Underutilization of Statin Therapy After a Cardiovascular Event or Diabetes Diagnosis in Three Real-World Data Systems

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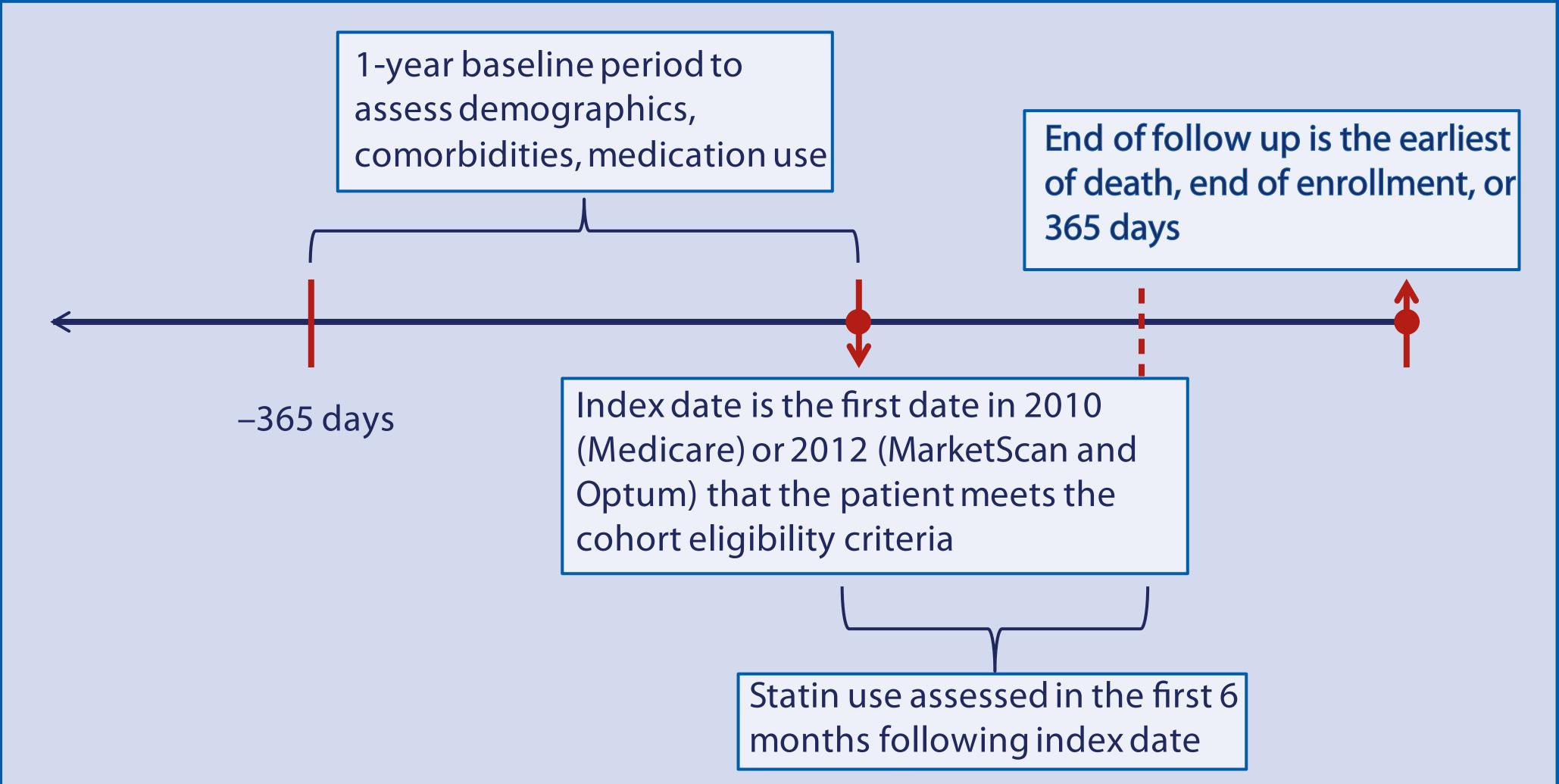
BACKGROUND

- Cardiovascular disease (CVD) is one of the leading causes of morbidity and mortality in the United States[1]
- Patients diagnosed with type 2 diabetes mellitus (T2DM) are at increased risk of CVD incidence and mortality[1]
- National guidelines recommend statins after hospitalization for CVD events and for patients with T2DM[2]

OBJECTIVE

- To determine the percentage of patients filling statins after an atherosclerotic CVD (ASCVD) event or a diagnosis of T2DM in 3 real-world data systems

METHODS

Figure 1. Study Design Schema

- We used data from 2 commercial claims data systems (MarketScan and Optum Research Labs) and a 5% sample of Medicare beneficiaries
- International Statistical Classification of Diseases, 9th Revision, Clinical Modification codes; Common Procedural Terminology codes; and National Drug Codes (NDC) were used to identify 2 cohorts of patients:
  - ASCVD cohort: Patients with a diagnosis of myocardial infarction, ischemic stroke, unstable angina, or transient ischemic attack
  - T2DM cohort: Patients with a diagnosis of T2DM with concurrent medication use for the treatment of T2DM
- Statins were identified via NDC and potencies classified according to the 2013 American College of Cardiology/American Heart Association guidelines on lipid modification for reducing the risk of ASCVD[2]

RESULTS

- Patients in the MarketScan and Optum commercial databases were younger than those in Medicare; a higher proportion of Medicare beneficiaries were female than those in the commercial databases (Table 1)
- A higher comorbidity burden was observed in Medicare beneficiaries vs those in the MarketScan and Optum databases; the burden was also higher in the ASCVD cohort vs the T2DM cohort (Table 2)
- The proportion of patients with ASCVD using statins between baseline and the first 6 months (Figure 2)
  - remained constant at ~58% among Medicare beneficiaries
  - increased from 34% to 49% in the MarketScan database
  - increased from 44% to 61% in the Optum database
- The proportion of patients with T2DM using statins between baseline and the first 6 months (Figure 2)
  - increased from 49% to 64% in the Medicare database
  - remained constant at ~61% in the MarketScan and Optum databases
- Among statin users, moderate potency statins were used most frequently

Table 1. Baseline Demographics of Patients with ASCVD or T2DM

	ASCVD Cohort			T2DM Cohort		
	Medicare 2010 N = 24,408	MarketScan 2012 N = 183,752	Optum 2012 N = 63,199	Medicare 2010 N = 146,541	MarketScan 2012 N = 1,093,695	Optum 2012 N = 469,861
Age at index date, years, mean (SD)	76.5 (11.6)	67.3 (14.6)	72.4 (12.5)	71.2 (12.0)	60.8 (12.5)	64.8 (12.8)
Age categories, %						
18 to < 65 years	13.7	47.4	25.3	22.7	66.5	46.6
65 to < 75 years	27.7	18.0	26.0	38.2	18.7	29.7
≥ 75 years	58.6	34.6	48.7	39.0	14.8	23.7
Race/ethnicity,[a] %		NA	NA		NA	NA
White	82.3			74.9		
Black	11.4			15.1		
Hispanic	2.8			3.0		
Asian	1.7			4.3		
Other	1.8			2.7		
Male sex, %	38.9	54.6	51.4	40.1	53.4	50.2
Geographic region, %						
Midwest	24.5	29.1	24.3	24.0	28.0	23.5
Northeast	18.8	19.8	10.7	17.8	15.7	9.9
South	42.3	34.0	40.7	42.0	38.8	49.5
West	14.2	14.9	21.4	15.9	16.0	15.6
Missing	0.3	2.3	N/A	0.3	1.6	0

[a]Race/ethnicity was not available in the commercial databases.
Percentages may not add up to 100 owing to rounding. Abbreviations: ASCVD, atherosclerotic cardiovascular disease; NA, not available; SD, standard deviation; T2DM, type 2 diabetes mellitus.
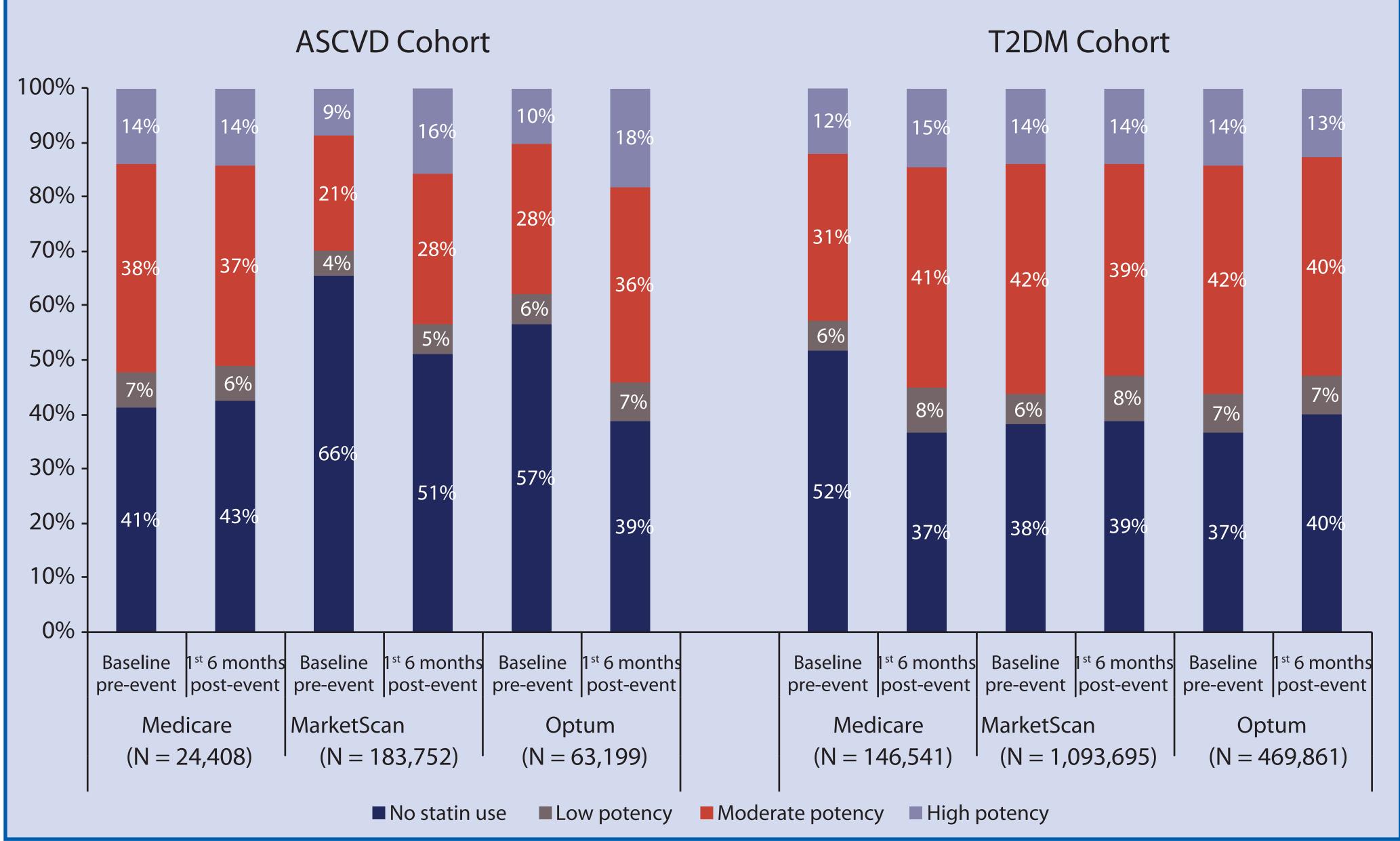
Table 2. Baseline Comorbidities of Patients With ASCVD or T2DM

	ASCVD Cohort			T2DM Cohort		
	Medicare 2010 N = 24,408	MarketScan 2012 N = 183,752	Optum 2012 N = 63,199	Medicare 2010 N = 146,541	MarketScan 2012 N = 1,093,695	Optum 2012 N = 469,861
Charlson Comorbidity Index						
< 0	2.7	7.1	4.6	3.2	16.5	10.6
1-3	60.9	78.2	78.3	81.3	80.8	84.1
≥ 4	36.4	14.8	17.1	15.5	2.7	5.4
Myocardial infarction	38.0	34.1	37.1	4.5	1.0	1.2
Unstable angina	17.8	24.5	13.3	1.6	0.9	0.6
Ischemic stroke	26.3	30.1	26.5	2.3	1.0	1.2
Hemorrhagic stroke	1.5	3.5	1.9	0.4	0.2	0.2
Cerebrovascular disease	32.4	31.4	19.6	9.3	2.5	3.8
TIA	32.8	30.6	27.9	1.5	0.7	0.7
CABG/PCI	19.2	23.9	24.3	2.3	1.6	1.8
PAD	23.4	9.3	9.7	12.4	2.5	4.5
T2DM	44.1	31.4	32.6	95.1	81.5	87.6
Hypertension	89.4	67.7	74.7	79.3	43.5	66.4
Heart failure	38.7	21.3	24.6	17.5	4.3	7.3
VTE	6.0	5.0	3.7	2.8	1.2	1.6
Cancer[a]	11.4	9.2	8.9	8.3	5.0	5.7
CKD (all stages)	33.9	17.6	24.9	19.1	8.2	13.0

[a]Excludes nonmelanoma skin cancer.
Values are % of patients (may not add up to 100 owing to rounding). Abbreviations: ASCVD, atherosclerotic cardiovascular disease; CABG/PCI, coronary artery bypass graft/percutaneous coronary intervention; CKD, chronic kidney disease; PAD, peripheral artery disease; T2DM, type 2 diabetes mellitus; TIA, transient ischemic attack; VTE, venous thromboembolism.

Figure 2. Proportion of Patients Filling Any Statin Prescription by Potency During Baseline and 6 months Following an ASCVD event or Diabetes Diagnosis

Percentages given in bars may not add up to 100% owing to rounding. Abbreviations: ASCVD, atherosclerotic cardiovascular disease; SD, standard deviation; T2DM, type 2 diabetes mellitus.

STRENGTHS & LIMITATIONS

- Strengths:
  - These data cover over 270,000 covered individuals experiencing an ASCVD event and over 1.7 million covered individuals with T2DM, providing researchers an opportunity to understand real-world treatment patterns among these populations
  - The analysis used 3 distinct real-world data systems—Medicare, MarketScan, and Optum databases—allowing increased generalizability of results and observation of differences in treatment patterns across coverage types
- Limitations:
  - Algorithms may not fully capture all patients experiencing an ASCVD event or those diagnosed with T2DM
  - While prescription drug fills are captured, we were unable to determine whether the drug was actually taken by the intended recipient

CONCLUSIONS

- For Medicare beneficiaries with ASCVD, there was little to no change in statin utilization regardless of potency in the 6 months post-event; however, in those with commercial insurance, we observed an increase in statin utilization during this period, including high-potency statins
- For Medicare beneficiaries with T2DM, we observed an increase in statin utilization, mostly in moderate-potency statins; however, in those with commercial insurance, statin utilization remained relatively constant
- Despite clinical practice guidelines for statin therapy after ASCVD event or T2DM diagnosis,[2] there are at least ~40% of patients not filling a statin prescription
- Future efforts are needed to better understand the reasons for underutilization of statin therapy as well as the differences observed between those with Medicare vs commercial insurance

REFERENCES

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