

Vision Problems in the U.S.

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



2008 Update to the Fourth Edition

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.

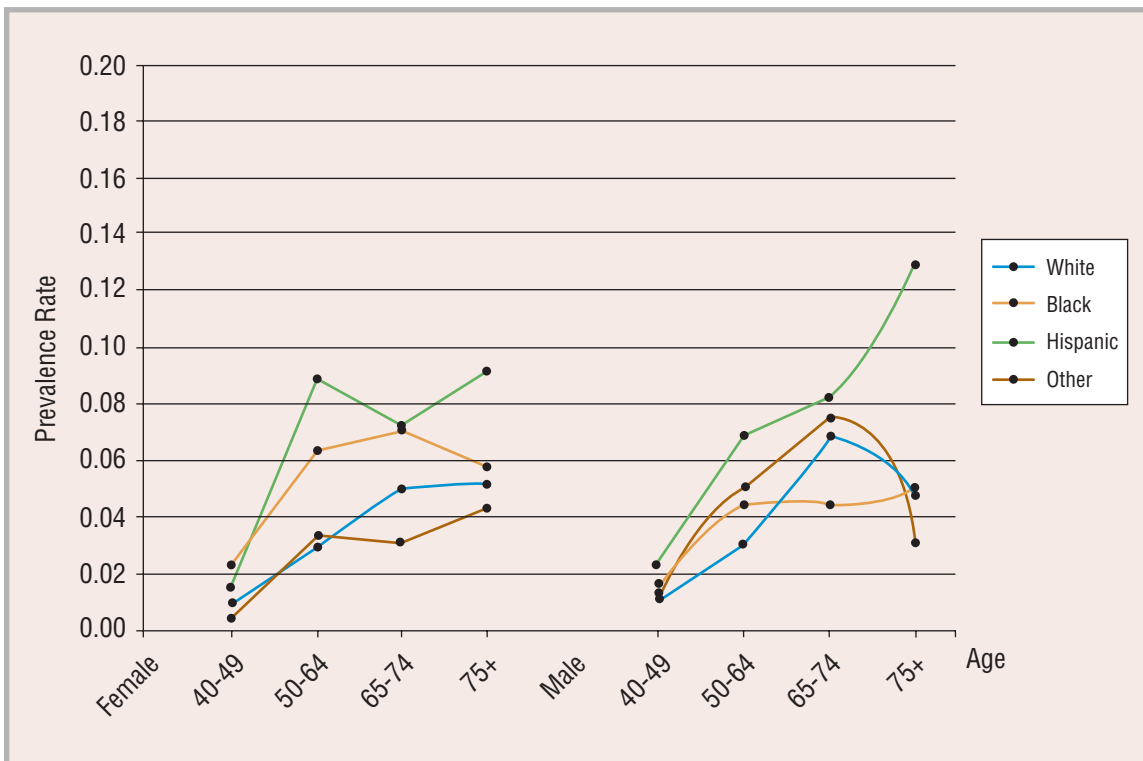
Laser treatment, called photocoagulation, has been shown to reduce the risk of sight loss in advanced cases of diabetic retinopathy. Focal photocoagulation can be used to destroy leaking blood vessels. Scatter photocoagulation, where a large number of spots are destroyed by the laser, is used to control 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.

Diabetic retinopathy affects over 4.4 million Americans age 40 and older. Prior to age 40, diabetic retinopathy affects Whites more frequently than other races. In later decades, Hispanics are 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 40 and Older by State, Race and Sex

State	Total	Female	Male	White	Black	Hispanic	Other
Total U.S.	4,482,885	2,300,979	2,181,905	3,122,598	538,896	633,375	188,016
Alabama	70,621	37,656	32,965	50,153	18,508	1,219	740
Alaska	7,610	3,291	4,319	5,495	260	384	1,472
Arizona	88,026	43,480	44,545	60,547	2,423	21,254	3,803
Arkansas	42,305	21,701	20,604	34,364	6,176	1,245	520
California	549,217	276,966	272,252	268,915	36,052	179,990	64,261
Colorado	63,132	30,868	32,264	46,526	2,378	12,603	1,625
Connecticut	55,483	28,882	26,600	44,050	4,789	5,444	1,199
Delaware	12,824	6,638	6,186	9,549	2,449	546	280
District of Columbia	9,471	5,667	3,804	2,161	6,368	742	200
Florida	328,595	170,017	158,579	210,842	35,816	76,580	5,358
Georgia	117,292	61,974	55,318	75,098	34,157	5,414	2,624
Hawaii	20,531	9,609	10,922	5,163	252	1,335	13,781
Idaho	18,776	8,925	9,850	16,993	62	1,342	379
Illinois	187,928	97,924	90,004	130,195	28,686	22,582	6,465
Indiana	88,257	44,901	43,356	76,328	7,753	3,236	941
Iowa	44,851	22,470	22,380	42,520	770	1,111	449
Kansas	39,555	19,799	19,755	33,917	2,181	2,608	848
Kentucky	59,863	30,192	29,671	53,838	4,589	932	504
Louisiana	67,106	36,243	30,863	41,865	21,575	2,606	1,060
Maine	20,926	10,271	10,655	20,444	93	191	198
Maryland	84,663	45,358	39,305	51,893	24,996	4,185	3,590
Massachusetts	96,239	49,506	46,733	81,520	5,230	6,512	2,977
Michigan	147,805	75,916	71,889	118,178	21,693	5,061	2,872
Minnesota	70,223	34,358	35,865	64,807	1,873	1,728	1,816
Mississippi	43,345	23,560	19,785	27,219	15,021	728	377
Missouri	85,696	43,914	41,783	72,797	9,696	1,990	1,214
Montana	14,446	6,843	7,602	13,433	38	334	640
Nebraska	25,185	12,587	12,598	22,631	914	1,266	374
Nevada	34,547	16,361	18,186	23,438	2,427	6,391	2,291
New Hampshire	18,752	9,072	9,680	18,019	131	352	250
New Jersey	140,099	73,503	66,596	91,845	18,245	22,721	7,288
New Mexico	35,727	18,040	17,688	15,170	549	17,986	2,022
New York	315,153	168,332	146,821	191,874	48,007	58,561	16,711
North Carolina	124,896	65,717	59,180	89,749	28,293	4,217	2,637
North Dakota	9,547	4,696	4,851	9,115	28	105	299
Ohio	171,467	88,715	82,752	144,515	21,068	3,731	2,153
Oklahoma	52,321	26,023	26,298	41,974	3,744	2,512	4,091
Oregon	53,012	25,813	27,198	46,786	834	3,354	2,037
Pennsylvania	200,754	104,511	96,243	170,715	20,143	6,709	3,187
Rhode Island	16,579	8,613	7,967	14,127	686	1,437	329
South Carolina	64,714	34,646	30,068	43,272	19,310	1,427	704
South Dakota	11,259	5,489	5,770	10,499	48	173	539
Tennessee	87,753	45,260	42,493	70,806	14,162	1,802	982
Texas	337,117	173,019	164,098	171,077	35,568	121,459	9,012
Utah	25,255	12,129	13,126	21,629	186	2,657	783
Vermont	9,545	4,630	4,915	9,280	45	125	96
Virginia	109,608	56,677	52,932	77,193	23,011	5,227	4,177
Washington	87,169	42,001	45,168	72,514	2,741	5,685	6,229
West Virginia	29,685	14,761	14,924	28,114	1,050	311	210
Wisconsin	80,310	39,848	40,462	72,610	3,769	2,665	1,266
Wyoming	7,644	3,606	4,038	6,839	51	600	154

White Female	White Male	Black Female	Black Male	Hisp. Female	Hisp. Male	Other Female	Other Male	State
1,545,887	1,576,711	342,059	196,837	333,815	299,561	79,219	108,797	Total U.S.
24,837	25,317	11,922	6,586	587	632	311	430	Alabama
2,350	3,145	142	117	194	189	605	867	Alaska
29,418	31,128	1,393	1,030	11,020	10,234	1,649	2,154	Arizona
16,970	17,394	3,925	2,251	589	656	218	302	Arkansas
131,859	137,055	22,197	13,856	95,159	84,831	27,751	36,510	California
22,373	24,153	1,360	1,017	6,432	6,171	702	923	Colorado
22,373	21,676	3,072	1,718	2,970	2,475	468	732	Connecticut
4,708	4,842	1,544	906	274	272	114	166	Delaware
995	1,165	4,177	2,191	404	338	90	110	District of Columbia
104,179	106,663	22,365	13,451	41,226	35,353	2,246	3,112	Florida
36,694	38,403	21,765	12,392	2,491	2,923	1,024	1,600	Georgia
2,340	2,823	116	136	710	624	6,443	7,338	Hawaii
8,100	8,893	29	33	635	707	161	217	Idaho
65,436	64,759	18,570	10,116	11,284	11,298	2,634	3,831	Illinois
38,074	38,254	4,887	2,866	1,557	1,679	383	558	Indiana
21,303	21,218	447	323	536	575	185	264	Iowa
16,844	17,073	1,329	853	1,283	1,325	343	505	Kansas
26,673	27,165	2,876	1,713	438	494	205	300	Kentucky
20,673	21,192	13,758	7,817	1,397	1,209	416	644	Louisiana
10,040	10,404	45	47	103	88	83	115	Maine
25,668	26,225	15,969	9,027	2,262	1,923	1,459	2,131	Maryland
41,474	40,046	3,263	1,967	3,589	2,923	1,180	1,797	Massachusetts
58,452	59,726	13,800	7,893	2,523	2,538	1,141	1,732	Michigan
31,756	33,051	1,048	824	821	907	733	1,083	Minnesota
13,486	13,732	9,564	5,457	347	381	162	214	Mississippi
36,154	36,643	6,245	3,451	1,008	982	506	708	Missouri
6,383	7,050	18	20	178	156	264	376	Montana
11,272	11,359	556	358	599	667	160	214	Nebraska
10,734	12,704	1,434	993	3,192	3,199	1,002	1,289	Nevada
8,716	9,303	69	62	188	164	99	151	New Hampshire
46,659	45,186	11,757	6,488	12,237	10,484	2,850	4,438	New Jersey
7,384	7,787	304	245	9,467	8,519	885	1,137	New Mexico
97,137	94,737	31,606	16,401	32,976	25,585	6,613	10,099	New York
44,618	45,131	18,122	10,171	1,878	2,339	1,099	1,538	North Carolina
4,501	4,614	12	16	54	51	129	170	North Dakota
72,516	71,999	13,416	7,652	1,907	1,824	876	1,278	Ohio
20,746	21,228	2,308	1,436	1,217	1,295	1,752	2,340	Oklahoma
22,878	23,908	465	369	1,611	1,743	860	1,178	Oregon
86,739	83,976	13,018	7,126	3,482	3,228	1,273	1,914	Pennsylvania
7,276	6,851	409	277	797	640	131	198	Rhode Island
21,304	21,968	12,372	6,938	671	756	299	405	South Carolina
5,153	5,346	21	28	85	88	231	308	South Dakota
34,967	35,840	9,056	5,106	842	960	395	588	Tennessee
83,320	87,756	22,199	13,369	63,925	57,534	3,574	5,438	Texas
10,379	11,249	91	95	1,327	1,330	332	451	Utah
4,506	4,774	22	23	65	60	38	58	Vermont
37,707	39,486	14,462	8,548	2,760	2,467	1,747	2,431	Virginia
35,008	37,506	1,491	1,250	2,775	2,910	2,727	3,502	Washington
13,869	14,245	650	400	158	153	84	126	West Virginia
35,671	36,939	2,368	1,401	1,286	1,379	523	743	Wisconsin
3,216	3,623	26	25	298	302	66	88	Wyoming

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