

Vision Problems in the U.S.

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





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, 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, it is committed to eliminating preventable blindness in America.



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.

Diabetic Retinopathy

Diabetic retinopathy is a common complication of diabetes. It affects the tiny blood vessels of the retina. Retinal blood vessels can break down, leak, or become blocked— affecting and impairing vision over time. In some people with diabetic retinopathy, serious damage to the eye can occur when abnormal new blood vessels grow on the surface of the retina.

Diabetic retinopathy can affect almost anyone with diabetes. The U.S. Centers for Disease Control and Prevention (CDC) estimate that 10.3 million Americans have diagnosed diabetes, while an additional 5.4 million have diabetes that has not been diagnosed.

In general, the longer someone has diabetes, the greater the risk of developing diabetic retinopathy. Eventually, almost everyone with juvenile-onset diabetes will develop some signs of diabetic retinopathy. Those who acquire diabetes later in life are also at risk of diabetic retinopathy, although they are somewhat less likely to develop advanced diabetic retinopathy.

Diabetes also increases the risk of other eye diseases such as cataract and glaucoma. Because of its dangers to good vision, people with diabetes are urged to seek annual dilated eye exams.

Research suggests that the risk of diabetic retinopathy can be reduced through careful control of blood sugar. People with diabetes are also encouraged to control their blood pressure.

Laser treatment, called photocoagulation, has been shown to reduce the risk of sight loss in advanced cases of diabetic retinopathy. Focal photocoagulation can be used to destroy leaking blood vessels. Scatter photocoagulation, where a large number of spots are destroyed by the laser, is used to control the growth of abnormal blood vessels. In some cases vitrectomy, a surgical procedure to remove clouded fluid and gel from inside the eye, can help.

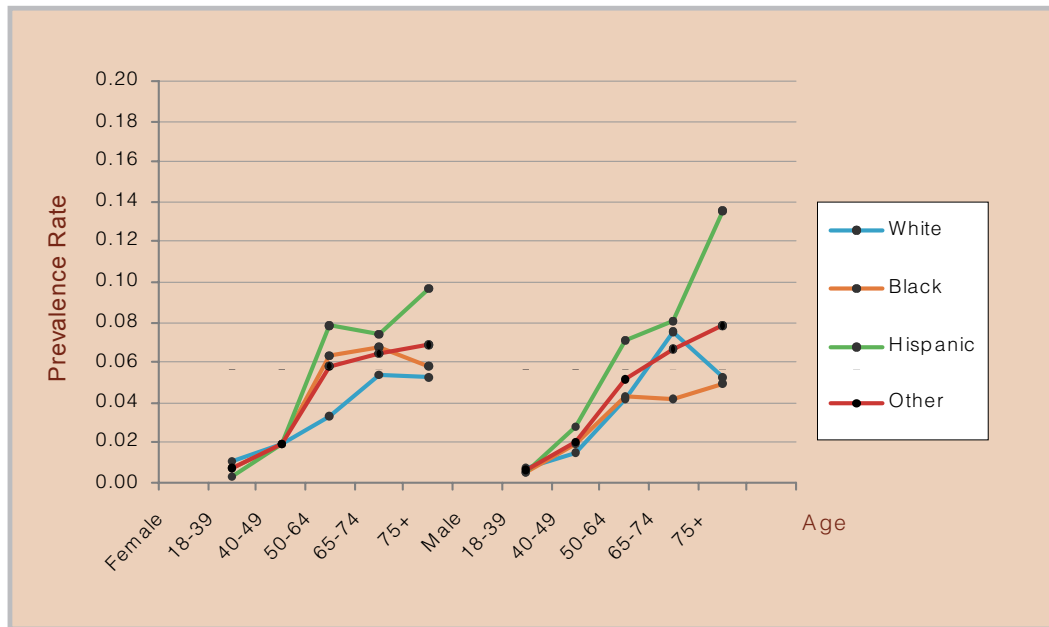
The prevalence estimates for cases of diabetic retinopathy on pages 28 and 29 include those with mild or worse retinopathy (grade 14 or higher based on fundus photographs), including definite non-proliferative retinopathy (e.g., microaneurysms, blot hemorrhages), macular edema, or proliferative changes.

Because diabetes includes a form with juvenile onset, the information below reflects the prevalence of diabetic retinopathy in Americans age 18 and older. Approximately 209 million Americans are in this age group.

Diabetic retinopathy affects over 5.3 million Americans age 18 and older, or just over 2.5% of this population. Prior to age 40, diabetic retinopathy affects Whites more frequently than other races. In later decades, Hispanics are the most commonly affected by the disease.

Due to a lack of information about diabetic retinopathy in other races, the prevalence estimates for "other" races are the arithmetic average of those for Whites, Blacks and Hispanics.

Estimated Specific Prevalence Rates for Diabetic Retinopathy



Estimated Number of Cases of Diabetic Retinopathy in the U.S. Population Age 18 and Older by State, Race and Sex

State	Total	Female	Male	White	Black	Hispanic	Other
Total U.S.	5,353,233	2,840,501	2,512,732	3,960,514	551,337	544,794	296,588
Alabama	85,752	47,097	38,655	63,826	19,320	1,024	1,582
Alaska	9,484	4,627	4,857	6,703	250	315	2,216
Arizona	98,592	49,929	48,663	72,358	2,182	18,102	5,950
Arkansas	52,278	27,796	24,483	43,606	6,511	975	1,187
California	621,758	323,146	298,612	337,391	36,415	155,535	92,417
Colorado	75,836	38,700	37,137	59,234	2,370	11,269	2,963
Connecticut	67,367	35,958	31,408	55,846	4,719	4,567	2,235
Delaware	15,057	8,046	7,011	11,799	2,357	446	454
District of Columbia	11,508	6,974	4,534	3,132	7,186	697	492
Florida	363,561	190,336	173,225	255,242	34,452	64,144	9,723
Georgia	139,731	76,304	63,427	96,411	34,649	4,430	4,241
Hawaii	26,613	13,889	12,724	5,782	209	1,232	19,390
Idaho	22,636	11,406	11,230	20,744	50	1,114	727
Illinois	229,887	123,625	106,263	169,511	30,504	19,679	10,194
Indiana	112,112	59,511	52,600	99,295	8,122	2,761	1,934
Iowa	57,231	30,025	27,206	54,641	798	922	870
Kansas	50,065	26,266	23,800	43,887	2,305	2,278	1,596
Kentucky	75,960	40,308	35,652	69,186	4,789	795	1,190
Louisiana	81,421	45,096	36,325	54,416	22,733	2,258	2,013
Maine	25,670	13,331	12,338	25,038	70	139	423
Maryland	99,193	54,536	44,657	66,041	24,487	3,285	5,380
Massachusetts	122,919	66,007	56,912	106,420	4,940	5,605	5,953
Michigan	184,589	98,331	86,258	151,572	22,977	4,425	5,615
Minnesota	88,647	46,042	42,605	82,332	1,807	1,456	3,052
Mississippi	52,087	29,007	23,080	34,875	15,820	619	773
Missouri	107,188	57,338	49,851	92,862	10,107	1,682	2,538
Montana	17,614	8,883	8,732	16,263	28	272	1,051
Nebraska	32,033	16,730	15,303	29,342	956	1,060	676
Nevada	37,458	18,416	19,042	27,374	2,083	4,927	3,073
New Hampshire	23,004	11,863	11,140	22,177	108	259	459
New Jersey	167,197	90,122	77,075	118,386	18,835	19,330	10,646
New Mexico	37,557	19,116	18,441	18,171	500	15,725	3,160
New York	376,779	205,868	170,911	248,183	49,288	52,394	26,914
North Carolina	150,591	81,623	68,968	113,726	29,040	3,470	4,355
North Dakota	12,407	6,372	6,035	11,771	31	92	513
Ohio	216,861	116,477	100,384	187,381	21,836	3,236	4,408
Oklahoma	66,302	34,960	31,341	52,921	3,904	2,093	7,384
Oregon	65,294	33,510	31,785	58,017	800	2,838	3,639
Pennsylvania	251,832	135,427	116,405	219,739	21,042	5,583	5,468
Rhode Island	20,678	11,118	9,560	18,112	590	1,136	839
South Carolina	76,027	41,692	34,336	53,750	19,818	1,146	1,313
South Dakota	14,311	7,380	6,931	13,244	43	131	893
Tennessee	107,677	57,903	49,775	89,585	14,637	1,439	2,017
Texas	372,237	194,171	178,065	216,232	36,561	105,493	13,950
Utah	32,884	16,902	15,983	29,062	183	2,285	1,355
Vermont	11,719	6,062	5,658	11,364	34	96	224
Virginia	131,032	70,480	60,552	97,182	23,257	4,232	6,361
Washington	107,081	55,057	52,025	89,951	2,597	4,809	9,724
West Virginia	37,736	19,780	17,956	35,871	1,081	255	528
Wisconsin	100,551	52,353	48,198	92,222	3,907	2,198	2,224
Wyoming	9,230	4,606	4,624	8,337	49	539	305

White Female	White Male	Black Female	Black Male	Hisp. Female	Hisp. Male	Other Female	Other Male	State
2,058,980	1,901,534	349,664	201,673	269,544	275,249	162,312	134,276	Total U.S.
33,284	30,542	12,466	6,854	457	567	890	693	Alabama
3,157	3,546	134	116	147	169	1,190	1,026	Alaska
36,613	35,745	1,233	949	8,751	9,351	3,331	2,618	Arizona
22,574	21,032	4,150	2,361	412	562	660	528	Arkansas
173,168	164,223	22,331	14,085	76,804	78,730	50,842	41,574	California
30,338	28,896	1,349	1,021	5,369	5,900	1,644	1,319	Colorado
29,424	26,422	3,015	1,704	2,329	2,238	1,191	1,044	Connecticut
6,114	5,685	1,481	876	203	243	248	206	Delaware
1,608	1,525	4,720	2,466	360	338	287	205	District of Columbia
130,199	125,043	21,542	12,910	33,226	30,918	5,368	4,354	Florida
50,135	46,276	22,082	12,567	1,778	2,652	2,309	1,932	Georgia
2,680	3,102	87	123	595	637	10,527	8,862	Hawaii
10,507	10,237	22	28	481	632	396	331	Idaho
89,373	80,138	19,631	10,873	9,090	10,590	5,531	4,663	Illinois
52,139	47,156	5,099	3,023	1,217	1,544	1,057	878	Indiana
28,685	25,956	461	336	405	517	474	396	Iowa
22,961	20,926	1,398	906	1,034	1,244	873	723	Kansas
36,311	32,875	2,999	1,790	340	455	658	532	Kentucky
28,363	26,054	14,497	8,236	1,155	1,103	1,081	932	Louisiana
12,995	12,044	32	38	68	71	237	186	Maine
34,322	31,719	15,606	8,880	1,666	1,620	2,941	2,439	Maryland
56,823	49,597	3,091	1,849	2,875	2,730	3,218	2,735	Massachusetts
78,734	72,838	14,539	8,438	2,039	2,386	3,019	2,596	Michigan
42,741	39,591	1,013	795	626	830	1,663	1,389	Minnesota
18,192	16,683	10,104	5,716	274	345	437	336	Mississippi
48,638	44,223	6,500	3,606	795	887	1,404	1,134	Missouri
8,162	8,101	12	16	132	140	577	474	Montana
15,313	14,029	583	372	457	603	377	298	Nebraska
13,188	14,187	1,223	860	2,260	2,667	1,745	1,328	Nevada
11,439	10,738	55	53	126	133	243	216	New Hampshire
62,513	55,873	12,109	6,726	9,801	9,529	5,699	4,947	New Jersey
9,204	8,967	279	221	7,863	7,862	1,770	1,390	New Mexico
131,003	117,181	32,501	16,787	27,979	24,415	14,385	12,529	New York
59,303	54,423	18,579	10,461	1,320	2,149	2,421	1,935	North Carolina
6,031	5,740	12	18	43	49	285	228	North Dakota
98,625	88,756	13,888	7,947	1,546	1,690	2,418	1,991	Ohio
27,524	25,397	2,398	1,506	931	1,162	4,107	3,277	Oklahoma
29,849	28,168	442	358	1,223	1,615	1,996	1,643	Oregon
116,194	103,544	13,582	7,460	2,692	2,891	2,959	2,510	Pennsylvania
9,717	8,395	352	238	588	549	461	378	Rhode Island
27,791	25,959	12,686	7,132	475	671	740	573	South Carolina
6,813	6,432	16	26	59	72	493	401	South Dakota
46,830	42,754	9,366	5,271	599	840	1,107	910	Tennessee
111,546	104,686	22,762	13,799	52,335	53,158	7,528	6,422	Texas
15,038	14,024	88	95	1,041	1,244	735	619	Utah
5,876	5,488	16	18	48	49	122	102	Vermont
50,293	46,889	14,583	8,673	2,062	2,170	3,542	2,819	Virginia
46,057	43,893	1,413	1,184	2,127	2,682	5,459	4,265	Washington
18,696	17,175	671	410	126	129	287	242	West Virginia
47,732	44,489	2,437	1,470	967	1,232	1,217	1,007	Wisconsin
4,165	4,172	25	24	252	287	165	140	Wyoming