1	7	8	9	136	70	Montana
4,146	1,951	71	142	26	29	79	46	Nebraska
2,980	1,725	173	404	132	144	487	294	Nevada
2,767	1,357	6	20	9	9	48	29	New Hampshire
17,843	8,079	1,580	2,749	558	501	1,480	931	New Jersey
2,359	1,216	42	99	493	478	523	299	New Mexico
36,502	16,529	4,457	7,037	1,594	1,270	3,883	2,515	New York
14,208	6,403	2,647	4,284	76	95	602	321	North Carolina
1,754	820	-	1	2	1	61	32	North Dakota
25,455	11,553	1,966	3,518	89	92	470	274	Ohio
6,721	3,268	311	589	48	58	1,171	620	Oklahoma
7,993	3,979	64	135	65	74	511	302	Oregon
33,947	15,110	2,040	3,334	154	154	688	442	Pennsylvania
3,017	1,317	52	110	35	29	81	50	Rhode Island
6,597	3,033	1,773	2,954	29	35	145	73	South Carolina
1,989	952	2	10	2	3	127	60	South Dakota
10,851	4,849	1,239	2,082	37	42	180	103	Tennessee
26,169	12,656	2,881	5,236	3,043	2,931	1,654	1,065	Texas
3,132	1,694	11	35	57	60	188	131	Utah
1,412	689	1	9	2	2	18	9	Vermont
11,815	5,523	2,055	3,655	109	104	836	498	Virginia
11,827	5,878	182	439	109	125	1,602	919	Washington
4,454	2,085	118	187	9	9	49	31	West Virginia
12,865	5,932	265	504	55	63	303	160	Wisconsin
943	492	2	10	14	16	32	18	Wyoming

Estimated Prevalence Rates of Vision Impairment and Blindness for Persons Age 40 and Older by State



The map above reflects estimated state-by-state prevalence rates of vision impairment, including blindness. The overall national rate is 2.80%. When this rate is applied to the total U.S. population age 40 and older of approximately 130 million, the result indicates that more than 3.6 million older Americans are blind or visually impaired. Eighteen states and the District of Columbia have rates above the national average, while 32 states have rates at or below the average. Hawaii and Rhode Island have the highest rates at 6.83% and 3.27% respectively. Alaska has the lowest rate at 1.77%. The largest majority of states (36 states and DC) are within the 2.5% to 3.5% range. Differences between states are likely due to demographic differences in age, race and/or gender distribution.

State	Rate
Total U.S.	0.0280
Alabama	0.0256
Alaska	0.0177
Arizona	0.0282
Arkansas	0.0270
California	0.0304
Colorado	0.0229
Connecticut	0.0303
Delaware	0.0264
District of Columbia	0.0300
Florida	0.0323
Georgia	0.0218
Hawaii	0.0683
Idaho	0.0255
Illinois	0.0280
Indiana	0.0268
Iowa	0.0313
Kansas	0.0295
Kentucky	0.0244
Louisiana	0.0253
Maine	0.0263
Maryland	0.0260
Massachusetts	0.0302
Michigan	0.0270
Minnesota	0.0273
Mississippi	0.0252
Missouri	0.0274
Montana	0.0262
Nebraska	0.0294
Nevada	0.0233
New Hampshire	0.0242
New Jersey	0.0293
New Mexico	0.0273
New York	0.0297
North Carolina	0.0254
North Dakota	0.0316
Ohio	0.0280
Oklahoma	0.0283
Oregon	0.0285
Pennsylvania	0.0319
Rhode Island	0.0327
South Carolina	0.0249
South Dakota	0.0316
Tennessee	0.0245
Texas	0.0237
Utah	0.0243
Vermont	0.0245
Virginia	0.0244
Washington	0.0269
West Virginia	0.0270
Wisconsin	0.0279
Wyoming	0.0231

State	Rate
Alaska	0.0177
Georgia	0.0218
Colorado	0.0229
Wyoming	0.0231
Nevada	0.0233
Texas	0.0237
New Hampshire	0.0242
Utah	0.0243
Kentucky	0.0244
Virginia	0.0244
Tennessee	0.0245
Vermont	0.0245
South Carolina	0.0249
Mississippi	0.0252
Louisiana	0.0253
North Carolina	0.0254
Idaho	0.0255
Alabama	0.0256
Maryland	0.0260
Montana	0.0262
Maine	0.0263
Delaware	0.0264
Indiana	0.0268
Washington	0.0269
Arkansas	0.0270
Michigan	0.0270
West Virginia	0.0270
Minnesota	0.0273
New Mexico	0.0273
Missouri	0.0274
Wisconsin	0.0279
Illinois	0.0280
Ohio	0.0280
Arizona	0.0282
Oklahoma	0.0283
Oregon	0.0285
New Jersey	0.0293
Nebraska	0.0294
Kansas	0.0295
New York	0.0297
District of Columbia	0.0300
Massachusetts	0.0302
Connecticut	0.0303
California	0.0304
Iowa	0.0313
North Dakota	0.0316
South Dakota	0.0316
Pennsylvania	0.0319
Florida	0.0323
Rhode Island	0.0327
Hawaii	0.0683

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