

Supplemental Tables

Supplemental Table 1: The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) and Ninth Revision, Clinical Modification (ICD-9-CM) codes used to identify diabetes mellitus in the electronic health record (EHR).

ICD-10*	ICD-9*
E08	250
E09	362.01, 362.02, 362.03, 362.04, 362.05, 362.06
E10	362.07
E11	361.81
E13	

*Any codes that started with the following

Supplemental Table 2: Thresholds for defining what is considered a lapse in diabetic retinopathy care. Definitions are based on the providers' recommended follow-up timeframe and are compared to the patient's actual time to the next office visit.

Recommended follow-up	Not returning within	Time to the next office visit
≤8 weeks	2 weeks	≥10 weeks
>8 to ≤20 weeks	4 weeks	≥24 weeks
>20 to ≤32 weeks	8 weeks	≥40 weeks
>32 to ≤52 weeks	12 weeks	≥64 weeks

Supplemental Table 3: The International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) and Ninth Revision, Clinical Modification (ICD-9-CM) codes used to identify the severity of diabetic retinopathy, other retinal disorders, and other major eye diseases.

	ICD-10*	ICD-9*
Diabetic Retinopathy (DR)		
Non-proliferative diabetic retinopathy (NPDR)	E08.31, E08.32, E08.33, E08.34, E08.37 E09.31, E09.32, E09.33, E09.34, E09.37 E10.31, E10.32, E10.33, E10.34, E10.37 E11.31, E11.32, E11.33, E11.34, E11.37 E13.31, E13.32, E13.33, E13.34, E13.37	362.01 362.03 362.04 362.05 362.06
Proliferative diabetic retinopathy (PDR)	E08.35 E09.35 E10.35 E11.35 E13.35	362.02 361.81
Other retinal disorders		

Age related macular degeneration (AMD)	H35.31 H35.32	362.51 362.52 362.50 362.57
Vein occlusion (VO)	H34	362.30 362.35 362.36 362.37
Artery occlusion (AO)	H34	362.30 362.31 362.32 362.33 362.34
Other major eye diseases		
Glaucoma	H40 H42	362

*Any codes that started with the following

Supplemental Table 7: Demographic characteristics of patients with diabetes mellitus seen in the ophthalmology department for diabetic retinopathy screening or treatment stratified by the number of office visits in the two-year observation window.

	Office Visits: 1 N=17883 (%)	Office Visits: 2+ N=21678 (%)	P-value
Age (years), mean (SD)	60.1 (14.0)	62.5 (12.9)	<0.001
≤20	70 (0.4)	34 (0.2)	<0.001
>20 to ≤45	2564 (14.3)	2133 (9.8)	
>45 to ≤65	8822 (49.3)	10058 (46.4)	
>65	6427 (35.9)	9453 (43.6)	
Sex			0.956
Female	9331 (52.2)	11304 (52.1)	
Male	8552 (47.8)	10374 (47.9)	
Race and Ethnicity			<0.001
Non- Hispanic White	7794 (43.6)	10771 (49.7)	
Non- Hispanic Black	6842 (38.3)	7660 (35.3)	
Hispanic	940 (5.3)	972 (4.5)	
Other	2307 (12.9)	2275 (10.5)	
Insurance			<0.001
Private	6824 (39.2)	8014 (37.2)	
Medicare	6592 (37.8)	9102 (42.3)	

Medicaid	2237 (12.8)	1977 (9.2)	
Other	1226 (7.0)	1938 (9.0)	
None	539 (3.1)	506 (2.3)	
Diabetic Retinopathy (DR)			<0.001
No DR	15430 (86.3)	15901 (73.4)	
Non-proliferative diabetic retinopathy (NPDR)	1981 (11.1)	3976 (18.3)	
Proliferative diabetic retinopathy (PDR)	472 (2.6)	1801 (8.3)	
Other retinal disorders			<0.001
Absent	17300 (96.7)	20580 (94.9)	
Present	583 (3.3)	1098 (5.1)	
Glaucoma			0.170
Absent	15117 (84.5)	18434 (85.0)	
Present	2766 (15.5)	3244 (15.0)	

*Standard deviation

Supplemental Table 9: Proportion of office visits considered to have lapses in diabetic retinopathy care stratified by recommended follow-up time among patients entering the cohort from 2016-2017, results from the sensitivity analysis.

Recommended follow-up timeframe by the provider	Total number of office visits	Proportion of office visits with lapses in care
≤8 weeks	6,163	30.3%
>8 to ≤20 weeks	2,128	43.9%
>20 to ≤32 weeks	2,334	43.1%
>32 to ≤52 weeks	11,060	43.4%

Supplemental Table 10: Adjusted odds ratio (OR) of having a lapse in diabetic retinopathy care among patients entering the cohort from 2016-2017, results from the sensitivity analysis.

	Ever have a lapse in care N (%)	Adjusted Odds Ratio* (95% Confidence Interval)	P-value
Age (years)			
≤20	18 (81.8)	(reference)	
>20 to ≤45	1099 (85.2)	0.73 (0.27, 2.01)	0.544
>45 to ≤65	3742 (79.9)	0.52 (0.19, 1.41)	0.196

>65	2882 (74.4)	0.42 (0.15, 1.15)	0.092
Sex			
Female	4005 (79.6)	(reference)	
Male	3736 (77.3)	0.93 (0.86, 1.01)	0.091
Race and Ethnicity			
Non-Hispanic White	3326 (73.5)	(reference)	
Non-Hispanic Black	2942 (83.8)	1.35 (1.23, 1.48)	<0.001
Hispanic	431 (81.5)	1.18 (0.97, 1.43)	0.099
Other	1042 (80.1)	1.22 (1.08, 1.38)	0.001
Insurance			
Private	3078 (78.7)	(reference)	
Medicare	2884 (75.5)	0.96 (0.87, 1.07)	0.448
Medicaid	982 (88.1)	1.22 (1.07, 1.4)	0.003
Other	470 (73.2)	0.9 (0.76, 1.06)	0.204
None	276 (83.1)	1.34 (1.04, 1.72)	0.021
Diabetic Retinopathy (DR)			
No DR	6195 (76.6)	(reference)	
Non-proliferative diabetic retinopathy (NPDR)	1158 (84.6)	0.51 (0.46, 0.56)	<0.001
Proliferative diabetic retinopathy (PDR)	388 (94.9)	0.35 (0.31, 0.4)	<0.001
Other retinal disorders			
Absent	7393 (78.4)	(reference)	
Present	348 (79.6)	0.78 (0.66, 0.91)	0.002
Glaucoma			
Absent	6405 (77.6)	(reference)	
Present	1336 (83)	1.22 (1.1, 1.34)	<0.001

* Marginal odds ratios are presented