



FINAL REPORT

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2019 Medicaid Summary Data Report: For the Vision and Eye Health Surveillance System

Presented by:

John Wittenborn,
David Rein,
Anushruta Neupane
NORC at the University of Chicago

Presented to:

Jinan Saaddine,
Division of Diabetes Translation,
Centers for Disease Control and
Prevention

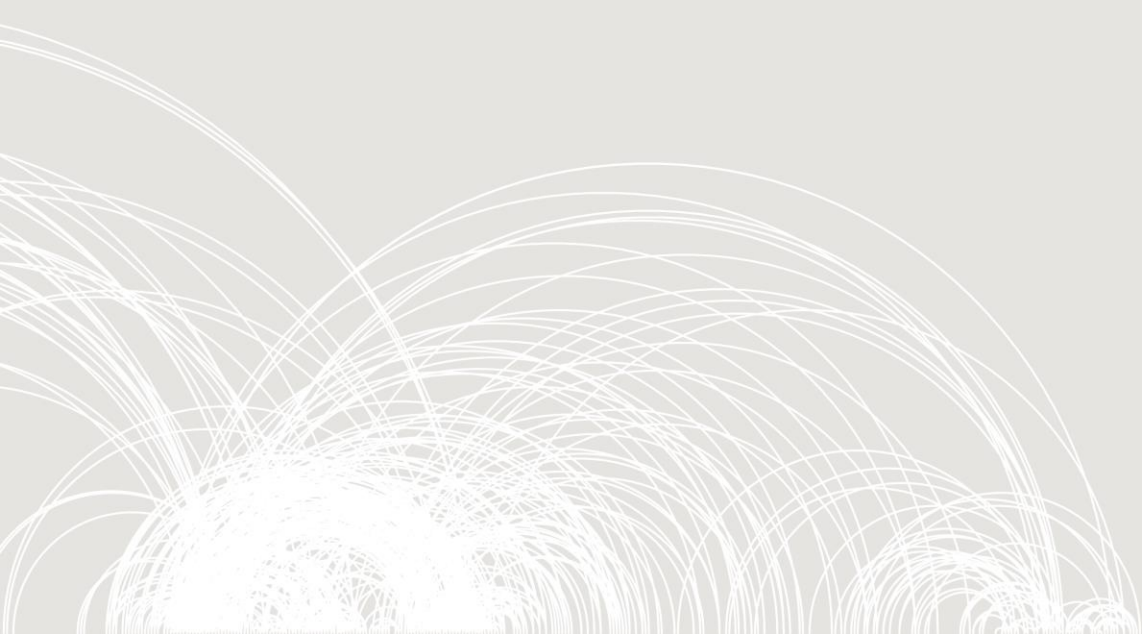


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Dataset Description

We included beneficiaries who were fully enrolled in Medicare Part B Fee-for-Service (FFS) for the duration of 2014 and 2015 in the analysis of Medicare claims for the Vision and Eye Health Surveillance System (VEHSS).

This included approximately 30 million individuals annually. Medicare data included a number of analytic files containing FFS claims organized into files by type of care, such as carrier files (also known as the Physician/Supplier Part B claims files), outpatient files, as well as denominator files (with information on eligibility and enrollment).

Data from patients enrolled in Medicare managed care plans were not included as these claims do not include individualized claims for services. In 2018, 2.2 million Americans were enrolled in Medicare advantage plans, and a further 17.6 million had drug plans.

Medicare covers ophthalmologic services for nearly the entire US population aged 65 and older, for those younger than 65 who have received social security benefits as a result of disability for 24 months; for those who have end stage renal disease and receive dialysis or a kidney transplant; and for those who have amyotrophic lateral sclerosis (ALS). Like others with a disability, persons with U.S. defined blindness (a best corrected acuity of 20/200 or worse in the better-seeing eye) become eligible for Medicare after 24 months of social security enrollment. In 2015, approximately 42.5 million out of 47.8 million Americans aged 65 and older (88.9%) were enrolled in Medicare Part B (which covers outpatient services).¹ Due to this high coverage rate, those enrolled are roughly representative of the overall population aged 65 and older. In contrast, only 9.0 million out of 273.6 million Americans ages 0 to 64 (3.3%) were enrolled in Medicare, and because these individuals are primarily eligible via disability, they are disproportionately sicker and poorer than other Americans in this age group.² Additionally, Medicare does not cover all services. Routine eye exams and optometry services are not covered by Medicare except in rare circumstances.

NORC and KPMG obtained access to 100% Medicare FFS claims data through the Centers for Medicare and Medicaid Services (CMS) Virtual Research Data Center (VRDC). Through the VRDC, the project team had access to 100% CMS research identifiable files (RIFs), including:

- Inpatient
- Outpatient
- Skilled Nursing Facility
- Hospice
- Home Health
- Carrier
- Durable Medical Equipment (DME)
- Master Beneficiary Summary File (MBSF) Base File
 - MBSF Chronic Conditions segment file
 - Part D Event data
 - Part D Characteristics, including Drug, Pharmacy, Prescriber, and Plan characteristics

Please see [this link](#) for a CMS description of each file:

https://www.resdac.org/cms-data/search?f%5B0%5D=im_field_data_file_category%3A46

¹ Huntley-Hall, N. Profile America Facts for Features: CB17-FF.08. US Census Bureau, Economics and Statistics Administration. March 27, 2017.

² Kaiser Family Foundation, State Health Facts. Calculated from US Census Current Population Survey, March 2017.

Analysis Overview

We analyzed the 2014 and 2015 100% Medicare FFS claims databases to estimate the annual prevalence rate of treated diagnoses and the rate of clinical procedures. NORC's subcontractor KPMG analyzed the data and generated summary reports of frequencies and rates, summarized by state and by age group, race/ethnicity, and sex. A detailed description of the analytical steps is described in the report "VEHSS Claims & Registry Analysis Plan."

Data Indicators and Case Definitions

We generated Medicare estimates using two data indicator topics: 'Service Utilization' and 'Medical Diagnoses.'

Service Utilization Topic

Service Utilization measured in Medicare claims is the proportion of patients who underwent an eye exam per year of observation. The rate of exams represents the proportion of patients who have at least one eye exam during the year of observation and is a single number representing the average for each patient group. The Eye Exam indicators analyzed in Medicare claims data are listed in Table 1. We differentiated provider type because various data sources have differing representation of providers.

Table 1. Service Utilization Topic Indicators

Category	Subgroup
Eye exams	By provider type
	By ophthalmologists and other physicians
	By optometrists and opticians

Eye exams were identified in claims based on the presence of Healthcare Common Procedure Coding System (HCPCS) Codes, shown in **Table 2**. Four procedure codes specifically denote an eye exam (92002, 92004, 92012, 92014). All instances of these procedures were counted as an eye exam.

Other Evaluation & Management (E & M) codes (99***) are not specific to eye exams, but nonetheless are frequently billed for eye exams. In this case, we included E & M codes only if they were coded by an eye care provider. We identified eye care providers in Medicare based on the provider types (also known as taxonomy), of ophthalmologist, optometrist or optician, or a general physician who coded for an ophthalmic procedure as indicated in **Table 3**.

Table 2. Procedure Codes Included in Exams

CPT/HCPCS Code	Code Description
Eye Exam Codes, Always Included	
92002	Eye exam new patient

CPT/HCPCS Code	Code Description
92004	Eye exam new patient
92012	Eye exam established patient
92014	Eye exam established patient
General Exam Codes, Require Specified Provider Taxonomy Code	
99201	Office/outpatient visit new
99202	Office/outpatient visit new
99203	Office/outpatient visit new
99204	Office/outpatient visit new
99205	Office/outpatient visit new
99212	Office/outpatient visit established
99213	Office/outpatient visit established
99214	Office/outpatient visit established
99215	Office/outpatient visit established
99241	Office consultation
99242	Office consultation
99243	Office consultation
99244	Office consultation
99245	Office consultation
99341	Home visit new patient
99342	Home visit new patient
99343	Home visit new patient
99344	Home visit new patient
99345	Home visit new patient
99347	Home visit est patient
99348	Home visit est patient
99349	Home visit est patient
99350	Home visit est patient

Table 3. 2013 CMS Eye Care Provider Categories Taxonomy Codes

Specialty Code	Medicare Provider Type	Provider Taxonomy Code	Provider Taxonomy Description
By ophthalmologists and other physicians			
2	Physician/ General Surgery	207WX0200X	Allopathic & Osteopathic Physicians/Ophthalmic Plastic and Reconstructive Surgery
18	Physician/ Ophthalmology	207W00000X	Allopathic & Osteopathic Physicians/Ophthalmology
By optometrists and opticians			
41	Optometry	152W00000X	Eye and Vision Service Providers/Optometrist
		152WC0802X	Eye and Vision Service Providers/Optometrist, Corneal and Contact Management

		152WL0500X	Eye and Vision Service Providers/Optomtrist, Low Vision Rehabilitation
		152WX0102X	Eye and Vision Service Providers/Optomtrist, Occupational Vision
		152WP0200X	Eye and Vision Service Providers/Optomtrist, Pediatrics
		152WS0006X	Eye and Vision Service Providers/Optomtrist, Sports Vision
		152WV0400X	Eye and Vision Service Providers/Optomtrist, Vision Therapy
96[5]	Optician	156FX1800X	Eye & Vision Service Providers/Technician/Technologist, Optician

The patient population (denominator) includes those who were fully enrolled in the Medicare program during the year of observation, defined as enrollment in Medicare Part B for all 12 months of the respective calendar year.

Medical Diagnoses Topic

Identification of prevalent cases

Individual Medicare beneficiaries were assigned to diagnosis categories and subgroups based on International Classification of Diseases (ICD) 9 (permissible in 2014) or ICD10 diagnosis codes on any patient claim during the year of observation.

We used the following identification algorithm:

- Any observation of an indicated diagnosis code in any Part B claim by a patient.
- The diagnosis code may be primary or secondary.
- Only one instance of the diagnosis code is necessary to trigger classification to a diagnosis category.
- Patients may be assigned to multiple categories and subcategories.
- Data is analyzed on an annual basis.

The development of this algorithm was based on the practices of the CMS Chronic Conditions Warehouse reporting system, feedback from project partners and experts, and the results of a literature review to identify normal and best practices for prevalence reporting from administrative data sources. This literature review is included in Appendix A of the “Claims & Registry Analysis Plan.”

Diagnosis Categories and Subgroup Indicators

Medical Diagnoses were reported based on the VEHSS-defined medical diagnosis categorization structure. As reported in detail in the “VEHSS Medical Diagnosis Categorization” report, we identified all eye and vision related ICD9 and ICD10 diagnosis codes, and organized them into a 2-level categorization structure which has 17 Categories and 79 Subgroups (**Table 4**).

For example, assume a beneficiary has three eye and vision related ICD9 codes in the year of observation:

- 362.3 Retinal vascular occlusion, unspecified
- 362.9 Retinal nerve fiber bundle defects
- 362.11 Hypertensive retinopathy

362.3 and 362.9 are assigned to subgroup 'Retina vascular disease, Occlusive (arterial, venous)'.

362.11 is assigned to a different subgroup; 'Retina vascular disease, Non-Occlusive'. Both of these subgroups are within one category (Other Retinal Disorders).

This beneficiary is counted as one prevalent case for subgroup 'Retina vascular disease, Occlusive (arterial, venous)', and one case for subgroup 'Retina vascular disease, Non-Occlusive'. This beneficiary would count as one case in the category 'Other Retinal Disorders'. Thus, individual patients can appear in multiple subgroups, but cannot be double counted within a specific category or subgroup. Patients may also appear in multiple separate categories.

Table 4. Medical Diagnosis Categories and Subgroups

Category	Subgroup
Retinal Detachment and Defects	
Diabetic Eye Diseases	Early/mild diabetic retinopathy
	Moderate /severe non-proliferative diabetic retinopathy
	Proliferative diabetic retinopathy
	Diabetic macular edema (dme, csme)
	Other/unspecified diabetes related eye conditions
Age related macular degeneration (AMD)	AMD, unspecified
	Early AMD
	Dry-form AMD
	GA, modifier for Dry-form
	Wet-form AMD
	CNV, modifier for Wet-form
Other Retinal Disorders	Retina vascular disease, occlusive (arterial, venous)
	Central retinal vein occlusion
	Branch retinal vein occlusion
	Central retinal arterial occlusion
	Branch retinal artery occlusion
	Retina vascular disease, non-occlusive
	Macular edema (if not diabetic)
	Hereditary chorioretinal dystrophy
	Myopic degeneration
	Other/unspecified retinal disorders
Glaucoma	Open-angle glaucoma
	Primary open-angle glaucoma
	Low-tension glaucoma
	Glaucoma suspect
	Primary angle-closure glaucoma
	Narrow-angle glaucoma
	Congenital glaucoma

Category	Subgroup
	Neovascular glaucoma
	Other/unspecified glaucoma
Cataracts	Senile cataract
	Non-congenital cataract
	Congenital cataract
	Posterior capsular opacity
	Pseudophakia
	Aphakia and other disorders of lens
Disorders of Refraction and accommodation	Myopia
	Hypermetropia
	Astigmatism
	Presbyopia
	Other disorder of refraction and accommodation
Blindness and low vision	Unqualified visual loss, both eyes
	Unqualified vision loss in one eye, or unspecified visual loss
	Vision impairment one eye
	Moderate or severe vision impairment better eye; profound vision impairment of lesser eye
	Moderate or severe vision impairment both eyes
	Profound vision impairment, bilateral, or legal blindness
Strabismus and amblyopia	Strabismus
	Amblyopia
Injury, burns and surgical complications of the eye	Injury
	Burn
	Surgical complication
Disorders of optic nerve and visual pathways	Optic nerve disorders
	Visual pathway disorders
Other visual disturbances	Visual field defect
	Color blindness
	Night blindness
	Other/unspecified visual disturbances
Infectious and Inflammatory diseases	Infectious diseases
	Keratitis
	Conjunctivitis
	Eyelid infection and inflammation
	Other inflammatory conditions
	Lacrimal system and orbit inflammation
	Endophthalmitis
Orbital and external disease	Congenital anomalies
	Other/unspecified orbital or external disease
	Lacrimal diseases
	Eyelid disorders
	Dry eye syndrome
	Disorders of the globe

Category	Subgroup
Cancer and neoplasms of the eye	Malignant neoplasm of the eye
	Benign neoplasm of the eye
Cornea disorders	Keratoconus
	Endothelial dystrophy (inc Fuchs)
	Other corneal disorders
Other eye disorders	

Denominator used to Calculate Prevalence Rates

The denominator for each estimated prevalence rate is the total number of beneficiaries fully enrolled in the Medicare Part B program for all 12 months during the year of observation.

Stratification Factors

We report the summary outcomes of each data indicator overall, and by the stratification factors age group, sex, race/ethnicity, and state. This report includes outcomes estimated for single levels of stratification. To estimate prevalence rates for specific multi-variable stratification categories, please visit the VEHS data visualization application.

Age Groups

Beneficiary age was categorized into the VEHS-defined major age groups: 0-17, 18-39, 40-64, 65-84, 85+.

Sex Categories

Beneficiaries were classified as either Male or Female. Only a few beneficiaries had missing Sex data, and all cases were suppressed.

Race/Ethnicity Categories

We used the VEHS race/ethnicity identifiers. Few beneficiaries had missing race/ethnicity data and were excluded because their results would have been suppressed.

- American Indian and Alaska Native (AIAN)
- Asian
- Black (non-Hispanic)
- Hispanic (any race)
- White (non-Hispanic)
- Other (including multiple or missing race)
- All Races

States and Territories

Table 5. VEHSS State and Territory Abbreviations

AK	Alaska	LA	Louisiana	OK	Oklahoma
AL	Alabama	MA	Massachusetts	OR	Oregon
AR	Arkansas	MD	Maryland	PA	Pennsylvania
AS	American Samoa	ME	Maine	PR	Puerto Rico
AZ	Arizona	MH	Marshall Islands	PW	Palau
CA	California	MI	Michigan	RI	Rhode Island
CO	Colorado	MN	Minnesota	SC	South Carolina
CT	Connecticut	MO	Missouri	SD	South Dakota
DC	District of Columbia	MP	Northern Mariana Islands	TN	Tennessee
DE	Delaware	MS	Mississippi	TX	Texas
FL	Florida	MT	Montana	UT	Utah
GA	Georgia	NC	North Carolina	VA	Virginia
GU	Guam	ND	North Dakota	VI	U.S. Virgin Islands
HI	Hawaii	NE	Nebraska	VT	Vermont
IA	Iowa	NH	New Hampshire	WA	Washington
ID	Idaho	NJ	New Jersey	WI	Wisconsin
IL	Illinois	NM	New Mexico	WV	West Virginia
IN	Indiana	NV	Nevada	WY	Wyoming
KS	Kansas	NY	New York	XX	Missing State
KY	Kentucky	OH	Ohio	US	National

Suppression and Data Release Restrictions

To ensure patient privacy and protections, the VEHSS project implements additional data suppression on all publicly released data. All data incorporated into the VEHSS system is de-identified summary data. VEHSS does not report any patient-level data. To ensure maximum levels of data privacy and security, NORC worked with its internal data governance board, external experts and data providers and the CMS VRDC to design suppression algorithms to balance high level patient protection while maintaining the utility of publicly released data. VEHSS employed the following data suppression algorithm for Medicare claims data:

1. Suppress rates and denominator when denominator < 11
2. Suppress rates if numerator < 3
3. Report rates to 4 digits, formatting as percentage with two decimal points.
4. For public data on the VEHSS Data Visualization Application and the Centers for Disease Control and Prevention (CDC) Open Data Platform, denominators are rounded to the nearest 100.

Validation

Internal Validation

Sample Size

The Medicare claims data included 100% of Medicare FFS claims in each year of observation, and the denominator included all Medicare Part B FFS beneficiaries enrolled for the full 12 months of the benefit year. The total number of beneficiaries was approximately 30 million persons each year. The dataset was fully representative of the Medicare FFS program and is nearly nationally representative for US residents aged 65 and older. The Medicare denominator also included persons of any age who are legally disabled or blind.

We are unable to determine the reason for Medicare program eligibility beyond any disability, and thus cannot distinguish those who have Medicare benefits due to blindness.

Outcome Coverage

Medicare claims includes information required to estimate medical diagnoses and service utilization rates, which includes eye exams by provider type. Further, there was sufficient sample size to report prevalence rates for all VEHSS defined outcome measures at a single level of demographic stratification for each state. Diagnosis rates and service utilization only reflect visits and services billed to Medicare FFS, so despite the high coverage among those aged 65 and older, Medicare results alone will not capture all medical diagnoses or procedures.

Potential Limitations

This analysis is subject to a number of potential limitations:

- Medicare claims are intended for billing purposes only. Diagnosis information included on claims is intended to justify payment. Therefore, diagnosis data on claims may suffer from bias or limited detail.
- Medicare FFS does not cover all healthcare services, such as routine eye exams or optometry care. Medicare patients may utilize these services using a different payer, and thus these services are not captured in Medicare FFS claims.
- Patients may be insured by multiple insurers, such as a supplemental, medigap or Medicare managed care plans. Thus, even normally covered ophthalmology services may not be indicated in FFS claims if services were reimbursed by another plan.
- Many Medicare patients move seasonally. We report patient residence based on the last location of observation. This may skew patient numbers towards “sun belt” states.
- Medicare is not nationally representative for individuals under age 65. These patients may obtain Medicare coverage due to medical need, such as legally recognized disability, or other specially defined benefit, such as End stage renal disease. Individuals who become disabled for reasons of blindness cannot be

distinguished from others who are disabled unless there is thorough recording of low vision and blindness in their medical claims.

- Medicare FFS is nearly representative of the population aged 65 and older, but does not include beneficiaries with Medicare advantage plans, or those who defer Medicare coverage. The Medicare FFS claims also do not fully capture all medical services for this population.

Summary Statistics

Table 6. Prevalence of Treated Medical Diagnoses by Category and Subgroup, 2019

	Prevalence %	Numerator
Sample Size = 69502000		
Retinal detachment and defects	0.08	52700
All Diabetic eye diseases	0.38	264600
Proliferative Diabetic eye diseases	0.10	71000
Diabetic macular edema	0.13	93500
Other diabetes related eye disorders	0.09	60300
Non-proliferative	0.23	156900
Severe non-proliferative	0.03	22600
All Age-related macular degeneration	0.10	71000
Unspecified	0.01	5800
Early	0.04	28300
Dry-form	0.05	35000
Geographic atrophy	0.00	2200
Wet-form	0.01	7600
Choroidal neovascularization	0.01	5500
Advanced GA or Inactive CNV	0.01	4400
All Other retinal disorders	0.57	399200
Retina vascular disease, Occlusive	0.00	1000
Central retinal vein occlusion	0.01	6200
Branch retinal vein occlusion	0.01	8800
Central retinal arterial occlusion	0.00	1700
Branch retinal artery occlusion	0.00	2400
Non-Occlusive	0.16	112200

	Prevalence %	Numerator
Hereditary chorioretinal dystrophy	0.04	28100
Myopic degeneration	0.05	31600
Other/unspecified other retinal disorders	0.31	217400
Retinopathy of prematurity	0.02	14800
Macular edema (Cystoid or non-diabetic)	0.02	10800
All Glaucoma	0.97	672200
Open-angle	0.19	135400
Glaucoma suspect	0.71	491300
Primary angle-closure	0.09	60700
Other/unspecified glaucoma	0.06	38400
Secondary glaucoma	0.02	13000
Severe stage	0.03	22100
All Cataracts	0.96	670700
Congenital Cataract	0.02	15500
Posterior capsular opacity	0.06	39800
Pseudophakia	0.14	94400
Aphakia and disorders of lens	0.02	12900
Age-related cataract	0.76	527300
Other or unspecified cataract	0.12	80200
All Refraction and accommodation	13.19	9165000
Myopia	6.75	4691600
Hypermetropia	4.08	2835500
Astigmatism	5.71	3967700
Presbyopia	1.33	925400
Other	0.43	299400
All Blindness and low vision	0.25	177100
Unqualified, both eyes	0.02	16300
Unqualified in one eye, or unspecified	0.19	132000
Low vision or blindness, one eye	0.02	12500
Blindness one eye, low vision other eye	0.00	2200
Low vision, both eyes	0.01	5400
Blindness, both eyes, including legal blindness	0.02	14900

	Prevalence %	Numerator
All Strabismus and amblyopia	1.27	883200
Strabismus	0.82	566500
Amblyopia	0.58	405400
All Injury, burns and surgical complications of the eye	0.81	564800
Ocular injury	0.79	547400
Burn	0.01	9200
Surgical complication	0.02	12700
All Disorders of optic nerve and visual pathways	0.24	169600
Optic nerve disorders	0.24	169200
Disorders of the visual pathway and visual cortex	0.00	480
All Other visual disturbances	1.11	773500
Visual field defect	0.07	47100
Color blindness	0.01	7400
Night blindness	0.01	6300
Other/unspecified visual disturbances	1.04	725200
All Infectious and inflammatory diseases	5.12	3560500
Infectious diseases	0.21	143600
Keratitis	0.26	178400
Conjunctivitis	3.84	2671800
Eyelid infection and inflammation	0.93	644900
Other/unspecified infectious and inflammatory diseases	0.10	68600
Lacrimal and orbit inflammation	0.04	29600
Endophthalmitis	0.08	55600
All Orbital and external disease	1.24	865100
Congenital anomalies	0.16	112100
Other/unspecified orbital and external disease	0.04	30000
Lacrimal diseases	0.08	58700
Eyelid disorders	0.32	222300
Dry eye syndrome	0.69	480400
Disorders of the globe	0.01	8900
All Cancer and neoplasms of the eye diseases	0.11	74600

	Prevalence %	Numerator
Malignant neoplasm	0.01	9100
Benign neoplasm	0.10	66200
All Cornea disorders	0.19	131100
Keratoconus	0.04	28500
Endothelial dystrophy (Fuchs)	0.02	12800
Other corneal disorders	0.12	82600
Cornea disorder related to contact lens	0.02	12800
Other eye disorders	1.01	704100

Table 7. Prevalence of Treated Medical Diagnoses by Category and Subgroup, 2017-2019

	2017		2018		2019	
	Prevalence %	CI	Prevalence %	CI	Prevalence %	CI
	Sample Size = 56252200		Sample Size = 55751600		Sample Size = 69502000	
Retinal detachment and defects	0.07	0.07, 0.07	0.07	0.07, 0.07	0.08	0.08, 0.08
All Diabetic eye diseases	0.33	0.32, 0.33	0.36	0.35, 0.36	0.38	0.38, 0.38
Proliferative Diabetic eye diseases	0.09	0.09, 0.09	0.10	0.09, 0.10	0.10	0.10, 0.10
Diabetic macular edema	0.11	0.11, 0.11	0.12	0.12, 0.13	0.13	0.13, 0.14
Other diabetes related eye disorders	0.09	0.09, 0.09	0.09	0.09, 0.09	0.09	0.09, 0.09
Non-proliferative	0.19	0.19, 0.19	0.21	0.21, 0.21	0.23	0.22, 0.23
Severe non-proliferative	0.03	0.03, 0.03	0.03	0.03, 0.03	0.03	0.03, 0.03
All Age related macular degeneration	0.09	0.09, 0.09	0.10	0.09, 0.10	0.10	0.10, 0.10
Unspecified	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Early	0.03	0.03, 0.03	0.04	0.04, 0.04	0.04	0.04, 0.04
Dry-form	0.04	0.04, 0.04	0.05	0.05, 0.05	0.05	0.05, 0.05
Geographic atrophy	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00
Wet-form	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Choroidal neovascularization	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Advanced GA or Inactive CNV	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
All Other retinal disorders	1.47	1.47, 1.48	1.50	1.49, 1.50	0.57	0.57, 0.58
Retina vascular disease, Occlusive	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00
Central retinal vein occlusion	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Branch retinal vein occlusion	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Central retinal arterial occlusion	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00

	2017		2018		2019	
Branch retinal artery occlusion	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00
Non-Occlusive	0.12	0.12, 0.12	0.14	0.14, 0.14	0.16	0.16, 0.16
Hereditary chorioretinal dystrophy	0.03	0.03, 0.03	0.04	0.04, 0.04	0.04	0.04, 0.04
Myopic degeneration	0.04	0.04, 0.04	0.04	0.04, 0.04	0.05	0.05, 0.05
Other/unspecified other retinal disorders	0.26	0.26, 0.26	0.28	0.28, 0.28	0.31	0.31, 0.31
Retinopathy of prematurity	0.04	0.04, 0.04	0.04	0.04, 0.04	0.02	0.02, 0.02
Macular edema (Cystoid or non-diabetic)	0.01	0.01, 0.01	0.01	0.01, 0.01	0.02	0.02, 0.02
All Glaucoma	0.82	0.82, 0.82	0.87	0.87, 0.87	0.97	0.96, 0.97
Open-angle	0.17	0.17, 0.17	0.18	0.18, 0.18	0.19	0.19, 0.20
Glaucoma suspect	0.59	0.59, 0.60	0.63	0.63, 0.64	0.71	0.70, 0.71
Primary angle-closure	0.08	0.07, 0.08	0.08	0.08, 0.08	0.09	0.09, 0.09
Other/unspecified glaucoma	0.05	0.05, 0.05	0.05	0.05, 0.05	0.06	0.05, 0.06
Secondary glaucoma	0.02	0.02, 0.02	0.02	0.02, 0.02	0.02	0.02, 0.02
Severe stage	0.03	0.03, 0.03	0.03	0.03, 0.03	0.03	0.03, 0.03
All Cataracts	0.86	0.86, 0.86	0.91	0.91, 0.91	0.96	0.96, 0.97
Congenital Cataract	0.02	0.02, 0.02	0.02	0.02, 0.02	0.02	0.02, 0.02
Posterior capsular opacity	0.05	0.05, 0.05	0.06	0.06, 0.06	0.06	0.06, 0.06
Pseudophakia	0.13	0.13, 0.13	0.13	0.13, 0.13	0.14	0.13, 0.14
Aphakia and disorders of lens	0.02	0.02, 0.02	0.02	0.02, 0.02	0.02	0.02, 0.02
Age-related cataract	0.66	0.66, 0.66	0.71	0.71, 0.71	0.76	0.76, 0.76
Other or unspecified cataract	0.12	0.12, 0.12	0.12	0.12, 0.12	0.12	0.11, 0.12
All Refraction and accommodation	12.17	12.16, 12.18	12.81	12.80, 12.82	13.19	13.18, 13.19
Myopia	6.35	6.35, 6.36	6.66	6.65, 6.67	6.75	6.74, 6.76

	2017		2018		2019	
Hypermetropia	3.67	3.66, 3.67	3.89	3.89, 3.90	4.08	4.08, 4.08
Astigmatism	4.97	4.97, 4.98	5.45	5.44, 5.45	5.71	5.70, 5.71
Presbyopia	1.12	1.12, 1.12	1.19	1.19, 1.20	1.33	1.33, 1.33
Other	0.65	0.65, 0.65	0.44	0.44, 0.45	0.43	0.43, 0.43
All Blindness and low vision	0.27	0.27, 0.28	0.26	0.26, 0.26	0.25	0.25, 0.26
Unqualified, both eyes	0.01	0.01, 0.01	0.02	0.02, 0.02	0.02	0.02, 0.02
Unqualified in one eye, or unspecified	0.18	0.18, 0.18	0.19	0.19, 0.20	0.19	0.19, 0.19
Low vision or blindness, one eye	0.02	0.02, 0.03	0.02	0.02, 0.02	0.02	0.02, 0.02
Blindness one eye, low vision other eye	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00
Low vision, both eyes	0.04	0.04, 0.04	0.01	0.01, 0.01	0.01	0.01, 0.01
Blindness, both eyes, including legal blindness	0.02	0.02, 0.03	0.02	0.02, 0.02	0.02	0.02, 0.02
All Strabismus and amblyopia	1.09	1.09, 1.10	1.16	1.15, 1.16	1.27	1.27, 1.27
Strabismus	0.72	0.72, 0.72	0.75	0.74, 0.75	0.82	0.81, 0.82
Amblyopia	0.48	0.48, 0.49	0.53	0.52, 0.53	0.58	0.58, 0.59
All Injury, burns and surgical complications of the eye	0.81	0.81, 0.81	0.79	0.79, 0.80	0.81	0.81, 0.81
Ocular injury	0.79	0.78, 0.79	0.77	0.77, 0.77	0.79	0.79, 0.79
Burn	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Surgical complication	0.02	0.02, 0.02	0.02	0.02, 0.02	0.02	0.02, 0.02
All Disorders of optic nerve and visual pathways	0.19	0.19, 0.19	0.22	0.21, 0.22	0.24	0.24, 0.25
Optic nerve disorders	0.19	0.19, 0.19	0.22	0.21, 0.22	0.24	0.24, 0.24
Disorders of the visual pathway and visual cortex	0.00	0.00, 0.00	0.00	0.00, 0.00	0.00	0.00, 0.00
All Other visual disturbances	1.10	1.09, 1.10	1.08	1.08, 1.08	1.11	1.11, 1.12
Visual field defect	0.06	0.06, 0.06	0.07	0.06, 0.07	0.07	0.07, 0.07

	2017		2018		2019	
Color blindness	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Night blindness	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Other/unspecified visual disturbances	1.03	1.03, 1.03	1.01	1.01, 1.02	1.04	1.04, 1.05
All Infectious and inflammatory diseases	5.15	5.14, 5.15	4.97	4.96, 4.98	5.12	5.12, 5.13
Infectious diseases	0.21	0.21, 0.21	0.20	0.20, 0.20	0.21	0.21, 0.21
Keratitis	0.26	0.26, 0.26	0.26	0.25, 0.26	0.26	0.26, 0.26
Conjunctivitis	3.91	3.91, 3.92	3.72	3.72, 3.73	3.84	3.84, 3.85
Eyelid infection and inflammation	0.87	0.87, 0.87	0.89	0.89, 0.90	0.93	0.93, 0.93
Other/unspecified infectious and inflammatory diseases	0.09	0.09, 0.09	0.10	0.09, 0.10	0.10	0.10, 0.10
Lacrimal and orbit inflammation	0.05	0.05, 0.05	0.05	0.05, 0.05	0.04	0.04, 0.04
Endophthalmitis	0.08	0.08, 0.08	0.08	0.08, 0.08	0.08	0.08, 0.08
All Orbital and external disease	1.14	1.14, 1.14	1.20	1.19, 1.20	1.24	1.24, 1.25
Congenital anomalies	0.17	0.16, 0.17	0.17	0.17, 0.17	0.16	0.16, 0.16
Other/unspecified orbital and external disease	0.04	0.04, 0.04	0.04	0.04, 0.04	0.04	0.04, 0.04
Lacrimal diseases	0.15	0.15, 0.15	0.14	0.14, 0.14	0.08	0.08, 0.09
Eyelid disorders	0.26	0.25, 0.26	0.28	0.28, 0.28	0.32	0.32, 0.32
Dry eye syndrome	0.58	0.58, 0.58	0.62	0.62, 0.62	0.69	0.69, 0.69
Disorders of the globe	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
All Cancer and neoplasms of the eye diseases	0.09	0.09, 0.09	0.10	0.10, 0.10	0.11	0.11, 0.11
Malignant neoplasm	0.01	0.01, 0.01	0.01	0.01, 0.01	0.01	0.01, 0.01
Benign neoplasm	0.08	0.08, 0.08	0.08	0.08, 0.09	0.10	0.09, 0.10
All Cornea disorders	0.17	0.17, 0.17	0.18	0.18, 0.18	0.19	0.19, 0.19
Keratoconus	0.03	0.03, 0.03	0.04	0.03, 0.04	0.04	0.04, 0.04

	2017		2018		2019	
Endothelial dystrophy (Fuchs)	0.01	0.01, 0.02	0.02	0.02, 0.02	0.02	0.02, 0.02
Other corneal disorders	0.13	0.13, 0.13	0.13	0.13, 0.13	0.12	0.12, 0.12
Cornea disorder related to contact lens	1.01	1.00, 1.01	0.99	0.99, 0.99	0.02	0.02, 0.02
Other eye disorders	-	-	-	-	1.01	1.01, 1.02

Table 8. Medical Diagnosis Categories by Age Group, 2019

	All Ages %	Numerator	0-17 Years %	Numerator	18-39 Years %	Numerator	40-64 Years %	Numerator	65-84 Years %	Numerator	Above 85 %	Numerator
	Sample Size = 69502000		Sample Size = 34094900		Sample Size = 22130700		Sample Size = 12766700		Sample Size = 455800		Sample Size = 54000	
Retinal detachment and defects	0.08	52700	0.02	6700	0.07	15000	0.23	29500	0.31	1400	0.15	80
All Injury, burns and surgical complications of the eye	0.81	564800	0.79	268700	0.76	167700	0.97	124400	0.78	3600	0.91	490
All Disorders of optic nerve and visual pathways	0.24	169600	0.20	66800	0.23	51800	0.38	48400	0.51	2300	0.62	340
All Other visual disturbances	1.11	773500	0.95	325000	0.99	220000	1.72	219300	1.83	8300	1.54	830
All Infectious and inflammatory diseases	5.12	3560500	6.74	2297900	3.02	668400	4.45	568400	5.08	23100	4.84	2600
All Orbital and external disease	1.24	865100	0.84	285400	0.90	198200	2.78	355400	5.09	23200	5.33	2900
All Cancer and neoplasms of the eye diseases	0.11	74600	0.07	24000	0.08	18200	0.24	31000	0.28	1300	0.29	150
All Cornea disorders	0.19	131100	0.07	22900	0.22	48500	0.43	55300	0.82	3800	1.19	640
All Diabetic eye diseases	0.38	264600	0.00	1500	0.15	32600	1.67	213800	3.45	15700	1.84	990
All Age-related macular degeneration	0.10	71000	0.00	1400	0.02	5200	0.40	50600	2.29	10400	6.28	3400
All Other retinal disorders	0.57	399200	0.25	85700	0.39	87200	1.62	207500	3.72	17000	3.47	1900
All Glaucoma	0.97	672200	0.28	97000	0.62	137400	3.14	400800	7.21	32900	7.74	4200
All Cataracts	0.96	670700	0.12	41000	0.18	38900	4.09	522500	13.69	62400	10.89	5900
All Refraction and accommodation	13.19	9165000	14.89	5075800	10.55	2335400	13.28	1695700	11.59	52800	9.80	5300
All Blindness and low vision	0.25	177100	0.29	99200	0.15	32300	0.33	42100	0.67	3100	1.01	540
All Strabismus and amblyopia	1.27	883200	2.24	762300	0.37	81000	0.30	38600	0.27	1200	0.19	100

Other eye disorders	1.01	704100	0.77	263000	0.80	177400	1.94	247500	3.22	14700	2.50	1300
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Table 9. Medical Diagnosis Categories by Sex, 2019

	Both sexes %	Numerator	Female %	Numerator	Male %	Numerator
	Sample Size = 69502000		Sample Size = 37598800		Sample Size = 31903200	
Retinal detachment and defects	0.08	52700	0.07	26900	0.08	25800
All Injury, burns and surgical complications of the eye	0.81	564800	0.64	242100	1.01	322700
All Disorders of optic nerve and visual pathways	0.24	169600	0.28	104700	0.20	64900
All Other visual disturbances	1.11	773500	1.22	458400	0.99	315100
All Infectious and inflammatory diseases	5.12	3560500	5.32	2000300	4.89	1560200
All Orbital and external disease	1.24	865100	1.49	559200	0.96	305800
All Cancer and neoplasms of the eye diseases	0.11	74600	0.12	46100	0.09	28600
All Cornea disorders	0.19	131100	0.20	74600	0.18	56500
All Diabetic eye diseases	0.38	264600	0.39	144800	0.38	119900
All Age-related macular degeneration	0.10	71000	0.12	46600	0.08	24400
All Other retinal disorders	0.57	399200	0.62	232900	0.52	166300
All Glaucoma	0.97	672200	1.08	405700	0.84	266500
All Cataracts	0.96	670700	1.08	404400	0.83	266300
All Refraction and accommodation	13.19	9165000	14.72	5533100	11.38	3631900
All Blindness and low vision	0.25	177100	0.25	94000	0.26	83100
All Strabismus and amblyopia	1.27	883200	1.22	459600	1.33	423600
Other eye disorders	1.01	704100	1.10	412300	0.91	291700

Table 10. Medical Diagnosis Categories by Race, 2019

	All Races %	Numerator	White non-Hispanic %	Numerator	Black non-Hispanic %	Numerator	Hispanic %	Numerator	Asian %	Numerator	AIA N %	Numerator	Other %	Numerator
	Sample Size = 69502000		Sample Size = 24415600		Sample Size = 12863600		Sample Size = 15594200		Sample Size = 2828400		Sample Size = 832300		Sample Size = 532100	
Retinal detachment and defects	0.08	52700	0.07	17500	0.08	10200	0.07	10600	0.13	3600	0.13	1100	0.07	350

All Injury, burns and surgical complications of the eye	0.81	564800	0.91	221500	0.87	112500	0.66	103100	0.49	13900	1.16	9700	0.67	3600
All Disorders of optic nerve and visual pathways	0.24	169600	0.25	60500	0.24	30700	0.20	31300	0.32	9100	0.31	2600	0.19	1000
All Other visual disturbances	1.11	773500	1.12	274300	1.02	131100	1.07	167500	1.54	43600	1.08	9000	1.12	6000
All Infectious and inflammatory diseases	5.12	3560500	4.54	1108900	4.90	629800	5.58	870100	5.97	168800	5.18	43100	4.22	22500
All Orbital and external disease	1.24	865100	1.05	257100	1.04	133600	1.18	184600	3.11	88100	1.37	11400	1.08	5800
All Cancer and neoplasms of the eye diseases	0.11	74600	0.14	34500	0.05	7000	0.09	13700	0.10	2900	0.10	860	0.07	380
All Cornea disorders	0.19	131100	0.18	44400	0.19	25000	0.17	26000	0.26	7500	0.21	1800	0.19	1000
All Diabetic eye diseases	0.38	264600	0.33	80300	0.35	45500	0.45	70400	0.69	19500	0.59	4900	0.45	2400
All Age-related macular degeneration	0.10	71000	0.11	26800	0.06	7500	0.08	13100	0.37	10400	0.08	670	0.10	540
All Other retinal disorders	0.57	399200	0.47	115400	0.59	75600	0.52	81600	1.25	35300	0.62	5200	0.47	2500
All Glaucoma	0.97	672200	0.74	181800	1.17	150200	0.84	131500	2.43	68700	0.80	6700	0.76	4000
All Cataracts	0.96	670700	0.97	237800	0.91	117500	0.78	121700	2.30	65000	0.87	7200	0.95	5100
All Refraction and accommodation	13.19	9165000	13.78	3363300	12.14	1561800	13.72	2139400	12.51	353800	16.70	139000	11.21	59600
All Blindness and low vision	0.25	177100	0.21	50400	0.25	32400	0.33	51500	0.27	7700	0.26	2200	0.29	1500
All Strabismus and amblyopia	1.27	883200	1.33	323600	0.86	110300	1.37	214200	1.04	29300	1.35	11200	1.10	5900
Other eye disorders	1.01	704100	0.96	235400	1.05	135200	0.92	143300	1.47	41400	1.00	8300	0.86	4600

Table 11. Medical Diagnosis Categories by Risk Factors, 2019

	All Patients %	Numerator	Hypertension %	Numerator	Diabetes %	Numerator
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	Sample Size = 69502000		Sample Size = 69502000		Sample Size = 69502000	
Retinal detachment and defects	0.08	52700	0.42	14600	0.52	14000
All Injury, burns and surgical complications of the eye	0.81	564800	1.45	50700	1.18	31600
All Disorders of optic nerve and visual pathways	0.24	169600	0.73	25400	0.69	18500
All Other visual disturbances	1.11	773500	3.08	108000	2.61	69700
All Infectious and inflammatory diseases	5.12	3560500	6.44	226000	6.31	168800
All Orbital and external disease	1.24	865100	4.20	147400	4.15	111000
All Cancer and neoplasms of the eye diseases	0.11	74600	0.33	11700	0.35	9200
All Cornea disorders	0.19	131100	0.69	24300	0.66	17500
All Diabetic eye diseases	0.38	264600	4.10	143900	9.64	257800
All Age-related macular degeneration	0.10	71000	0.82	28700	0.86	23000
All Other retinal disorders	0.57	399200	3.70	129800	3.82	102300
All Glaucoma	0.97	672200	5.43	190500	6.42	171600
All Cataracts	0.96	670700	7.80	273700	9.55	255500
All Refraction and accommodation	13.19	9165000	18.58	651700	19.76	528500
All Blindness and low vision	0.25	177100	0.67	23400	0.61	16300
All Strabismus and amblyopia	1.27	883200	0.57	20000	0.58	15400
Other eye disorders	1.01	704100	3.17	111000	3.36	89700

Table 12. Medical Diagnosis Subgroups by Age, 2019

	All Ages %	Numerat or	0-17 Years %	Numerat or	18-39 Years %	Numerat or	40-64 Years %	Numerat or	65-84 Years %	Numerat or	85 Above %	Numerat or
	Sample Size = 69502000	Sample Size = 34094900	Sample Size = 22130700	Sample Size = 12766700	Sample Size = 455800	Sample Size = 54000						
Non-vision threatening DR	0.20	142100	0.00	1200	0.08	18200	0.89	113600	1.86	8500	1.14	620
Vision threatening DR	0.18	122600	0.00	310	0.07	14500	0.78	100200	1.59	7300	0.69	370
Non-vision threatening AMD	0.09	61700	0.00	1400	0.02	4900	0.35	45300	1.77	8100	3.85	2100
Vision threatening AMD	0.01	9300	0.00	40	0.00	330	0.04	5200	0.52	2400	2.44	1300
Glaucoma, non-suspect	0.32	222300	0.03	9500	0.11	24200	1.29	165000	4.48	20400	5.94	3200
Non-vision threatening glaucoma	0.68	471000	0.27	91900	0.53	117300	1.93	246600	3.05	13900	2.38	1300
Glaucoma, suspect	0.65	449900	0.26	87500	0.51	113200	1.85	235700	2.73	12400	1.80	970

Commented [AN1]: Not sure what the heading of this table would be..

Vision threatening glaucoma	0.29	201200	0.01	5100	0.09	20100	1.21	154200	4.16	19000	5.36	2900
Diagnosed untreated cataract	0.70	484000	0.05	17200	0.11	23800	3.16	403300	8.17	37300	4.58	2500
Diagnosed treated cataract	0.27	186700	0.07	23800	0.07	15100	0.93	119300	5.51	25100	6.32	3400
Any diagnosed eye disorder	20.53	14268600	22.78	7765500	15.11	3344300	23.53	3003500	30.59	139400	29.14	15700

Table 13. Medical Diagnosis Subgroups by Sex, 2019

	Both sexes %	Numerator	Female %	Numerator	Male %	Numerator
	Sample Size = 69502000		Sample Size = 37598800		Sample Size = 37598800	
Non-vision threatening DR	0.20	142100	0.22	80900	0.19	61100
Vision threatening DR	0.18	122600	0.17	63800	0.18	58700
Non-vision threatening AMD	0.09	61700	0.11	40800	0.07	20900
Vision threatening AMD	0.01	9300	0.02	5800	0.01	3500
Glaucoma, non-suspect	0.32	222300	0.35	132800	0.28	89600
Non-vision threatening glaucoma	0.68	471000	0.76	284000	0.59	187000
Glaucoma, suspect	0.65	449900	0.73	272900	0.55	177000
Vision threatening glaucoma	0.29	201200	0.32	121700	0.25	79500
Diagnosed untreated cataract	0.70	484000	0.77	290800	0.61	193100
Diagnosed treated cataract	0.27	186700	0.30	113600	0.23	73100
Any diagnosed eye disorder	20.53	14268600	22.16	8330500	18.61	5938000

Table 14. Medical Diagnosis Subgroups by Race, 2019

	All Races %	Numerator	White non-Hispanic %	Numerator	Black non-Hispanic %	Numerator	Hispanic %	Numerator	Asian %	Numerator	AIAN %	Numerator	Other %	Numerator
	Sample Size = 69502000		Sample Size = 24415600		Sample Size = 12863600		Sample Size = 15594200		Sample Size = 2828400		Sample Size = 832300		Sample Size = 532100	
Non-vision threatening DR	0.20	142100	0.18	44100	0.19	24200	0.23	35200	0.42	11900	0.35	2900	0.24	1300
Vision threatening DR	0.18	122600	0.15	36200	0.17	21300	0.23	35200	0.27	7600	0.24	2000	0.21	1100

Non-vision threatening AMD	0.09	61700	0.09	22600	0.05	6800	0.07	11400	0.32	9200	0.07	570	0.09	480
Vision threatening AMD	0.01	9300	0.02	4200	0.01	670	0.01	1700	0.04	1300	0.01	100	0.01	60
Glaucoma, non-suspect	0.32	222300	0.23	57200	0.43	55100	0.27	42100	0.88	25000	0.26	2200	0.24	1300
Non-vision threatening glaucoma	0.68	471000	0.53	130300	0.78	100100	0.60	94200	1.59	45000	0.57	4800	0.54	2900
Glaucoma, suspect	0.65	449900	0.51	124500	0.74	95100	0.57	89400	1.54	43700	0.54	4500	0.52	2800
Vision threatening glaucoma	0.29	201200	0.21	51400	0.39	50100	0.24	37400	0.84	23700	0.23	1900	0.22	1200
Diagnosed untreated cataract	0.70	484000	0.70	169900	0.69	89300	0.52	81000	1.73	48800	0.64	5300	0.71	3800
Diagnosed treated cataract	0.27	186700	0.28	68000	0.22	28200	0.26	40700	0.57	16200	0.23	1900	0.24	1300
Any diagnosed eye disorder	20.53	1426860	20.62	503420	19.21	247070	21.05	328220	22.43	634500	24.10	200600	17.50	93100

Table 15. Medical Diagnosis Subgroups by Risk Factors, 2019

	All Patients %	Numerator	Hypertension %	Numerator	Diabetes %	Numerator
	Sample Size = 69502000		Sample Size = 3506800		Sample Size = 2674000	
Non-vision threatening DR	0.20	142100	2.03	71200	5.13	137100
Vision threatening DR	0.18	122600	2.07	72800	4.51	120700
Non-vision threatening AMD	0.09	61700	0.70	24400	0.74	19900
Vision threatening AMD	0.01	9300	0.12	4300	0.12	3200
Glaucoma, non-suspect	0.32	222300	2.46	86300	2.81	75100
Non-vision threatening glaucoma	0.68	471000	3.14	110200	3.80	101600
Glaucoma, suspect	0.65	449900	2.97	104200	3.61	96500
Vision threatening glaucoma	0.29	201200	2.29	80400	2.62	70000
Diagnosed untreated cataract	0.70	484000	5.70	199800	7.02	187800
Diagnosed treated cataract	0.27	186700	2.11	73900	2.53	67600

Any diagnosed eye disorder	20.53	14268600	35.83	1256500	41.16	1100500
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Table 16. Service Utilization by Age, 2019

	All Ages %	Numerator	0-17 Years %	Numerator	18-39 Years %	Numerator	40-64 Years %	Numerator	65-84 Years %	Numerator	85 Above %	Numerator
	Sample Size = 69502000		Sample Size = 34094900		Sample Size = 22130700		Sample Size = 12766700		Sample Size = 455800		Sample Size = 54000	
Any Eye/Vision Screening	8.60	5980100	16.22	5530900	1.52	335500	0.85	108700	1.03	4700	0.54	290
Any Diagnostic Eye Test	2.37	1646400	1.17	397900	1.60	354300	6.50	830500	12.68	57800	11.27	6100
Eye Exam by Any Provider	13.48	9366400	13.51	4606000	10.39	2298300	18.32	2338900	24.76	112900	19.22	10400
Any Vision Correction	10.11	7030000	11.78	4017600	8.00	1770500	9.43	1204200	7.64	34800	5.39	2900

Table 17. Service Utilization by Sex, 2019

	Both sexes %	Numerator	Female %	Numerator	Male %	Numerator
	Sample Size = 69502000		Sample Size = 37598800		Sample Size = 31903200	
Any Eye/Vision Screening	8.60	5980100	7.88	2963700	9.45	3016400
Any Diagnostic Eye Test	2.37	1646400	2.65	996400	2.04	650000
Eye Exam by Any Provider	13.48	9366400	14.95	5620300	11.74	3746200
Any Vision Correction	10.11	7030000	11.38	4279800	8.62	2750200

Table 18. Service Utilization by Race, 2019

	All Races %	Numerator	White non-Hispanic %	Numerator	Black non-Hispanic %	Numerator	Hispanic %	Numerator	Asian %	Numerator	AIAN %	Numerator	Other %	Numerator
	Sample Size = 69502000		Sample Size = 24415600		Sample Size = 12863600		Sample Size = 15594200		Sample Size = 2828400		Sample Size = 832300		Sample Size = 532100	
Any Eye/Vision Screening	8.60	5980100	6.56	1601800	9.33	1199500	11.28	1758600	8.94	253000	3.64	30300	8.46	45000

Any Diagnostic Eye Test	2.37	1646400	1.99	485300	2.17	279600	2.65	412700	4.86	137400	1.71	14300	2.03	10800
Eye Exam by Any Provider	13.48	9366400	13.82	3373300	11.79	1517100	13.18	2054800	16.90	477900	13.14	109300	11.01	58600
Any Vision Correction	10.11	7030000	10.38	2533600	10.08	1297000	10.37	1616900	8.61	243400	11.03	91800	7.95	42300

Table 19. Service Utilization by Risk Factors, 2019

	All Patients %	Numerator	Hypertension %	Numerator	Diabetes %	Numerator
	Sample Size = 69502000		Sample Size = 3506800		Sample Size = 2674000	
Any Eye/Vision Screening	8.60	5980100	1.56	54600	2.45	65500
Any Diagnostic Eye Test	2.37	1646400	11.99	420600	17.66	472300
Eye Exam by Any Provider	13.48	9366400	28.27	991400	34.94	934300
Any Vision Correction	10.11	7030000	14.23	498900	14.38	384400

Table 20. Service Utilization by Any AMD Procedure, 2019

	AMD %	Numerator	Diabetes and AMD %	Numerator	Hypertension and AMD %	Numerator
	Sample Size = 71000		Sample Size = 23000		Sample Size = 28700	
Any AMD Procedure	6.89	4900	8.24	1900	7.87	2300

Table 21. Service Utilization by Any Glaucoma Procedure, 2019

	Glaucoma %	Numerator	Diabetes and Glaucoma %	Numerator	Hypertension and Glaucoma	Numerator
	Sample Size = 672200		Sample Size = 171600		Sample Size = 190500	
Any Glaucoma Procedure	4.66	31300	6.9	11800	6.9	13100

Table 22. Service Utilization by Any Diabetic Retinopathy Procedure, 2019

	Diabetic Retinopathy %	Numerator	Diabetes and Diabetic Retinopathy %	Numerator	Hypertension and Diabetic Retinopathy %	Numerator
	Sample Size = 264600		Sample Size = 257800		Sample Size = 143900	
Any DR Procedure	22.08	58400	22.53	58100	25.17	36200