Changes in Statin Adherence Following an Acute Myocardial Infarction Among Older Adults: Patient Predictors and the Association With Follow-Up With Primary Care Providers and/or Cardiologists

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Background—Hospitalizations for acute myocardial infarctions (AMIs) are associated with changes in statin adherence. It is unclear to what extent adherence changes, which patients are likely to change, and how post-discharge follow-up is associated with statin adherence change.

Methods and Results—This retrospective study used Medicare data for all fee-for-service beneficiaries 66 years and older with an AMI hospitalization in 2008–2010 and statin use before their index AMI. Multivariable multinomial logistic regression models (odds ratio [OR] and 99% confidence interval [CI]) were applied to assess associations between both patient characteristics and follow-up with a primary care provider and/or cardiologist with the outcome of statin adherence change (increase or decrease) from the 6-month pre- to 6-month post-AMI periods. Of 113 296 patients, 64.0% had no change in adherence, while 19.7% had increased and 16.3% had decreased adherence after AMI hospitalization. Black and Hispanic patients were more likely to have either increased or decreased adherence than white patients. Patients who required coronary artery bypass graft surgery (OR, 1.34; 99% CI, 1.21–1.49) or percutaneous transluminal coronary angioplasty/stent procedure (OR, 1.25; 99% CI, 1.17–1.32) during their index hospitalization were more likely to have increased adherence. Follow-up with a primary care provider was only mildly associated with increased adherence (OR, 1.08; 99% CI, 1.00–1.16), while follow-up with a cardiologist (OR, 1.15; 99% CI, 1.05–1.25) or both provider types (OR, 1.21; 99% CI, 1.12–1.30) had stronger associations with increased adherence.

Conclusions—Post-AMI changes in statin adherence varied by patient characteristics, and improved adherence was associated with post-discharge follow-up care, particularly with a cardiologist or both a primary care provider and a cardiologist. (*J Am Heart Assoc*. 2017;6:e007106. DOI: 10.1161/JAHA.117.007106.)

Key Words: behavior change • medication adherence • myocardial infarction • secondary prevention

Acute myocardial infarction (AMI) is a common cardiovascular event with significant public health implications. Pharmacotherapy after an AMI, including the use of statins, is a vital part of the secondary prevention treatment strategy, and numerous studies have shown that patients cannot experience the full benefit realized in clinical trials if they are not adherent to these prescribed medications.[1–4] Many patients older than 65 years are already taking statins before an AMI, and it is unclear whether patients' adherence to statins may increase, decrease, or not change following an AMI.

Interaction with healthcare providers may also affect a patient's response to a negative health event. However, discontinuity during transitions in care—including both lack of follow-up and breakdown of communication among multiple providers—may also negatively impact adherence.[5–7] It is

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Clinical Perspective

What Is New?

- Follow-up with a clinician within 30 days of an acute myocardial infarction (AMI) hospital discharge was associated with increased statin adherence among patients already taking these medications pre-AMI.
- Follow-up with a cardiologist or both a cardiologist and a primary care provider was more strongly associated with increased adherence than follow-up with only a primary care provider.
- Patients who required invasive procedures during AMI hospitalization were more likely to have increased statin adherence after AMI.
- The association of race/ethnicity with statin adherence change was complex, with many black and Hispanic patients being more likely to have decreases in adherence compared with white patients.

What Are the Clinical Implications?

- Early follow-up with clinicians, especially cardiologists, should be encouraged for patients after AMI to address barriers to and the importance of medication adherence.
- Primary care providers should be aware of all post-AMI care that patients are receiving. For patients who are unable to follow up with a cardiologist, primary care providers should place a strong emphasis on medication adherence and consider innovative strategies to address barriers to adherence.
- Patient sociodemographic characteristics, comorbidity burden, and severity of the AMI hospitalization should all be considered when counseling patients on medication adherence.

unclear how post-AMI follow-up with either a primary care provider (PCP) and/or a cardiologist may affect changes in adherence among patients who are already using statins.[8]

In order to effectively develop clinical and policy interventions to improve adherence to secondary prevention therapies, it is important to understand how medication adherence may change in response to an AMI, which patients are more likely to have increased or decreased adherence, and how follow-up with healthcare providers may affect this change. The evidence available from prior studies is insufficient to address these questions.[8–11] Therefore, the aims of this study were (1) to determine to what extent older patients' adherence to statins may change after an AMI, (2) to identify patient characteristics associated with change in statin adherence after an AMI, and (3) to assess whether post-discharge follow-up with PCPs and/or cardiologists is associated with change in statin adherence after an AMI.

Methods

### Study Design, Data Sources, and Participants

This is a retrospective cohort study using the US Centers for Medicare & Medicaid Services (CMS) Medicare Chronic Conditions Data Warehouse (CCW) enrollment summary, medical services, and prescription Part D event files from 2007 to 2011. We assembled a cohort of all Medicare fee-for-service eligible beneficiaries who had an AMI from 2008 to 2010 (Figure 1). The eligibility criteria were (1) index AMI hospitalization between January 1, 2008, and December 31, 2010; (2) age 66 years and older at the time of index hospitalization; (3) survived hospitalization and discharged to home/self-care; (4) continuous enrollment in Medicare Parts A, B, and D for at least 12 months pre-hospital admission and 6 months post-hospital discharge or until death, whichever occurred first; (5) filled at least one statin prescription in the period between 360 and 14 days before index hospitalization; and (6) did not have end-stage renal disease in the baseline period. Index AMI hospitalization was identified using an *International Classification of Diseases, Ninth Revision* (ICD-9), code of 410.x1 in either the primary or secondary discharge diagnosis field in the Medicare inpatient claims.[12,13] If a patient had multiple AMIs in the base year, only the first was considered the index hospitalization. See Figure 2 for patient selection and attrition based on eligibility criteria.

The study was approved by the institutional review board of the University of North Carolina at Chapel Hill. Because this was a secondary analysis of deidentified administrative claims data, the need for informed consent was waived.

Statin Adherence and Adherence Change

Prescription claims for statins were identified in the prescription Part D files. Adherence to statins was measured using the proportion of days covered (PDC) (0–100%). Pre-AMI adherence was measured in the 180 days before AMI hospital admission; patients were left-censored if their first prescription claim was identified during this time period. Post-AMI adherence was measured for 180 days after discharge, but patients were right-censored if they died within 6 months after hospital discharge. The adherence measure was adjusted for hospital stays and oversupply from previous statin prescription fills. Patients were also categorized into severely nonadherent (PDC <40%), moderately nonadherent (PDC 40–79.9%), and adherent (PDC ≥80%); previous research has shown a dose-response relationship with these statin adherence categories and health outcomes.[3]

The outcome for this study was change in statin adherence, a categorical variable defined with either 3 levels or 5 levels (Figure 3). For the 3-level adherence change outcome, change was defined as a "decrease" if the post-AMI
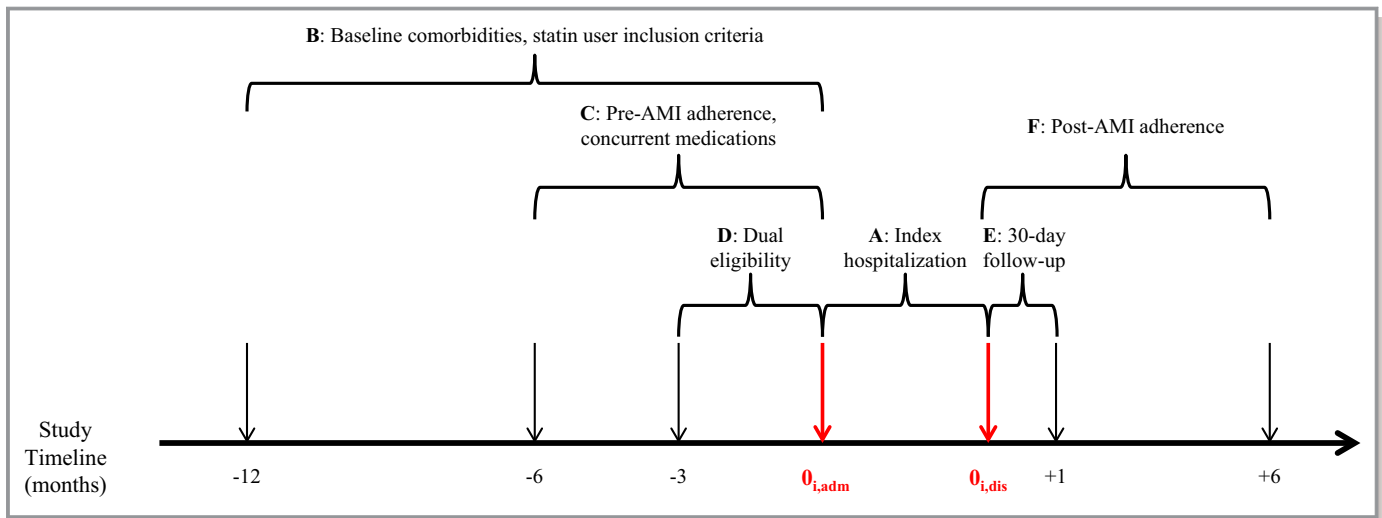
Figure 1. Study timeline. A, Index hospitalization (duration is length of stay). B, Twelve-month period used to identify baseline comorbidities. This period was used to identify prevalent users of statins for study inclusion. C, Six-month period used to identify concurrent users of angiotensin-converting (ACE) enzyme inhibitors/angiotensin receptor blockers (ARB) and β-blockers. Also used to measure pre–acute myocardial infarction (AMI) statin adherence. If a patient's first prescription claim occurred during this period, adherence was measured from the date of that first fill until the first day of hospital admission for index AMI ($0_{i,adm}$). D, Three-month period used to identify patients with dual Medicare and Medicaid eligibility. If a patient had dual eligibility during any of these 3 months, they were considered dual eligible for the entire study. E, Thirty-day period after index hospitalization discharge used to measure whether patient followed up with a primary care provider and/or cardiologist. F, Follow-up period for all patients used to measure post-AMI statin adherence. This period lasted 6 months after hospital discharge except for those individuals who died within 6 months of hospital discharge (n=12 281, 10.8%). Date of death was the end of follow-up for these patients. $0_{i,dis}$ indicates discharge date for index hospitalization (which was the beginning of the follow-up period for all patients).

adherence was lower categorically than pre-AMI adherence, an "increase" if the post-AMI adherence was higher categorically, and "no change" if there was no movement from one adherence category to another. For the 5-level adherence change outcome, change was defined as a "major decrease" if pre-AMI adherence was ≥80% and post-AMI adherence was <40%, a "moderate decrease" for all other adherence *decreases*, "no change," a "major increase" if pre-AMI adherence was <40% and post-AMI adherence was ≥80%, and a "moderate increase" for all other adherence *increases*. A continuous adherence change variable was calculated as post-AMI PDC minus pre-AMI PDC, with values ranging from −100% to +100%.

Patient Characteristics

Sociodemographic data were ascertained from the enrollment summary files. Characteristics measured included age at the time of index hospital admission, sex, race/ethnicity, dual eligibility in Medicare and Medicaid, and median household income of the US Census block groups for individuals aged 65 years and older. Patients were identified as dually eligible for Medicaid in the 3 months before AMI hospital admission.

Comorbidities and cardiovascular procedures were measured in the 12 months preceding the index AMI admission. These variables included previous AMI, dementia/Alzheimer's disease, depression, ischemic heart disease, unstable angina,

lipid abnormalities, history of rhabdomyolysis/myopathy, coronary artery bypass surgery (CABG), stent/percutaneous transluminal coronary angioplasty (PTCA), and the Charlson Comorbidity Index (CCI). Additionally, a modified CCI was calculated that excluded AMI and dementia, as both variables were included as separate variables in regression models. Variables related to the index admission were measured including type of AMI (subendocardial or transmural infarction), procedures (CABG, PTCA/stent, cardiac catheterization, angiocardiography, infusion of platelet inhibitors, and infusion of thrombolytics), complications (cardiogenic shock, cardiac dysrhythmias, hypotension, acute renal failure, and heart failure), length of index hospitalization, admission to an intensive care unit or a coronary care unit, and a cardiologist consultation during the admission. These patient characteristics were measured using standardized algorithms from the Chronic Conditions Data Warehouse[14] and health services research literature.[15,16] Statin adherence in the pre-AMI period was included as a predictor of adherence change. Prescription claims for a β-blocker or angiotensin-converting enzyme (ACE) inhibitor/angiotensin receptor blocker (ARB) in the 6 months before the index admission were also identified.

Follow-Up With a Provider

Follow-up with a cardiologist or a PCP within 30 days after hospital discharge was measured using outpatient and

Medicare beneficiaries who had AMI and were continuously enrolled in Medicare parts A/B/D during base year and year before
Base year 2008, N=160,067
Base year 2009, N=148,639
Base year 2010, N=155,151
N=463,857

Excluded (not mutually exclusive criteria):
Patients admitted for index AMI prior to January 1st of the base year (n=9,810)
Patients age <65 at the beginning of the baseline period (n=64,691)
Patients living outside of the US, having unknown ZIP code (n=960)
Patients with <12-month enrollment in Medicare Parts A/B/D prior to index AMI (n=2,346)
Patients who died during hospital admission (n=54,216)
Patients who had discharge code to hospice (n=15,525)

Patients meeting eligibility for base cohort
N=328,302

Patients with no statin prescription claims in the 360 days before index AMI (n=160,920)

Prevalent statin users
N=167,382

Patients with missing index discharge date (n=44)

N=167,338

Patients who died or disenrolled from Part D the day after index hospital discharge (n=567)

N=166,771

Patients with first statin prescription claim within 14 days prior to index AMI (n=1,525)

N=165,246

Part D disenrollment less than 180 days after index hospital discharge (n=351)

N=164,895

Patients with end stage renal disease during the baseline period (n=6,124)

N=158,771

Patients discharged to nursing home or skilled nursing facility (n=45,475)

Final cohort of prevalent statin users meeting study eligibility criteria
N=113,296

Figure 2. Patient attrition and eligibility criteria. AMI indicates acute myocardial infarction.

| **3-Level Adherence Change Outcome** | | | |
| **■Decrease   ■No Change   ■Increase** | | | |

Figure 3. Definition of 3-level and 5-level categories of adherence change. AMI indicates acute myocardial infarction; PDC, proportion of days covered; ref, reference.

physician office visit claims. Provider type was measured using CMS Medicare Specialty Codes. PCPs included non-specialist physicians, physician assistants, and nurse practitioners as defined in clinical practice guidelines available during the study period.[17]

Statistical Analysis

Distributions of patient sociodemographic and clinical characteristics by categories of statin adherence change were described. Absolute standardized differences were used to assess unadjusted differences between groups stratified by change in statin adherence.[18] An absolute standardized difference of ≥0.10 with "no change" as the reference group was used as a cutoff to determine whether there were significant differences in patient characteristics between groups.[19]

Multivariable multinomial logistic regression models were developed for the 3-level and 5-level categories of adherence change with "no change" as the reference outcome group. Multivariable regression models were utilized to identify predictors of adherence change after an AMI in the domains of sociodemographic characteristics, baseline clinical characteristics, clinical events during index hospitalization, and

post-discharge follow-up. Adjusted odds ratios (ORs) with 99% confidence intervals (CIs) were reported for all multinomial logistic regression models.

We assessed the robustness and consistency of our model estimates in 11 sensitivity analyses. First, using our full sample, 5 additional sets of analyses were conducted: (1) to alleviate the influence of small changes in adherence, a categorical change in adherence also required an absolute change of 10% in PDC to officially be defined as an adherence change,[8] (2) the period for post-AMI follow-up with clinicians was extended to 42 days,[20] (3) change in the simvastatin-equivalent average daily dose from the pre- to post-AMI period was added to a separate model,[21,22] (4) categorical variables indicating a high-, moderate-, or low-intensity statin for the last fill before index AMI and first fill after index AMI were added to a separate model,[21] and (5) liver disease (a potential contraindication for statins) was added to a separate model. Second, we altered the cohort eligibility criteria in 3 separate models: (6) patients must have had their first statin prescription fill at least 6 months before index AMI, (7) patients must have survived 6 months post-AMI discharge, and (8) patients with another AMI within 6 months after discharge from their index event were excluded. In addition, (9) adherence and change in adherence were measured in the 12-month baseline

Table 1. Patient Characteristics Stratified by Change in Statin Adherence After AMI

Patient Characteristics	Total	Adherence Change		
		Decrease	No Change	Increase
	N=113 296	n=18 502	n=72 510	n=22 284
	No. (%)	%	%	%
Age, y				
Mean±SD	77.3±7.4	77.7±7.4	77.4±7.4	76.5±7.1*
66 to 75	51 010 (45.0)	42.6	44.3	49.3*
76 to 85	44 751 (39.5)	40.2	39.7	38.2
86+	17 535 (15.5)	17.2	16.0	12.5
Women	61 555 (54.3)	55.1	53.7	55.7
Race/ethnicity				
White	95 481 (84.3)	83.8	85.5	80.5*
Black	9700 (8.6)	9.0	7.7	10.9*
Hispanic	3413 (3.0)	3.2	2.6	4.0
Asian	2504 (2.2)	1.9	2.2	2.5
Other	2198 (1.9)	2.1	1.9	2.1
Dual eligibility†	28 462 (25.1)	23.6	24.9	27.1
Baseline CCI				
Mean±SD	2.5±2.3	2.8±2.4*	2.5±2.3	2.4±2.3
0	22 608 (20.0)	17.4	19.8	22.6
1 or 2	43 540 (38.4)	36.5	38.7	39.3
3 to 5	34 947 (30.8)	33.1	31.0	28.5
6 to 8	9868 (8.7)	10.4	8.6	7.6
≥9	2333 (2.1)	2.6	2.0	1.9
Baseline comorbidities				
Prior AMI‡	5228 (4.6)	5.4	4.6	4.0
Dementia/Alzheimer's disease§	11 574 (10.2)	12.1	9.9	9.7
Depression	17 464 (15.4)	17.3	15.0	15.3
CABG	1136 (1.0)	1.1	1.0	1.0
PTCA/stent	7441 (6.6)	7.2	6.6	5.8
IHD	68 689 (60.6)	64.1	61.4	55.4*
Rhabdomyolysis/myopathy	7553 (6.7)	7.6	6.3	7.0
Index admission				
CABG	6988 (6.2)	5.3	6.0	7.6
PTCA/stent	41 596 (36.7)	30.3*	36.4	43.1*
Cardiac catheterization	64 954 (57.3)	51.4*	56.8	63.9*
Cardiac dysrhythmias	35 365 (31.2)	31.7	31.6	29.4
Acute renal failure	17 876 (15.8)	17.7	15.5	14.9
Length of stay, d				
Mean±SD	5.3±5.0	5.7±5.8	5.2±4.8	5.3±4.9
1 to 3	49 896 (44.0)	40.6	44.7	44.9
4 to 6	35 187 (31.1)	31.6	31.1	30.4

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Table 1. Continued

Patient Characteristics	Total	Adherence Change		
		Decrease	No Change	Increase
	N=113 296	n=18 502	n=72 510	n=22 284
	No. (%)	%	%	%
7 to 11	19 525 (17.2)	18.9	17.0	16.7
12+	8688 (7.7)	8.8	7.3	8.1
30-d follow-up				
None	17 186 (15.2)	15.8	15.1	14.9
PCP only‖	33 332 (29.4)	31.0	29.4	28.0
Cardiologist only	20 292 (17.9)	16.2	18.1	18.8
Both	42 486 (37.5)	37.0	37.4	38.3

See Table S1 for a full list of patient characteristics. AMI indicates acute myocardial infarction; CABG, coronary artery bypass surgery; IHD, ischemic heart disease; PCP, primary care provider; PTCA, percutaneous transluminal coronary angioplasty; SD, standard deviation.
*Absolute standardized difference ≥0.10 with no change in statin adherence as the reference group.
†Enrolled in Medicare and Medicaid.
‡Charlson Comorbidity Index (CCI) definition.
§Medicare Chronic Condition Data Warehouse definition.
‖Primary care physician, physician assistant, or nurse practitioner.

and 12-month post-discharge periods. Given the conditional nature of the outcome (eg, a patient with PDC <40% before their AMI could have "no change" in adherence or an "increase" but would not be able to "decrease"), (10) a single sensitivity analysis on the 3-level outcome using PROC NLMIXED in SAS defined the likelihood function as conditional on the pre-AMI adherence category. Finally, (11) a linear regression model was developed for the continuous adherence change outcome (post-AMI PDC minus pre-AMI PDC).

All analyses were conducted with SAS 9.4 (SAS Institute Inc).

Results

A total of 113 296 prevalent statin users met our study eligibility criteria. The distributions of sociodemographic and clinical characteristics stratified by statin adherence change categories are displayed in Table 1. Most patients were aged 66 to 85 years (84.5%), female (54.3%), and white (84.3%), and 5228 (4.6%) had an AMI in the 12 months before their index AMI. Overall 17 186 patients (15.2%) did not follow-up with either a cardiologist or PCP within 30 days of hospital discharge. See Tables S1 through S3 for a full list of the distribution of population characteristics stratified by adherence change, pre-AMI adherence, and post-AMI adherence.

Of the 756 059 prescription fills used to measure adherence, 80.4% and 15.1% had a 30- and 90-day supply, respectively. After index AMI hospitalization, 22 284 (19.7%) patients had an increase in statin adherence, 18 502 (16.3%) had a decrease, and 72 510 (64.0%) had no categorical

change in adherence (Figure 4). Patient characteristics associated with different categories of adherence change are presented in Table 1.

Model 1 Results: 3-Level Multinomial Regression

The associations of patient sociodemographic and clinical characteristics with statin adherence change from the 3-level multinomial logistic regression model (model 1) are presented in Table 2. Compared with white patients, black patients were more likely to have decreased adherence (model 1: OR, 1.21; 99% CI, 1.12−1.31) or increased adherence (OR, 1.14; 99% CI, 1.05−1.23) than to have no change in adherence. Hispanic patients had similar patterns of adherence change compared with white patients. Patients dually enrolled in both Medicare and Medicaid were less likely to have decreased adherence (OR, 0.80; 99% CI, 0.75−0.84) and more likely to have increased adherence (OR, 1.18; 99% CI, 1.11−1.25) than to have no change in adherence. Patients with greater chronic disease burden (ie, higher CCI scores) were more likely to have decreases in adherence and less likely to have increases compared with no change in adherence. The association of statin adherence change with patients receiving invasive procedures during the index hospital, such as CABG or PTCA/ stent, had the inverse relationship; these patients were less likely to have decreases in adherence and more likely to have increases in adherence. Finally, as length of stay increased, decreased statin adherence was typically more likely.

The association of follow-up with clinicians and the 3-level adherence change outcome can be seen in Figure 5. Patients who followed up with only a PCP compared with no follow-up
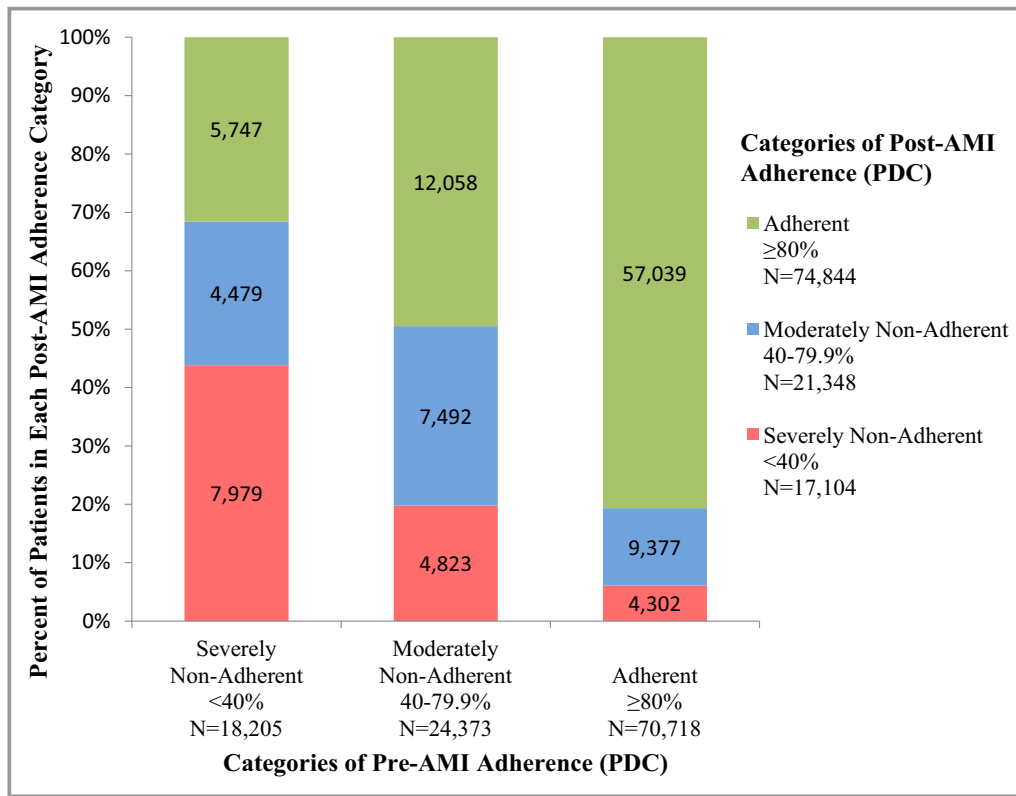
Figure 4. Distribution of post-AMI adherence stratified by pre-AMI adherence. AMI indicates acute myocardial infarction; PDC, proportion of days covered.

within 30 days after the index discharge date had an 8% increase in the likelihood of an increase in adherence (OR, 1.08; 99% CI, 1.00–1.16) compared with no change in adherence. Follow-up with a cardiologist (OR, 1.15; 99% CI, 1.05–1.25) or both types of providers (OR, 1.21; 99% CI, 1.12–1.30) had a stronger association with an increase in adherence. The association of clinician follow-up with a decrease in adherence was not significant except for patients who followed up with a cardiologist; these patients were less likely to have a decrease in adherence than no change in adherence (OR, 0.91; 99% CI, 0.84–0.98) compared with patients with no follow-up. See Table S4 for the full list of results for model 1.

Model 2 Results: 5-Level Multinomial Regression

Results using the 5-level adherence change outcome were consistent with results using the 3-level outcome but provided additional insight into patient characteristics that were associated with a major increase or a major decrease in statin adherence. Results from the 5-level multinomial logistic regression model (model 2) are presented in Table 3. Patients enrolled in both Medicare and Medicaid were 13% more likely to have a moderate increase in adherence (model 2: OR, 1.13;

99% CI, 1.06–1.20) and, to a greater extent, they were 46% more likely to have a major increase in adherence (OR, 1.46; 99% CI, 1.31–1.63). Patients who had an invasive procedure such as CABG during their index hospital admission were 37% less likely to have a major decrease (model 2: OR, 0.73; 99% CI, 0.59–0.89) and 25% less likely to have a moderate decrease in adherence (OR, 0.80; 99% CI, 0.71–0.91); they were also 28% more likely to have a moderate increase (OR, 1.28; 99% CI, 1.15–1.43) and 77% more likely to have a major increase in statin adherence (OR, 1.77; 99% CI, 1.46–2.14). Patients with a PTCA/stent procedure during index hospital-ization had similar patterns of adherence change.

Figure 6 shows that follow-up with a PCP within 30 days after index hospital discharge trended towards an association with a moderate increase in adherence (OR, 1.07; 99% CI, 0.99–1.15) and a major increase in adherence (OR, 1.10; 99% CI, 0.96–1.27). Seeing a cardiologist was associated with a 13% increase in the likelihood of a moderate increase in adherence (OR, 1.13; 99% CI, 1.03–1.23) and a 27% increase in the likelihood of a major increase in adherence (OR, 1.27; 99% CI, 1.09–1.48). Follow-up with both a cardiologist and a PCP (OR, 1.16; 99% CI, 1.08–1.26) was associated with a moderate adherence increase compared with no follow-up; follow-up with both of these providers also had a greater

Table 2. Association Between Patient Characteristics and 3-Level Statin Adherence Change After an AMI

Patient Characteristics	Model 1: 3-Level Adherence Change* Odds Ratio (99% CI) ("No Change" as Reference)	
	Decrease	Increase
Age, y		
66 to 75	1.	1.
76 to 85	0.99 (0.94–1.04)	0.97 (0.92–1.02)
86+	0.99 (0.92–1.06)	0.88 (0.81–0.95)
Women	1.03 (0.98–1.08)	1.06 (1.01–1.12)
Race/ethnicity		
White	1.	1.
Black	1.21 (1.12–1.31)	1.14 (1.05–1.23)
Hispanic	1.30 (1.15–1.48)	1.29 (1.13–1.48)
Asian	0.97 (0.83–1.14)	1.16 (0.99–1.36)
Other	1.22 (1.05–1.42)	1.15 (0.97–1.36)
Dual eligibility[†]	0.80 (0.75–0.84)	1.18 (1.11–1.25)
Adjusted baseline CCI[‡]		
0	1.	1.
1 or 2	1.03 (0.97–1.10)	0.88 (0.83–0.94)
3 to 5	1.08 (1.01–1.15)	0.84 (0.79–0.91)
6 to 8	1.14 (1.04–1.26)	0.81 (0.73–0.91)
9 or more	1.39 (1.19–1.62)	0.77 (0.64–0.93)
Baseline comorbidities		
Prior AMI[§]	1.04 (0.94–1.15)	0.92 (0.81–1.04)
Dementia/Alzheimer's disease[‖]	1.13 (1.06–1.21)	1.05 (0.97–1.14)
Depression	1.11 (1.05–1.18)	1.02 (0.95–1.09)
CABG	1.13 (0.92–1.39)	1.28 (1.01–1.62)
PTCA/stent	1.12 (1.02–1.23)	0.85 (0.76–0.95)
Ischemic heart disease	1.09 (1.04–1.15)	0.84 (0.79–0.89)
Rhabdomyolysis/myopathy	1.15 (1.05–1.24)	1.01 (0.92–1.11)
Index admission		
CABG	0.78 (0.71–0.87)	1.34 (1.21–1.49)
PTCA/stent	0.82 (0.78–0.87)	1.25 (1.17–1.32)
Cardiac catheterization	1.03 (0.95–1.12)	1.09 (1.00–1.19)
Cardiac dysrhythmias	1.00 (0.95–1.05)	0.93 (0.88–0.98)
Acute renal failure	1.05 (0.99–1.12)	1.00 (0.93–1.07)
Length of stay, d		
1 to 3	1.	1.
4 to 6	1.05 (1.00–1.11)	1.00 (0.94–1.06)

Continued

Table 2. Continued

Patient Characteristics	Model 1: 3-Level Adherence Change* Odds Ratio (99% CI) ("No Change" as Reference)	
	Decrease	Increase
7 to 11	1.14 (1.07–1.22)	1.02 (0.95–1.10)
12+	1.27 (1.16–1.39)	1.08 (0.97–1.20)

Models were adjusted for all variables in the table as well as pre–acute myocardial infarction (AMI) adherence, area-level household income, other baseline conditions, concurrent use of other AMI secondary prevention medications, other events during the index hospitalization, and 30-day follow-up care with a provider. See Table S4 for the full list of results for model 1. CABG indicates coronary artery bypass surgery; CI, confidence interval; IHD, ischemic heart disease; OR, odds ratio; PDC, proportion of days covered; PTCA, percutaneous transluminal coronary angioplasty.
*Three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change.
[†]Enrolled in Medicare and Medicaid.
[‡]Charlson Comorbidity Index (CCI) score does not include counts for AMI and dementia.
[§]CCI definition.
[‖]Medicare Chronic Condition Data Warehouse definition.

impact on the odds of a major increase in adherence (OR, 1.48; 99% CI, 1.29–1.69). See Table S5 for the full list of results for model 2.

Sensitivity Analyses

Our sensitivity analyses found mostly similar and consistent results that did not change the interpretation of our findings from model 1 (Tables S6 through S10). When patient eligibility was restricted to those who survived at least 6 months post-hospital discharge, a CCI score of 9+ compared with 0 was no longer statistically associated with increased adherence (Table S7 in the "post-AMI 6-month survival" model; OR, 0.82 [99% CI, 0.65–1.04]). The sensitivity analysis with adherence measured over 12 months in the pre- and post-AMI periods showed similar and consistent results, although fewer patients had increased and more patients had decreased statin adherence (Figure S1). When investigating 1-year adherence changes, black patients were still likely to have reduced adherence (Table S8; OR, 1.17; 99% CI, 1.09–1.26) but were no longer as likely to have increased adherence (OR, 1.05; 99% CI, 0.96–1.15). In the sensitivity analysis using a likelihood function conditional on pre-AMI adherence, black patients (OR, 0.94; 99% CI, 0.86–1.02) and Hispanic patients (OR, 1.09; 99% CI, 0.94–1.25) were no longer more likely than white patients to have increased adherence (Table S9).

Discussion

In a cohort of 113 296 Medicare beneficiaries who were prevalent statin users before their index AMI hospitalization, 64% had no change in adherence, 20% had increased
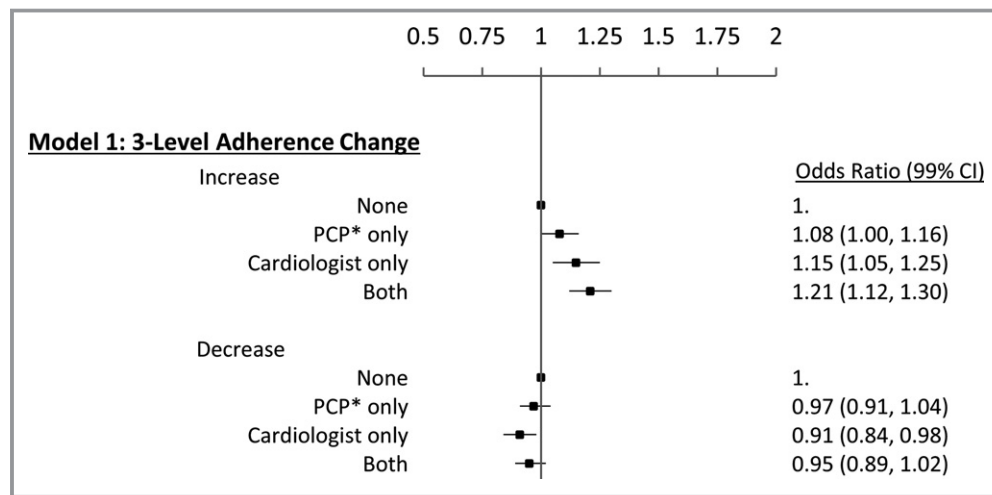
Figure 5. Association between follow-up care within 30 days of index hospital discharge and 3-level statin adherence change after an acute myocardial infarction (AMI). Models were adjusted for sociodemographic characteristics, pre-AMI adherence, baseline conditions and Charlson Comorbidity Index, concurrent use of other AMI secondary prevention medications, and events during the index hospitalization. See Table S4 for a full list of these variables and estimates. The 3-level multinomial logistic regression compared a decrease in adherence with no change and compared an increase in adherence with no change. *Primary care physician, physician assistant, or nurse practitioner. CI indicates confidence interval; PCP, primary care provider.

adherence, and 16% had decreased adherence after hospitalization. Interestingly, both black and Hispanic patients responded more sensitively to an AMI hospitalization compared with white patients, with adherence changes likely in both directions. Patients who had a greater burden of chronic comorbidities were more likely to have decreased adherence and less likely to have increased adherence. On the other hand, patients who required invasive interventions during the index hospitalization were more likely to have increases in adherence after discharge. Notably, patients who followed up with a PCP were only mildly more likely to have increased adherence, but patients who saw a cardiologist or both a cardiologist and a PCP appeared to have markedly greater odds of having increased statin adherence.

Change in adherence to statins after an AMI has been reported in a few prior studies.[8–11] In a study that used a 5% random sample of Medicare patients, Kronish et al[8] found that 33% of patients with pre-AMI PDC ≥80% became nonadherent after an AMI, while 38% of patients with PDC <80% became adherent after AMI. They also found that patients with a greater baseline comorbidity burden were less likely to change from nonadherent to adherent and were more likely to change from adherent to nonadherent after an AMI. Another study with 855 patients with type 2 diabetes mellitus found that 26% of patients became more adherent and 20% of patients became less adherent after incident cardiovascular events.[11] However, we found strong relationships with adherence change after AMI associated with race/ethnicity and CABG during hospitalization that were not found in these

earlier studies. Our larger sample size—based on a 100% sample of Medicare fee-for-service beneficiaries—also allowed us to investigate more risk factors and categorize race/ethnicity more granularly than white patients compared with all other groups.

In this study, we found that patients dually enrolled in Medicare and Medicaid were less likely to have decreased adherence and more likely to have a moderate or major increase in statin adherence. Prior research also supports the finding that lower out-of-pocket costs are associated with better adherence to preventive medications after an AMI.[23,24] Therefore, patients with Medicare who are eligible but not enrolled in Medicaid or the low-income subsidy program may benefit if providers and their clinical support staff inform patients about these programs.

Similar to previous findings,[8] patients with greater comorbidity burden at baseline were more likely to have decreased adherence and less likely to have increased adherence after AMI hospital discharge. It is also possible that clinicians stopped preventative medications in patients with a short life expectancy. When analyses were restricted to patients who survived 6 months after hospital discharge, the magnitude of the association between CCI and decreased adherence was slightly weaker; however, this finding did not significantly impact our interpretation of the results. Clinicians should continue to emphasize the importance of preventive medications in patients with depression, a history of ischemic heart disease, or multiple comorbidities. Given that greater comorbidity burden is associated with decreased adherence,

Table 3. Association Between Patient Characteristics and 5-Level Statin Adherence Change After an AMI

Patient Characteristics	Model 2: 5-Level Adherence Change* Odds Ratio (99% CI) ("No Change" as Reference)			
	Major Decrease	Moderate Decrease	Moderate Increase	Major Increase
Age, y				
66 to 75	1.	1.	1.	1.
76 to 85	0.95 (0.87–1.05)	1.00 (0.95–1.06)	0.96 (0.91–1.02)	1.01 (0.92–1.11)
86+	0.99 (0.88–1.12)	0.98 (0.91–1.06)	0.86 (0.79–0.93)	0.94 (0.81–1.08)
Women	1.06 (0.97–1.15)	1.02 (0.97–1.07)	1.07 (1.01–1.12)	1.04 (0.95–1.14)
Race/ethnicity				
White	1.	1.	1.	1.
Black	1.25 (1.07–1.45)	1.21 (1.11–1.32)	1.15 (1.06–1.25)	1.16 (1.01–1.34)
Hispanic	1.29 (1.00–1.64)	1.32 (1.15–1.52)	1.32 (1.15–1.51)	1.25 (1.00–1.58)
Asian	0.87 (0.64–1.19)	1.01 (0.84–1.20)	1.18 (1.00–1.39)	1.09 (0.82–1.47)
Other	1.19 (0.88–1.59)	1.24 (1.04–1.46)	1.14 (0.96–1.36)	1.27 (0.94–1.71)
Dual eligibility†	0.81 (0.73–0.90)	0.79 (0.74–0.84)	1.13 (1.06–1.20)	1.46 (1.31–1.63)
Adjusted baseline CCI‡				
0	1.	1.	1.	1.
1 or 2	1.01 (0.90–1.14)	1.04 (0.97–1.11)	0.89 (0.83–0.95)	0.82 (0.73–0.92)
3 to 5	1.07 (0.94–1.22)	1.08 (1.00–1.17)	0.87 (0.81–0.94)	0.69 (0.61–0.79)
6 to 8	1.15 (0.96–1.37)	1.14 (1.02–1.27)	0.82 (0.73–0.92)	0.74 (0.61–0.91)
9 or more	1.37 (1.02–1.83)	1.40 (1.18–1.66)	0.81 (0.66–0.99)	0.58 (0.41–0.83)
Baseline comorbidities				
Prior AMI§	1.14 (0.95–1.38)	1.01 (0.90–1.13)	0.92 (0.81–1.05)	0.90 (0.72–1.14)
Dementia/Alzheimer's disease‖	1.30 (1.15–1.47)	1.08 (1.00–1.17)	1.06 (0.97–1.15)	0.97 (0.83–1.14)
Depression	1.14 (1.02–1.28)	1.10 (1.03–1.18)	1.01 (0.94–1.09)	1.03 (0.91–1.16)
CABG	1.24 (0.84–1.83)	1.10 (0.87–1.38)	1.26 (0.99–1.61)	1.35 (0.85–2.17)
PTCA/stent	1.21 (1.02–1.45)	1.09 (0.99–1.21)	0.86 (0.77–0.96)	0.79 (0.64–0.97)
Ischemic heart disease	1.07 (0.97–1.18)	1.10 (1.04–1.17)	0.89 (0.84–0.94)	0.61 (0.56–0.68)
Rhabdomyolysis/myopathy	1.15 (0.98–1.35)	1.15 (1.04–1.26)	1.03 (0.94–1.14)	0.91 (0.77–1.08)
Index admission				
CABG	0.73 (0.59–0.89)	0.80 (0.71–0.91)	1.28 (1.15–1.43)	1.77 (1.46–2.14)
PTCA/stent	0.80 (0.72–0.89)	0.83 (0.78–0.88)	1.19 (1.12–1.27)	1.60 (1.43–1.78)
Cardiac catheterization	0.99 (0.84–1.17)	1.04 (0.95–1.15)	1.07 (0.97–1.17)	1.20 (1.02–1.41)
Cardiac dysrhythmias	1.01 (0.92–1.10)	0.99 (0.94–1.05)	0.93 (0.88–0.98)	0.90 (0.82–0.99)
Acute renal failure	1.05 (0.94–1.17)	1.05 (0.98–1.13)	1.00 (0.93–1.07)	0.99 (0.87–1.13)
Length of stay, d				
1 to 3	1.	1.	1.	1.
4 to 6	1.11 (1.01–1.23)	1.04 (0.98–1.10)	0.99 (0.93–1.05)	1.04 (0.94–1.16)
7 to 11	1.36 (1.21–1.53)	1.08 (1.01–1.17)	1.00 (0.93–1.08)	1.10 (0.96–1.25)
12+	1.67 (1.42–1.96)	1.16 (1.05–1.28)	1.07 (0.96–1.19)	1.11 (0.91–1.34)

Models were adjusted for all variables in table as well as pre–acute myocardial infarction (AMI) adherence, area-level household income, other baseline conditions, concurrent use of other AMI secondary prevention medications, other events during the index hospitalization, and 30-day follow-up care with a provider. See Table S5 for the full list of results for model 2. CABG, coronary artery bypass surgery; CI, confidence interval; IHD, ischemic heart disease; OR, odds ratio; PDC, proportion of days covered; PTCA, percutaneous transluminal coronary angioplasty.

*Five-level multinomial logistic regression model comparing all four outcomes in the table with the reference group of no change in adherence.

†Enrolled in Medicare and Medicaid.

‡Charlson Comorbidity Index (CCI) score does not include counts for AMI and dementia.

§CCI definition.

‖Medicare Chronic Condition Data Warehouse definition.
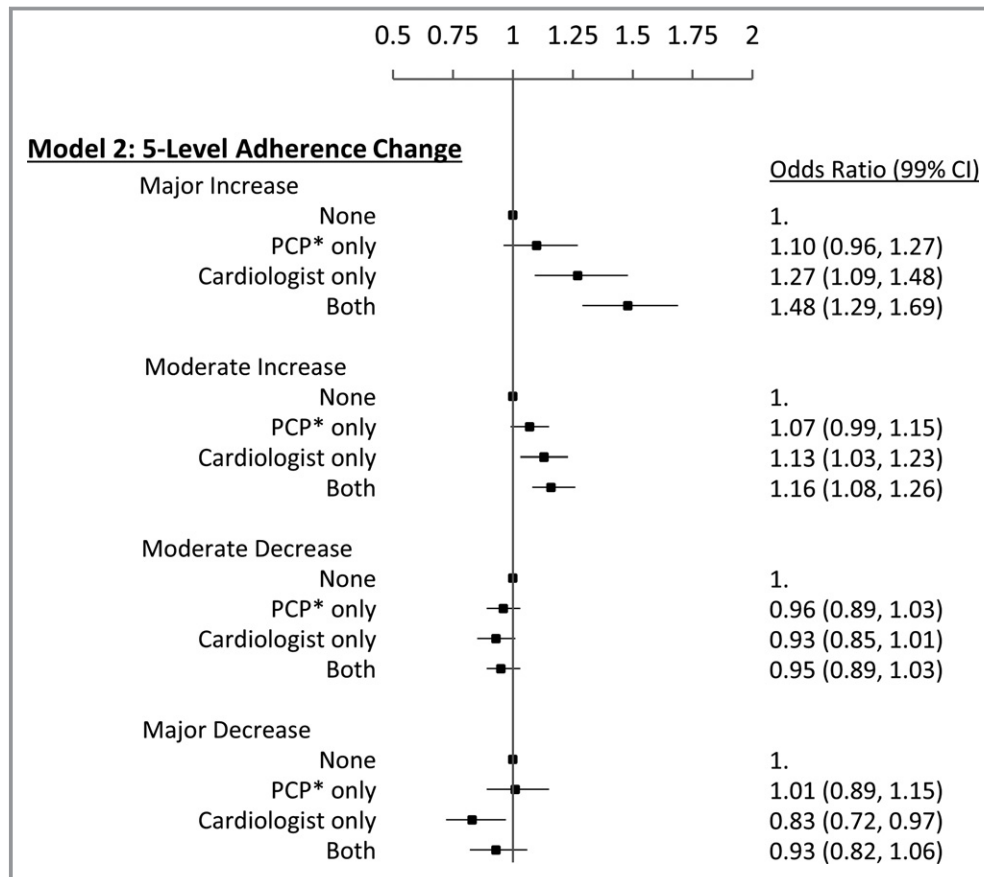
Figure 6. Association between follow-up care within 30 days of index hospital discharge and 5-level statin adherence change after an acute myocardial infarction (AMI). Models were adjusted for sociodemographic characteristics, pre-AMI adherence, baseline conditions and Charlson Comorbidity Index, concurrent use of other AMI secondary prevention medications, and events during the index hospitalization. See Table S5 for a full list of these variables and estimates. The 5-level multinomial logistic regression model compared all four adherence change outcomes with the reference group of no change in adherence. *Primary care physician, physician assistant, or nurse practitioner. CI indicates confidence interval; PCP, primary care provider.

coordinated care with outpatient clinicians to manage these other conditions has the potential to improve adherence to preventive medications after an AMI, in addition to improving patient health directly associated with these other conditions. Further research is needed to completely understand the association between comorbidity burden and statin adherence change after an AMI.

Patients who required invasive procedures such as a CABG or PTCA/stent during their hospitalization were more likely to have increased adherence after an AMI. The finding that these more severe hospitalizations may have acted as a "wake-up call" to patients about the need for statin adherence also aligns with the Sentinel Event Effect.[25,26] Studies have shown that perceived necessity for statins is associated with better adherence[27] and that illness severity, such as the need for stents or CABG, is predictive of positive behavior change after a cardiac event.[28] While clinical severity often influences

which patients receive the most attention, our results suggest that patients with "minor" AMIs may benefit as much if not more from counseling if providers can utilize this event as a teachable moment.

Our study also showed that complex patterns of statin adherence change after an AMI were associated with race and ethnicity. These complex patterns may suggest heterogeneity in statin adherence change within these subgroups. Black and Hispanic patients were more likely to have adherence changes in both directions compared with white patients. The associations between race/ethnicity and interactions with the healthcare system are multifaceted, with biology, culture, perceived racism, social support, socioeconomic status, and structural racism among other factors playing a role.[29,30] Future hypothesis-driven studies are warranted to further understand the complex associations of statin adherence change within and between these race/ethnicity groups.

Finally, an important finding from our study was that follow-up with a clinician within 30 days of hospital discharge was associated with increased adherence. Follow-up with a clinician may not be a direct predictor of increased statin adherence (ie, the same patients who decided to adhere to their statins also decided it was important to follow up with a clinician); however, current literature does support the view that early follow-up with providers after a hospitalization as an intervention can improve medication adherence[20,31,32] and clinical outcomes.[33–35] In addition, we found that a cardiologist visit compared with no follow-up care was associated with a major increase in adherence (pre-AMI PDC <40% to post-AMI PDC ≥80%), while this association was not significant among patients who followed up with a PCP only. This finding is intriguing, but more research is needed to verify and fully understand these results. More importantly, however, follow-up care had an even stronger association with increased statin adherence among patients who followed up with both a cardiologist and a PCP. This supports the importance of collaborative team care and continuity of care after hospital discharge.[36,37] While our results may suggest post-AMI follow-up that includes a cardiologist is the preferred intervention, it is unrealistic that all patients who have an AMI will be able to see a cardiologist. Previous research found that a post-AMI intervention including pharmacist collaborative care with primary care physicians and/or cardiologists resulted in improved 1-year adherence for most secondary prevention medications.[38] If future research supports the finding that increases in adherence are suboptimal among patients who follow-up with a PCP only, then pharmacist involvement in collaborative care transitions to synergistically optimize medication utilization could be a potential intervention worth considering, especially for patients not able to follow-up with a cardiologist.

Study Limitations

This study has several limitations. Because administrative claims are used for billing purposes and not designed for research, there is the possibility of variable misclassification. Some predictive factors (eg, smoking status) were not available in the data. These may be important variables for clinicians to consider and may also confound relationships between other predictive factors and statin adherence change. We followed existing standards using secondary claims data for health services research to mitigate these limitations. Second, several factors can result in measurement error when administrative claims data are used to measure adherence. Prescription fill data may overestimate adherence as there is no information on whether patients used the medication, and our data did not have information available on the type of pharmacy (ie, physical versus mail-

order pharmacies) or whether automatic refill programs were used; however, prescription fill records have been shown to have good validity and correlation with other adherence measures—self-report, pill counts, and electronic devices[39–41]—as well as clinical outcomes.[3] It is also possible that adherence was underestimated if prescriptions were paid for outside of the Medicare Part D plan. However, research has shown that this does not often happen for Medicare beneficiaries, and even when it does, these claims are often adjudicated into Part D records.[42–44] Medicare patients are also less likely to use medication samples than those in the privately insured population.[45] Third, we did not have a control group in this study, but previous research using two control groups—patients without a hospitalization and patients hospitalized for pneumonia—found that AMI hospitalizations were associated with changes in statin adherence.[8]

Study Strengths

This study possesses several strengths. It is the first to employ a nationally representative sample of all Medicare fee-for-service beneficiaries who had an AMI in the period 2008–2010, enabling us to investigate more risk factors with improved generalizability. We also investigated the impact of post-AMI follow-up with a clinician, which was noted as an important factor in previous research on this topic.[8] Further, our several definitions of adherence change allowed assessment of varying magnitudes of adherence change and the inclusion of all study patients in a single statistical model.

Conclusions

An AMI hospitalization may lead to changes in statin adherence among patients already taking these medications. The direction of statin adherence change after an AMI varied by patient sociodemographic and clinical characteristics. Improved adherence was also associated with post-discharge follow-up care, particularly among patients who saw a cardiologist or both a PCP and a cardiologist. Innovative strategies that address these complex changes in medication adherence after an AMI and emphasize continuity of care are needed to improve post-AMI secondary prevention.

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Disclosures

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Supplemental Material

Table S1. Patient characteristics stratified by change in statin adherence after AMI.

Patient Characteristics	Total N=113,296 N (%)	Adherence Change		
		Decrease N=18,502 % [ASD]	No Change N=72,510 % [ASD]	Increase N=22,284 % [ASD]
Age				
Mean ± SD	77.3 ± 7.4	77.7 ± 7.4 [4.5]	77.4 ± 7.4 [Ref]	76.5 ± 7.1 [11.9]
66-75	51,010 (45.0)	42.6 [3.4]	44.3 [Ref]	49.3 [10.0]
76-85	44,751 (39.5)	40.2 [0.9]	39.7 [Ref]	38.2 [3.1]
86+	17,535 (15.5)	17.2 [3.3]	16.0 [Ref]	12.5 [9.9]
Female	61,555 (54.3)	55.1 [2.7]	53.7 [Ref]	55.7 [3.9]
Race/ethnicity				
White	95,481 (84.3)	83.8 [4.7]	85.5 [Ref]	80.5 [13.5]
Black	9,700 (8.6)	9.0 [4.5]	7.7 [Ref]	10.9 [10.9]
Hispanic	3,413 (3.0)	3.2 [3.2]	2.6 [Ref]	4.0 [7.8]
Asian	2,504 (2.2)	1.9 [2.2]	2.2 [Ref]	2.5 [1.6]
Other	2,198 (1.9)	2.1 [1.7]	1.9 [Ref]	2.1 [1.8]
Dual eligibility*	28,462 (25.1)	23.6 [3.0]	24.9 [Ref]	27.1 [5.1]
Household income†				
≤$30,000	53,388 (47.1)	47.7 [2.2]	46.6 [Ref]	48.5 [3.8]
$30,001-60,000	46,749 (41.3)	40.8 [1.8]	41.7 [Ref]	40.1 [3.3]
$60,001-100,000	10,579 (9.3)	9.2 [0.7]	9.4 [Ref]	9.2 [0.5]
$100,001-150,000	1,963 (1.7)	1.8 [0.4]	1.7 [Ref]	1.6 [0.9]
>$150,000	617 (0.5)	0.5 [1.4]	0.6 [Ref]	0.5 [0.3]
CCI comorbidities				
AMI	5,228 (4.6)	5.4 [3.5]	4.6 [Ref]	4.0 [3.0]
Cancer	13,792 (12.2)	13.3 [3.5]	12.1 [Ref]	11.4 [2.2]
CeVD	20,900 (18.4)	20.1 [4.6]	18.3 [Ref]	17.6 [1.9]
CHF	34,328 (30.3)	34.4 [8.4]	30.5 [Ref]	26.3 [9.4]
COPD	31,448 (27.8)	29.8 [5.0]	27.6 [Ref]	26.7 [2.0]
Dementia	3,303 (2.9)	3.6 [4.7]	2.8 [Ref]	2.8 [0.2]
Diabetes	54,209 (47.8)	49.4 [2.8]	48.0 [Ref]	46.2 [3.5]
Liver disease	2,157 (1.9)	2.3 [3.6]	1.8 [Ref]	1.9 [1.0]
Metastatic cancer	1,702 (1.5)	2.0 [4.8]	1.4 [Ref]	1.4 [0.1]
Para-/hemiplagia	1,236 (1.1)	1.3 [2.0]	1.0 [Ref]	1.1 [0.9]
Peptic ulcer disease	1,994 (1.8)	2.0 [2.4]	1.7 [Ref]	1.9 [2.0]
PVD	26,580 (2.3)	25.6 [4.8]	23.5 [Ref]	21.6 [4.4]
Renal disease	21,592 (19.1)	21.2 [5.3]	19.1 [Ref]	17.1 [5.4]
Rheumatic disease	4,204 (3.7)	4.0 [2.0]	3.6 [Ref]	3.7 [0.2]

Patient Characteristics	Total N=113,296 N (%)	Adherence Change		
		Decrease N=18,502 % [ASD]	No Change N=72,510 % [ASD]	Increase N=22,284 % [ASD]
CCI				
Mean ± SD	2.5 ± 2.3	2.8 ± 2.4 [11.1]	2.5 ± 2.3 [Ref]	2.4 ± 2.3 [7.1]
0	22,608 (20.0)	17.4 [6.2]	19.8 [Ref]	22.6 [7.0]
1-2	43,540 (38.4)	36.5 [4.5]	38.7 [Ref]	39.3 [1.3]
3-5	34,947 (30.8)	33.1 [4.4]	31.0 [Ref]	28.5 [5.5]
6-8	9,868 (8.7)	10.4 [6.2]	8.6 [Ref]	7.6 [3.5]
9 or more	2,333 (2.1)	2.6 [4.6]	2.0 [Ref]	1.9 [0.3]
Other comorbidities				
Dementia/Alz‡	11,574 (10.2)	12.1 [7.0]	9.9 [Ref]	9.7 [0.7]
Depression	17,464 (15.4)	17.3 [6.2]	15.0 [Ref]	15.3 [0.8]
CABG	1,136 (1.0)	1.1 [1.4]	1.0 [Ref]	1.0 [0.1]
PTCA/stent	7,441 (6.6)	7.2 [2.4]	6.6 [Ref]	5.8 [3.5]
IHD	68,689 (60.6)	64.1 [5.6]	61.4 [Ref]	55.4 [12.1]
Unstable angina	6,112 (5.4)	6.0 [2.3]	5.5 [Ref]	4.6 [3.9]
Lipid abnormalities	101,285 (89.4)	89.7 [0.5]	89.6 [Ref]	88.6 [3.0]
Rhabdo/myopathy	7,553 (6.7)	7.6 [5.1]	6.3 [Ref]	7.0 [3.1]
Pre-AMI medications				
Beta-blocker	73,425 (64.8)	65.4 [2.0]	66.4 [Ref]	59.3 [14.8]
ACE inhibitor/ARB	75,501 (66.6)	67.0 [0.8]	67.4 [Ref]	64.0 [7.2]
Index admission				
Subend infarction	90,299 (79.7)	81.4 [2.8]	80.3 [Ref]	76.3 [9.8]
CABG	6,988 (6.2)	5.3 [2.9]	6.0 [Ref]	7.6 [6.5]
PTCA/stent	41,596 (36.7)	30.3 [12.9]	36.4 [Ref]	43.1 [13.7]
Platelet inhibitors	4,919 (4.3)	3.6 [4.1]	4.4 [Ref]	4.9 [2.8]
Cardiac cath	64,954 (57.3)	51.4 [10.8]	56.8 [Ref]	63.9 [14.5]
Angiocardiography	65,107 (57.5)	51.4 [11.7]	57.2 [Ref]	63.3 [12.4]
Cardiogenic shock	2,484 (2.2)	2.2 [0.8]	2.1 [Ref]	2.6 [3.5]
Dysrhythmias	35,365 (31.2)	31.7 [0.0]	31.6 [Ref]	29.4 [4.8]
Hypotension	5,679 (5.0)	5.1 [0.5]	5.0 [Ref]	5.1 [0.4]
Acute renal failure	17,876 (15.8)	17.7 [5.8]	15.5 [Ref]	14.9 [1.7]
Heart failure	45,681 (40.3)	43.3 [6.0]	40.4 [Ref]	37.7 [5.5]
Length of stay (days)				
Mean ± SD	5.3 ± 5.0	5.7 ± 5.8 [9.3]	5.2 ± 4.8 [Ref]	5.3 ± 4.9 [1.7]
1-3	49,896 (44.0)	40.6 [8.1]	44.7 [Ref]	44.9 [0.4]
4-6	35,187 (31.1)	31.6 [1.1]	31.1 [Ref]	30.4 [1.6]
7-11	19,525 (17.2)	18.9 [5.1]	17.0 [Ref]	16.7 [0.7]
12+	8,688 (7.7)	8.8 [5.8]	7.3 [Ref]	8.1 [3.0]

	Total	Adherence Change		
		Decrease	No Change	Increase
	N=113,296	N=18,502	N=72,510	N=22,284
Patient Characteristics	N (%)	% [ASD]	% [ASD]	% [ASD]
Intensive care				
None	28,655 (25.3)	25.6 [0.6]	25.8 [Ref]	23.3 [5.8]
CCU only	26,295 (23.2)	22.3 [1.8]	23.1 [Ref]	24.4 [3.2]
ICU only	46,625 (41.2)	42.1 [2.2]	41.0 [Ref]	40.8 [0.4]
Both	11,721 (10.3)	10.0 [0.1]	10.1 [Ref]	11.4 [4.3]
Cardiologist consult	97,977 (86.5)	85.3 [3.1]	86.4 [Ref]	87.7 [3.8]
30-day follow-up				
None	17,186 (15.2)	15.8 [1.9]	15.1 [Ref]	14.9 [0.4]
PCP only§	33,332 (29.4)	31.0 [3.5]	29.4 [Ref]	28.0 [3.2]
Cardiologist only	20,292 (17.9)	16.2 [5.1]	18.1 [Ref]	18.8 [1.9]
Both	42,486 (37.5)	37.0 [0.7]	37.4 [Ref]	38.3 [1.8]
Simvastatin ADD change‖	2.7 ± 34.3	-8.6 ± 36.4 [35.4]	3.5 ± 32.0 [Ref]	9.7 ± 37.0 [17.8]
Pre-AMI statin#				
Low intensity	12,216 (10.8)	10.4 [1.5]	10.9 [Ref]	10.8 [0.1]
Moderate intensity	76,914 (67.9)	67.5 [1.1]	68.0 [Ref]	67.9 [0.2]
High intensity	24,166 (21.3)	22.4 [2.4]	21.1 [Ref]	21.2 [0.3]
Post-AMI statin#				
Low intensity	9,442 (8.3)	9.4 [3.4]	8.4 [Ref]	7.2 [4.4]
Moderate intensity	72,897 (6.4)	65.7 [2.3]	64.6 [Ref]	62.5 [4.2]
High intensity	30,957 (27.3)	25.0 [4.7]	27.0 [Ref]	30.2 [7.1]
Pre-AMI PDC				
<40%	18,205 (16.1)	0.0 [49.7]	11.0 [Ref]	45.9 [83.8]
40-79.9%	24,373 (21.5)	26.1 [41.7]	10.3 [Ref]	54.1 [106.0]
≥80%	70,718 (62.4)	73.9 [11.1]	78.7 [Ref]	0.0 [271.5]
Post-AMI PDC				
<40%	17,104 (15.1)	49.3 [91.9]	11.0 [Ref]	0.0 [49.7]
40-79.9%	21,348 (18.8)	50.7 [97.5]	10.3 [Ref]	20.1 [27.4]
≥80%	74,844 (66.1)	0.0 [271.5]	78.7 [Ref]	79.9 [3.1]

Percentages are column percentages. *Enrolled in Medicare and Medicaid. †Median household income of US Census block groups for individuals aged 65 and older. ‡Medicare Chronic Condition Data Warehouse definition. §Primary care physician, physician assistant, or nurse practitioner. ‖Weighted average of the simvastatin-equivalent average daily dose in the post-AMI period minus the weighted average of the pre-AMI period. #According to the 2013 American College of Cardiology/ American Heart Association guidelines on the reduction of atherosclerotic cardiovascular risk. *Abbreviations*: AMI=acute myocardial infarction; PDC=proportion of days covered; ASD=absolute standardized difference; Ref=reference group for ASD calculation; SD=standard deviation; CCI=Charlson Comorbidity Index; CeVD=cerebrovascular disease; CHF=congestive heart failure; COPD=chronic obstructive pulmonary disease; PVD=peripheral vascular disease; CCW=Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; IHD=ischemic heart disease; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; subend=subendocardial; Rhabdo=rhabdomyolysis; Cardiac cath=cardiac catheterization; CCU=coronary care unit; ICU=intensive care unit; PCP=primary care provider; ADD=average daily dose.

Table S2. Patient characteristics stratified by pre-AMI statin adherence.

Patient Characteristics	Pre-AMI PDC		
	<40%	40-79.9%	≥80%
	N=18,205	N=24,373	N=70,718
	% [ASD]	% [ASD]	% [ASD]
Age			
Mean ± SD	76.7 ± 7.3 [12.0]	76.9 ± 7.2 [9.5]	77.6 ± 7.4 [Ref]
66-75	48.7 [11.0]	47.3 [8.2]	43.3 [Ref]
76-85	37.7 [5.0]	39.0 [2.3]	40.1 [Ref]
86+	13.6 [8.5]	13.7 [8.2]	16.6 [Ref]
Female	55.6 [4.0]	55.4 [3.6]	53.6 [Ref]
Race/ethnicity			
White	80.0 [17.1]	81.5 [13.3]	86.3 [Ref]
Black	12.2 [17.9]	10.6 [13.1]	6.9 [Ref]
Hispanic	3.9 [7.4]	3.6 [6.2]	2.6 [Ref]
Asian	2.1 [1.2]	2.1 [0.9]	2.3 [Ref]
Other	1.9 [0.3]	2.1 [1.7]	1.9 [Ref]
Dual eligibility*	25.6 [1.4]	25.0 [0.0]	25.0 [Ref]
Household income†			
≤$30,000	49.4 [6.1]	47.6 [2.4]	46.4 [Ref]
$30,001-60,000	40.0 [3.6]	40.9 [1.6]	41.7 [Ref]
$60,001-100,000	8.7 [2.9]	9.3 [0.8]	9.5 [Ref]
$100,001-150,000	1.5 [2.7]	1.7 [1.1]	1.8 [Ref]
>$150,000	0.5 [1.4]	0.6 [0.0]	0.6 [Ref]
CCI comorbidities			
AMI	5.2 [3.0]	4.5 [0.2]	4.5 [Ref]
Cancer	12.1 [0.4]	12.2 [0.1]	12.2 [Ref]
CeVD	18.5 [0.5]	18.9 [1.6]	18.3 [Ref]
CHF	29.5 [2.4]	30.0 [1.2]	30.6 [Ref]
COPD	29.2 [4.1]	27.7 [0.7]	27.4 [Ref]
Dementia	3.2 [2.5]	3.1 [1.7]	2.8 [Ref]
Diabetes	47.1 [1.9]	47.7 [0.9]	48.1 [Ref]
Liver disease	2.2 [3.4]	2.2 [3.3]	1.7 [Ref]
Metastatic cancer	1.8 [3.4]	1.7 [2.4]	1.4 [Ref]
Para-/hemiplagia	1.2 [1.1]	1.1 [0.7]	1.1 [Ref]
Peptic ulcer disease	2.0 [2.8]	2.0 [2.7]	1.6 [Ref]
PVD	23.6 [0.5]	23.5 [0.1]	23.4 [Ref]
Renal disease	18.4 [2.6]	18.6 [2.1]	19.4 [Ref]
Rheumatic disease	4.0 [1.7]	3.8 [0.6]	3.6 [Ref]

Patient Characteristics	Pre-AMI PDC		
	<40% N=18,205 % [ASD]	40-79.9% N=24,373 % [ASD]	≥80% N=70,718 % [ASD]
CCI			
Mean ± SD	2.5 ± 2.4 [0.9]	2.5 ± 2.4 [0.5]	2.5 ± 2.3 [Ref]
0	20.2 [1.0]	20.3 [1.2]	19.8 [Ref]
1-2	38.2 [0.6]	38.5 [0.0]	38.5 [Ref]
3-5	30.5 [1.4]	30.2 [2.0]	31.1 [Ref]
6-8	8.7 [0.1]	8.8 [0.2]	8.7 [Ref]
9 or more	2.4 [3.6]	2.3 [2.5]	1.9 [Ref]
Other comorbidities			
Dementia/Alz‡	10.3 [0.5]	10.5 [1.2]	10.1 [Ref]
Depression	15.7 [1.6]	16.0 [2.4]	15.1 [Ref]
CABG	0.9 [1.6]	1.1 [0.4]	1.0 [Ref]
PTCA/stent	7.0 [2.0]	6.6 [0.6]	6.5 [Ref]
IHD	58.7 [5.0]	60.7 [0.9]	61.1 [Ref]
Unstable angina	5.5 [0.6]	5.4 [0.0]	5.4 [Ref]
Lipid abnormalities	87.5 [7.0]	89.9 [0.6]	89.7 [Ref]
Rhabdo/myopathy	7.9 [6.9]	7.1 [3.9]	6.2 [Ref]
Pre-AMI medications			
Beta-blocker	57.8 [19.1]	63.6 [7.2]	67.0 [Ref]
ACE inhibitor/ARB	60.2 [17.0]	66.5 [3.9]	68.3 [Ref]
Index admission			
Subend infarction	78.1 [5.8]	78.7 [4.3]	80.4 [Ref]
CABG	6.4 [1.3]	6.3 [0.9]	6.1 [Ref]
PTCA/stent	39.3 [7.5]	37.8 [4.4]	35.7 [Ref]
Platelet inhibitors	4.7 [2.6]	4.5 [1.6]	4.2 [Ref]
Cardiac cath	60.2 [8.2]	58.8 [5.5]	56.1 [Ref]
Angiocardiography	59.5 [6.1]	58.9 [5.0]	56.4 [Ref]
Cardiogenic shock	2.1 [0.0]	2.4 [1.8]	2.1 [Ref]
Dysrhythmias	30.2 [3.8]	29.9 [4.5]	31.9 [Ref]
Hypotension	4.8 [1.2]	5.1 [0.2]	5.0 [Ref]
Acute renal failure	15.1 [2.5]	15.7 [0.8]	16.0 [Ref]
Heart failure	38.7 [4.6]	39.5 [2.9]	41.0 [Ref]
Length of stay (days)			
Mean ± SD	5.3 ± 5.1 [0.7]	5.3 ± 4.9 [0.5]	5.3 ± 5.0 [Ref]
1-3	44.3 [1.0]	44.6 [1.7]	43.8 [Ref]
4-6	31.4 [0.6]	30.7 [0.9]	31.1 [Ref]
7-11	16.7 [2.1]	16.8 [2.0]	17.5 [Ref]
12+	7.7 [0.2]	7.9 [1.2]	7.6 [Ref]

	Pre-AMI PDC		
	<40%	40-79.9%	≥80%
	N=18,205	N=24,373	N=70,718
Patient Characteristics	% [ASD]	% [ASD]	% [ASD]
Intensive care			
None	24.2 [3.4]	25.0 [1.4]	25.7 [Ref]
CCU only	24.2 [3.1]	23.4 [1.2]	22.9 [Ref]
ICU only	40.8 [1.1]	40.7 [1.3]	41.4 [Ref]
Both	10.8 [2.3]	10.8 [2.4]	10.1 [Ref]
Cardiologist consult	86.7 [1.1]	86.7 [1.1]	86.3 [Ref]
30-day follow-up			
None	17.0 [6.7]	15.7 [3.3]	14.5 [Ref]
PCP only§	29.6 [0.4]	29.4 [0.0]	29.4 [Ref]
Cardiologist only	17.7 [0.3]	18.2 [1.0]	17.8 [Ref]
Both	35.8 [5.1]	36.7 [3.3]	38.2 [Ref]
Simvastatin ADD change‖	-4.0 ± 43.8 [23.3]	2.1 ± 36.0 [8.0]	4.7 ± 30.4 [Ref]
Pre-AMI statin#			
Low intensity	11.4 [1.7]	9.7 [4.0]	11.0 [Ref]
Moderate intensity	66.9 [3.4]	66.9 [3.3]	68.5 [Ref]
High intensity	21.6 [2.6]	23.3 [6.6]	20.6 [Ref]
Post-AMI statin#			
Low intensity	8.7 [0.7]	7.7 [3.0]	8.5 [Ref]
Moderate intensity	63.8 [2.4]	62.9 [4.2]	65.0 [Ref]
High intensity	27.5 [2.1]	29.4 [6.3]	26.6 [Ref]
Post-AMI PDC			
<40%	43.8 [96.9]	19.8 [41.7]	6.1 [Ref]
40-79.9%	24.6 [29.3]	30.7 [43.2]	13.3 [Ref]
≥80%	31.6 [113.8]	49.5 [69.2]	80.7 [Ref]

Percentages are column percentages. *Enrolled in Medicare and Medicaid. †Median household income of US Census block groups for individuals aged 65 and older. ‡Medicare Chronic Condition Data Warehouse definition. §Primary care physician, physician assistant, or nurse practitioner. ‖Weighted average of the simvastatin-equivalent average daily dose in the post-AMI period minus the weighted average of the pre-AMI period. #According to the 2013 American College of Cardiology/ American Heart Association guidelines on the reduction of atherosclerotic cardiovascular risk. Abbreviations: AMI=acute myocardial infarction; PDC=proportion of days covered; ASD=absolute standardized difference; Ref=reference group for ASD calculation; SD=standard deviation; CCI=Charlson Comorbidity Index; CeVD=cerebrovascular disease; CHF=congestive heart failure; COPD=chronic obstructive pulmonary disease; PVD=peripheral vascular disease; CCW=Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; IHD=ischemic heart disease; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; subend=subendocardial; Rhabdo=rhabdomyolysis; Cardiac cath=cardiac catheterization; CCU=coronary care unit; ICU=intensive care unit; PCP=primary care provider; ADD=average daily dose.

Table S3. Patient characteristics stratified by post-AMI statin adherence.

Patient Characteristics	Post-AMI PDC		
	<40%	40-79.9%	≥80%
	N=17,104	N=21,348	N=74,844
	% [ASD]	% [ASD]	% [ASD]
Age			
Mean ± SD	77.5 ± 7.5 [3.1]	77.0 ± 7.3 [4.6]	77.3 ± 7.3 [Ref]
66-75	44.1 [1.3]	46.8 [4.2]	44.7 [Ref]
76-85	39.2 [1.1]	38.8 [1.9]	39.8 [Ref]
86+	16.7 [3.2]	14.3 [3.3]	15.5 [Ref]
Female	55.5 [3.4]	55.1 [2.6]	53.8 [Ref]
Race/ethnicity			
White	82.2 [8.7]	82.0 [9.2]	85.4 [Ref]
Black	10.9 [11.9]	10.4 [10.0]	7.5 [Ref]
Hispanic	3.3 [2.8]	3.5 [3.8]	2.8 [Ref]
Asian	1.7 [4.7]	2.0 [2.4]	2.4 [Ref]
Other	1.9 [0.2]	2.1 [1.6]	1.9 [Ref]
Dual eligibility*	23.6 [5.2]	24.0 [4.1]	25.8 [Ref]
Household income†			
≤$30,000	48.7 [4.2]	47.7 [2.3]	46.6 [Ref]
$30,001-60,000	40.7 [1.7]	40.7 [1.7]	41.6 [Ref]
$60,001-100,000	8.6 [3.0]	9.4 [0.5]	9.5 [Ref]
$100,001-150,000	1.5 [2.0]	1.7 [0.4]	1.8 [Ref]
>$150,000	0.5 [1.3]	0.5 [1.6]	0.6 [Ref]
CCI comorbidities			
AMI	6.2 [8.8]	4.6 [1.9]	4.2 [Ref]
Cancer	13.4 [4.8]	12.3 [1.5]	11.8 [Ref]
CeVD	20.6 [7.2]	19.1 [3.4]	17.8 [Ref]
CHF	35.9 [14.8]	30.5 [3.4]	29.0 [Ref]
COPD	31.7 [10.7]	28.0 [2.7]	26.8 [Ref]
Dementia	4.1 [8.2]	2.9 [1.6]	2.6 [Ref]
Diabetes	49.1 [3.5]	48.5 [2.2]	47.4 [Ref]
Liver disease	2.6 [6.3]	2.0 [1.9]	1.7 [Ref]
Metastatic cancer	2.3 [7.8]	1.5 [2.1]	1.3 [Ref]
Para-/hemiplagia	1.4 [3.0]	1.0 [0.4]	1.0 [Ref]
Peptic ulcer disease	2.1 [3.4]	1.9 [1.7]	1.6 [Ref]
PVD	26.5 [9.0]	23.9 [3.1]	22.6 [Ref]
Renal disease	21.5 [7.5]	18.9 [0.9]	18.5 [Ref]
Rheumatic disease	4.3 [3.3]	3.6 [0.1]	3.6 [Ref]

Patient Characteristics	Post-AMI PDC		
	<40% N=17,104 % [ASD]	40-79.9% N=21,348 % [ASD]	≥80% N=74,844 % [ASD]
CCI			
Mean ± SD	2.9 ± 2.5 [18.1]	2.6 ± 2.3 [5.0]	2.4 ± 2.3 [Ref]
0	16.3 [11.8]	19.5 [3.6]	20.9 [Ref]
1-2	36.0 [6.2]	38.2 [1.7]	39.0 [Ref]
3-5	33.6 [7.7]	31.6 [3.4]	30.0 [Ref]
6-8	10.9 [9.3]	8.6 [1.5]	8.2 [Ref]
9 or more	3.1 [8.3]	2.1 [2.2]	1.8 [Ref]
Other comorbidities			
Dementia/Alz‡	12.5 [8.9]	10.3 [2.3]	9.7 [Ref]
Depression	17.2 [6.6]	16.2 [3.8]	14.8 [Ref]
CABG	1.0 [0.5]	1.0 [0.2]	1.0 [Ref]
PTCA/stent	8.0 [7.2]	6.9 [3.0]	6.2 [Ref]
IHD	65.5 [13.1]	61.7 [5.2]	59.2 [Ref]
Unstable angina	6.4 [5.6]	5.6 [2.5]	5.1 [Ref]
Lipid abnormalities	88.6 [3.1]	89.7 [0.5]	89.5 [Ref]
Rhabdo/myopathy	8.3 [8.6]	7.2 [4.4]	6.1 [Ref]
Pre-AMI medications			
Beta-blocker	62.9 [5.5]	63.9 [3.2]	65.5 [Ref]
ACE inhibitor/ARB	62.9 [9.9]	66.2 [3.0]	67.6 [Ref]
Index admission			
Subend infarction	81.4 [5.7]	80.3 [2.7]	79.2 [Ref]
CABG	4.6 [8.7]	6.1 [1.8]	6.5 [Ref]
PTCA/stent	30.1 [17.6]	36.0 [5.1]	38.4 [Ref]
Platelet inhibitors	3.8 [3.4]	4.2 [1.3]	4.5 [Ref]
Cardiac cath	50.8 [16.0]	57.7 [2.2]	58.7 [Ref]
Angiocardiography	50.8 [16.3]	57.6 [2.7]	58.9 [Ref]
Cardiogenic shock	1.9 [2.5]	2.1 [1.0]	2.3 [Ref]
Dysrhythmias	31.4 [0.1]	30.6 [1.7]	31.4 [Ref]
Hypotension	5.0 [0.5]	4.8 [1.1]	5.1 [Ref]
Acute renal failure	17.0 [4.3]	15.9 [1.4]	15.4 [Ref]
Heart failure	43.3 [7.0]	39.6 [0.5]	39.8 [Ref]
Length of stay (days)			
Mean ± SD	5.6 ± 5.8 [6.7]	5.3 ± 5.0 [1.5]	5.2 ± 4.8 [Ref]
1-3	41.2 [6.8]	44.3 [0.5]	44.6 [Ref]
4-6	32.1 [2.6]	30.9 [0.1]	30.9 [Ref]
7-11	18.2 [3.1]	17.1 [0.0]	17.1 [Ref]
12+	8.5 [3.7]	7.7 [0.7]	7.5 [Ref]

	Post-AMI PDC		
	<40%	40-79.9%	≥80%
	N=17,104	N=21,348	N=74,844
Patient Characteristics	% [ASD]	% [ASD]	% [ASD]
Intensive care			
None	26.3 [2.7]	24.9 [0.6]	25.2 [Ref]
CCU only	22.4 [2.2]	23.3 [0.0]	23.3 [Ref]
ICU only	41.4 [0.8]	41.3 [0.5]	41.1 [Ref]
Both	9.8 [2.1]	10.5 [0.2]	10.4 [Ref]
Cardiologist consult	84.8 [5.8]	86.6 [0.7]	86.8 [Ref]
30-day follow-up			
None	17.8 [9.2]	15.6 [3.1]	14.4 [Ref]
PCP only§	32.1 [7.4]	29.8 [2.5]	28.7 [Ref]
Cardiologist only	15.7 [7.0]	18.0 [1.0]	18.4 [Ref]
Both	34.3 [8.6]	36.6 [3.9]	38.5 [Ref]
Simvastatin ADD change‖	-20.7 ± 41.0 [78.4]	3.7 ± 31.0 [13.1]	7.8 ± 31.1 [Ref]
Pre-AMI statin#			
Low intensity	11.5 [1.2]	9.0 [7.0]	11.1 [Ref]
Moderate intensity	66.9 [3.7]	66.1 [5.4]	68.6 [Ref]
High intensity	21.6 [3.4]	24.9 [11.1]	20.3 [Ref]
Post-AMI statin#			
Low intensity	10.5 [8.4]	7.4 [2.4]	8.1 [Ref]
Moderate intensity	66.0 [3.5]	63.1 [2.7]	64.3 [Ref]
High intensity	23.5 [9.4]	29.5 [4.2]	27.6 [Ref]
Pre-AMI PDC			
<40%	46.6 [97.5]	21.0 [38.7]	7.7 [Ref]
40-79.9%	28.2 [29.4]	35.1 [44.6]	16.1 [Ref]
≥80%	25.2 [118.8]	43.9 [69.8]	76.2 [Ref]

Percentages are column percentages. *Enrolled in Medicare and Medicaid. †Median household income of US Census block groups for individuals aged 65 and older. ‡Medicare Chronic Condition Data Warehouse definition. §Primary care physician, physician assistant, or nurse practitioner. ‖Weighted average of the simvastatin-equivalent average daily dose in the post-AMI period minus the weighted average of the pre-AMI period. #According to the 2013 American College of Cardiology/ American Heart Association guidelines on the reduction of atherosclerotic cardiovascular risk. *Abbreviations*: AMI=acute myocardial infarction; PDC=proportion of days covered; ASD=absolute standardized difference; Ref=reference group for ASD calculation; SD=standard deviation; CCI=Charlson Comorbidity Index; CeVD=cerebrovascular disease; CHF=congestive heart failure; COPD=chronic obstructive pulmonary disease; PVD=peripheral vascular disease; CCW=Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; IHD=ischemic heart disease; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; subend=subendocardial; Rhabdo=rhabdomyolysis; Cardiac cath=cardiac catheterization; CCU=coronary care unit; ICU=intensive care unit; PCP=primary care provider; ADD=average daily dose.

Table S4. Full model for 3-level multinomial regression model predicting statin adherence change after an AMI.

Patient Characteristics	Model 1: 3-Level Multinomial Logistic Regression* OR (99% CI)	
	Decrease	Increase
Pre-AMI PDC (10%)†	1.04 (1.03, 1.05)	0.67 (0.67, 0.68)
Age		
66-75	1.	1.
76-85	0.99 (0.94, 1.04)	0.97 (0.92, 1.02)
86+	0.99 (0.92, 1.06)	0.88 (0.81, 0.95)
Female	1.03 (0.98, 1.08)	1.06 (1.01, 1.12)
Race/ethnicity		
White	1.	1.
Black	1.21 (1.12, 1.31)	1.14 (1.05, 1.23)
Hispanic	1.30 (1.15, 1.48)	1.29 (1.13, 1.48)
Asian	0.97 (0.83, 1.14)	1.16 (0.99, 1.36)
Other	1.22 (1.05, 1.42)	1.15 (0.97, 1.36)
Dual eligibility‡	0.80 (0.75, 0.84)	1.18 (1.11, 1.25)
Household income§		
≤$30,000	1.	1.
$30,001-60,000	0.96 (0.91, 1.00)	0.98 (0.93, 1.03)
$60,001-100,000	0.96 (0.89, 1.04)	1.03 (0.95, 1.12)
$100,001-150,000	1.01 (0.86, 1.19)	1.05 (0.87, 1.26)
>$150,000	0.79 (0.58, 1.08)	1.10 (0.80, 1.51)
Adjusted CCI‖		
0	1.	1.
1-2	1.03 (0.97, 1.10)	0.88 (0.83, 0.94)
3-5	1.08 (1.01, 1.15)	0.84 (0.79, 0.91)
6-8	1.14 (1.04, 1.26)	0.81 (0.73, 0.91)
9 or more	1.39 (1.19, 1.62)	0.77 (0.64, 0.93)
Baseline comorbidities		
Prior AMI#	1.04 (0.94, 1.15)	0.92 (0.81, 1.04)
Dementia/Alz**	1.13 (1.06, 1.21)	1.05 (0.97, 1.14)
Depression	1.11 (1.05, 1.18)	1.02 (0.95, 1.09)
CABG	1.13 (0.92, 1.39)	1.28 (1.01, 1.62)
PTCA/stent	1.12 (1.02, 1.23)	0.85 (0.76, 0.95)
Ischemic heart disease	1.09 (1.04, 1.15)	0.84 (0.79, 0.89)
Unstable angina	1.04 (0.94, 1.15)	0.89 (0.79, 1.00)
Lipid abnormalities	1.00 (0.93, 1.07)	1.07 (0.99, 1.16)
Rhabdomyolysis/myopathy	1.15 (1.05, 1.24)	1.01 (0.92, 1.11)

| | Model 1: 3-Level Multinomial Logistic Regression* OR (99% CI) | |
Patient Characteristics	Decrease	Increase
Concurrent medications		
Beta-blocker	0.88 (0.84, 0.93)	0.99 (0.94, 1.04)
ACE inhibitor/ARB	0.95 (0.91, 1.00)	1.10 (1.05, 1.16)
Index admission		
Subendocardial infarction††	0.97 (0.92, 1.03)	0.90 (0.85, 0.96)
CABG	0.78 (0.71, 0.87)	1.34 (1.21, 1.49)
PTCA/stent	0.82 (0.78, 0.87)	1.25 (1.17, 1.32)
Platelet inhibitors	0.91 (0.81, 1.02)	1.00 (0.89, 1.12)
Cardiac catheterization	1.03 (0.95, 1.12)	1.09 (1.00, 1.19)
Angiocardiography	0.90 (0.82, 0.97)	1.05 (0.97, 1.15)
Cardiogenic shock	1.04 (0.90, 1.21)	1.14 (0.98, 1.34)
Cardiac dysrhythmias	1.00 (0.95, 1.05)	0.93 (0.88, 0.98)
Hypotension	1.01 (0.91, 1.11)	1.05 (0.94, 1.16)
Acute renal failure	1.05 (0.99, 1.12)	1.00 (0.93, 1.07)
Heart failure	1.02 (0.98, 1.07)	1.00 (0.95, 1.06)
Length of stay (days)		
1-3	1.	1.
4-6	1.05 (1.00, 1.11)	1.00 (0.94, 1.06)
7-11	1.14 (1.07, 1.22)	1.02 (0.95, 1.10)
12+	1.27 (1.16, 1.39)	1.08 (0.97, 1.20)
Intensive care		
None	1.	1.
Coronary care unit only	1.03 (0.96, 1.09)	1.03 (0.96, 1.11)
Intensive care unit only	1.05 (1.00, 1.11)	1.01 (0.95, 1.07)
Both	1.04 (0.96, 1.13)	1.03 (0.94, 1.12)
Cardiologist consult	0.95 (0.89, 1.01)	1.04 (0.96, 1.11)
30-day follow-up		
None	1.	1.
PCP only‡‡	0.97 (0.91, 1.04)	1.08 (1.00, 1.16)
Cardiologist only	0.91 (0.84, 0.98)	1.15 (1.05, 1.25)
Both	0.95 (0.89, 1.02)	1.21 (1.12, 1.30)

*Three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change. †Odds ratio for a 10% higher pre-AMI adherence (e.g. 50% compared to 40%). ‡Enrolled in Medicare and Medicaid. §Median household income of US Census block groups for individuals aged 65 and older. ‖CCI score does not include counts for AMI and dementia. #CCI definition. **Medicare Chronic Condition Data Warehouse definition. ††Diagnosis code for subendocardial infarction, compared to a transmural infarction. ‡‡Primary care physician, physician assistant, or nurse practitioner. Abbreviations: AMI=acute myocardial infarction; OR=odds ratio; CI=confidence interval; PDC=proportion of days covered; CCI=Charlson Comorbidity Index; Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; PCP=primary care provider.

Table S5. Full model for five-level multinomial regression model predicting statin adherence change after an AMI.

Patient Characteristics	Model 2: 5-Level Multinomial Logistic Regression*			
	OR (99% CI) Major Decrease	OR (99% CI) Mild/Moderate Decrease	OR (99% CI) Mild/Moderate Increase	OR (99% CI) Major Increase
Pre-AMI PDC (10%)‡‡	1.48 (1.43, 1.54)	0.99 (0.98, 1.00)	0.71 (0.71, 0.72)	0.49 (0.48, 0.49)
Age				
66-75	1.	1.	1.	1.
76-85	0.95 (0.87, 1.05)	1.00 (0.95, 1.06)	0.96 (0.91, 1.02)	1.01 (0.92, 1.11)
86+	0.99 (0.88, 1.12)	0.98 (0.91, 1.06)	0.86 (0.79, 0.93)	0.94 (0.81, 1.08)
Female	1.06 (0.97, 1.15)	1.02 (0.97, 1.07)	1.07 (1.01, 1.12)	1.04 (0.95, 1.14)
Race/ethnicity				
White	1.	1.	1.	1.
Black	1.25 (1.07, 1.45)	1.21 (1.11, 1.32)	1.15 (1.06, 1.25)	1.16 (1.01, 1.34)
Hispanic	1.29 (1.00, 1.64)	1.32 (1.15, 1.52)	1.32 (1.15, 1.51)	1.25 (1.00, 1.58)
Asian	0.87 (0.64, 1.19)	1.01 (0.84, 1.20)	1.18 (1.00, 1.39)	1.09 (0.82, 1.47)
Other	1.19 (0.88, 1.59)	1.24 (1.04, 1.46)	1.14 (0.96, 1.36)	1.27 (0.94, 1.71)
Dual eligibility†	0.81 (0.73, 0.90)	0.79 (0.74, 0.84)	1.13 (1.06, 1.20)	1.46 (1.31, 1.63)
Household income‡				
≤$30,000	1.	1.	1.	1.
$30,001-60,000	0.95 (0.87, 1.04)	0.96 (0.91, 1.01)	0.98 (0.93, 1.04)	0.99 (0.90, 1.08)
$60,001-100,000	0.95 (0.82, 1.11)	0.96 (0.88, 1.05)	1.03 (0.95, 1.13)	1.05 (0.89, 1.22)
$100,001-150,000	0.91 (0.66, 1.25)	1.04 (0.87, 1.25)	1.03 (0.85, 1.25)	1.16 (0.82, 1.63)
>$150,000	0.81 (0.45, 1.45)	0.79 (0.56, 1.11)	1.13 (0.82, 1.56)	0.90 (0.47, 1.70)
Adjusted CCI§				
0	1.	1.	1.	1.
1-2	1.01 (0.90, 1.14)	1.04 (0.97, 1.11)	0.89 (0.83, 0.95)	0.82 (0.73, 0.92)
3-5	1.07 (0.94, 1.22)	1.08 (1.00, 1.17)	0.87 (0.81, 0.94)	0.69 (0.61, 0.79)
6-8	1.15 (0.96, 1.37)	1.14 (1.02, 1.27)	0.82 (0.73, 0.92)	0.74 (0.61, 0.91)
9 or more	1.37 (1.02, 1.83)	1.40 (1.18, 1.66)	0.81 (0.66, 0.99)	0.58 (0.41, 0.83)

	Model 2: 5-Level Multinomial Logistic Regression*			
	OR (99% CI)	OR (99% CI)	OR (99% CI)	OR (99% CI)
Patient Characteristics	Major Decrease	Mild/Moderate Decrease	Mild/Moderate Increase	Major Increase
Baseline comorbidities				
Prior AMI‖	1.14 (0.95, 1.38)	1.01 (0.90, 1.13)	0.92 (0.81, 1.05)	0.90 (0.72, 1.14)
Dementia/Alz#	1.30 (1.15, 1.47)	1.08 (1.00, 1.17)	1.06 (0.97, 1.15)	0.97 (0.83, 1.14)
Depression	1.14 (1.02, 1.28)	1.10 (1.03, 1.18)	1.01 (0.94, 1.09)	1.03 (0.91, 1.16)
CABG	1.24 (0.84, 1.83)	1.10 (0.87, 1.38)	1.26 (0.99, 1.61)	1.35 (0.85, 2.17)
PTCA/stent	1.21 (1.02, 1.45)	1.09 (0.99, 1.21)	0.86 (0.77, 0.96)	0.79 (0.64, 0.97)
Ischemic heart disease	1.07 (0.97, 1.18)	1.10 (1.04, 1.17)	0.89 (0.84, 0.94)	0.61 (0.56, 0.68)
Unstable angina	1.01 (0.84, 1.22)	1.05 (0.94, 1.17)	0.87 (0.77, 0.99)	0.97 (0.78, 1.20)
Lipid abnormalities	0.88 (0.77, 1.01)	1.04 (0.96, 1.13)	1.08 (1.00, 1.18)	1.07 (0.94, 1.23)
Rhabdo/myopathy	1.15 (0.98, 1.35)	1.15 (1.04, 1.26)	1.03 (0.94, 1.14)	0.91 (0.77, 1.08)
Concurrent medications				
Beta-blocker	0.83 (0.75, 0.91)	0.90 (0.85, 0.95)	0.99 (0.94, 1.04)	1.01 (0.92, 1.11)
ACE inhibitor/ARB	0.88 (0.81, 0.97)	0.98 (0.93, 1.03)	1.09 (1.04, 1.15)	1.19 (1.09, 1.31)
Index admission				
Subend infarction**	0.91 (0.82, 1.02)	0.99 (0.93, 1.06)	0.92 (0.86, 0.98)	0.81 (0.73, 0.90)
CABG	0.73 (0.59, 0.89)	0.80 (0.71, 0.91)	1.28 (1.15, 1.43)	1.77 (1.46, 2.14)
PTCA/stent	0.80 (0.72, 0.89)	0.83 (0.78, 0.88)	1.19 (1.12, 1.27)	1.60 (1.43, 1.78)
Platelet inhibitors	0.86 (0.68, 1.09)	0.92 (0.81, 1.05)	1.01 (0.90, 1.13)	0.95 (0.78, 1.16)
Cardiac catheterization	0.99 (0.84, 1.17)	1.04 (0.95, 1.15)	1.07 (0.97, 1.17)	1.20 (1.02, 1.41)
Angiocardiography	0.87 (0.74, 1.02)	0.91 (0.83, 0.99)	1.06 (0.97, 1.16)	1.02 (0.87, 1.19)
Cardiogenic shock	0.87 (0.64, 1.17)	1.10 (0.94, 1.30)	1.14 (0.97, 1.34)	1.21 (0.92, 1.60)
Cardiac dysrhythmias	1.01 (0.92, 1.10)	0.99 (0.94, 1.05)	0.93 (0.88, 0.98)	0.90 (0.82, 0.99)
Hypotension	1.01 (0.84, 1.22)	1.01 (0.90, 1.12)	1.05 (0.94, 1.17)	1.04 (0.86, 1.27)
Acute renal failure	1.05 (0.94, 1.17)	1.05 (0.98, 1.13)	1.00 (0.93, 1.07)	0.99 (0.87, 1.13)
Heart failure	1.08 (0.99, 1.18)	1.00 (0.95, 1.06)	1.00 (0.95, 1.06)	1.00 (0.91, 1.10)
Length of stay (days)				

Patient Characteristics	Model 2: 5-Level Multinomial Logistic Regression*			
	OR (99% CI) Major Decrease	OR (99% CI) Mild/Moderate Decrease	OR (99% CI) Mild/Moderate Increase	OR (99% CI) Major Increase
1-3	1.	1.	1.	1.
4-6	1.11 (1.01, 1.23)	1.04 (0.98, 1.10)	0.99 (0.93, 1.05)	1.04 (0.94, 1.16)
7-11	1.36 (1.21, 1.53)	1.08 (1.01, 1.17)	1.00 (0.93, 1.08)	1.10 (0.96, 1.25)
12+	1.67 (1.42, 1.96)	1.16 (1.05, 1.28)	1.07 (0.96, 1.19)	1.11 (0.91, 1.34)
Intensive care				
None	1.	1.	1.	1.
CCU only	1.03 (0.91, 1.16)	1.03 (0.96, 1.10)	1.02 (0.95, 1.09)	1.12 (0.98, 1.27)
ICU only	1.09 (0.98, 1.21)	1.04 (0.98, 1.11)	1.00 (0.94, 1.06)	1.07 (0.95, 1.20)
Both	1.00 (0.85, 1.18)	1.05 (0.96, 1.16)	1.02 (0.92, 1.12)	1.09 (0.93, 1.29)
Cardiologist consult	0.95 (0.84, 1.08)	0.95 (0.88, 1.02)	1.02 (0.94, 1.10)	1.14 (0.99, 1.31)
30-day follow-up				
None	1.	1.	1.	1.
PCP only††	1.01 (0.89, 1.15)	0.96 (0.89, 1.03)	1.07 (0.99, 1.15)	1.10 (0.96, 1.27)
Cardiologist only	0.83 (0.72, 0.97)	0.93 (0.85, 1.01)	1.13 (1.03, 1.23)	1.27 (1.09, 1.48)
Both	0.93 (0.82, 1.06)	0.95 (0.89, 1.03)	1.16 (1.08, 1.26)	1.48 (1.29, 1.69)

*Five-level multinomial logistic regression model comparing all four outcomes in table to the reference group of no change in adherence. †Enrolled in Medicare and Medicaid. ‡Median household income of US Census block groups for individuals aged 65 and older. §CCI score does not include counts for AMI and dementia. ‖CCI definition. #Medicare Chronic Condition Data Warehouse definition. **Diagnosis code for subendocardial infarction, compared to a transmural infarction. ††Primary care physician, physician assistant, or nurse practitioner. ‡‡Odds ratio for a 10% higher pre-AMI adherence (e.g. 50% compared to 40%). *Abbreviations*: AMI=acute myocardial infarction; OR=odds ratio; CI=confidence interval; PDC=proportion of days covered; CCI=Charlson Comorbidity Index; Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; Rhabdo=rhabdomyolysis; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; subend=subendocardial; CCU=coronary care unit; ICU=intensive care unit; PCP=primary care provider.

Table S6. Crude estimates, fully adjusted model, and sensitivity analyses involving changing variable definitions or adding new variables to the model for the three-level multinomial regression model predicting statin adherence change after an AMI.

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
Pre-AMI PDC (10%)‡‡	Increase	0.67 [1.01]		0.67 [1.01]	0.67 [1.01]	0.67 [1.01]	0.67 [1.01]	0.66 [1.02]*	0.67 [1.01]
	Decrease	1.03 [1.02]		1.04 [1.02]	1.05 [1.02]	1.04 [1.02]	1.04 [1.02]	1.08 [1.02]*	1.04 [1.02]
Age									
66-75		1.	1.	1.	1.	1.	1.	1.	1.
76-85	Increase	0.87 [1.09]*	0.92 [1.11]	0.97 [1.11]	0.97 [1.11]	0.97 [1.11]	0.97 [1.11]	0.98 [1.11]	0.98 [1.11]
	Decrease	1.05 [1.10]*	1.05 [1.10]*	0.99 [1.10]	0.99 [1.10]	0.99 [1.10]	0.99 [1.10]	0.99 [1.10]	0.99 [1.10]
86+	Increase	0.70 [1.13]*	0.75 [1.16]*	0.88 [1.17]	0.88 [1.17]	0.88 [1.17]	0.88 [1.17]	0.90 [1.17]	0.89 [1.17]
	Decrease	1.12 [1.13]*	1.11 [1.13]*	0.99 [1.14]	0.98 [1.14]	0.99 [1.14]	0.99 [1.14]	0.99 [1.14]	0.99 [1.14]
Female	Increase	1.08 [1.08]	1.06 [1.10]	1.06 [1.10]	1.06 [1.11]	1.06 [1.10]	1.06 [1.10]	1.06 [1.11]	1.06 [1.10]
	Decrease	1.06 [1.09]	1.06 [1.09]	1.03 [1.09]	1.03 [1.10]	1.03 [1.09]	1.03 [1.09]	1.03 [1.10]	1.03 [1.09]
Race/ethnicity									
White		1.	1.	1.	1.	1.	1.	1.	1.
Black	Increase	1.50 [1.14]*	1.15 [1.17]	1.14 [1.18]	1.12 [1.18]	1.14 [1.18]	1.14 [1.18]	1.11 [1.18]	1.13 [1.18]
	Decrease	1.18 [1.16]	1.21 [1.16]	1.21 [1.17]	1.18 [1.17]	1.21 [1.17]	1.21 [1.17]	1.22 [1.17]	1.21 [1.17]
Hispanic	Increase	1.63 [1.24]*	1.39 [1.29]	1.29 [1.30]	1.30 [1.30]	1.29 [1.30]	1.30 [1.30]	1.26 [1.31]	1.29 [1.30]
	Decrease	1.23 [1.28]	1.25 [1.28]	1.30 [1.29]	1.28 [1.30]	1.31 [1.29]	1.30 [1.29]	1.32 [1.30]	1.31 [1.29]
Asian	Increase	1.18 [1.29]	1.30 [1.36]	1.16 [1.37]	1.18 [1.38]	1.16 [1.37]	1.17 [1.37]	1.14 [1.38]	1.15 [1.38]
	Decrease	0.87 [1.36]	0.87 [1.36]	0.97 [1.37]	0.97 [1.38]	0.97 [1.37]	0.97 [1.37]	0.98 [1.38]	0.97 [1.37]
Other	Increase	1.21 [1.32]	1.21 [1.39]	1.15 [1.39]	1.15 [1.40]	1.15 [1.39]	1.15 [1.39]	1.11 [1.40]	1.14 [1.39]
	Decrease	1.15 [1.35]	1.15 [1.35]	1.22 [1.36]	1.22 [1.36]	1.22 [1.36]	1.22 [1.36]	1.25 [1.36]	1.23 [1.36]
Dual eligibility	Increase	1.12 [1.09]	1.18 [1.11]	1.18 [1.13]	1.19 [1.13]	1.18 [1.13]	1.18 [1.13]	1.14 [1.13]	1.17 [1.13]
	Decrease	0.93 [1.10]*	0.93 [1.10]*	0.80 [1.12]	0.80 [1.12]	0.80 [1.12]	0.80 [1.12]	0.81 [1.12]	0.80 [1.12]

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
Household income									
≤$30,000		1.	1.	1.	1.	1.	1.	1.	1.
$30,001-60,000	Increase	0.92 [1.09]*	0.96 [1.10]	0.98 [1.11]	0.99 [1.11]	0.98 [1.11]	0.98 [1.11]	0.99 [1.11]	0.98 [1.11]
	Decrease	0.96 [1.09]	0.95 [1.09]	0.96 [1.10]	0.96 [1.10]	0.96 [1.10]	0.96 [1.10]	0.96 [1.10]	0.96 [1.10]
$60,001-100,000	Increase	0.95 [1.15]	1.03 [1.18]	1.03 [1.18]	1.03 [1.19]	1.03 [1.18]	1.03 [1.18]	1.01 [1.19]	1.03 [1.18]
	Decrease	0.96 [1.16]	0.95 [1.17]	0.96 [1.17]	0.96 [1.17]	0.96 [1.17]	0.96 [1.17]	0.97 [1.17]	0.96 [1.17]
$100,001-150,000	Increase	0.90 [1.37]	1.04 [1.44]	1.05 [1.44]	1.06 [1.45]	1.05 [1.44]	1.05 [1.44]	1.02 [1.45]	1.04 [1.44]
	Decrease	1.01 [1.38]	1.00 [1.38]	1.01 [1.39]	1.01 [1.39]	1.01 [1.39]	1.01 [1.39]	1.03 [1.39]	1.01 [1.39]
>$150,000	Increase	0.92 [1.71]	1.07 [1.87]	1.10 [1.88]	1.11 [1.90]	1.10 [1.88]	1.10 [1.88]	1.07 [1.90]	1.08 [1.88]
	Decrease	0.80 [1.85]	0.80 [1.85]	0.79 [1.85]	0.78 [1.88]	0.80 [1.85]	0.79 [1.85]	0.79 [1.87]	0.80 [1.85]
Adjusted CCI§§									
0		1.	1.	1.	1.	1.	1.	1.	1.
1-2	Increase	0.89 [1.11]	0.86 [1.13]	0.88 [1.14]	0.88 [1.14]	0.88 [1.14]	0.88 [1.14]	0.90 [1.14]	0.88 [1.14]
	Decrease	1.08 [1.13]	1.08 [1.13]	1.03 [1.13]	1.03 [1.14]	1.03 [1.13]	1.03 [1.13]	1.01 [1.13]	1.03 [1.13]
3-5	Increase	0.81 [1.12]	0.76 [1.14]*	0.84 [1.16]	0.83 [1.16]	0.84 [1.16]	0.85 [1.16]	0.87 [1.16]	0.85 [1.16]
	Decrease	1.21 [1.13]*	1.21 [1.13]*	1.08 [1.15]	1.07 [1.15]	1.08 [1.15]	1.08 [1.15]	1.04 [1.15]	1.07 [1.15]
6-8	Increase	0.78 [1.18]	0.70 [1.22]*	0.81 [1.24]	0.81 [1.25]	0.81 [1.24]	0.81 [1.25]	0.87 [1.25]	0.82 [1.25]
	Decrease	1.36 [1.19]*	1.36 [1.19]*	1.14 [1.21]	1.14 [1.21]	1.14 [1.21]	1.12 [1.21]	1.08 [1.21]	1.13 [1.21]
9 or more	Increase	0.86 [1.37]	0.66 [1.45]	0.77 [1.47]	0.78 [1.47]	0.77 [1.47]	0.81 [1.48]	0.83 [1.47]	0.78 [1.47]
	Decrease	1.63 [1.35]	1.64 [1.35]	1.39 [1.36]	1.40 [1.37]	1.38 [1.36]	1.42 [1.37]	1.26 [1.37]	1.38 [1.36]
Baseline comorbidities									
Prior AMI‖	Increase	0.86 [1.22]	0.73 [1.26]*	0.92 [1.28]	0.93 [1.29]	0.92 [1.28]	0.92 [1.28]	0.92 [1.29]	0.92 [1.28]
	Decrease	1.17 [1.21]*	1.18 [1.21]*	1.04 [1.23]	1.04 [1.23]	1.04 [1.23]	1.04 [1.23]	1.02 [1.23]	1.04 [1.23]
Dementia/ Alzheimer's##	Increase	0.98 [1.14]	0.94 [1.17]*	1.05 [1.18]	1.06 [1.18]	1.05 [1.18]	1.05 [1.18]	1.06 [1.18]	1.05 [1.18]
	Decrease	1.25 [1.14]*	1.26 [1.14]*	1.13 [1.15]	1.13 [1.15]	1.13 [1.15]	1.13 [1.15]	1.13 [1.15]	1.13 [1.15]
Depression	Increase	1.02 [1.12]	0.98 [1.14]	1.02 [1.14]	1.02 [1.15]	1.02 [1.14]	1.02 [1.14]	1.01 [1.15]	1.02 [1.15]
	Decrease	1.18 [1.12]	1.19 [1.12]	1.11 [1.13]	1.11 [1.13]	1.11 [1.13]	1.11 [1.13]	1.12 [1.13]	1.11 [1.13]

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
CABG	Increase	1.01 [1.49]	1.11 [1.59]	1.28 [1.61]	1.28 [1.62]	1.27 [1.61]	1.28 [1.61]	1.26 [1.61]	1.29 [1.61]
	Decrease	1.15 [1.50]	1.15 [1.50]	1.13 [1.52]	1.13 [1.53]	1.13 [1.52]	1.13 [1.52]	1.14 [1.53]	1.13 [1.52]
PTCA/stent	Increase	0.87 [1.18]	0.78 [1.21]	0.85 [1.24]	0.84 [1.25]	0.85 [1.24]	0.85 [1.24]	0.88 [1.24]	0.85 [1.24]
	Decrease	1.10 [1.18]	1.11 [1.18]	1.12 [1.20]	1.14 [1.21]	1.12 [1.20]	1.12 [1.20]	1.10 [1.21]	1.11 [1.20]
Ischemic heart disease	Increase	0.78 [1.08]*	0.76 [1.10]*	0.84 [1.11]	0.83 [1.12]	0.84 [1.11]	0.84 [1.11]	0.90 [1.12]*	0.84 [1.12]
	Decrease	1.12 [1.09]	1.13 [1.09]	1.09 [1.11]	1.09 [1.11]	1.10 [1.11]	1.09 [1.11]	1.04 [1.11]	1.08 [1.11]
Unstable angina	Increase	0.84 [1.20]	0.77 [1.24]*	0.89 [1.26]	0.89 [1.27]	0.89 [1.26]	0.89 [1.26]	0.89 [1.27]	0.89 [1.26]
	Decrease	1.10 [1.20]	1.11 [1.20]	1.04 [1.22]	1.05 [1.22]	1.04 [1.22]	1.04 [1.22]	1.04 [1.22]	1.04 [1.22]
Lipid abnormalities	Increase	0.91 [1.13]*	1.03 [1.16]	1.07 [1.17]	1.07 [1.17]	1.07 [1.17]	1.07 [1.17]	1.08 [1.17]	1.07 [1.17]
	Decrease	1.02 [1.15]	1.01 [1.15]	1.00 [1.16]	0.99 [1.16]	1.00 [1.16]	1.00 [1.16]	1.00 [1.16]	0.99 [1.16]
Rhabodmyolysis/ myopathy	Increase	1.13 [1.17]*	0.96 [1.20]	1.01 [1.21]	1.01 [1.21]	1.01 [1.21]	1.01 [1.21]	1.01 [1.21]	1.01 [1.21]
	Decrease	1.22 [1.18]	1.24 [1.18]	1.15 [1.18]	1.16 [1.18]	1.15 [1.18]	1.14 [1.18]	1.14 [1.18]	1.14 [1.18]
Concurrent medications									
Beta-blocker	Increase	0.74 [1.08]*	0.88 [1.10]*	0.99 [1.11]	0.99 [1.11]	0.99 [1.11]	0.99 [1.11]	1.01 [1.11]	0.99 [1.11]
	Decrease	0.96 [1.09]*	0.95 [1.09]*	0.88 [1.10]	0.88 [1.10]	0.88 [1.10]	0.88 [1.10]	0.87 [1.10]	0.88 [1.10]
ACE inhibitor/ARB	Increase	0.86 [1.09]*	1.07 [1.10]	1.10 [1.11]	1.10 [1.11]	1.10 [1.11]	1.10 [1.11]	1.11 [1.11]	1.10 [1.11]
	Decrease	0.98 [1.09]	0.98 [1.09]	0.95 [1.10]	0.95 [1.10]	0.95 [1.10]	0.95 [1.10]	0.95 [1.10]	0.95 [1.10]
Index admission									
Subendocardial infarction	Increase	0.79 [1.10]*	0.79 [1.12]*	0.90 [1.13]	0.90 [1.13]	0.90 [1.13]	0.90 [1.13]	0.93 [1.13]	0.91 [1.13]
	Decrease	1.07 [1.12]*	1.07 [1.11]*	0.97 [1.12]	0.97 [1.12]	0.97 [1.12]	0.97 [1.12]	0.96 [1.12]	0.97 [1.12]
CABG	Increase	1.30 [1.17]	1.40 [1.20]	1.34 [1.24]	1.36 [1.24]	1.33 [1.24]	1.34 [1.24]	1.34 [1.24]	1.35 [1.24]
	Decrease	0.88 [1.21]*	0.88 [1.21]*	0.78 [1.24]	0.77 [1.24]	0.79 [1.24]	0.78 [1.24]	0.80 [1.24]	0.78 [1.24]
PTCA/stent	Increase	1.32 [1.08]	1.36 [1.10]*	1.25 [1.13]	1.26 [1.13]	1.24 [1.13]	1.25 [1.13]	1.15 [1.13]*	1.22 [1.13]
	Decrease	0.76 [1.10]*	0.76 [1.10]*	0.82 [1.12]	0.82 [1.12]	0.83 [1.12]	0.82 [1.12]	0.87 [1.12]	0.83 [1.12]
Platelet inhibitors	Increase	1.14 [1.20]*	1.12 [1.24]	1.00 [1.25]	0.99 [1.25]	1.00 [1.25]	1.00 [1.25]	0.97 [1.26]	1.00 [1.25]
	Decrease	0.81 [1.25]	0.81 [1.25]	0.91 [1.26]	0.90 [1.26]	0.91 [1.26]	0.91 [1.26]	0.93 [1.26]	0.91 [1.26]

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
Cardiac catheterization	Increase	1.35 [1.09]*	1.38 [1.10]*	1.09 [1.19]	1.09 [1.19]	1.09 [1.19]	1.09 [1.19]	1.08 [1.19]	1.09 [1.19]
	Decrease	0.81 [1.09]*	0.81 [1.09]*	1.03 [1.19]	1.03 [1.19]	1.03 [1.19]	1.03 [1.19]	1.04 [1.19]	1.03 [1.19]
Angiocardiography	Increase	1.29 [1.08]*	1.34 [1.10]*	1.05 [1.19]	1.06 [1.19]	1.05 [1.19]	1.05 [1.19]	1.04 [1.19]	1.05 [1.19]
	Decrease	0.79 [1.09]*	0.79 [1.09]*	0.90 [1.18]	0.88 [1.18]	0.90 [1.18]	0.90 [1.18]	0.91 [1.19]	0.90 [1.18]
Cardiogenic shock	Increase	1.26 [1.29]	1.37 [1.35]*	1.14 [1.36]	1.14 [1.37]	1.14 [1.36]	1.14 [1.36]	1.13 [1.37]	1.14 [1.36]
	Decrease	1.06 [1.34]	1.05 [1.34]	1.04 [1.35]	1.03 [1.36]	1.04 [1.35]	1.04 [1.35]	1.05 [1.36]	1.04 [1.35]
Cardiac dysrhythmias	Increase	0.90 [1.09]	0.91 [1.11]	0.93 [1.11]	0.93 [1.11]	0.93 [1.11]	0.93 [1.11]	0.94 [1.11]	0.93 [1.11]
	Decrease	1.00 [1.10]	1.00 [1.10]	1.00 [1.10]	1.00 [1.10]	1.00 [1.10]	1.00 [1.10]	0.98 [1.10]	0.99 [1.10]
Hypotension	Increase	1.02 [1.20]	1.07 [1.24]	1.05 [1.24]	1.07 [1.24]	1.05 [1.24]	1.05 [1.24]	1.04 [1.24]	1.04 [1.24]
	Decrease	1.03 [1.21]	1.02 [1.21]	1.01 [1.22]	1.01 [1.22]	1.01 [1.22]	1.01 [1.22]	1.00 [1.22]	1.01 [1.22]
Acute renal failure	Increase	0.95 [1.12]	0.97 [1.14]	1.00 [1.15]	1.01 [1.15]	1.00 [1.15]	1.00 [1.15]	1.00 [1.15]	1.00 [1.15]
	Decrease	1.17 [1.12]*	1.17 [1.12]*	1.05 [1.13]	1.06 [1.13]	1.05 [1.13]	1.05 [1.13]	1.04 [1.13]	1.05 [1.13]
Heart failure	Increase	0.89 [1.09]*	0.90 [1.10]*	1.00 [1.11]	1.01 [1.11]	1.00 [1.11]	1.00 [1.11]	1.02 [1.11]	1.01 [1.11]
	Decrease	1.13 [1.09]*	1.13 [1.09]*	1.02 [1.10]	1.03 [1.10]	1.02 [1.10]	1.02 [1.10]	1.00 [1.10]	1.02 [1.10]
Length of stay (days)									
1-3		1.	1.	1.	1.	1.	1.	1.	1.
4-6	Increase	0.97 [1.10]	0.96 [1.11]	1.00 [1.12]	0.99 [1.12]	1.00 [1.12]	1.00 [1.12]	1.00 [1.12]	1.00 [1.12]
	Decrease	1.12 [1.11]*	1.12 [1.11]*	1.05 [1.11]	1.06 [1.11]	1.05 [1.11]	1.05 [1.11]	1.05 [1.11]	1.05 [1.11]
7-11	Increase	0.98 [1.12]	1.00 [1.14]	1.02 [1.16]	1.02 [1.16]	1.02 [1.16]	1.02 [1.16]	1.03 [1.16]	1.03 [1.16]
	Decrease	1.23 [1.13]*	1.22 [1.13]	1.14 [1.14]	1.15 [1.14]	1.14 [1.14]	1.14 [1.14]	1.13 [1.14]	1.14 [1.14]
12+	Increase	1.11 [1.17]	1.12 [1.20]	1.08 [1.23]	1.08 [1.23]	1.08 [1.23]	1.08 [1.23]	1.09 [1.23]	1.08 [1.23]
	Decrease	1.34 [1.17]	1.34 [1.17]	1.27 [1.20]	1.28 [1.20]	1.26 [1.20]	1.27 [1.20]	1.23 [1.20]	1.27 [1.20]

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
Intensive care									
None		1.	1.	1.	1.	1.	1.	1.	1.
Coronary care unit only	Increase	1.17 [1.12]*	1.16 [1.14]*	1.03 [1.15]	1.03 [1.15]	1.03 [1.15]	1.03 [1.15]	1.02 [1.15]	1.03 [1.15]
	Decrease	0.98 [1.13]	0.98 [1.13]	1.03 [1.13]	1.03 [1.14]	1.03 [1.13]	1.03 [1.13]	1.04 [1.14]	1.03 [1.13]
Intensive care unit only	Increase	1.10 [1.11]*	1.10 [1.13]*	1.01 [1.13]	1.01 [1.13]	1.01 [1.13]	1.01 [1.13]	1.01 [1.13]	1.01 [1.13]
	Decrease	1.04 [1.11]	1.04 [1.11]	1.05 [1.12]	1.05 [1.12]	1.06 [1.12]	1.05 [1.12]	1.05 [1.12]	1.05 [1.12]
Both	Increase	1.25 [1.15]*	1.26 [1.18]*	1.03 [1.20]	1.02 [1.20]	1.03 [1.20]	1.03 [1.20]	1.01 [1.20]	1.02 [1.20]
	Decrease	1.01 [1.17]	1.01 [1.17]	1.04 [1.18]	1.04 [1.18]	1.04 [1.18]	1.04 [1.18]	1.04 [1.19]	1.04 [1.18]
Cardiologist consult	Increase	1.12 [1.13]	1.15 [1.15]*	1.04 [1.16]	1.04 [1.16]	1.03 [1.16]	1.04 [1.16]	1.02 [1.16]	1.03 [1.16]
	Decrease	0.91 [1.13]	0.91 [1.13]	0.95 [1.14]	0.94 [1.14]	0.96 [1.14]	0.95 [1.14]	0.96 [1.14]	0.95 [1.14]
30-day follow-up									
None		1.	1.	1.	1.	1.	1.	1.	1.
Primary care provider only***	Increase	0.96 [1.14]*	1.04 [1.16]	1.08 [1.16]	1.10 [1.17]	1.08 [1.19]	1.08 [1.16]	1.06 [1.17]	1.07 [1.16]
	Decrease	1.01 [1.14]	1.00 [1.14]	0.97 [1.14]	0.97 [1.15]	0.97 [1.16]	0.97 [1.14]	0.98 [1.15]	0.97 [1.14]
Cardiologist only	Increase	1.05 [1.15]*	1.20 [1.17]	1.15 [1.18]	1.18 [1.19]	1.16 [1.21]	1.15 [1.18]	1.10 [1.18]	1.14 [1.18]
	Decrease	0.86 [1.16]	0.85 [1.16]	0.91 [1.17]	0.91 [1.17]	0.86 [1.19]	0.91 [1.17]	0.94 [1.17]	0.92 [1.17]
Both	Increase	1.03 [1.13]*	1.22 [1.15]	1.21 [1.16]	1.25 [1.16]	1.24 [1.18]	1.21 [1.16]	1.17 [1.16]	1.20 [1.16]
	Decrease	0.95 [1.14]	0.94 [1.14]	0.95 [1.14]	0.95 [1.14]	0.92 [1.16]	0.95 [1.14]	0.97 [1.14]	0.96 [1.14]
Mild liver disease‖	Increase						1.00 [1.43]		
	Decrease						1.19 [1.36]		
Moderate/sever liver disease‖	Increase						0.47 [3.42]		
	Decrease						1.10 [2.49]		
Change in simvastatin-equivalent ADD**	Increase							1.01 [1.00]	
	Decrease							0.99 [1.00]	

Patient characteristics		Crude estimates	Crude + pre-AMI PDC†	Fully adjusted model‡	Adherence change conservative§	6-week follow-up‖	Liver disease#	ADD change**	Statin intensity††
					OR [99% CLR]				
Pre-AMI statin intensity††									
Low	Increase								1.08 [1.22]
	Decrease								0.79 [1.25]
Moderate									1.
High	Increase								0.80 [1.17]
	Decrease								1.32 [1.18]
Post-AMI statin intensity††									
Low	Increase								0.79 [1.26]
	Decrease								1.32 [1.27]
Moderate									1.
High	Increase								1.33 [1.15]
	Decrease								0.77 [1.17]

All eight models are using the three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change. *Point estimate does not fall within the 99% confidence interval for the original full model (Model 1 from Table 2 in the main manuscript). †Estimates are only adjusted for pre-AMI adherence. ‡Fully adjusted model (Model 1 from Table 2 in the main manuscript). §This model required categorical changes in statin adherence to be at least a 10% absolute difference from pre- to post-AMI PDC (e.g. a pre-AMI PDC of 78% to post-AMI PDC of 84% would not be considered an adherence increase in this sensitivity analysis). ‖The period for post-AMI follow-up with clinicians was extended to 42 days (6 weeks). #CCI measures of liver disease were added as separate variables to the model and the CCI score was further adjusted by not including mild and moderate/severe liver disease. **Weighted average of the simvastatin-equivalent average daily dose in the post-AMI period minus the weighted average of the simvastatin-equivalent average daily dose in the pre-AMI period. Dose equivalency calculations were made as follows: fluvastatin, pravastatin, and lovastatin doses in mg were divided by 4, 2, and 2, respectively; atorvastatin, rosuvastatin, and pitavastatin doses in mg were multiplied by 2, 4, and 10, respectively. ††Statin intensity was measured using the LAST statin prescription claim filled BEFORE the index AMI hospitalization and using the FIRST claim filled AFTER the index hospitalization discharge. Statin intensity was measured according to the 2013 American College of Cardiology/ American Heart Association Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. ‡‡Odds ratio for a 10% higher pre-AMI adherence (e.g. 50% compared to 40%). §§CCI score does not include counts for AMI and dementia; in the liver disease sensitivity analysis, it also does not include those measures. ‖‖CCI definition. ##Medicare Chronic Condition Data Warehouse definition. ***Primary care physician, physician assistant, or nurse practitioner. *Abbreviations*: AMI=acute myocardial infarction; PDC=proportion of days covered; ADD=average daily dose; OR=odds ratio; CLR=confidence limit ratio (upper 99% confidence limit divided by the lower limit); CCI=Charlson Comorbidity Index; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker.

Table S7. Fully adjusted model and sensitivity analyses with restricted cohort eligibility for the three-level multinomial regression model predicting statin adherence change after an AMI.

Patient characteristics		Fully adjusted model* N=113,296	Prevalent statin users† N=101,905	Post-AMI 6-month survival‡ N=101,015	No AMI 6-month post-AMI§ N=104,572
		OR [99% CLR]			
Pre-AMI PDC (10%)‖	Increase	0.67 [1.01]	0.68 [1.02]	0.67 [1.02]	0.67 [1.02]
	Decrease	1.04 [1.02]	1.04 [1.02]	1.05 [1.02]	1.04 [1.02]
Age					
66-75		1.	1.	1.	1.
76-85	Increase	0.97 [1.11]	0.97 [1.11]	0.97 [1.12]	0.98 [1.11]
	Decrease	0.99 [1.10]	0.99 [1.11]	0.99 [1.11]	0.99 [1.11]
86+	Increase	0.88 [1.17]	0.87 [1.18]	0.89 [1.18]	0.89 [1.18]
	Decrease	0.99 [1.14]	1.01 [1.16]	0.98 [1.16]	0.99 [1.15]
Female	Increase	1.06 [1.10]	1.06 [1.11]	1.08 [1.11]	1.07 [1.11]
	Decrease	1.03 [1.09]	1.03 [1.10]	1.03 [1.10]	1.03 [1.10]
Race/ethnicity					
White		1.	1.	1.	1.
Black	Increase	1.14 [1.18]	1.15 [1.19]	1.13 [1.19]	1.12 [1.19]
	Decrease	1.21 [1.17]	1.19 [1.19]	1.22 [1.19]	1.22 [1.18]
Hispanic	Increase	1.29 [1.30]	1.30 [1.32]	1.30 [1.32]	1.32 [1.32]
	Decrease	1.30 [1.29]	1.27 [1.33]	1.36 [1.32]	1.37 [1.31]
Asian	Increase	1.16 [1.37]	1.16 [1.39]	1.14 [1.40]	1.14 [1.39]
	Decrease	0.97 [1.37]	0.99 [1.40]	0.98 [1.40]	0.97 [1.40]
Other	Increase	1.15 [1.39]	1.16 [1.42]	1.12 [1.42]	1.13 [1.41]
	Decrease	1.22 [1.36]	1.19 [1.40]	1.22 [1.38]	1.25 [1.37]
Dual eligibility	Increase	1.18 [1.13]	1.18 [1.13]	1.20 [1.14]	1.20 [1.13]
	Decrease	0.80 [1.12]	0.81 [1.13]	0.80 [1.13]	0.80 [1.13]
Household income					
≤$30,000		1.	1.	1.	1.
$30,001-60,000	Increase	0.98 [1.11]	1.00 [1.11]	0.98 [1.11]	0.99 [1.11]
	Decrease	0.96 [1.10]	0.96 [1.11]	0.96 [1.10]	0.96 [1.10]
$60,001-100,000	Increase	1.03 [1.18]	1.05 [1.19]	1.03 [1.20]	1.04 [1.19]
	Decrease	0.96 [1.17]	0.96 [1.18]	0.96 [1.18]	0.97 [1.17]
$100,001-150,000	Increase	1.05 [1.44]	1.05 [1.47]	1.07 [1.47]	1.03 [1.46]
	Decrease	1.01 [1.39]	1.03 [1.42]	1.00 [1.42]	0.98 [1.40]
>$150,000	Increase	1.10 [1.88]	1.15 [1.94]	1.27 [1.93]	1.08 [1.93]
	Decrease	0.79 [1.85]	0.81 [1.96]	0.82 [1.95]	0.82 [1.89]

Patient characteristics		Fully adjusted model* N=113,296	Prevalent statin users† N=101,905	Post-AMI 6-month survival‡ N=101,015	No AMI 6-month post-AMI§ N=104,572
		OR [99% CLR]			
Adjusted CCI#					
0		1.	1.	1.	1.
1-2	Increase	0.88 [1.14]	0.89 [1.14]	0.88 [1.14]	0.88 [1.14]
	Decrease	1.03 [1.13]	1.02 [1.15]	1.03 [1.14]	1.03 [1.14]
3-5	Increase	0.84 [1.16]	0.87 [1.16]	0.85 [1.16]	0.85 [1.16]
	Decrease	1.08 [1.15]	1.07 [1.16]	1.09 [1.16]	1.08 [1.15]
6-8	Increase	0.81 [1.24]	0.84 [1.26]	0.79 [1.27]	0.81 [1.26]
	Decrease	1.14 [1.21]	1.15 [1.23]	1.12 [1.23]	1.11 [1.22]
9 or more	Increase	0.77 [1.47]	0.77 [1.49]	0.82 [1.59]	0.75 [1.50]
	Decrease	1.39 [1.36]	1.45 [1.40]	1.21 [1.48]	1.44 [1.38]
Baseline comorbidities					
Prior AMI**	Increase	0.92 [1.28]	0.91 [1.31]	0.96 [1.32]	0.90 [1.32]
	Decrease	1.04 [1.23]	0.99 [1.26]	1.07 [1.26]	1.01 [1.26]
Dementia/Alzheimer's††	Increase	1.05 [1.18]	1.02 [1.19]	1.05 [1.20]	1.05 [1.19]
	Decrease	1.13 [1.15]	1.17 [1.16]	1.13 [1.17]	1.12 [1.16]
Depression	Increase	1.02 [1.14]	1.03 [1.15]	1.00 [1.16]	1.01 [1.15]
	Decrease	1.11 [1.13]	1.13 [1.14]	1.12 [1.14]	1.12 [1.13]
CABG	Increase	1.28 [1.61]	1.35 [1.69]	1.30 [1.63]	1.29 [1.64]
	Decrease	1.13 [1.52]	1.15 [1.65]	1.16 [1.54]	1.14 [1.54]
PTCA/stent	Increase	0.85 [1.24]	0.86 [1.26]	0.84 [1.26]	0.85 [1.26]
	Decrease	1.12 [1.20]	1.12 [1.23]	1.12 [1.22]	1.14 [1.22]
Ischemic heart disease	Increase	0.84 [1.11]	0.85 [1.12]	0.83 [1.12]	0.84 [1.12]
	Decrease	1.09 [1.11]	1.07 [1.12]	1.12 [1.11]	1.10 [1.11]
Unstable angina	Increase	0.89 [1.26]	0.89 [1.28]	0.89 [1.28]	0.89 [1.28]
	Decrease	1.04 [1.22]	0.99 [1.25]	1.02 [1.24]	1.04 [1.23]
Lipid abnormalities	Increase	1.07 [1.17]	1.06 [1.18]	1.06 [1.18]	1.06 [1.18]
	Decrease	1.00 [1.16]	1.03 [1.17]	0.99 [1.17]	0.98 [1.16]
Rhabodmyolysis/ myopathy	Increase	1.01 [1.21]	1.01 [1.22]	0.98 [1.22]	1.03 [1.22]
	Decrease	1.15 [1.18]	1.15 [1.20]	1.15 [1.20]	1.16 [1.19]
Concurrent medications					
Beta-blocker	Increase	0.99 [1.11]	1.00 [1.11]	0.98 [1.12]	0.98 [1.11]
	Decrease	0.88 [1.10]	0.91 [1.11]	0.87 [1.11]	0.88 [1.10]
ACE inhibitor/ARB	Increase	1.10 [1.11]	1.10 [1.11]	1.09 [1.11]	1.10 [1.11]
	Decrease	0.95 [1.10]	0.96 [1.11]	0.95 [1.10]	0.97 [1.10]
Index admission					
Subendocardial infarction	Increase	0.90 [1.13]	0.91 [1.13]	0.90 [1.13]	0.92 [1.13]
	Decrease	0.97 [1.12]	0.96 [1.13]	0.97 [1.13]	0.97 [1.13]

Patient characteristics		Fully adjusted model* N=113,296	Prevalent statin users† N=101,905	Post-AMI 6-month survival‡ N=101,015	No AMI 6-month post-AMI§ N=104,572
		OR [99% CLR]			
CABG	Increase	1.34 [1.24]	1.36 [1.25]	1.37 [1.25]	1.36 [1.24]
	Decrease	0.78 [1.24]	0.77 [1.26]	0.78 [1.24]	0.78 [1.24]
PTCA/stent	Increase	1.25 [1.13]	1.23 [1.13]	1.26 [1.13]	1.26 [1.13]
	Decrease	0.82 [1.12]	0.80 [1.13]	0.83 [1.13]	0.83 [1.12]
Platelet inhibitors	Increase	1.00 [1.25]	0.99 [1.27]	0.99 [1.26]	1.01 [1.26]
	Decrease	0.91 [1.26]	0.92 [1.29]	0.92 [1.27]	0.92 [1.27]
Cardiac catheterization	Increase	1.09 [1.19]	1.09 [1.20]	1.08 [1.20]	1.08 [1.20]
	Decrease	1.03 [1.19]	1.03 [1.21]	1.03 [1.19]	1.03 [1.19]
Angiocardiography	Increase	1.05 [1.19]	1.04 [1.20]	1.03 [1.20]	1.06 [1.19]
	Decrease	0.90 [1.18]	0.90 [1.20]	0.90 [1.19]	0.90 [1.19]
Cardiogenic shock	Increase	1.14 [1.36]	1.14 [1.39]	1.18 [1.40]	1.16 [1.38]
	Decrease	1.04 [1.35]	1.00 [1.40]	1.03 [1.39]	1.07 [1.36]
Cardiac dysrhythmias	Increase	0.93 [1.11]	0.93 [1.11]	0.93 [1.12]	0.93 [1.11]
	Decrease	1.00 [1.10]	1.01 [1.11]	1.00 [1.10]	1.00 [1.10]
Hypotension	Increase	1.05 [1.24]	1.07 [1.25]	1.04 [1.25]	1.04 [1.25]
	Decrease	1.01 [1.22]	1.03 [1.24]	0.99 [1.23]	0.98 [1.23]
Acute renal failure	Increase	1.00 [1.15]	0.99 [1.16]	0.98 [1.16]	1.00 [1.16]
	Decrease	1.05 [1.13]	1.07 [1.14]	1.05 [1.14]	1.05 [1.13]
Heart failure	Increase	1.00 [1.11]	1.00 [1.11]	1.02 [1.12]	1.01 [1.11]
	Decrease	1.02 [1.10]	1.03 [1.11]	1.03 [1.11]	1.02 [1.10]
Length of stay (days)					
1-3		1.	1.	1.	1.
4-6	Increase	1.00 [1.12]	0.99 [1.13]	1.00 [1.13]	1.02 [1.13]
	Decrease	1.05 [1.11]	1.06 [1.12]	1.05 [1.12]	1.06 [1.12]
7-11	Increase	1.02 [1.16]	1.00 [1.17]	1.01 [1.17]	1.02 [1.17]
	Decrease	1.14 [1.14]	1.15 [1.15]	1.15 [1.15]	1.16 [1.14]
12+	Increase	1.08 [1.23]	1.09 [1.24]	1.06 [1.25]	1.07 [1.24]
	Decrease	1.27 [1.20]	1.31 [1.22]	1.32 [1.22]	1.28 [1.21]
Intensive care					
None		1.	1.	1.	1.
Coronary care unit only	Increase	1.03 [1.15]	1.03 [1.16]	1.04 [1.16]	1.05 [1.15]
	Decrease	1.03 [1.13]	1.03 [1.15]	1.03 [1.14]	1.02 [1.14]
Intensive care unit only	Increase	1.01 [1.13]	1.01 [1.14]	1.00 [1.14]	1.01 [1.14]
	Decrease	1.05 [1.12]	1.06 [1.13]	1.05 [1.12]	1.05 [1.12]
Both	Increase	1.03 [1.20]	1.04 [1.21]	1.05 [1.21]	1.03 [1.21]
	Decrease	1.04 [1.18]	1.03 [1.20]	1.05 [1.20]	1.05 [1.19]
Cardiologist consult	Increase	1.04 [1.16]	1.03 [1.17]	1.01 [1.17]	1.05 [1.17]
	Decrease	0.95 [1.14]	0.93 [1.15]	0.94 [1.15]	0.95 [1.14]

Patient characteristics		Fully adjusted model* N=113,296	Prevalent statin users† N=101,905	Post-AMI 6-month survival‡ N=101,015	No AMI 6-month post-AMI§ N=104,572
		OR [99% CLR]			
30-day follow-up					
None		1.	1.	1.	1.
Primary care provider only‡‡	Increase	1.08 [1.16]	1.05 [1.17]	1.11 [1.18]	1.07 [1.17]
	Decrease	0.97 [1.14]	0.98 [1.16]	0.95 [1.16]	0.97 [1.15]
Cardiologist only	Increase	1.15 [1.18]	1.14 [1.19]	1.19 [1.19]	1.16 [1.19]
	Decrease	0.91 [1.17]	0.91 [1.19]	0.92 [1.18]	0.91 [1.17]
Both	Increase	1.21 [1.16]	1.21 [1.17]	1.25 [1.17]	1.21 [1.17]
	Decrease	0.95 [1.14]	0.96 [1.16]	0.95 [1.15]	0.95 [1.15]

All four models are using the three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change. No point estimates fell outside of the 99% confidence interval for the original full model (Model 1 from Table 2 in the main manuscript). *Fully adjusted model (Model 1 from Table 2 in the main manuscript). †Patients who were first identified as statin users in our data within the 6 months prior to index AMI were excluded (i.e. only prevalent statin users were included). ‡Patients must have survived 6 months post-AMI discharge to be included in model. §Patients with another AMI within 6 months after their index AMI hospital discharge were excluded from model. ‖Odds ratio for a 10% higher pre-AMI adherence (e.g. 50% compared to 40%). #CCI score does not include counts for AMI and dementia. **CCI definition. ††Medicare Chronic Condition Data Warehouse definition. ‡‡Primary care physician, physician assistant, or nurse practitioner. A*bbreviations*: AMI=acute myocardial infarction; PDC=proportion of days covered; OR=odds ratio; CLR=confidence limit ratio (upper 99% confidence limit divided by the lower limit); CCI=Charlson Comorbidity Index; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker.

Table S8. Three-level multinomial regression models predicting change from **1-year** pre-AMI statin adherence to **1-year** post-AMI statin adherence (N=112,780).

Patient Characteristics	3-Level Multinomial Logistic Regression† OR (99% CI)	
	Decrease	Increase
Pre-AMI PDC (10%)§	1.00 (0.99, 1.01)*	0.61 (0.61, 0.62)*
Age		
66-75	1.	1.
76-85	0.99 (0.94, 1.03)	0.98 (0.93, 1.04)
86+	0.98 (0.92, 1.04)	0.89 (0.82, 0.97)
Female	1.03 (0.98, 1.07)	1.05 (1.00, 1.11)
Race/ethnicity		
White	1.	1.
Black	1.17 (1.09, 1.26)	1.05 (0.96, 1.15)
Hispanic	1.26 (1.12, 1.42)	1.27 (1.11, 1.46)
Asian	0.97 (0.84, 1.12)	1.09 (0.92, 1.29)
Other	1.19 (1.04, 1.38)	1.15 (0.97, 1.37)
Dual eligibility	0.77 (0.73, 0.81)	1.18 (1.11, 1.26)
Household income#		
≤$30,000	1.	1.
$30,001-60,000	0.96 (0.92, 1.00)	0.99 (0.94, 1.05)
$60,001-100,000	0.95 (0.89, 1.02)	1.05 (0.96, 1.15)
$100,001-150,000	0.98 (0.84, 1.14)	1.10 (0.90, 1.33)
>$150,000	0.91 (0.69, 1.19)	1.07 (0.76, 1.51)
Adjusted CCI**		
0	1.	1.
1-2	1.07 (1.01, 1.13)	0.92 (0.86, 0.98)
3-5	1.13 (1.06, 1.20)	0.87 (0.80, 0.94)
6-8	1.18 (1.08, 1.29)	0.86 (0.77, 0.97)
9 or more	1.56 (1.35, 1.80)	0.87 (0.71, 1.07)
Baseline comorbidities		
Prior AMI††	1.03 (0.94, 1.14)	1.00 (0.87, 1.14)
Dementia/Alz‡‡	1.18 (1.11, 1.26)	1.16 (1.06, 1.26)*
Depression	1.10 (1.05, 1.17)	1.03 (0.96, 1.10)
CABG	0.95 (0.78, 1.16)	1.28 (0.99, 1.64)
PTCA/stent	1.16 (1.07, 1.26)	0.84 (0.75, 0.95)
Ischemic heart disease	1.10 (1.05, 1.16)	0.81 (0.76, 0.86)
Unstable angina	1.05 (0.96, 1.15)	0.90 (0.79, 1.02)
Lipid abnormalities	0.98 (0.92, 1.05)	1.09 (1.00, 1.19)
Rhabdo/myopathy	1.09 (1.01, 1.17)	1.00 (0.90, 1.10)

Patient Characteristics	3-Level Multinomial Logistic Regression† OR (99% CI)	
	Decrease	Increase
Concurrent medications		
Beta-blocker	0.89 (0.86, 0.93)	0.98 (0.93, 1.04)
ACE inhibitor/ARB	0.97 (0.93, 1.01)	1.08 (1.02, 1.14)
Index admission		
Subend infarction§§	0.98 (0.93, 1.03)	0.89 (0.83, 0.95)
CABG	0.75 (0.68, 0.82)	1.37 (1.22, 1.53)
PTCA/stent	0.87 (0.82, 0.91)	1.24 (1.16, 1.32)
Platelet inhibitors	0.97 (0.88, 1.08)	0.90 (0.80, 1.02)
Cardiac catheterization	1.05 (0.98, 1.14)	1.03 (0.94, 1.13)
Angiocardiography	0.87 (0.80, 0.94)	1.09 (0.99, 1.19)
Cardiogenic shock	0.99 (0.86, 1.13)	1.10 (0.93, 1.29)
Cardiac dysrhythmias	1.03 (0.99, 1.08)	0.98 (0.93, 1.04)
Hypotension	0.99 (0.91, 1.08)	1.00 (0.89, 1.12)
Acute renal failure	1.09 (1.03, 1.15)	1.02 (0.95, 1.10)
Heart failure	1.01 (0.97, 1.06)	1.02 (0.96, 1.07)
Length of stay (days)		
1-3	1.	1.
4-6	1.04 (0.99, 1.09)	1.02 (0.96, 1.08)
7-11	1.10 (1.03, 1.16)	1.06 (0.98, 1.14)
12+	1.19 (1.09, 1.29)	1.14 (1.02, 1.27)
Intensive care		
None	1.	1.
CCU only	1.03 (0.97, 1.09)	1.03 (0.96, 1.11)
ICU only	1.06 (1.00, 1.11)	1.03 (0.96, 1.10)
Both	1.04 (0.97, 1.13)	1.05 (0.96, 1.16)
Cardiologist consult	0.95 (0.90, 1.01)	1.00 (0.93, 1.08)
30-day follow-up		
None	1.	1.
PCP only‖	0.98 (0.92, 1.04)	1.12 (1.03, 1.21)
Cardiologist only	0.90 (0.84, 0.97)	1.16 (1.06, 1.27)
Both	0.94 (0.88, 0.99)	1.27 (1.17, 1.37)

*Point estimate does not fall within the 99% confidence interval for the original full model (Model 1 from Table 2 in the main manuscript). †Three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change. §Odds ratio for a 10% higher pre-AMI adherence (e.g. 50% compared to 40%). ‖Enrolled in Medicare and Medicaid. #Median household income of US Census block groups for individuals aged 65 and older. **CCI score does not include counts for AMI and dementia. ††CCI definition. ‡‡Medicare Chronic Condition Data Warehouse definition. §§Diagnosis code for subendocardial infarction, compared to a transmural infarction. ‖Primary care physician, physician assistant, or nurse practitioner. *Abbreviations*: AMI=acute myocardial infarction; OR=odds ratio; CI=confidence interval; PDC=proportion of days covered; CCI=Charlson Comorbidity Index; Alz=Alzheimer's disease; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; Rhabdo=rhabdomyolysis; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker; subend=subendocardial; CCU=coronary care unit; ICU=intensive care unit; PCP=primary care provider.

Table S9. Three-level multinomial regression model predicting statin adherence change after an AMI using a likelihood function conditional on the pre-AMI adherence category.†

Patient Characteristics	3-Level Multinomial Logistic Regression‡ OR (99% CI)	
	Decrease	Increase
Age		
66-75	1.	1.
76-85	0.98 (0.93, 1.02)	1.00 (0.95, 1.06)
86+	0.97 (0.90, 1.03)	0.97 (0.89, 1.06)*
Female	1.04 (0.99, 1.08)	1.02 (0.97, 1.08)
Race/ethnicity		
White	1.	1.
Black	1.29 (1.19, 1.40)	0.94 (0.86, 1.02)*
Hispanic	1.36 (1.19, 1.55)	1.09 (0.94, 1.25)*
Asian	0.98 (0.84, 1.15)	1.16 (0.96, 1.40)
Other	1.24 (1.06, 1.44)	1.02 (0.85, 1.23)
Dual eligibility§	0.77 (0.73, 0.82)	1.31 (1.23, 1.40)*
Household income‖		
≤$30,000	1.	1.
$30,001-60,000	0.95 (0.91, 1.00)	0.98 (0.93, 1.04)
$60,001-100,000	0.95 (0.88, 1.03)	1.03 (0.94, 1.13)
$100,001-150,000	0.99 (0.84, 1.17)	1.05 (0.86, 1.30)
>$150,000	0.77 (0.56, 1.05)	1.06 (0.74, 1.52)
Adjusted CCI#		
0	1.	1.
1-2	1.04 (0.98, 1.11)	0.86 (0.80, 0.93)
3-5	1.10 (1.03, 1.18)	0.83 (0.76, 0.90)
6-8	1.17 (1.06, 1.29)	0.79 (0.70, 0.89)
9 or more	1.47 (1.26, 1.72)	0.72 (0.59, 0.88)
Baseline comorbidities		
Prior AMI**	1.14 (1.06, 1.22)	1.01 (0.93, 1.10)
Dementia/Alzheimer's††	1.07 (0.97, 1.19)	0.95 (0.83, 1.08)
Depression	1.12 (1.05, 1.19)	0.99 (0.92, 1.06)
CABG	1.11 (0.90, 1.37)	1.28 (0.98, 1.67)
PTCA/stent	1.14 (1.04, 1.26)	0.82 (0.73, 0.92)
Ischemic heart disease	1.11 (1.06, 1.17)	0.77 (0.73, 0.82)*
Unstable angina	1.05 (0.96, 1.16)	0.88 (0.78, 0.99)
Lipid abnormalities	0.97 (0.90, 1.05)	1.00 (0.92, 1.09)
Rhabdomyolysis/myopathy	1.18 (1.08, 1.28)	0.98 (0.89, 1.09)
Concurrent medications		
Beta-blocker	0.85 (0.81, 0.89)	0.99 (0.94, 1.05)
ACE inhibitor/ARB	0.92 (0.88, 0.96)	1.07 (1.02, 1.13)
Index admission		
Subendocardial infarction‡‡	0.97 (0.92, 1.03)	0.91 (0.85, 0.97)
CABG	0.77 (0.69, 0.86)	1.50 (1.32, 1.69)*
PTCA/stent	0.82 (0.77, 0.86)	1.33 (1.25, 1.42)*

| | 3-Level Multinomial Logistic Regression‡ | |
| | OR (99% CI) | |
Patient Characteristics	Decrease	Increase
Platelet inhibitors	0.91 (0.81, 1.02)	0.99 (0.87, 1.12)
Cardiac catheterization	1.04 (0.95, 1.13)	1.10 (0.99, 1.21)
Angiocardiography	0.89 (0.81, 0.96)	1.05 (0.96, 1.16)
Cardiogenic shock	1.03 (0.89, 1.20)	1.10 (0.92, 1.32)
Cardiac dysrhythmias	1.00 (0.96, 1.05)	0.95 (0.90, 1.01)
Hypotension	1.00 (0.91, 1.11)	1.04 (0.92, 1.17)
Acute renal failure	1.05 (0.99, 1.12)	0.99 (0.92, 1.07)
Heart failure	1.02 (0.98, 1.07)	1.02 (0.96, 1.08)
Length of stay (days)		
1-3	1.	1.
4-6	1.06 (1.00, 1.11)	1.01 (0.95, 1.07)
7-11	1.14 (1.07, 1.22)	1.04 (0.96, 1.13)
12+	1.27 (1.16, 1.39)	1.06 (0.95, 1.19)
Intensive care		
None	1.	1.
Coronary care unit only	1.03 (0.97, 1.10)	1.04 (0.97, 1.13)
Intensive care unit only	1.06 (1.00, 1.12)	1.02 (0.96, 1.09)
Both	1.05 (0.96, 1.14)	1.00 (0.91, 1.11)
Cardiologist consult	0.95 (0.89, 1.01)	1.04 (0.96, 1.13)
30-day follow-up		
None	1.	1.
Primary care provider only§§	0.95 (0.89, 1.02)	1.12 (1.04, 1.21)
Cardiologist only	0.88 (0.82, 0.96)	1.22 (1.11, 1.33)
Both	0.92 (0.86, 0.98)	1.32 (1.22, 1.43)*

*Point estimate does not fall within the 99% confidence interval for the original full model (Model 1 from Table 2 in the main manuscript). †Using PROC NLMIXED in SAS, the likelihood function was defined as conditional on the pre-AMI adherence category. Patients who were moderately non-adherent (pre-AMI PDC 40-79.9%) were compared to the whole population on the likelihood of having no change, decreased, or increased adherence. Patients who were severely non-adherent (pre-AMI PDC <40%) were compared to patients who were severely non-adherent or moderately non-adherent on the likelihood of having no change or increased adherence. Patients who were adherent (pre-AMI PDC ≥80%) were compared to patients who were adherent or moderately non-adherent on the likelihood of having no change or decreased adherence. ‡Three-level multinomial logistic regression comparing decrease in adherence to no change and comparing increase in adherence to no change. §Enrolled in Medicare and Medicaid. ‖Median household income of US Census block groups for individuals aged 65 and older. #CCI score does not include counts for AMI and dementia. **CCI definition. ††Medicare Chronic Condition Data Warehouse definition. ‡‡Diagnosis code for subendocardial infarction, compared to a transmural infarction. §§Primary care physician, physician assistant, or nurse practitioner. *Abbreviations*: AMI=acute myocardial infarction; OR=odds ratio; CI=confidence interval; PDC=proportion of days covered; CCI=Charlson Comorbidity Index; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker.
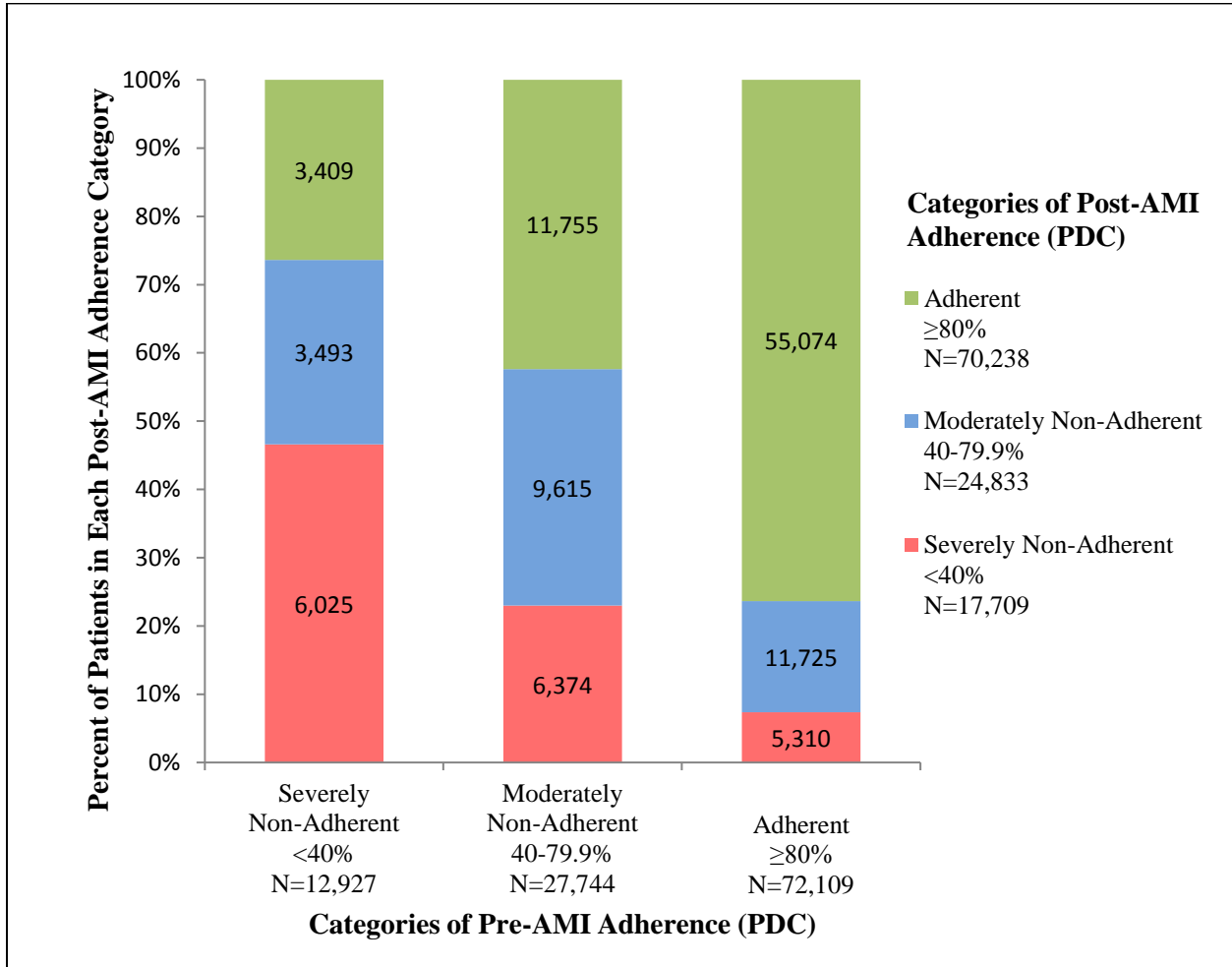
Table S10. Linear regression model predicting statin adherence change after an AMI.

Patient Characteristics	Mean Change in PDC (99% CI)*
Intercept†	-2.93 (-4.16, -1.70)
Pre-AMI PDC‡	-0.50 (-0.51, -0.50)
Age	
66-75	0.
76-85	0.13 (-0.33, 0.59)
86+	-0.05 (-0.71, 0.61)
Female	-0.04 (-0.47, 0.40)
Race/ethnicity	
White	0.
Black	-1.36 (-2.13, -0.59)
Hispanic	-0.38 (-1.63, 0.87)
Asian	0.92 (-0.53, 2.37)
Other	-0.64 (-2.15, 0.87)
Dual eligibility§	3.65 (3.12, 4.18)
Household income‖	
≤$30,000	0.
$30,001-60,000	0.31 (-0.14, 0.76)
$60,001-100,000	0.71 (-0.04, 1.46)
$100,001-150,000	0.65 (-0.95, 2.25)
>$150,000	2.20 (-0.61, 5.01)
Adjusted CCI#	
0	0.
1-2	-1.20 (-1.78, -0.62)
3-5	-2.03 (-2.68, -1.38)
6-8	-2.68 (-3.63, -1.74)
9 or more	-5.49 (-7.12, -3.86)
Baseline comorbidities	
Prior AMI**	-0.88 (-1.93, 0.17)
Dementia/Alzheimer's††	-1.37 (-2.08, -0.66)
Depression	-0.69 (-1.29, -0.10)
CABG	0.59 (-1.52, 2.69)
PTCA/stent	-2.50 (-3.42, -1.57)
Ischemic heart disease	-2.67 (-3.15, -2.18)
Unstable angina	-1.04 (-2.02, -0.05)
Lipid abnormalities	0.29 (-0.41, 0.98)
Rhabdo/myopathy	-1.34 (-2.18, -0.50)
Concurrent medications	
Beta-blocker	0.70 (0.24, 1.16)
ACE inhibitor/ARB	0.77 (0.32, 1.21)

Patient Characteristics	Mean Change in PDC (99% CI)*
Index admission	
Subendocardial infarction‡‡	-0.61 (-1.15, -0.07)
CABG	5.02 (4.04, 6.00)
PTCA/stent	3.65 (3.12, 4.19)
Platelet inhibitors	0.79 (-0.24, 1.81)
Cardiac catheterization	0.49 (-0.31, 1.28)
Angiocardiography	1.31 (0.53, 2.09)
Cardiogenic shock	0.89 (-0.56, 2.33)
Cardiac dysrhythmias	-0.39 (-0.84, 0.06)
Hypotension	-0.01 (-0.96, 0.94)
Acute renal failure	-0.34 (-0.95, 0.26)
Heart failure	-0.10 (-0.55, 0.35)
Length of stay (days)	
1-3	0.
4-6	-0.39 (-0.89, 0.11)
7-11	-1.17 (-1.81, -0.54)
12+	-1.96 (-2.87, -1.06)
Intensive care	
None	0.
Coronary care unit only	0.18 (-0.42, 0.79)
Intensive care unit only	-0.23 (-0.76, 0.31)
Both	0.06 (-0.74, 0.87)
Cardiologist consult	0.92 (0.29, 1.56)
30-day follow-up	
None	0.
Primary care provider only§§	0.92 (0.26, 1.58)
Cardiologist only	2.37 (1.63, 3.11)
Both	2.44 (1.79, 3.08)

*Linear regression model predicting adherence change as a continuous outcome (post-AMI PDC minus pre-AMI PDC). Estimates can be interpreted as follows: an estimate of 2.44 means that the patient characteristic is associated with a 2.44% increase in PDC (e.g. 70.00% to 72.44%) compared to the reference category after an AMI, holding all other patient characteristics constant; an estimate of -1.96 means the patient characteristic is associated with a 1.96% decrease in PDC compared to the reference category after an AMI. †Predicted change in adherence for patients with a pre-AMI PDC of 80% and all other variables set to the reference category. ‡Predicted change in statin adherence associated with a 1% increase in pre-AMI PDC (e.g. a patient with a pre-AMI PDC of 75% would be predicted to have a 0.50% decrease in statin PDC after an AMI compared to a patient with 74% PDC pre-AMI). §Enrolled in Medicare and Medicaid. ‖Median household income of US Census block groups for individuals aged 65 and older. #CCI score does not include counts for AMI and dementia. **CCI definition. ††Medicare Chronic Condition Data Warehouse definition. ‡‡Diagnosis code for subendocardial infarction, compared to a transmural infarction. §§Primary care physician, physician assistant, or nurse practitioner. *Abbreviations*: AMI=acute myocardial infarction; PDC=proportion of days covered; CI=confidence interval; CCI=Charlson Comorbidity Index; CABG=Coronary artery bypass surgery; PTCA=percutaneous transluminal coronary angioplasty; ACE=angiotensin-converting enzyme; ARB=angiotensin II receptor blocker.

Figure S1. Sensitivity analysis showing distribution of **1-year** post-AMI adherence stratified by **1-year** pre-AMI adherence

AMI=acute myocardial infarction; PDC=proportion of days covered.