

Most Men Starting Testosterone Had Prior Testing, but Only 1 in 5 Met the Two-Test Standard

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Key Findings:

- Of men newly prescribed testosterone in 2026, 82.6% had their testosterone tested in the 12 months prior, while only 21.8% had two low total-testosterone results within the six months before their prescription, our lab-observable proxy for the American Urological Association (AUA) two-test standard.
- The proportion of men newly starting testosterone who had at least one low testosterone result in the prior year was generally lower with older age groups, ranging from 66.2% among men aged 30–39 to 58.8% among men aged 75 and older.
- Most men started testosterone therapy through primary care, followed by urology and endocrinology. The proportion of men who had a documented low testosterone result before starting treatment was highest in endocrinology (69.6%), with lower rates in primary care (63.5%) and urology (60.0%).

Testosterone therapy treats hypogonadism, or low testosterone, which is a deficiency of the primary male sex hormone that can cause symptoms such as low libido, fatigue, and erectile dysfunction. The American Urological Association (AUA) defines low testosterone as a total testosterone level consistently below 300 ng/dL on at least two early-morning blood tests, considered together with relevant symptoms or signs.¹ Testosterone prescribing rose sharply in the United States through the 2000s and early 2010s, a period marked by direct-to-consumer "low T" marketing and the wider availability of convenient topical formulations.² As use expanded, concerns about cardiovascular safety emerged, and in 2015 the U.S. Food and Drug Administration (FDA) required labeling that warned of a possible increased risk of heart attack and stroke.³ Prescribing subsequently declined.⁴ In 2023, the TRAVERSE trial found that, among men with hypogonadism and pre-existing elevated cardiac risk, testosterone therapy was not associated with an additional increase in the risk of major adverse cardiac events compared with placebo.⁵ In February 2025, the FDA removed boxed-warning language about an increased risk of adverse cardiovascular outcomes from testosterone product labels, while adding a class-wide warning about increased blood pressure.⁶ Prescribing has since rebounded to and beyond its early-2010s levels.⁷ As new prescriptions rise again, it is unclear whether testing to establish a deficiency before treatment has kept pace.

We studied 300,277 male patients who were ordered a new testosterone prescription between January 2017 and June 2026. For each patient starting testosterone, we determined whether the prescription was preceded, in the prior 12 months, by any testosterone test, by two or more tests on separate days, by at least one low total-testosterone result (below 300 ng/dL), or by two low total-testosterone results within six months beforehand (our proxy for the lab-observable AUA testing criterion).

Testing before starting testosterone became more common over the study period, but testing that meets the lab-observable portion of the guideline standard for diagnosing testosterone deficiency remained uncommon. The share of men starting testosterone who had at least one testosterone test in the prior 12 months rose from 72.3% in 2017 to a peak of 83.8% in 2024 before declining slightly to 82.6% in the first

half of 2026. The proportion of men with a new testosterone prescription who had two or more tests on separate days in the year prior to the prescription rose fairly steadily, from 28.5% in 2017 to 40.8% in the first half of 2026. The share meeting the lab-observable AUA criterion (two total-testosterone results below 300 ng/dL on separate days) within six months before prescribing rose from 16.9% in 2017 to a peak of 22.8% in 2024 to 21.8% in the first half of 2026. New prescriptions are skewed toward more recent years, consistent with the rise in prescribing previously reported.⁷

Testosterone Testing Before Starting Therapy by Year

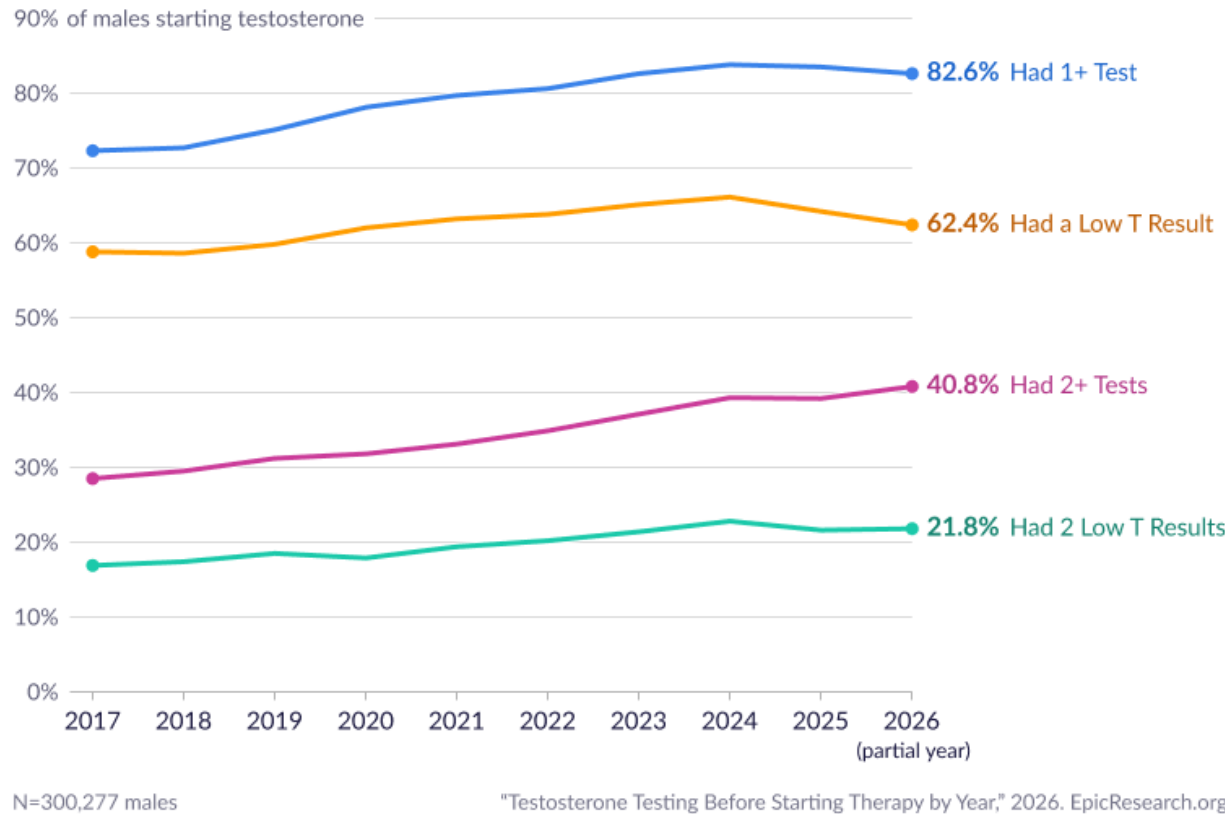


Figure 1. The percentage of men starting testosterone who met each testing measure (any test, two or more tests on separate days, at least one low total-testosterone result within 12 months, and the AUA criterion within six months). Data for 2026 covers January through June.

The presence of a documented low testosterone result before starting testosterone was common across all age groups but declined modestly with age. Among men who started testosterone, the share with at least one total-testosterone result below 300 ng/dL in the prior year ranged from 66.2% among those aged 30–39 to 58.8% among those aged 75 and older.

Percentage of Patients with a Low Testosterone Result Before Starting Testosterone by Age Group

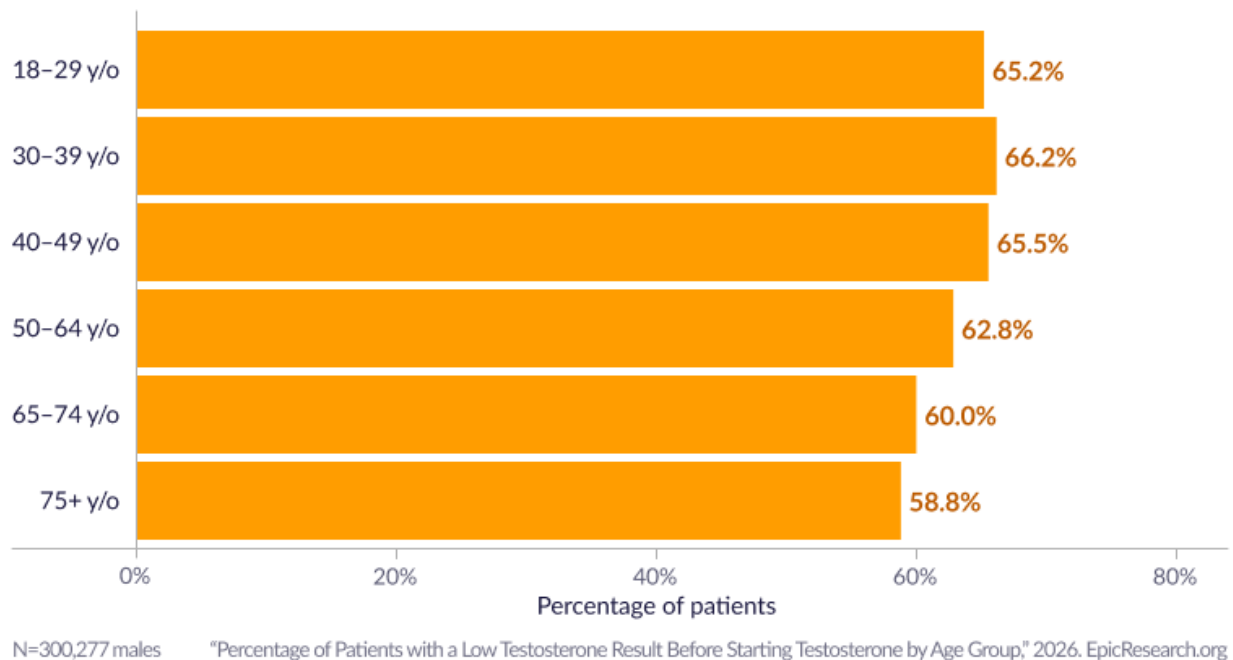


Figure 2. The percentage of men starting testosterone with at least one total-testosterone result below 300 ng/dL in the 12 months before the prescription by age group.

Testing in the year prior to starting testosterone varied by prescribing specialty, and the specialties writing the most prescriptions were not the ones testing most consistently. We grouped prescribers into primary care, urology, endocrinology, and oncology/hematology, with all remaining specialties combined. Urology and endocrinology are specialties that often diagnose and manage testosterone deficiency; oncology and hematology encounter it in narrower contexts, since some cancer treatments lower testosterone.⁸ Most men starting testosterone received their prescription from primary care (57.6%), with urology (17.4%) and endocrinology (11.0%) a distant second and third and oncology/hematology accounting for fewer than 1%. Among these groups, prescriptions from endocrinology had the highest share with a low testosterone result in the prior year, at 69.6%, while urology had the lowest, at 60.0%.

Percentage of Patients with a Low Testosterone Result Before Starting Testosterone by Prescriber Specialty

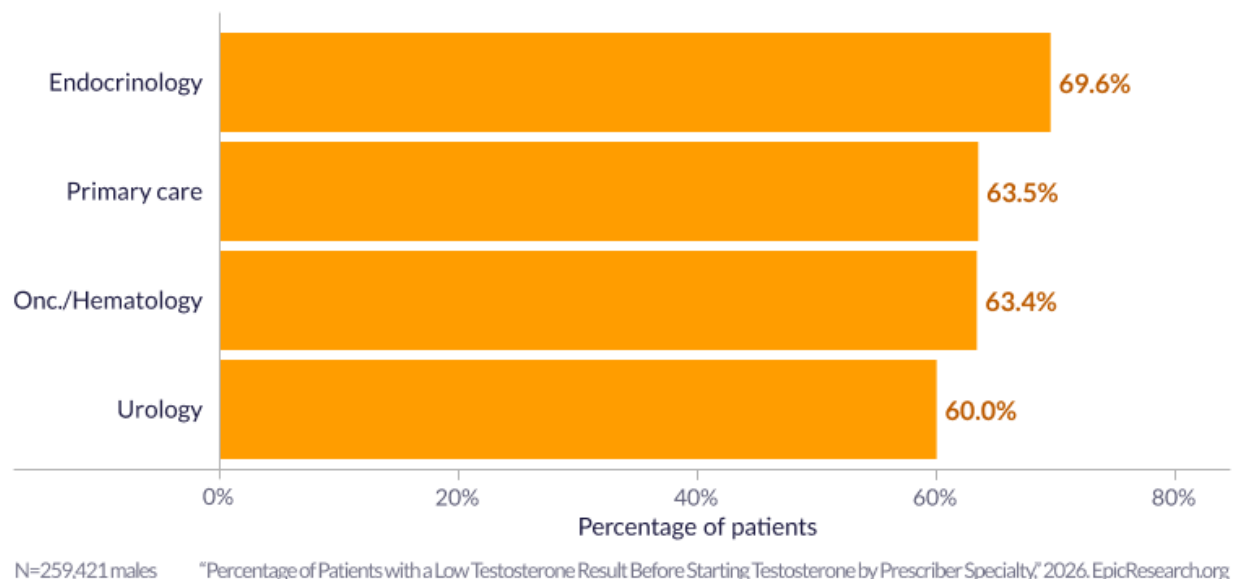


Figure 3. The percentage of men starting testosterone with at least one total-testosterone result below 300 ng/dL in the 12 months before the prescription by provider specialty. Provider specialties grouped into "other/unknown" are not included.

Testosterone therapy is often advertised via direct-to-consumer channels, men who are prescribed testosterone this way are likely not included in this study.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 310 million patient records from 2,200 hospitals and more than 50,000 clinics from all 50 U.S. states, Canada, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientist. The two teams came to similar conclusions. Graphics by Brian Olson.

References

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Data Definitions

Term	Definition
Study period	January 2017 to June 2026
Study population: inclusion	Patients: • With an evaluated sex of male • With a new testosterone prescription occurring during the study period • With at least one outpatient face-to-face encounter in the 12 to 24 months prior to the index date
Study population: exclusion	Transgender or gender-identity diagnosis (any time): ICD-10-CM code F64*, Z87.890 Age under 18 at the index date Prior patient-reported testosterone before index date Index date within 12 months of an organization's first observed testosterone lab
Index date	Start date of the qualifying new testosterone prescription
Exposure	Calendar year of the index prescription
Outcomes	Among men with new testosterone prescriptions, the proportion whose index prescription was preceded by: ≥1 testosterone test within 12 months; ≥2 testosterone tests on separate days within 12 months; ≥1 total testosterone result below 300 ng/dL within 12 months; labs meeting the lab-observable AUA testing criterion within six months. Denominators vary by outcome; see the denominator row.
Denominator	Outcomes based on a numeric threshold (≥1 total testosterone below 300 ng/dL; the lab-observable AUA testing criterion) require total testosterone values readable. Some testosterone labs in Cosmos do not have a readable numeric value. Denominators for different outcome groups vary slightly due to exclusions of cases where unreadable numeric values make the threshold unable to be assessed.
New testosterone prescription	A medication order with type Prescription and ATC code G03BA03, with no previous testosterone medication order of any type (inpatient, outpatient, patient-reported, or unspecified) before the index date
Outpatient face-to-face encounter	Encounter with type Emergency, Office Visit, Well Child, Follow-up, Telemedicine, Urgent Care, or Walk-In
Testosterone test	Any total testosterone or free testosterone result
Total testosterone	A lab with LOINC code 2986-8, 83116-4, 35224-5, 49041-7, 14913-8, or 2993-4 (deprecated; retained for historical results)
Free testosterone	A lab with LOINC code 2991-8, 49042-5, 14914-6, 25987-9, or 35225-2
Lab-observable AUA testing criterion	At least two total testosterone results below 300 ng/dL on separate days within six months before the index date . Lab-observable proxy for the AUA's two test standard: the AUA requires two early-morning total testosterone measurements on separate occasions with no specified

	interval, so the 6-month window, the early timing, and the symptom requirement are study operationalization or are not captured.
Primary provider specialty	Specialty of the primary provider on the index date , grouped as primary care, urology, endocrinology, oncology/hematology, or other/unknown
Model specifications	Descriptive annual percentage time-series
Limitations	• External or unmapped labs are not captured and will be missed, undercounting testing. • Testosterone prescribed through online/telehealth TRT is likely under captured. • The proportion of unmapped labs has decreased slightly over the study period, which might lead to an under-estimate of testing trends earlier in the study period. • Defining "new" prescriptions may over-count new starters at the very beginning of the study period. • Due to Cosmos time-zone handling, early-morning timing of labs cannot be guaranteed. • The lab-observable AUA testing criterion omits the early-morning-draw and symptom requirements of the AUA standard and is a partial proxy. • Transgender/gender-identity coding is likely incomplete; residual gender-affirming testosterone may remain in the cohort. • Data for 2026 reflect a partial year (January–June).

Table 1. Baseline Composition of the Study Population

Characteristic	Category	New Prescriptions (N)	% of Group
Total	All	300,277	100.0
Age group	18–29	7,122	2.4
	30–39	35,625	11.9
	40–49	74,924	25.0
	50–64	122,839	40.9
	65–74	44,338	14.8
	75+	15,429	5.1
Provider specialty	Primary care	172,852	57.6
	Urology	52,241	17.4
	Endocrinology	32,999	11.0
	Oncology/Hematology	1,329	0.4
	Other/Unknown	40,856	13.6

Table 2. Testosterone Testing Before Starting Therapy by Year

Index year	Testing Measure	Numerator	Denominator	Percent
2017	≥1 test (12 mo)	10,876	15,048	72.3
	≥2 tests, separate days (12 mo)	4,291	15,048	28.5
	≥1 total <300 (12 mo)	8,628	14,675	58.8
	AUA: ≥2 totals <300 (6 mo)	2,474	14,678	16.9
2018	≥1 test (12 mo)	12,322	16,959	72.7
	≥2 tests, separate days (12 mo)	5,007	16,959	29.5
	≥1 total <300 (12 mo)	9,699	16,551	58.6
	AUA: ≥2 totals <300 (6 mo)	2,876	16,554	17.4

2019	≥1 test (12 mo)	14,674	19,533	75.1
	≥2 tests, separate days (12 mo)	6,091	19,533	31.2
	≥1 total <300 (12 mo)	11,413	19,089	59.8
	AUA: ≥2 totals <300 (6 mo)	3,539	19,101	18.5
2020	≥1 test (12 mo)	14,338	18,366	78.1
	≥2 tests, separate days (12 mo)	5,839	18,366	31.8
	≥1 total <300 (12 mo)	11,073	17,870	62.0
	AUA: ≥2 totals <300 (6 mo)	3,194	17,874	17.9
2021	≥1 test (12 mo)	18,833	23,628	79.7
	≥2 tests, separate days (12 mo)	7,819	23,628	33.1
	≥1 total <300 (12 mo)	14,664	23,185	63.2
	AUA: ≥2 totals <300 (6 mo)	4,496	23,199	19.4
2022	≥1 test (12 mo)	22,345	27,728	80.6
	≥2 tests, separate days (12 mo)	9,673	27,728	34.9
	≥1 total <300 (12 mo)	17,374	27,244	63.8
	AUA: ≥2 totals <300 (6 mo)	5,514	27,242	20.2
2023	≥1 test (12 mo)	32,170	38,968	82.6
	≥2 tests, separate days (12 mo)	14,462	38,968	37.1
	≥1 total <300 (12 mo)	25,058	38,479	65.1
	AUA: ≥2 totals <300 (6 mo)	8,218	38,470	21.4
2024	≥1 test (12 mo)	42,175	50,333	83.8
	≥2 tests, separate days (12 mo)	19,801	50,333	39.3
	≥1 total <300 (12 mo)	32,896	49,744	66.1
	AUA: ≥2 totals <300 (6 mo)	11,344	49,756	22.8
2025	≥1 test (12 mo)	48,400	57,993	83.5
	≥2 tests, separate days (12 mo)	22,745	57,993	39.2
	≥1 total <300 (12 mo)	36,882	57,452	64.2
	AUA: ≥2 totals <300 (6 mo)	12,421	57,457	21.6
2026	≥1 test (12 mo)	26,190	31,721	82.6
	≥2 tests, separate days (12 mo)	12,946	31,721	40.8
	≥1 total <300 (12 mo)	19,614	31,446	62.4
	AUA: ≥2 totals <300 (6 mo)	6,842	31,444	21.8

Table 3. Percentage of Patients with a Low Testosterone Result Before Starting Testosterone by Age Group

Age Group	≥1 Total <300, 12 mo (n / N)	% ≥1 Low	≥2 Totals <300, 6 mo (n / N)	% ≥2 Low
18-29	4,556 / 6,989	65.2	1,542 / 6,987	22.1
30-39	23,305 / 35,229	66.2	8,370 / 35,224	23.8
40-49	48,518 / 74,029	65.5	16,624 / 74,032	22.5
50-64	76,049 / 121,056	62.8	23,962 / 121,080	19.8
65-74	26,079 / 43,474	60.0	7,915 / 43,487	18.2
75+	8,794 / 14,958	58.8	2,505 / 14,965	16.7

Table 4. Percentage of Patients with a Low Testosterone Result Before Starting Testosterone by Prescriber Specialty

Provider Specialty	≥1 Total <300, 12 mo (n / N)	% ≥1 Low	≥2 Totals <300, 6 mo (n / N)	% ≥2 Low
Primary care	108,301 / 170,550	63.5	32,133 / 170,584	18.8
Urology	30,898 / 51,480	60.0	10,796 / 51,496	21.0
Endocrinology	22,286 / 32,038	69.6	9,753 / 32,038	30.4
Oncology / Hematology	812 / 1,281	63.4	181 / 975	18.6
Other / Unknown	25,004 / 40,386	61.9	8,023 / 40,375	19.9