The 'Medicare Effect': Screening and Diagnosis Rates Increase in the First Year of Medicare Coverage

Team A: Kersten Bartelt, RN; Joey Haddock; Alex Piff; Sam Sahakian
Team B: Blaine Franklin, PT, DPT; Steve Allen, MD; Evan Bryer; Joe McNitt
Last updated 26 July 2023 • Check for updates at EpicResearch.org

Key Findings:

- Patients are 50% more likely to get breast cancer screening and twice as likely to get colorectal cancer screening once on Medicare.
- Patients are also more likely to be newly diagnosed with lung cancer, breast cancer, colorectal cancer, prostate cancer, hypertension, hyperlipidemia, coronary heart disease, type 2 diabetes, depression, and COPD in the year in which they have their first Medicare encounter.

Insurance coverage has been shown to increase the likelihood of a patient visiting his or her physician, especially in an outpatient, primary care setting.[1] Since 2010, the Affordable Care Act has required health insurance companies to cover preventative care, such as cancer and chronic disease screenings. Despite these changes, improvements in screening rates for patients on private insurance have been modest.[1] Most Americans become eligible for government-subsidized Medicare insurance at age 65 but may not join Medicare right at age 65 if they have private insurance or can qualify for coverage earlier due to a disability or other factor. Some previous studies have suggested that cancer screening and subsequent care is more likely at age 65, which researchers posit is due to increased insurance coverage with Medicare eligibility.[2,3] To further investigate whether these increases are correlated more closely with when a patient starts their initial Medicare coverage than with the patient's age, we investigated the effect of having Medicare insurance coverage on cancer screening and diagnosis rates and chronic disease diagnosis rates.

First, we looked at cancer screening rates during the year of a patient's first Medicare encounter. We found that colorectal cancer screenings nearly doubled when the patient started Medicare coverage, while breast cancer screenings increased by about 50%, as shown in Figure 1. These elevated screening rates continued beyond the first year of coverage.

Breast and Colorectal Cancer Screening Rates Before and After Initial Medicare Encounter

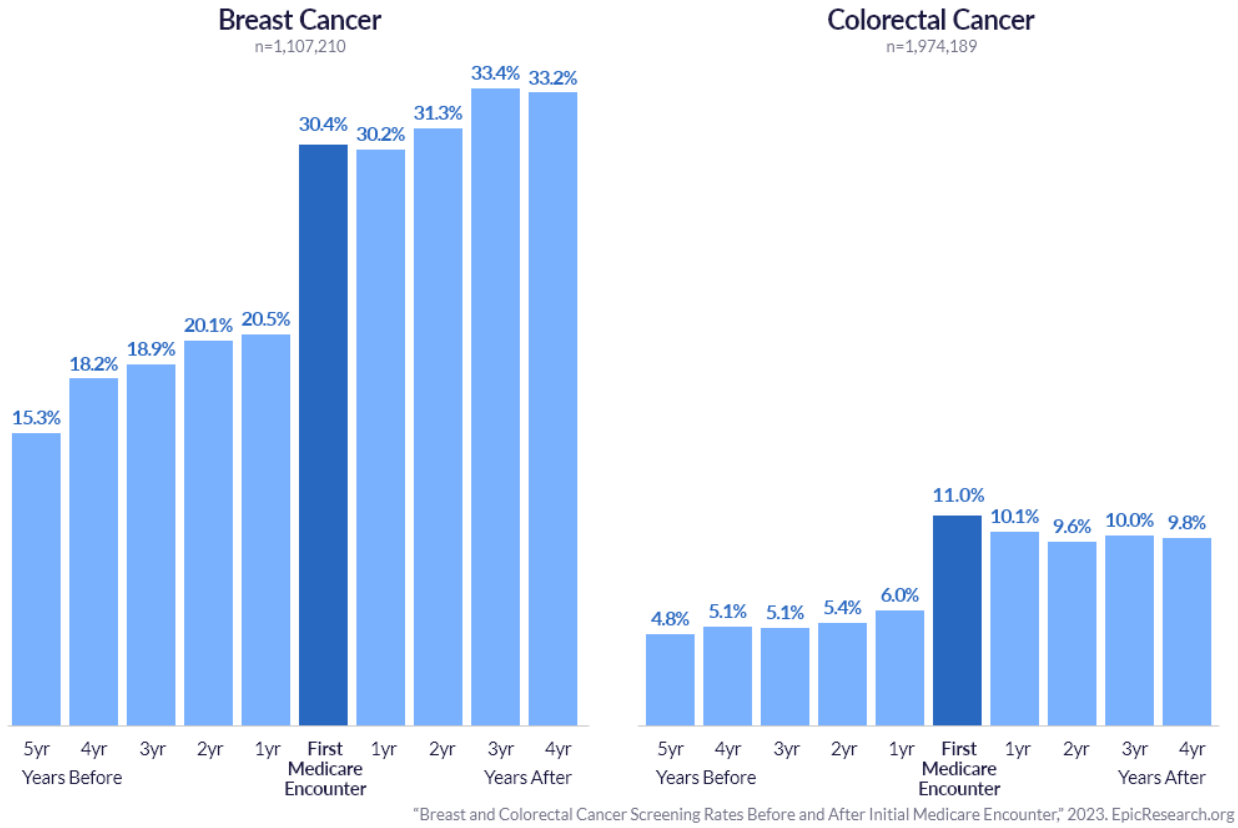

Figure 1. Rates of breast and colorectal cancer screening stratified by time from initial Medicare encounter.

To investigate whether an increase in access to healthcare and screenings resulted in new diagnoses, we evaluated 20,271,595 patients between the ages of 60 and 70 years old to see whether diagnoses for 14 common conditions occurred with greater frequency when patients had their first Medicare-covered encounter compared to when they were previously uninsured or covered by another insurer. We found that initial diagnosis of 10 of the 14 conditions—breast cancer, colorectal cancer, prostate cancer, lung cancer, hypertension, hyperlipidemia, coronary heart disease, type 2 diabetes, depression, and COPD—were more commonly diagnosed in the year the patient had their first Medicare encounter than in any of the five years before or after, as shown in Figure 2.

Diagnosis Rates for Common Conditions Before, At, and After Start of Medicare

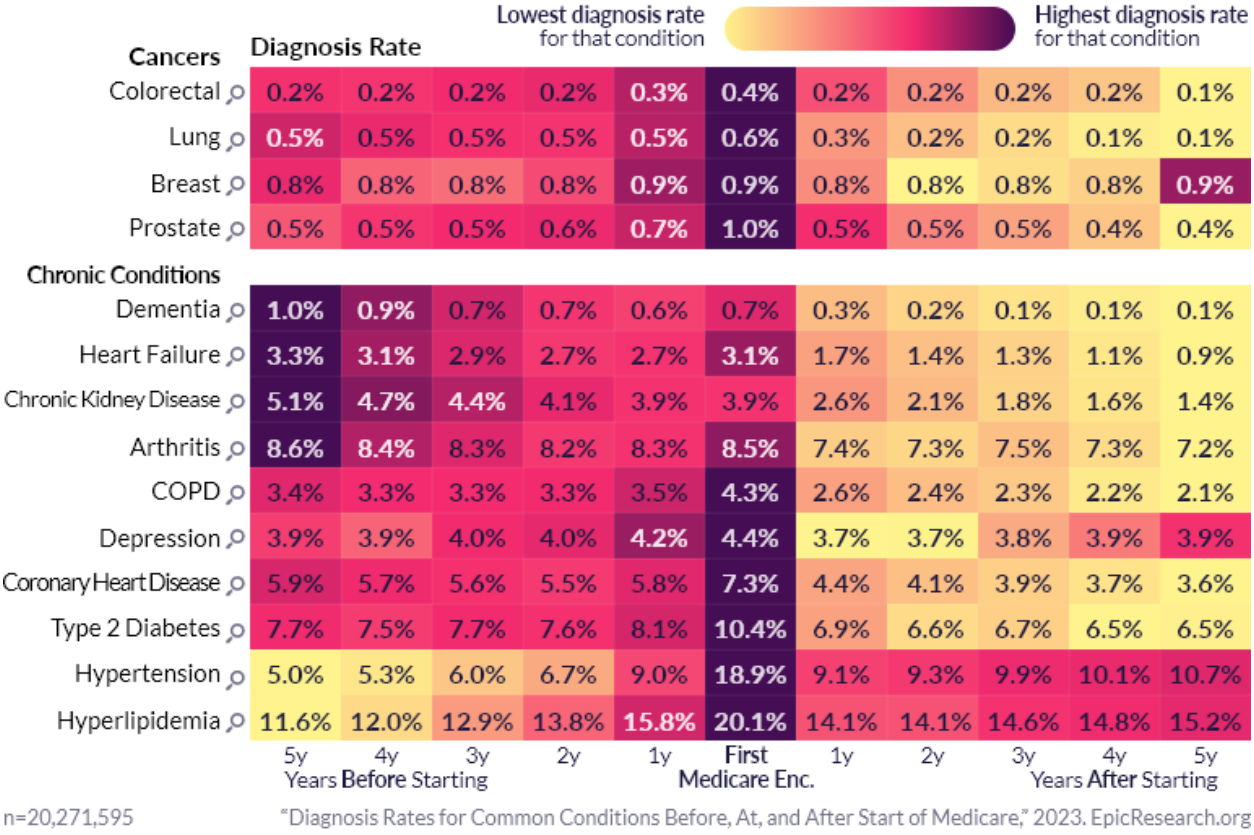

Figure 2. Diagnosis rates for common conditions stratified by time from initial Medicare encounter. Darkest cells represent the highest diagnosis rate for that condition over the 10 years assessed.

A main goal of the Medicare program is to help eligible patients receive appropriate management for chronic conditions, which starts with diagnosing the condition.[4] As shown in Figure 2, hyperlipidemia, hypertension, depression, type 2 diabetes, and coronary heart disease are commonly discovered and documented during the first year of Medicare eligibility. The same is true for lung, breast, prostate, and colorectal cancer. This aligns with previous studies showing a "Medicare effect" on the timing of cancer diagnoses.[2,3]

Some conditions, like dementia, chronic kidney disease, heart failure, and arthritis are more likely to be diagnosed before Medicare coverage takes effect. This might be because these diseases are more likely to have noticeable symptoms that might prompt a patient to seek medical care.

These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 193 million patients from 208 Epic organizations including 1,185 hospitals and more than 25,200 clinics, serving patients in all 50 states and Lebanon. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions.

References

1. Access to Preventive Services without Cost-sharing: Evidence from the Affordable Care Act (Issue Brief No. HP-2022- 01). Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. January 2022. preventive-services-ib-2022.pdf (hhs.gov). Accessed on July 3, 2023.
2. Patel DC, He H, Berry MF, et al. Cancer diagnoses and survival rise as 65-year-olds become Medicare-eligible. *Cancer*. 2021;127(13):2302-2310. doi:10.1002/cncr.33498
3. Meyer CP, Allard CB, Sammon JD, et al. The impact of Medicare eligibility on cancer screening behaviors. *Prev Med*. 2016;85:47-52. doi:10.1016/j.ypmed.2015.12.019
4. U.S Centers for Medicare & Medicaid Services. Traditional MIPS – Explore Measures & Activities. *Quality Payment Program*. Explore Measures & Activities (cms.gov). Accessed on July 3, 2023.

Data Definitions

Term	Definition
Study period	2017 - 2023
Study population for screenings	Patients aged 60-69 with at least one non-Medicare encounter before age 65 and at least one Medicare encounter after turning 65, and at least one encounter at an age to be included for that age.
Study population for diagnoses	Patients aged 60-70 with at least one face-to-face encounter.
Face-to-face-encounter	Encounter type of Allied Health, Ancillary procedure, Anticoagulation visit, Appointment, Audiology, Case management, Clinical support, Confidential, Diagnostic services, Education, Follow-up, Genetics, Home care visit, Hospital, Hospital encounter, Immunization, Infusion, Injection, Multidisciplinary visit, Nurse only, Nutrition, Office visit, Ophth exam, Occupational/Physical therapy, Procedural consult, Procedure visit, Radiology appointment, Research encounter, Sleep study, Social work, Speech therapy, Surgery, Transplant evaluation, Transplant follow-up, Treatment, Urgent care, Walk-in, E-Visit, E-Consult, Telemedicine, Telephone, or Telephone visit.
Colorectal cancer screening	Billing Procedure Linked diagnosis of SNOMED CT 275978004 or 275979007; or ICD-10-CM Z12.11 or Z12.12. Or procedure with name matching “sigmoidoscopy” “colonoscopy” or “colonography.” Or a multitarget stool DNA test result, indicated by LOINC code 77353-1 or 77354-9. Or a fecal occult blood test result, indicated by LOINC code 14563-1, 14564-9, 14565-6, 2335-8, 27396-1, 29771-3, 50196-5, 57803-9, 58453-2, 57905-2, 56490-6, 56491-4, 80372-6, 12504-7, 27926-5, 27401-9, 12503- 9, or 27925-7.
Breast cancer screening	As identified by Billing Procedure Linked diagnosis of SNOMED CT 268547008, 24623002, 384151000119104 or ICD-10 CM Z12.31, or lab codes of LOINC 24606-6 or procedure codes of CPT 77067 or 77063.
Breast cancer diagnosis	An encounter or billing diagnosis with ICD-10-CM code C50* with at least one previous face-to-face encounter that did not have a C50* diagnosis.
Colon cancer diagnosis	An encounter or billing diagnosis with ICD-10-CM code C18* or C20* with at least one previous face-to-face encounter that did not have a C18* diagnosis.
Prostate cancer diagnosis	An encounter or billing diagnosis with ICD-10-CM code C61* with at least one previous face-to-face encounter that did not have a C61* diagnosis.
Lung cancer diagnosis	An encounter or billing diagnosis with ICD-10-CM code C34* with at least one previous face-to-face encounter that did not have a C34* diagnosis.
Essential hypertension diagnosis	An encounter or billing diagnosis with ICD-10-CM code I10* with at least one previous face-to-face encounter that did not have a I10* diagnosis.

Hyperlipidemia diagnosis	An encounter or billing diagnosis with ICD-10-CM codes E78.0-78.5 with at least one previous face-to-face encounter that did not have a E78* diagnosis.
Type 2 diabetes diagnosis	An encounter or billing diagnosis with ICD-10-CM code E11* with at least one previous face-to-face encounter.
Depression diagnosis	An encounter or billing diagnosis with ICD-10-CM codes F32* except F32.5 with at least one previous face-to-face encounter that did not have an F32* diagnosis.
Dementia diagnosis	An encounter or billing diagnosis with ICD-10-CM code F01*-F03* with at least one previous face-to-face encounter that did not have an F01*-F03* diagnosis.
Chronic kidney disease diagnosis	An encounter or billing diagnosis with ICD-10-CM code N18* with at least one previous face-to-face encounter that did not have an N18* diagnosis.
Heart failure diagnosis	An encounter or billing diagnosis with ICD-10-CM code I50* with at least one previous face-to-face encounter that did not have an I50* diagnosis.
Arthritis diagnosis	An encounter or billing diagnosis with ICD-10-CM codes M05.6-M05.9 with at least one previous face-to-face encounter that did not have an M05.6-M05.9* diagnosis.
Coronary heart disease diagnosis	An encounter or billing diagnosis with ICD-10-CM code I25* with at least one previous face-to-face encounter that did not have an I25* diagnosis.
COPD diagnosis	An encounter or billing diagnosis with ICD-10-CM code J44* with at least one previous face-to-face encounter that did not have a J44* diagnosis.
Diagnosis Rate	The number of patients who received their first diagnosis of a disease during a specific time period divided by the total number of patients which had an encounter during that time period.

Table 1: Colorectal and Breast Cancer Screening Rates Before and After Initial Medicare Encounter

Years from Medicare	Total	Breast Cancer Screened	Breast % Screened	CRC Cancer Screened	CRC % Screened
-5	6,488	994	15.32%	547	4.78%
-4	19,916	3,618	18.17%	1,814	5.14%
-3	44,447	8,412	18.93%	4,033	5.08%
-2	91,580	18,446	20.14%	8,756	5.36%
-1	192,674	39,413	20.46%	20,774	6.00%
0	199,577	60,705	30.42%	39,466	11.00%
1	184,206	55,568	30.17%	33,429	10.14%
2	159,042	49,764	31.29%	27,271	9.64%
3	125,976	42,076	33.40%	22,082	9.95%
4	83,304	27,655	33.20%	14,282	9.84%

Table 2: Diagnosis Rates for Common Conditions Before, At, and After Start of Medicare

Years from Medicare Start	Patients with Encounters	Hypertension Dx	Hypertension Dx Rate	Hyperlipidemia Dx	Hyperlipidemia Dx Rate
-5	2,093,427	103,963	4.97%	242,084	11.56%
-4	2,283,972	120,651	5.28%	273,682	11.98%
-3	2,444,901	147,006	6.01%	316,369	12.94%
-2	2,652,206	176,671	6.66%	365,843	13.79%
-1	2,955,097	264,589	8.95%	465,571	15.75%
0	3,683,928	697,869	18.94%	739,077	20.06%
1	1,407,017	127,828	9.09%	198,043	14.08%
2	1,108,060	103,026	9.30%	156,087	14.09%
3	812,529	80,191	9.87%	118,481	14.58%
4	548,689	55,658	10.14%	81,210	14.80%
5	281,769	30,195	10.72%	42,761	15.18%

Years from Medicare Start	Arthritis Dx	Arthritis Dx Rate	Coronary Heart Disease Dx	Coronary Heart Disease Dx Rate
-5	180,326	8.61%	123,287	5.89%
-4	192,108	8.41%	129,159	5.66%
-3	203,615	8.33%	136,205	5.57%
-2	217,871	8.21%	144,954	5.47%
-1	243,848	8.25%	171,053	5.79%
0	312,377	8.48%	269,525	7.32%
1	104,107	7.40%	61,393	4.36%
2	81,401	7.35%	45,269	4.09%
3	60,690	7.47%	31,961	3.93%
4	40,147	7.32%	20,501	3.74%
5	20,242	7.18%	10,038	3.56%

Years from Medicare Start	Type 2 Diabetes Dx	Type 2 Diabetes Dx Rate	Chronic Kidney Disease Dx	Chronic Kidney Disease Dx Rate	Heart Failure Dx	Heart Failure Dx Rate
-5	160,922	7.69%	107,356	5.13%	69,589	3.32%
-4	172,043	7.53%	107,514	4.71%	69,701	3.05%
-3	187,084	7.65%	107,622	4.40%	70,524	2.88%
-2	201,627	7.60%	107,718	4.06%	71,587	2.70%
-1	239,755	8.11%	115,386	3.90%	80,971	2.74%
0	384,164	10.43%	143,009	3.88%	113,458	3.08%

1	97,665	6.94%	36,845	2.62%	23,977	1.70%
2	73,280	6.61%	23,760	2.14%	15,803	1.43%
3	54,275	6.68%	14,815	1.82%	10,173	1.25%
4	35,509	6.47%	8,744	1.59%	5,768	1.05%
5	18,295	6.49%	3,976	1.41%	2,620	0.93%

Years from Medicare Start	Depression Dx	Depression Dx Rate	Dementia Dx	Dementia Dx Rate	COPD Dx	COPD Dx Rate
-5	82,244	3.93%	20,720	0.99%	70,564	3.37%
-4	88,620	3.88%	19,569	0.86%	74,569	3.26%
-3	96,723	3.96%	18,143	0.74%	79,836	3.27%
-2	105,713	3.99%	17,309	0.65%	86,849	3.27%
-1	123,248	4.17%	18,335	0.62%	103,289	3.50%
0	161,288	4.38%	26,298	0.71%	156,972	4.26%
1	52,093	3.70%	3,576	0.25%	36,372	2.59%
2	41,047	3.70%	2,060	0.19%	26,741	2.41%
3	30,819	3.79%	1,160	0.14%	19,066	2.35%
4	21,132	3.85%	620	0.11%	11,946	2.18%
5	11,111	3.94%	266	0.09%	5,927	2.10%

Years from Medicare Start	Breast Cancer Dx	Breast Cancer Dx Rate	Colon Cancer Dx	Colon Cancer Dx Rate	Prostate Cancer Dx	Prostate Cancer Dx Rate	Lung Cancer Dx	Lung Cancer Dx Rate
-5	16,895	0.81%	4,661	0.22%	10,800	0.52%	10,530	0.50%
-4	18,014	0.79%	5,046	0.22%	12,275	0.54%	10,924	0.48%
-3	19,224	0.79%	5,570	0.23%	13,306	0.54%	11,328	0.46%
-2	21,057	0.79%	6,243	0.24%	14,890	0.56%	12,065	0.45%
-1	25,641	0.87%	8,500	0.29%	19,517	0.66%	15,422	0.52%
0	34,530	0.94%	14,651	0.40%	36,993	1.00%	22,905	0.62%
1	10,972	0.78%	2,939	0.21%	7,628	0.54%	3,885	0.28%
2	8,399	0.76%	2,003	0.18%	5,394	0.49%	2,303	0.21%
3	6,195	0.76%	1,317	0.16%	3,810	0.47%	1,281	0.16%
4	4,201	0.77%	860	0.16%	2,457	0.45%	683	0.12%
5	2,458	0.87%	385	0.14%	1,180	0.42%	319	0.11%