Abdominal Aortic Aneurysm Screening Rates Improving

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Key Findings:

- Abdominal aortic aneurysm (AAA) screenings are being performed 73% more often in recent months compared to 2017 among patients eligible to be screened.
- However, a drop in testing during the COVID-19 pandemic led to an estimated 13,600 missed screenings.

Abdominal aortic aneurysm (AAA) screening is recommended by the U.S. Preventive Services Task Force (USPSTF) to be performed once between the ages of 65 and 75 for men who have a history of smoking.[1]

To determine whether the COVID-19 pandemic influenced AAA screening rates, we studied 5,513,347 men aged 65 to 75 with a smoking history and no prior AAA screening who had at least one face-to-face encounter between January 2017 and December 2023. We found that screening rates trended upward from the first quarter of 2017 through the fourth quarter of 2019, going from 591 per 100,000 eligible patients to 885 per 100,000 eligible patients being screened. Then, rates dropped by more than half to 403 per 100,000 eligible patients in the second quarter of 2020. Since then, rates have trended upward again, surpassing the pre-pandemic rates and reaching 1,102 per 100,000 eligible patients in the fourth quarter of 2023, an increase of 86% from the start of the study period.

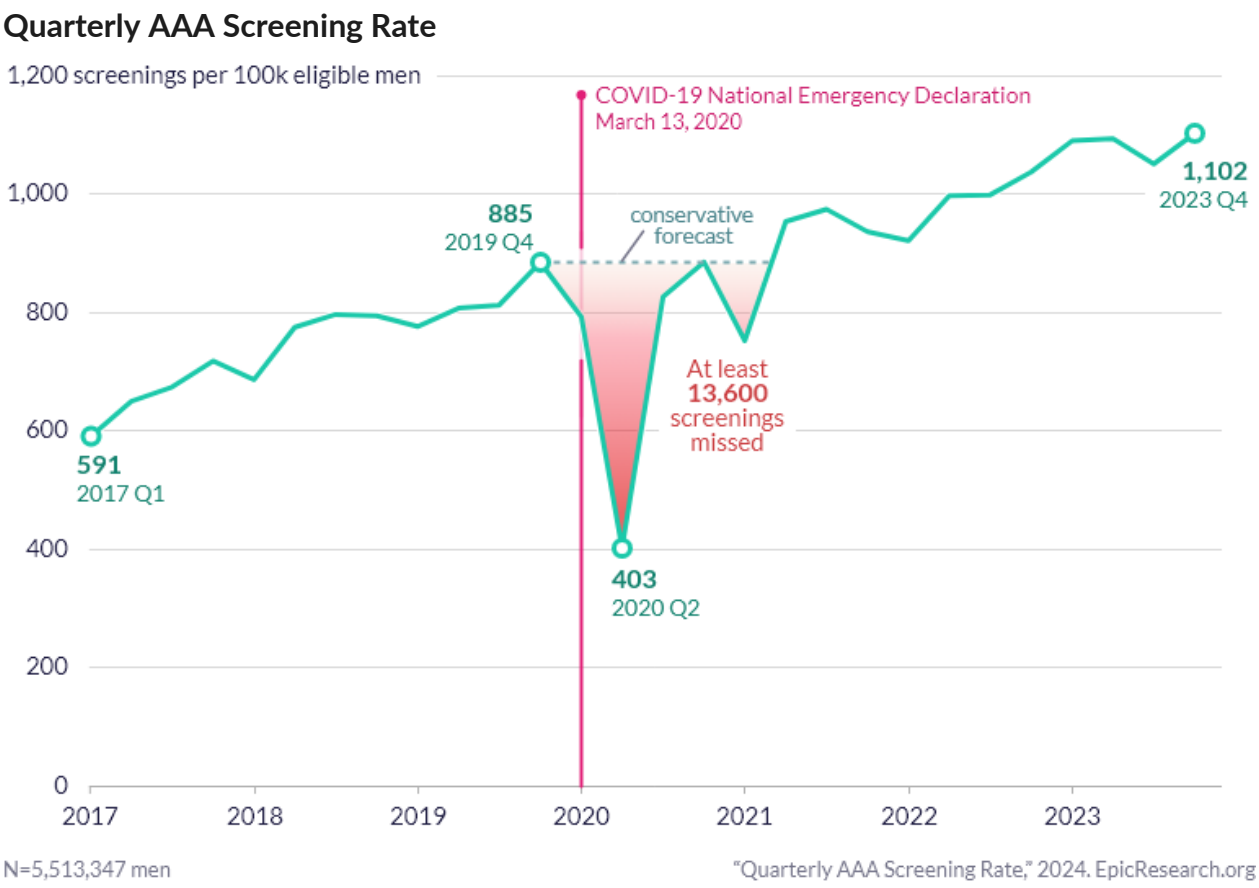

Figure 1. Quarterly rate of AAA screenings for eligible patients.

We used the screening rate from the fourth quarter of 2019 to forecast an expected AAA screening rate through the first quarter of 2021. Based on this projection, we estimate that at least 13,600 AAA screenings were missed in the Cosmos population between January 2020 and March 2021. It's important to note that our forecasted screening rates assume that the pre-pandemic increase in screenings would not have continued beyond 2019, potentially leading to an underestimation in missed screenings. Therefore, our estimate should be considered a conservative lower limit on the number of screenings missed.

To see how AAA screening rates compare to other types of screenings for this group of patients, we compared colorectal cancer screening rates from a previously published study to our AAA screening results. Colorectal cancer screening colonoscopies are recommended every 10 years for patients aged 45 to 75, which is a similar frequency and age group to those eligible for AAA screening.[2] That study showed, for patients over age 65, approximately 4,000 patients per 100,000 eligible were screened for colorectal cancer each quarter,[3] which is more than triple the AAA screening rate observed in this study.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 245 million patient records from 1,400 hospitals and more than 32,500 clinics from 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. Graphics by Brian Olson.

References

1. Abdominal Aortic Aneurysm: Screening. U.S. Preventative Services Task Force. Published December 10, 2019. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/abdominal-aortic-aneurysm-screening. Accessed March 5, 2024.
2. U.S. Preventive Services Task Force. Colorectal cancer: screening. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/colorectal-cancer-screening. Accessed April 11, 2024.
3. Fox B, Joyce B, Allen S, Sahakian S. Colorectal Cancer Screening Rates on the Rise Following Guideline Expansion. Epic Research. https://epicresearch.org/articles/colorectal-cancer-screening-rates-on-the-rise-following-guideline-expansion. Accessed on April 11, 2024.

Data Definitions

Term	Definition
Study period	1/1/2017 to 12/31/2023
Study population	Males, identified by legal sex, aged 65 to 75 during the **study period** with a **smoking history** who had a face-to-face outpatient encounter during the **study period**. Patients are excluded in quarters after they are screened. Patients with a **AAA screening** prior to 2017 are excluded.
AAA screening	A procedure with CPT code 76706 or HCPCS G0389 or unmapped procedures with "AAA," "abdominal aorta," or "aortic aneurysm" plus "screen," "ultrasound," or "US."
Smoking history	One of the following social determinants of health (SDOH) tobacco use history: • Current • Current every day smoker • Current some day smoker • Every day • Former • Former smoker • Heavy smoker • Heavy tobacco smoker • Light smoker • Light tobacco smoker • Some days Or a diagnosis with ICD-10-CM code F17, F17.20*, F17.21*, F17.29*, O99.33*, P04.2, T65.2, T65.22*, T65.29*, Z53.01, Z71.6, Z72.0, or Z87.891 Or a diagnosis indicating smoking tobacco use, identified by name including "Nicotine," "Smoking," or "Tobacco" and none of "Allergy," "Chew," "Consumption unknown," "Does not use," "Exposure," "Exposed," "Family," "Grilling," "Moist," "Never smoked," "Never used," "Non-nicotine," "Non smoker," "Occupational," "Smokeless," or "Smoking materials."

Table 1. Quarterly AAA Screening Rate

Quarter	Screened	Denominator	Percent
2017 Q1	6,779	1,147,148	0.591%
2017 Q2	8,054	1,238,934	0.650%
2017 Q3	8,666	1,284,796	0.675%
2017 Q4	9,857	1,372,748	0.718%
2018 Q1	9,854	1,434,821	0.687%
2018 Q2	11,687	1,507,925	0.775%
2018 Q3	12,343	1,549,180	0.797%
2018 Q4	12,940	1,628,545	0.795%
2019 Q1	12,862	1,656,294	0.777%
2019 Q2	13,747	1,702,710	0.807%
2019 Q3	14,080	1,733,105	0.812%
2019 Q4	15,619	1,765,549	0.885%
2020 Q1	14,169	1,787,120	0.793%
2020 Q2	6,806	1,688,940	0.403%
2020 Q3	15,229	1,843,487	0.826%
2020 Q4	16,520	1,867,055	0.885%
2021 Q1	15,943	2,118,738	0.752%
2021 Q2	18,834	1,975,605	0.953%
2021 Q3	19,279	1,979,478	0.974%
2021 Q4	19,000	2,029,559	0.936%
2022 Q1	18,779	2,038,496	0.921%
2022 Q2	20,830	2,090,244	0.997%
2022 Q3	21,137	2,117,054	0.998%
2022 Q4	22,297	2,150,470	1.037%
2023 Q1	23,677	2,174,335	1.089%
2023 Q2	24,009	2,196,883	1.093%
2023 Q3	23,092	2,198,894	1.050%
2023 Q4	24,264	2,202,053	1.102%
2024 Q1	5,343	1,316,286	0.406%