

Supplementary Online Content

Tseng VL, Yu F, Lum F, Coleman AL. Risk of fractures following cataract surgery in Medicare beneficiaries. *JAMA*. 10.1001/jama.2012.9014.

eTables 1 Through 10. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in Each Decile Propensity Score Subgroup

eAppendix 1. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Cataract and Related Procedures

eAppendix 2. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Fractures With and Without Surgical Repair

eAppendix 3. International Classification of Diseases-Modification 9 (ICD-9) Codes Included in Definition of Comorbidities

eAppendix 4. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Ocular Comorbidities

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix 1. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Cataract and Related Procedures

Condition	Eligible ICD-9 Code
Cataract	366.x
Pseudophakia	V43.1
Aphakia	379.31
Severe cataract	366.13,14,17,18,19
Procedure	Eligible CPT Code
Simple cataract surgery	66984
Complex cataract surgery	66982
Removal of lens material	66840, 66850, 66852, 66920, 66930, 66940
Intracapsular cataract surgery	66983

eAppendix 2. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Fractures With and Without Surgical Repair

Type of Fracture	Eligible ICD-9 Codes
Skull/face	800.x-804.x
Vertebral	805.x-806.x
Ribs/sternum	807.x
Pelvis	808.x
Ill-defined bone/trunk	809.x
Shoulder	810.x-811.x
Arm	812.x-813.x
Wrist/hand	814.x-817.x
Ill-defined/multiple upper limb	818.x-819.x
Leg	820.x-823.x
Ankle/foot	824.x-826.x
Ill-defined/multiple lower limb	827.x-828.x
Unspecified	829.x
Type of Fracture Repair	Eligible CPT Codes
Head	21310, 21315, 21320, 21325, 21330, 21335, 21337, 21338, 21339, 21345, 21346, 21347, 21348, 21356, 21360, 21365, 21366, 21385, 21386, 21387, 21390, 21395, 21400, 21401, 21406, 21407, 21408, 21421, 21422, 21423, 21440, 21445, 21450, 21451, 21453, 21454, 21461, 21462, 21465
Neck/thorax	21800, 21805, 21820, 21825
Spine	22305, 22310, 22315, 22326, 22327, 22328
Shoulder	23500, 23505, 23515, 23570, 23575, 23585
Forearm/wrist	23614, 23616, 23620, 23625, 23630, 23665, 23670, 24500, 24505, 24515, 24545, 24546, 24575, 24576, 24577, 24579, 24586, 24587, 24620, 24635, 24650, 24655, 24665, 24666, 24670, 24675, 24685, 25500, 25505, 25515, 25520, 25525, 25526, 25530, 25535, 25545, 25560, 25565, 25574, 25575, 25605, 25607, 25608, 25609, 25652, 25650, 25652
Hand	25622, 25624, 25628, 25630, 25635, 25645, 26600, 26605, 26607, 26608, 26615, 26645, 26650, 26665, 26720, 26725, 26727, 26735, 26740, 26742, 26746, 26750, 26755, 26756, 26765
Pelvis/hip	27193, 27194, 27215, 27216, 27217, 27218, 27220, 27222, 27254
Upper leg/knee	27230, 27232, 27235, 27236, 27238, 27240, 27254, 27267, 27268, 27269, 27500, 27501, 27502, 27503, 27506, 27507, 27508, 27509, 27510, 27511, 27513, 27514, 27520, 27524
Lower leg	27530, 27532, 27535, 27536, 27538, 27750, 27752, 27756, 27758, 27780, 27781, 27784, 27786, 27788, 27792, 27824, 27825, 27826, 27827, 27828, 27855, 27856, 27892
Ankle	27760, 27762, 27766, 27767, 27768, 27769, 27808, 27810, 27814, 27816, 27818, 27822, 27823
Foot	28400, 28405, 28406, 28415, 28420, 28430, 28435, 28436, 28445, 28456, 28465, 28470, 28475, 28476, 28485, 28490, 28495, 28496, 28505, 28510, 28515, 28525
Hip fractures	ICD9: 808.x, 820.x CPT: 27193, 27194, 27215, 27216, 27217, 27218, 27220, 27222, 27254

eAppendix 3. International Classification of Diseases-Modification 9 (ICD-9) Codes Included in Definition of Comorbidities

Comorbidity	Eligible ICD-9 Codes
Myocardial Infarction	410.x-412.x
Congestive Heart Failure	398.91, 402.x, 404.x, 428.x
Peripheral Vascular Disease	440.24, 443.81, 443.89, 443.9, 785.4
Cerebrovascular Disease	430.x-438.x
Dementia	290.x, 291.2, 292.82, 294.1, 294.8
Chronic Pulmonary Disease	490.x-496.x, 500.x-505.x, 506.4, 508.1
Rheumatologic Disease	710.x, 714.x, 720.x, 725.x
Peptic Ulcer Disease	531.x-534.x
Cirrhosis	571.x
Hepatic Failure	070.x, 456.x, 570.x, 572.x
Immunosuppression	279.9
Diabetes Mellitus	250.0x-250.3x, 250.8x-250.9x
Diabetes Mellitus w/ Complications	250.4x-250.7x
Hemi/Paraplegia	342-344.x
Chronic Renal Disease	403.x, 404.x, 582.x, 583.x, 585.x, 586.x, 588.x, 593.9
Malignant Neoplasms	140.x-172.x, 174.x-176.x 179.x-195.x
Multiple Myeloma/Leukemia	203.x-208.x
Lymphomas	200.x-202.x
Metastatic Solid Tumor	196.x-198.x, 199.0x-199.1x
AIDS	042.x-043.x
Osteoporosis	733.0x
Hyperthyroidism	242.x
Hyperparathyroidism	252.0x
Cushing's Syndrome	255.0
Physically Limiting Conditions	337.0, 342.x, 343.1, 343.4, 344.x, 356.x, 359.x, 438.2x-438.5x, 440.20-22, 443.x, 780.72

eAppendix 4. International Classification of Diseases-Modification 9 (ICD-9) and Current Procedural Terminology (CPT) Codes Included in Definition of Ocular Comorbidities

Comorbid Condition	Eligible ICD-9 Codes
Glaucoma	365.x
Diabetes Mellitus with Ophthalmic Manifestations	250.5x, 362.0x
Age-Related Macular Degeneration	362.50-52

eTable 1. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the First Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=114,815	Cataract Surgery Group n=13,023	Cataract Diagnosis Group n=101,792	
Age (years)				0.72
65-69	114,592 (99.8)	12,996 (99.8)	101,596 (99.8)	
70-74	0	0	0	
75-79	0	0	0	
80-84	0	0	0	
85-90	0	0	0	
>90	223 (0.2)	27 (0.2)	196 (0.2)	
Mean±SD ^b	66.7±1.8	67.1±1.8	66.6±1.8	
Gender				<0.0001
Male	70,798 (61.7)	7,733 (59.4)	63,065 (61.9)	
Female	44,017 (38.3)	5,290 (40.6)	38,727 (38.1)	
Race				0.001
White	93,165 (81.1)	10,447 (80.2)	82,718 (81.3)	
Black	14,243 (12.4)	1,649 (12.7)	12,594 (12.4)	
Asian	2,591 (2.3)	326 (2.5)	2,265 (2.2)	
Hispanic	1,683 (1.5)	222 (1.7)	1,461 (1.4)	
Native American	439 (0.4)	66 (0.5)	373 (0.4)	
Other	2,602 (2.3)	308 (2.4)	2,294 (2.3)	
Unknown	92 (0.1)	<10 (0.04)	87 (0.1)	
Region of US Residence				0.38
East	76,757 (66.9)	8,629 (66.3)	68,128 (66.9)	
West	16,690 (14.5)	1,934 (14.8)	14,756 (14.5)	
Midwest	20,100 (17.5)	2,305 (17.7)	17,795 (17.5)	
South	1,268 (1.1)	155 (1.2)	1,113 (1.1)	
Charlson Comorbidity Index Score				<0.0001
1-2	95,970 (83.6)	10,446 (80.2)	85,524 (84.0)	
3-4	12,229 (10.6)	1,527 (11.7)	10,702 (10.5)	
≥5	6,616 (5.8)	1,050 (8.1)	5,566 (5.5)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	2,750 (2.4)	310 (2.4)	2,440 (2.4)	0.91
Hyperthyroidism	1,437 (1.3)	193 (1.5)	1,244 (1.2)	0.012
Hyperparathyroidism	264 (0.2)	45 (0.3)	219 (0.2)	0.003
Physically Limiting Conditions ^c	10,904 (9.5)	1,479 (11.4)	9,425 (9.3)	<0.0001
Ocular Comorbidities				
Age-Related Macular Degeneration	121 (0.1)	28 (0.2)	93 (0.1)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	856 (0.8)	136 (1.0)	720 (0.7)	<0.0001
Glaucoma	1,399 (1.2)	215 (1.6)	1,184 (1.2)	<0.0001
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 2. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Second Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=107,921	Cataract Surgery Group n=15,354	Cataract Diagnosis Group n=92,567	
Age (years)				<0.0001
65-69	105,191 (97.5)	14,795 (96.4)	90,396 (97.6)	
70-74	0	0	0	
75-79	0	0	0	
80-84	0	0	0	
85-90	0	0	0	
>90	2,730 (2.5)	559 (3.6)	2,171 (2.4)	
Mean±SD ^b	67.3±4.3	68.0±4.9	67.2±4.2	
Gender				<0.0001
Male	35,772 (33.1)	5,426 (35.3)	30,346 (32.8)	
Female	72,149 (66.9)	9,928 (64.7)	62,221 (67.2)	
Race				<0.0001
White	95,700 (88.7)	13,404 (87.3)	82,296 (88.9)	
Black	7,607 (7.1)	1,166 (7.6)	6,441 (7.0)	
Asian	1,473 (1.4)	264 (1.8)	1,209 (1.3)	
Hispanic	1,188 (1.1)	195 (1.3)	993 (1.1)	
Native American	408 (0.4)	79 (0.5)	329 (0.4)	
Other	1,456 (1.3)	231 (1.5)	1,225 (1.3)	
Unknown	89 (0.1)	15 (0.1)	74 (0.1)	
Region of US Residence				<0.0001
East	31,108 (28.8)	4,643 (30.2)	26,465 (28.6)	
West	23,737 (21.99)	3,172 (20.7)	20,565 (22.2)	
Midwest	36,234 (33.6)	5,056 (32.9)	31,178 (33.7)	
South	16,842 (15.6)	2,483 (16.2)	14,359 (15.5)	
Charlson Comorbidity Index Score				<0.0001
1-2	74,652 (69.2)	9,883 (64.4)	64,769 (70.0)	
3-4	27,755 (25.7)	4,385 (28.6)	23,370 (25.2)	
≥5	5,514 (5.1)	1,086 (7.1)	4,428 (4.8)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	16,289 (15.1)	2,174 (14.2)	14,115 (15.2)	0.0005
Hyperthyroidism	1,578 (1.5)	228 (1.5)	1,350 (1.5)	0.80
Hyperparathyroidism	695 (0.7)	80 (0.5)	615 (0.7)	0.040
Physically Limiting Conditions ^c	11,645 (10.8)	1,948 (12.7)	9,697 (10.5)	<0.0001
Ocular Comorbidities				
Age-Related Macular Degeneration	3,742 (3.5)	712 (4.6)	3,030 (3.3)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	4,417 (4.1)	738 (4.8)	3,679 (4.0)	<0.0001
Glaucoma	11,651 (10.8)	1,668 (10.9)	9,983 (10.8)	0.77
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 3. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Third Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=117,691	Cataract Surgery Group n=22,484	Cataract Diagnosis Group n=95,207	
Age (years)				<0.0001
65-69	81,626 (69.4)	15,182 (67.5)	66,444 (69.8)	
70-74	24,131 (20.5)	4,685 (20.8)	19,446 (20.4)	
75-79	<10 (0.0)	<10 (0.0)	<10 (0.0)	
80-84	0	0	0	
85-90	817 (0.7)	209 (0.9)	608 (0.6)	
>90	11,115 (9.4)	2,407 (10.7)	8,708 (9.2)	
Mean±SD ^b	70.3±7.7	71.0±7.8	70.1±7.7	
Gender				<0.0001
Male	44,056 (37.4)	8,791 (39.1)	35,265 (37.0)	
Female	73,635 (62.6)	13,693 (60.9)	59,942 (63.0)	
Race				0.004
White	101,887 (86.6)	19,279 (85.8)	82,608 (86.8)	
Black	10,487 (8.9)	2,149 (9.6)	8,338 (8.8)	
Asian	1,797 (1.5)	349 (1.5)	1,448 (1.5)	
Hispanic	1,468 (1.2)	298 (1.3)	1,170 (1.2)	
Native American	403 (0.3)	89 (0.4)	314 (0.3)	
Other	1,485 (1.3)	290 (1.3)	1,195 (1.3)	
Unknown	164 (0.1)	30 (0.1)	134 (0.1)	
Region of US Residence				<0.0001
East	46,968 (39.9)	9,093 (40.4)	37,875 (39.8)	
West	13,089 (11.1)	2,450 (10.9)	10,639 (11.2)	
Midwest	22,215 (18.9)	4,469 (19.9)	17,746 (18.6)	
South	35,419 (30.1)	6,472 (28.8)	28,947 (30.4)	
Charlson Comorbidity Index Score				<0.0001
1-2	80,582 (68.5)	14,717 (65.5)	65,865 (69.2)	
3-4	28,538 (24.2)	5,786 (25.7)	22,752 (23.9)	
≥5	8,571 (7.3)	1,981 (8.8)	6,590 (6.9)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	12,341 (10.5)	2,322 (10.3)	10,019 (10.5)	0.39
Hyperthyroidism	1,705 (1.5)	337 (1.5)	1,368 (1.4)	0.48
Hyperparathyroidism	699 (0.6)	152 (0.7)	547 (0.6)	0.075
Physically Limiting Conditions ^c	13,129 (11.2)	2,758 (12.3)	10,371 (10.9)	<0.0001
Ocular Comorbidities				
Age-Related Macular Degeneration	20,400 (17.3)	4,543 (20.0)	15,857 (16.7)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	10,587 (9.0)	2,315 (10.3)	8,272 (8.7)	<0.0001
Glaucoma	34,051 (28.9)	6,187 (27.5)	27,864 (29.3)	<0.0001
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 4. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Fourth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=105,332	Cataract Surgery Group n=27,358	Cataract Diagnosis Group n=77,974	
Age (years)				<0.0001
65-69	8,538 (8.1)	2,300 (8.4)	6,238 (8.0)	
70-74	76,188 (72.3)	19,278 (70.5)	56,910 (73.0)	
75-79	3,324 (3.2)	814 (3.0)	2,510 (3.2)	
80-84	1,644 (1.6)	438 (1.6)	1,206 (1.6)	
85-90	11,189 (10.6)	3,413 (12.5)	7,776 (10.0)	
>90	4,449 (4.2)	1,115 (4.1)	3,334 (4.3)	
Mean±SD ^b	74.2±6.5	74.6±6.5	74.1±6.5	
Gender				<0.0001
Male	43,806 (41.6)	10,780 (39.4)	33,026 (42.4)	
Female	61,526 (58.4)	16,578 (60.6)	44,948 (57.6)	
Race				0.81
White	88,205 (83.7)	22,913 (83.8)	65,292 (83.7)	
Black	10,972 (10.4)	2,842 (10.4)	8,130 (10.4)	
Asian	2,267 (2.2)	580 (2.1)	1,687 (2.2)	
Hispanic	1,873 (1.8)	494 (1.8)	1,379 (1.8)	
Native American	380 (0.4)	112 (0.4)	268 (0.3)	
Other	1,495 (1.4)	381 (1.4)	1,114 (1.4)	
Unknown	140 (0.1)	36 (0.1)	104 (0.1)	
Region of US Residence				<0.0001
East	53,905 (51.2)	14,582 (53.3)	39,323 (50.4)	
West	22,295 (21.2)	5,570 (20.4)	16,725 (21.5)	
Midwest	21,610 (20.5)	5,210 (19.0)	16,400 (21.0)	
South	7,522 (7.1)	1,996 (7.3)	5,529 (7.1)	
Charlson Comorbidity Index Score				0.005
1-2	68,766 (65.3)	17,662 (64.6)	51,104 (65.5)	
3-4	28,023 (26.6)	7,482 (27.3)	20,541 (26.3)	
≥5	8,543 (8.1)	2,214 (8.1)	6,329 (8.1)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	10,869 (10.3)	2,836 (10.4)	8,033 (10.3)	0.76
Hyperthyroidism	1,861 (1.8)	505 (1.9)	1,356 (1.7)	0.25
Hyperparathyroidism	540 (0.5)	142 (0.5)	398 (0.5)	0.86
Physically Limiting Conditions ^c	16,605 (15.8)	4,344 (15.9)	12,261 (15.7)	0.55
Ocular Comorbidities				
Age-Related Macular Degeneration	9,259 (8.8)	2,549 (9.3)	6,710 (8.6)	0.0003
Diabetes Mellitus with Ophthalmic Manifestations	3,819 (3.6)	1,092 (4.0)	2,727 (3.5)	0.0002
Glaucoma	9,257 (8.8)	2,408 (8.8)	6,849 (8.8)	0.93
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 5. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Fifth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=111,068	Cataract Surgery Group n=34,330	Cataract Diagnosis Group n=76,738	
Age (years)				<0.0001
65-69	979 (0.9)	370 (1.1)	609 (0.8)	
70-74	54,368 (49.0)	16,480 (48.0)	37,888 (49.4)	
75-79	28,849 (26.0)	8,752 (25.5)	20,097 (26.2)	
80-84	10,226 (9.2)	3,244 (9.5)	6,982 (9.1)	
85-90	15,044 (13.5)	5,027 (14.6)	10,017 (13.1)	
>90	1,602 (1.4)	457 (1.3)	1,145 (1.5)	
Mean±SD ^b	76.4±5.7	76.6±5.7	76.3±5.8	
Gender				0.90
Male	60,945 (54.9)	18,828 (54.8)	42,117 (54.9)	
Female	50,123 (45.1)	15,502 (45.2)	34,621 (45.1)	
Race				0.29
White	96,396 (86.8)	29,863 (87.0)	66,533 (86.7)	
Black	7,489 (6.7)	2,272 (6.6)	5,217 (6.8)	
Asian	2,676 (2.4)	801 (2.3)	1,875 (2.4)	
Hispanic	2,501 (2.3)	766 (2.2)	1,735 (2.3)	
Native American	445 (0.4)	154 (0.5)	291 (0.4)	
Other	1,378 (1.2)	426 (1.2)	952 (1.2)	
Unknown	183 (0.2)	48 (0.1)	135 (0.2)	
Region of US Residence				0.057
East	48,710 (43.9)	15,126 (44.1)	33,584 (43.8)	
West	18,399 (16.6)	5,765 (16.8)	12,634 (16.5)	
Midwest	29,061 (26.2)	8,966 (26.1)	20,095 (26.2)	
South	14,898 (13.4)	4,473 (13.0)	10,425 (13.6)	
Charlson Comorbidity Index Score				0.83
1-2	71,202 (64.1)	21,973 (64.0)	49,229 (64.2)	
3-4	28,890 (26.0)	8,971 (26.1)	19,919 (26.0)	
≥5	10,976 (9.9)	3,386 (9.9)	7,590 (9.9)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	11,017 (9.9)	3,363 (9.8)	7,654 (10.0)	0.36
Hyperthyroidism	1,507 (1.4)	481 (1.4)	1,026 (1.3)	0.39
Hyperparathyroidism	462 (0.4)	136 (0.4)	326 (0.4)	0.49
Physically Limiting Conditions ^c	19,061 (17.2)	5,882 (17.1)	13,179 (17.2)	0.87
Ocular Comorbidities				
Age-Related Macular Degeneration	8,009 (7.2)	2,601 (7.6)	5,408 (7.1)	0.002
Diabetes Mellitus with Ophthalmic Manifestations	4,166 (3.8)	1,310 (3.8)	2,856 (3.7)	0.45
Glaucoma	15,995 (14.4)	5,279 (15.4)	10,716 (14.0)	<0.0001
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 6. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Sixth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=111,359	Cataract Surgery Group n=39,669	Cataract Diagnosis Group n=71,690	
Age (years)				0.0008
65-69	93 (0.1)	36 (0.1)	57 (0.1)	
70-74	32,044 (28.8)	11,451 (28.9)	20,593 (28.7)	
75-79	43,493 (39.1)	15,265 (38.5)	28,228 (39.4)	
80-84	26,299 (23.6)	9,536 (24.0)	16,763 (23.4)	
85-90	9,204 (8.3)	3,323 (8.4)	5,881 (8.2)	
>90	226 (0.2)	58 (0.2)	168 (0.2)	
Mean±SD ^b	77.4±4.8	77.5±4.7	77.4±4.8	
Gender				0.068
Male	35,218 (31.6)	12,410 (31.3)	22,808 (31.8)	
Female	76,141 (68.4)	27,259 (68.7)	48,882 (68.2)	
Race				0.24
White	102,210 (91.8)	36,477 (91.9)	65,733 (97.7)	
Black	5,309 (4.8)	1,898 (4.8)	3,411 (4.8)	
Asian	1,416 (1.3)	481 (1.2)	935 (1.3)	
Hispanic	1,388 (1.3)	468 (1.2)	920 (1.3)	
Native American	271 (0.2)	97 (0.2)	174 (0.2)	
Other	650 (0.6)	214 (0.5)	436 (0.6)	
Unknown	115 (0.1)	34 (0.1)	81 (0.1)	
Region of US Residence				0.051
East	49,572 (44.5)	17,734 (44.7)	31,838 (44.4)	
West	17,892 (16.1)	6,467 (16.3)	11,425 (15.9)	
Midwest	27,484 (24.7)	9,611 (24.2)	17,873 (24.9)	
South	16,411 (14.7)	5,857 (14.8)	10,554 (14.7)	
Charlson Comorbidity Index Score				<0.0001
1-2	74,822 (67.2)	26,970 (68.0)	47,852 (66.8)	
3-4	28,475 (25.6)	10,039 (25.3)	18,436 (25.7)	
≥5	8,062 (7.2)	2,660 (6.7)	5,402 (7.5)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	15,291 (13.7)	5,541 (14.0)	9,750 (13.6)	0.088
Hyperthyroidism	1,732 (1.6)	603 (1.5)	1,129 (1.6)	0.48
Hyperparathyroidism	527 (0.5)	175 (0.4)	352 (0.5)	0.25
Physically Limiting Conditions ^c	15,391 (13.8)	5,284 (13.3)	10,107 (14.1)	0.0003
Ocular Comorbidities				
Age-Related Macular Degeneration	11,547 (10.4)	4,090 (10.3)	7,457 (10.4)	0.63
Diabetes Mellitus with Ophthalmic Manifestations	3,560 (3.2)	1,190 (3.0)	2,370 (3.3)	0.005
Glaucoma	15,436 (13.9)	5,705 (14.4)	9,731 (13.6)	0.0002
Severe Cataract ^d	0	0	0	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 7. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Seventh Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=109,416	Cataract Surgery Group n=43,485	Cataract Diagnosis Group n=65,931	
Age (years)				<0.0001
65-69	371 (0.3)	180 (0.4)	191 (0.3)	
70-74	16,308 (14.9)	6,617 (15.2)	9,691 (14.7)	
75-79	47,083 (43.0)	18,732 (43.1)	28,351 (43.0)	
80-84	33,102 (30.3)	13,325 (30.6)	19,777 (30.0)	
85-90	12,424 (11.4)	4,597 (10.6)	7,827 (11.9)	
>90	128 (0.1)	34 (0.1)	94 (0.1)	
Mean±SD ^b	77.0±5.9	76.6±5.9	77.3±5.8	
Gender				0.072
Male	40,336 (36.9)	16,171 (37.2)	24,165 (36.7)	
Female	69,080 (63.1)	27,314 (62.8)	41,766 (63.3)	
Race				0.62
White	100,823 (92.2)	40,105 (92.2)	60,718 (92.1)	
Black	4,077 (3.7)	1,570 (3.6)	2,507 (3.8)	
Asian	1,445 (1.3)	562 (1.3)	883 (1.3)	
Hispanic	1,982 (1.8)	801 (1.8)	1,181 (1.8)	
Native American	301 (0.3)	124 (0.3)	177 (0.3)	
Other	673 (0.6)	278 (0.6)	395 (0.6)	
Unknown	115 (0.1)	45 (0.1)	70 (0.1)	
Region of US Residence				0.036
East	32,044 (29.3)	12,538 (28.8)	19,506 (29.6)	
West	16,982 (15.5)	6,733 (15.5)	10,249 (15.5)	
Midwest	39,260 (35.9)	15,713 (36.1)	23,547 (35.7)	
South	21,130 (19.3)	8,501 (19.6)	12,629 (19.2)	
Charlson Comorbidity Index Score				<0.0001
1-2	64,754 (59.2)	26,383 (60.7)	38,371 (58.2)	
3-4	34,813 (31.8)	13,432 (30.9)	21,381 (32.4)	
≥5	9,849 (9.0)	3,670 (8.4)	6,179 (9.4)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	16,610 (15.2)	6,595 (15.2)	10,015 (15.2)	0.91
Hyperthyroidism	1,691 (1.6)	627 (1.4)	1,064 (1.6)	0.024
Hyperparathyroidism	768 (0.7)	288 (0.7)	480 (0.7)	0.20
Physically Limiting Conditions ^c	17,499 (16.0)	6,799 (15.6)	10,700 (16.2)	0.009
Ocular Comorbidities				
Age-Related Macular Degeneration	26,372 (24.1)	10,350 (23.8)	16,022 (24.3)	0.059
Diabetes Mellitus with Ophthalmic Manifestations	6,755 (6.2)	2,557 (5.9)	4,198 (6.4)	0.001
Glaucoma	29,087 (26.6)	11,836 (27.2)	17,251 (26.2)	0.0001
Severe Cataract ^d	339 (0.3)	168 (0.4)	171 (0.3)	0.0002

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 8. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Eighth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=113,313	Cataract Surgery Group n=52,738	Cataract Diagnosis Group n=60,575	
Age (years)				<0.0001
65-69	20,227 (17.9)	10,873 (20.6)	9,354 (15.4)	
70-74	5,583 (4.9)	2,669 (5.1)	2,914 (4.8)	
75-79	43,807 (38.7)	19,880 (37.7)	23,927 (39.5)	
80-84	38,073 (33.6)	17,126 (32.5)	20,947 (34.6)	
85-90	5,480 (4.8)	2,120 (4.0)	3,360 (5.6)	
>90	143 (0.1)	70 (0.1)	73 (0.1)	
Mean±SD ^b	78.7±4.6	78.7±4.5	78.8±4.6	
Gender				<0.0001
Male	33,966 (30.0)	16,632 (31.5)	17,334 (28.6)	
Female	79,347 (70.0)	36,106 (68.2)	43,241 (71.4)	
Race				0.0005
White	104,409 (92.1)	48,442 (91.9)	55,967 (92.4)	
Black	4,628 (4.1)	2,225 (4.2)	2,403 (4.0)	
Asian	1,455 (1.3)	747 (1.4)	708 (1.2)	
Hispanic	1,540 (1.4)	709 (1.3)	831 (1.4)	
Native American	289 (0.3)	147 (0.3)	142 (0.2)	
Other	922 (0.8)	442 (0.8)	480 (0.8)	
Unknown	70 (0.1)	26 (0.1)	44 (0.1)	
Region of US Residence				0.009
East	38,053 (33.6)	17,732 (33.6)	20,321 (33.6)	
West	15,066 (13.3)	6,908 (13.1)	8,158 (13.5)	
Midwest	28,975 (25.6)	13,700 (26.0)	15,275 (25.2)	
South	31,219 (27.5)	14,398 (27.3)	16,821 (27.8)	
Charlson Comorbidity Index Score				<0.0001
1-2	69,031 (60.9)	32,923 (62.4)	36,108 (59.6)	
3-4	35,869 (31.7)	16,152 (30.6)	19,717 (32.6)	
≥5	8,413 (7.4)	3,663 (7.0)	4,750 (7.8)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	17,947 (15.8)	8,155 (15.5)	9,792 (16.2)	0.001
Hyperthyroidism	1,668 (1.5)	763 (1.5)	905 (1.5)	0.51
Hyperparathyroidism	699 (0.6)	326 (0.6)	373 (0.6)	0.96
Physically Limiting Conditions ^c	15,061 (13.3)	6,805 (12.9)	8,256 (13.6)	0.0003
Ocular Comorbidities				
Age-Related Macular Degeneration	46,766 (41.3)	20,892 (39.6)	25,874 (42.7)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	9,334 (8.2)	3,987 (7.6)	5,347 (8.8)	<0.0001
Glaucoma	38,337 (33.8)	17,933 (34.0)	20,404 (33.7)	0.26
Severe Cataract ^d	20,370 (18.0)	10,943 (20.8)	9,427 (15.6)	<0.0001

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 9. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Ninth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=111,397	Cataract Surgery Group n=72,990	Cataract Diagnosis Group n=38,407	
Age (years)				<0.0001
65-69	38,416 (34.5)	23,275 (31.9)	15,141 (39.4)	
70-74	38,218 (34.3)	27,355 (37.5)	10,863 (28.3)	
75-79	12,753 (11.5)	8,344 (11.4)	4,409 (11.5)	
80-84	8,446 (7.6)	5,054 (6.9)	3,392 (8.8)	
85-90	8,060 (7.2)	5,695 (7.8)	2,365 (6.2)	
>90	5,504 (4.9)	3,267 (4.5)	2,237 (5.8)	
Mean±SD ^b	73.6±7.4	73.7±7.1	73.4±7.9	
Gender				<0.0001
Male	45,648 (41.0)	31,352 (43.0)	14,296 (37.2)	
Female	65,749 (59.0)	41,638 (57.0)	24,111 (62.8)	
Race				0.069
White	95,334 (85.6)	62,480 (85.6)	32,854 (85.5)	
Black	9,180 (8.2)	5,980 (8.2)	3,200 (8.3)	
Asian	2,465 (2.2)	1,659 (2.3)	806 (2.1)	
Hispanic	2,288 (2.1)	1,484 (2.0)	804 (2.1)	
Native American	491 (0.4)	308 (0.4)	183 (0.5)	
Other	1,479 (1.3)	987 (1.4)	492 (1.3)	
Unknown	160 (0.1)	92 (0.1)	68 (0.2)	
Region of US Residence				<0.0001
East	44,593 (40.0)	30,071 (41.2)	14,522 (37.8)	
West	19,864 (17.8)	13,146 (18.0)	6,718 (17.5)	
Midwest	26,749 (24.0)	17,293 (23.7)	9,456 (24.6)	
South	20,191 (18.1)	12,480 (17.1)	7,711 (20.1)	
Charlson Comorbidity Index Score				0.0003
1-2	67,983 (61.0)	44,581 (61.1)	23,402 (60.9)	
3-4	32,358 (29.1)	21,001 (28.8)	11,357 (29.6)	
≥5	11,056 (9.9)	7,408 (10.1)	3,648 (9.5)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	13,987 (12.6)	8,786 (12.0)	5,201 (13.5)	<0.0001
Hyperthyroidism	1,746 (1.6)	1,131 (1.6)	615 (1.6)	0.51
Hyperparathyroidism	700 (0.6)	455 (0.6)	245 (0.6)	0.77
Physically Limiting Conditions ^c	17,629 (15.8)	11,630 (15.9)	5,999 (15.6)	0.17
Ocular Comorbidities				
Age-Related Macular Degeneration	20,279 (18.2)	12,389 (17.0)	7,890 (20.5)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	9,675 (8.7)	6,147 (8.4)	3,528 (9.2)	<0.0001
Glaucoma	23,307 (20.9)	13,960 (19.1)	9,347 (24.3)	<0.0001
Severe Cataract ^d	101,081 (90.7)	67,691 (92.7)	33,390 (86.9)	<0.0001

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.

eTable 10. Baseline Characteristics of Patients with Cataract in the 5% Medicare Sample from 2002 to 2009 in the Tenth Decile Propensity Score Subgroup.

Characteristic	Number (%) of Patients with Characteristic			P Value ^a
	All Patients with Cataract n=111,328	Cataract Surgery Group n=89,378	Cataract Diagnosis Group n=21,950	
Age (years)				<0.0001
65-69	80 (0.1)	70 (0.1)	10 (0.1)	
70-74	19,153 (17.2)	15,223 (17.0)	3,930 (17.9)	
75-79	47,569 (42.7)	38,490 (43.1)	9,079 (41.4)	
80-84	34,793 (31.3)	28,095 (31.4)	6,698 (30.5)	
85-90	9,599 (8.6)	7,414 (8.3)	2,185 (9.9)	
>90	134 (0.1)	86 (0.1)	48 (0.2)	
Mean±SD ^b	78.5±4.4	78.4±4.4	78.5±4.6	
Gender				0.13
Male	35,641 (32.0)	28,519 (31.9)	7,122 (32.4)	
Female	75,687 (68.0)	60,859 (68.1)	14,828 (67.6)	
Race				<0.0001
White	102,539 (92.1)	82,652 (92.5)	19,887 (90.6)	
Black	4,118 (3.7)	3,112 (3.5)	1,006 (4.6)	
Asian	1,557 (1.4)	1,211 (1.4)	346 (1.6)	
Hispanic	1,976 (1.8)	1,522 (1.7)	454 (2.1)	
Native American	318 (0.3)	249 (0.3)	69 (0.3)	
Other	711 (0.6)	547 (0.6)	164 (0.8)	
Unknown	109 (0.1)	85 (0.1)	24 (0.1)	
Region of US Residence				<0.0001
East	40,150 (36.1)	31,918 (35.7)	8,232 (37.5)	
West	17,637 (15.8)	14,206 (15.9)	3,431 (15.6)	
Midwest	30,856 (27.7)	24,923 (27.9)	5,933 (27.0)	
South	22,685 (20.4)	18,331 (20.5)	4,354 (19.8)	
Charlson Comorbidity Index Score				<0.0001
1-2	64,997 (58.4)	52,486 (58.7)	12,511 (57.0)	
3-4	36,829 (33.1)	29,555 (33.1)	7,274 (33.1)	
≥5	9,502 (8.5)	7,337 (8.2)	2,165 (9.9)	
Systemic Comorbidities Associated With Fracture Risk				
Osteoporosis	17,234 (15.5)	14,074 (15.8)	3,160 (14.4)	<0.0001
Hyperthyroidism	1,742 (1.6)	1,391 (1.6)	351 (1.6)	0.65
Hyperparathyroidism	731 (0.7)	601 (0.7)	130 (0.6)	0.19
Physically Limiting Conditions ^c	16,680 (15.0)	13,144 (14.7)	3,536 (16.1)	<0.0001
Ocular Comorbidities				
Age-Related Macular Degeneration	35,922 (32.3)	29,520 (33.0)	6,402 (29.2)	<0.0001
Diabetes Mellitus with Ophthalmic Manifestations	8,835 (7.9)	7,216 (8.1)	1,619 (7.4)	0.0006
Glaucoma	33,862 (30.4)	27,551 (30.8)	6,311 (28.8)	<0.0001
Severe Cataract ^d	111,328 (100)	89,378 (100)	21,950 (100)	na

SD=Standard deviation.

^aChi-squared test compares values between cataract surgery and cataract diagnosis groups. Significant p-values (p<0.05) are bolded.

^bPatient age is truncated at 98 years in the Medicare database, so both mean and SD of age are underestimated.

^cIncludes conditions secondary to cerebrovascular events, hemi/paraplegia, myopathy, neuropathy, and peripheral vascular disease.

^dIncludes anterior and posterior subcapsular cataracts, total/mature cataract, hypermature cataract, combined forms of cataract.