Online Supplementary Material

Online Supplementary Appendix A: Methods

A1. Cohort creation.

Patient exclusion. We excluded patients if they met any of the following criteria in the 24 months prior to the study month. (ICD = International Classification of Diseases)

End Stage Renal Disease:

ICD9 Codes: 585.5, 585.6, V45.11, V45.12
ICD10 Codes: N18.5, N18.6, Z91.15, Z99.2
ICD9 Procedure Codes: 38.95, 39.27, 39.42, 39.43, 39.53, 39.93, 39.94, 39.95, 54.98
ICD10 Procedure Codes: 3E1M39Z, 5A1D00Z, 5A1D60Z
Procedure (CPT) codes: 36147, 36800, 36810, 36815, 36818, 36819, 36820, 36821, 36831, 36832, 36833, 90935, 90937, 90940, 90945, 90947, 90957, 90958, 90959, 90960, 90961, 90962, 90965, 90966, 90969, 90970, 90989, 90993, 90997, 90999, 99512, G0257, S9339

Pregnancy:

ICD9 codes: 630-679, V22-V23, V28
ICD10 codes: O00-O9A, Z03.71-Z03.79, Z33.1-Z33.2, Z34, Z36

In-Vitro Fertilization

CPT codes: S4015, S4016, S4018, S4020, S4021

Muscle Pain

ICD9 Codes: 359.4, 359.9, 728.88, 729.1
ICD10 Codes: G72.0, G72.2, G72.9, M62.82, M79.1

A2. Patient risk groups.
Following the guidelines, we created these five mutually exclusive and comprehensively exhaustive risk categories:

ASCVD: The ASCVD group comprised patients with history of myocardial infraction, ischemic vascular disease, percutaneous coronary intervention or coronary artery bypass grafting, ischemic stroke or transient ischemic attack, stable or unstable angina, or peripheral arterial disease. We considered patients to have clinical ASCVD if they had any ICD, ICD procedure, or CPD code during the 24 months prior to each study month. (For MI, we required patients to have an inpatient discharge.)

MI: Discharge Diagnosis from inpatient

ICD9 – 410, 412
ICD10 – I21, I22, I23, I25.2
CABG – Any inpatient or outpatient code
CPT -33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536, S2205, S2206, S2207, S2208, S2209
ICD9 Procedure – 36.1-36.2
ICD10 Procedure – 0210-0213
PCI - Any inpatient or outpatient code
CPT -C9600, C9602, C9604, C9606, C9607, G0290
ICD9 Procedure – 00.66, 36.06-36.07, 36.1, 36.3
ICD10 Procedure - 0270346, 027034Z, 02703D6, 02703DZ, 02703T6,

02703TZ, 02703Z6, 02703ZZ, 0270446, 027044Z, 02704D6, 02704DZ, 02704T6, 02704TZ, 02704Z6, 02704ZZ, 0271346, 027134Z, 02713D6, 02713DZ, 02713T6, 02713TZ, 02713Z6, 02713ZZ, 0271446, 027144Z, 02714D6, 02714DZ, 02714T6, 02714TZ, 02714Z6, 02714ZZ, 0272346, 027234Z, 02723D6, 02723DZ, 02723T6, 02723TZ, 02723Z6, 02723ZZ, 0272446, 027244Z, 02724D6, 02724DZ, 02724T6, 02724TZ, 02724Z6, 02724ZZ, 0273346, 027334Z, 02733D6, 02733DZ, 02733T6, 02733TZ, 02733Z6, 02733ZZ, 0273446, 027344Z, 02734D6, 02734DZ, 02734T6, 02734TZ, 02734Z6, 02734ZZ

Revascularization

CPT - 36838, 37220, 37221, 37224, 37225, 37226, 37227, 37228, 37229, 37230, 37231

Ischemic Vascular Disease

ICD9 – 411,414, 429.2, 433, 434, 437.0, 440, 443.0, 443.8, 443.9, 444, 445

ICD10 – I20, I24, I25.1, I25.5, I25.6, I25.7-I25.9, I63, I65-I66, I70.1-I70.2, I70.92, I74, I75

Hyperlipidemia: The hyperlipidemia group included patients with low-density lipoprotein cholesterol (LDL) >190 mg/dL and no ASCVD. The diabetes group encompassed any patient with diabetes mellitus, no ASCVD, and LDL between 70 and 189 mg/dL. The 10-year risk greater than 7.5% included patients with a calculated 10-year ASCVD risk ≥ 7.5%, no ASCVD, no diabetes, and LDL between 70 and 189 mg/dL.
Diabetes: The diabetes group encompassed any patient with diabetes mellitus, no ASCVD, and LDL between 70 and 189 mg/dL. We considered patients to have diabetes if they had at least two outpatient visits with ICD codes for diabetes or if they had at 31 days total of prescription diabetes medications filled in the 24 months prior to the study month. Below are the relevant ICD-9 codes and the prescription diabetes medications.

ICD-9 codes for diabetes: 250 (diabetes mellitus), 357.2 (neuropathy in diabetes), 366.41 (diabetic cataract), 362.0 (diabetic retinopathy), 648.0 (gestational)
ICD-10 codes for diabetes: E10, E11, E13, O24
Diabetes medications: Insulin, Acarbose, , Chlorpropamide, Exenatide, Glimepiride, Glipizide, Glyburide, Miglitol, Nateglinide, Pioglitazone, Pramlintide, Repaglinide, Rosiglitazone, Sitagliptin, Tolazamide, Tolbutamide, Liraglutide, Saxagliptin, Linagliptin

10-year risk ≥12%: The 10-year risk ≥12% included patients with a calculated 10-year ASCVD risk ≥12%, no ASCVD, no diabetes, and LDL between 70 and 189 mg/dL. The electronic calculator for 10-year ASCVD risk is available at http://tools.acc.org/ASCVD-Risk-Estimator/. The calculated risk score is a function of age, gender, race (black vs. non-black), diabetes status, smoking status, systolic blood pressure, treatment for hypertension, high-density lipoprotein (HDL) and total cholesterol levels.

We calculated ASCVD risk using the average of the most recent 2 outpatient systolic blood pressures, most recent HDL cholesterol, and most recent total cholesterol in the 3 years prior to the study. Being on hypertension medication was defined as prescription filled during the year prior to the study month.

Hypertension medications: Acebutolol, Aliskiren, Amiloride, Amlodipine, Atenolol, Benazepril, Bendroflumethiazide, Betaxolol, Bisoprolol, Bumetanide, Candesartan, Captopril, Carvedilol, Chlorothiazide, Chlorthalidone, Clonidine, Diltiazem, Doxazosin, Enalapril, Eplerenone, Eprosartan, Felodipine, Fosinopril, Furosemide, Guanabenz, Guanadrel, Guanethidine, Guanfacine, Hydralazine, Hydrochlorothiazide, Indapamide, Irbesartan, Isradipine, Labetalol, Lisinopril, Losartan, Methyclothiazide, Methyldopa, Metolazone, Metoprolol, Minoxidil, Moexipril, Nadolol, Nebivolol, Nicardipine, Nifedipine, Olmesartan, Penbutolol, Perindopril, Pindolol, Polythiazide, Prazosin, Propranolol, Quinapril, Ramipril, Reserpine, Spironolactone, Telmisartan, Terazosin, Timolol, Torsemide, Trandolapril, Valsartan, Verapamil

Intermediate Risk: The 10-year risk between 6 and 12%, and not in any of the other above groups. For these patients the guidelines recommend “Use shared decision making with patients who have 10 year CVD risk of 6-12% who are contemplating pharmacological treatment.” For our purposes, these are considered patients who are not actively recommended statins.

Low risk: 10-year risk <6%. Any patient that did not fall into one of four statin risk groups was considered low-risk.

Online Supplementary Appendix B: Guideline comparison

Online Supplementary Table 1: Differences between VA/DoD and American College of Cardiology and American Heart Association (ACC/AHA) guidelines		
Risk Category	VA/DoD Clinical recommendation	ACC/AHA guideline
Clinical atherosclerotic cardiovascular disease	If recent, moderate-or-high strength statin. If not recent, moderate- strength statin.	If age ≤75, high-strength statin. If >75, moderate- strength statin.
Diabetes	Moderate-strength statin	Same
LDL >190 md/dl	Moderate-strength statin	Same
Risk-based	- ≥12% estimated 10-year risk – Moderate-strength statin - 6-12% estimated 10-year risk – Shared decision-making - <6% estimated 10-year risk – No statin	≥7.5% estimated 10-year ASCVD risk – Moderate- or high-strength statin

Online Supplementary Appendix C: Primary analysis

Our primary analytic model was:

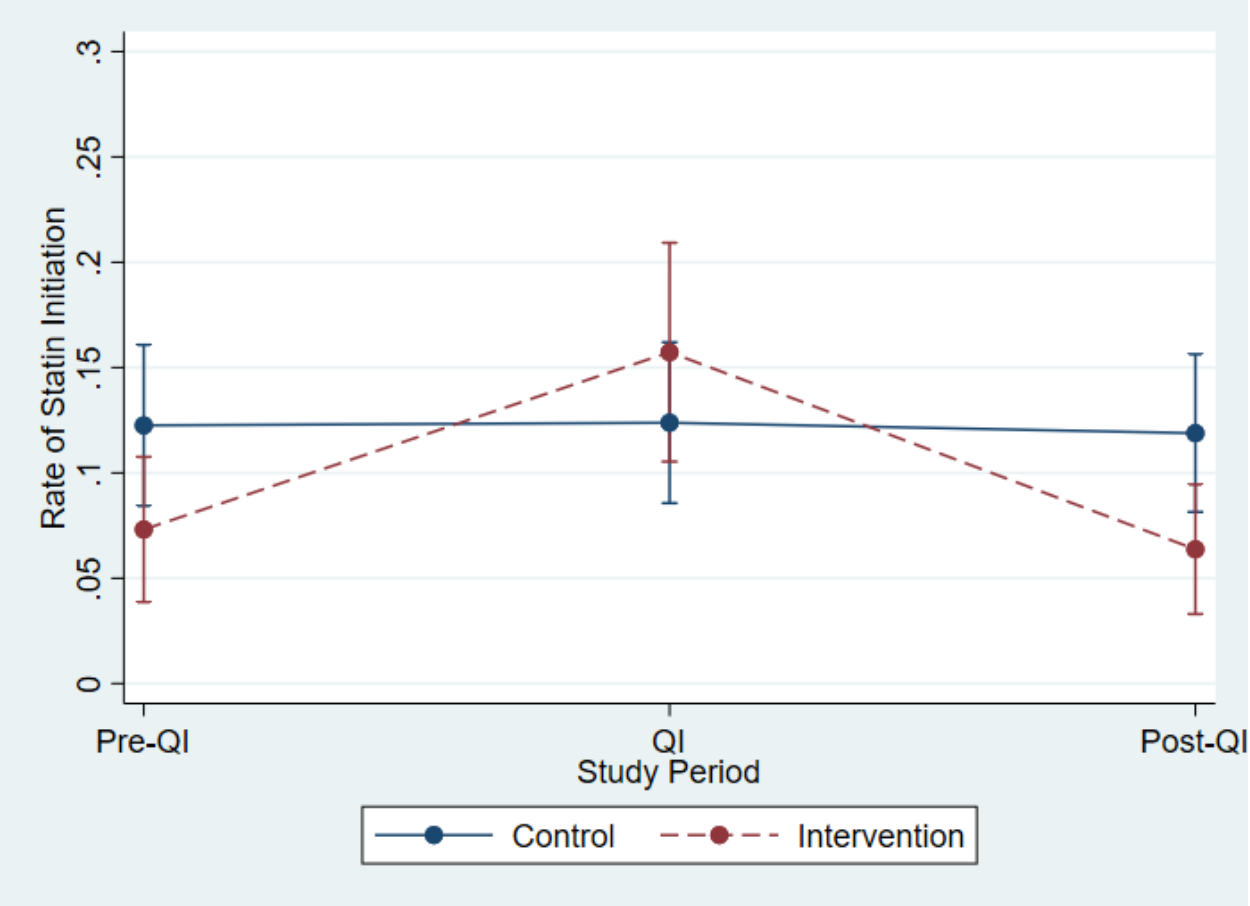
$$\text{logit}(\pi_{ijk}) = \beta_0 + \beta_1 \text{intervention}_{ijk} + \beta_2 \text{QI}_{ijk} + \beta_3 \text{Post-QI}_{ijk} + \beta_4 \text{intervention-by-QI}_{ijk} + \beta_5 \text{intervention-by-Post-QI}_{ijk} + \beta_6 \text{talk}_{ijk} + u_{jk}$$

Where *i* represents the visit, *j* the provider, and *k* the team. Independent variables included:

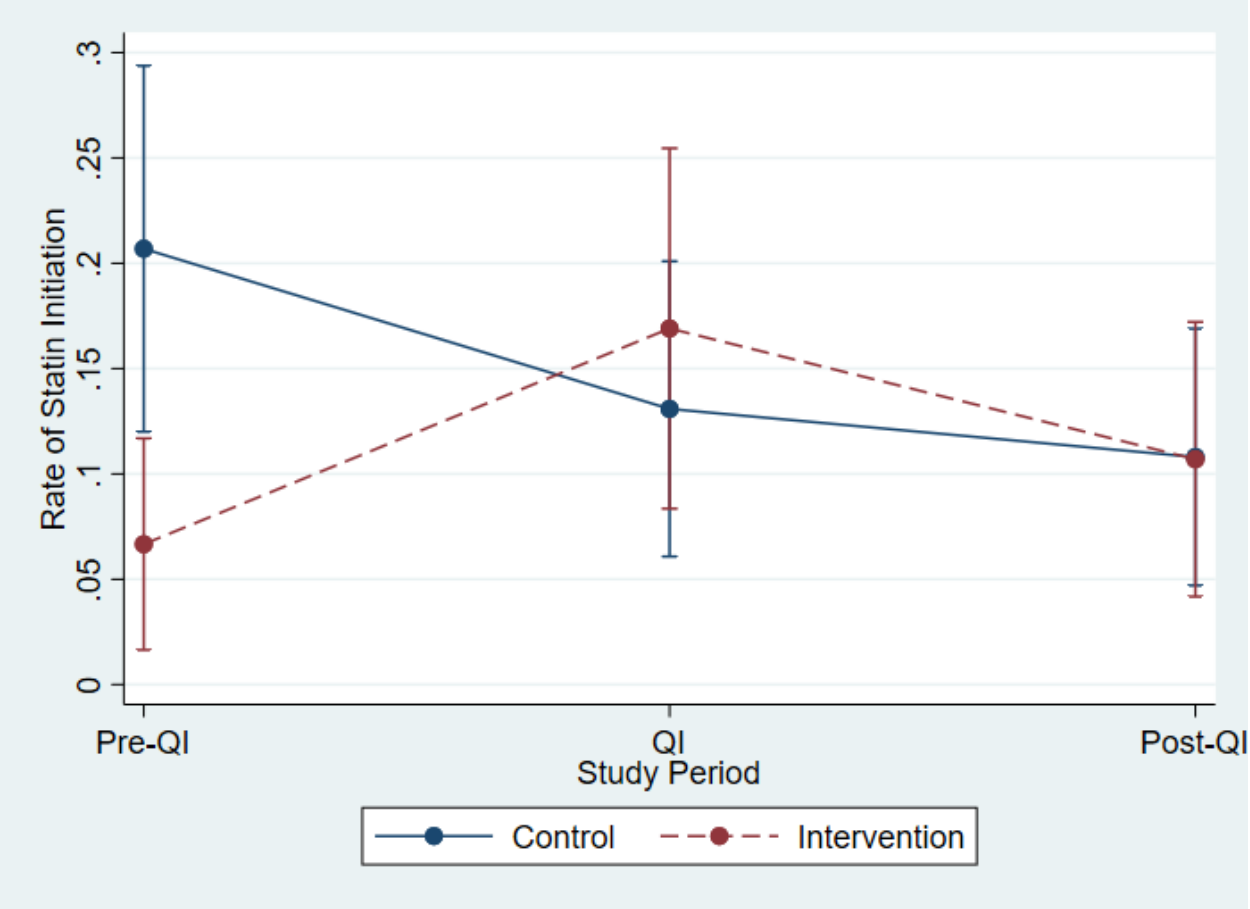
- $\beta_1 \text{intervention}_{ijk}$: Was the provider in the intervention arm?
- $\beta_2 \text{QI}_{ijk}$: Was this visit during the QI period?
- $\beta_3 \text{Post-QI}_{ijk}$: Was this visit during the post-QI period?
- $\beta_4 \text{intervention-by-QI}_{ijk}$: Was this visit in the intervention arm and was this visit during the QI period? The significance of the coefficient β_4 of this variable is the measure of the effect of the intervention on statin prescribing during the QI period (primary outcome).
- $\beta_5 \text{intervention-by-Post-QI}_{ijk}$ Was this visit in the intervention arm and was this visit during the post-QI period? The significance of the coefficient $\beta 5$ of this variable is the measure of the effect of the intervention on statin prescribing during the -post-QI period (retention of effect).
- $\beta_6 \text{talk}_{ijk}$ Did the provider attend the educational session?

Online Supplementary Appendix D: Comparison of statin initiation by arm

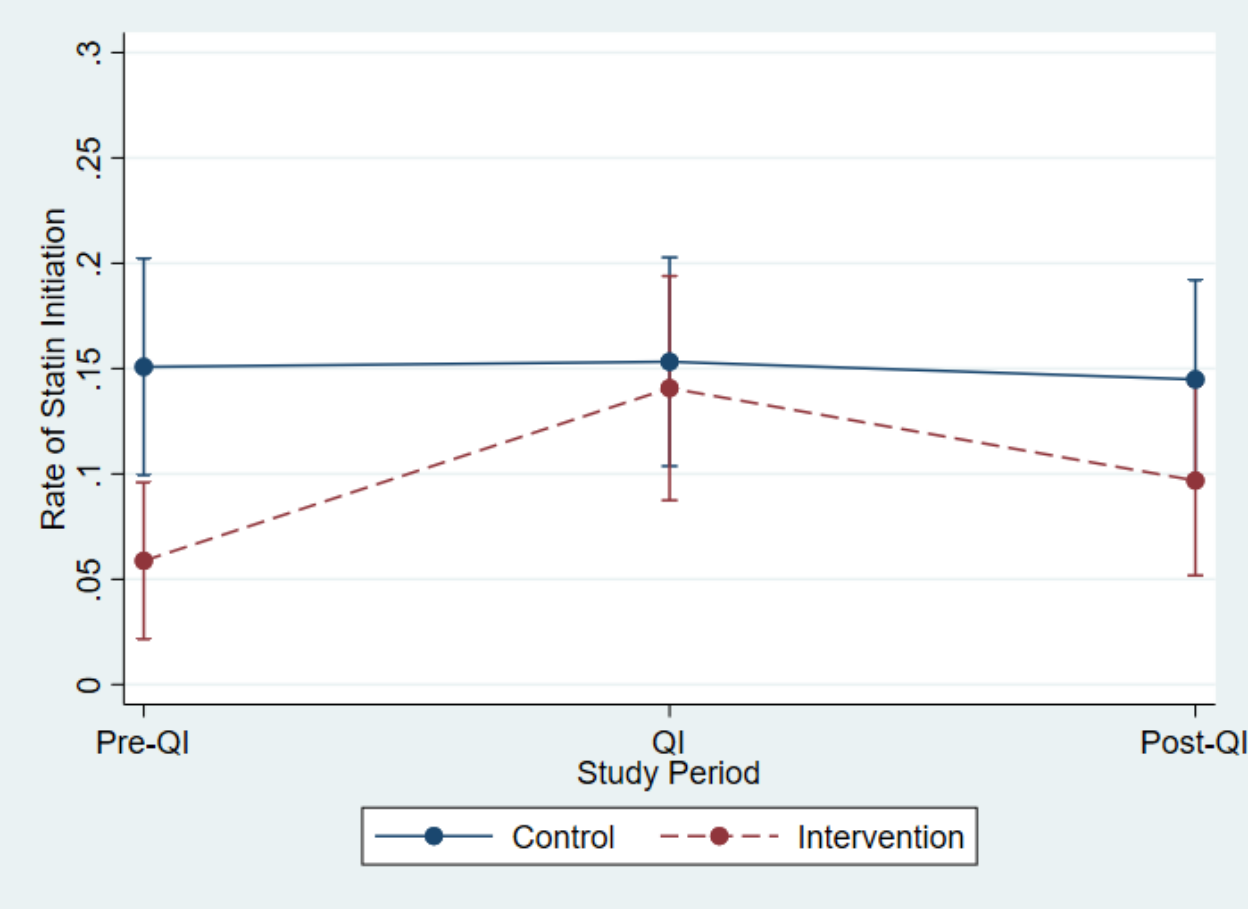
Online Supplementary Figure 1: Results for patients who already met the ATP III criteria



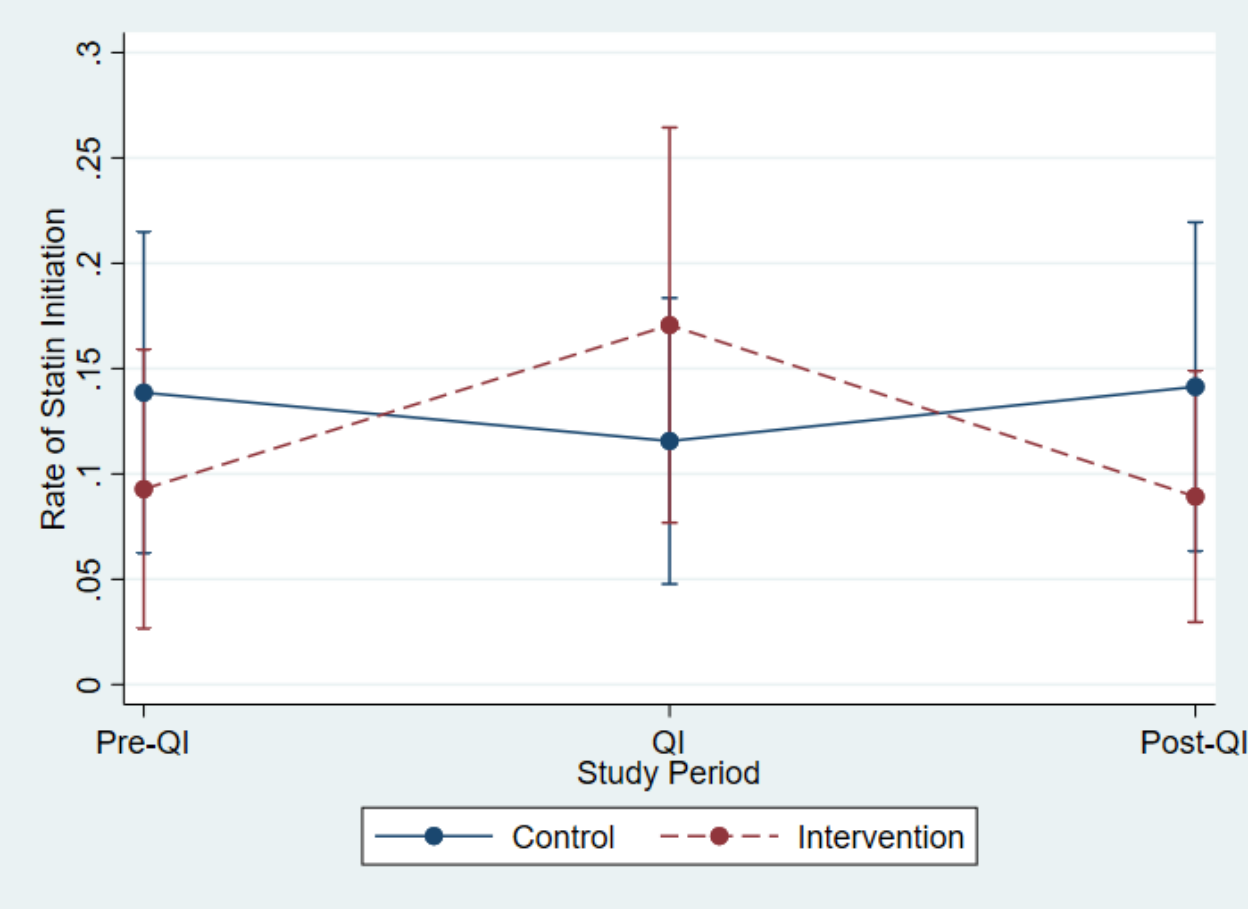
Online Supplementary Figure 2: Results for patients who did not meet the ATP III criteria



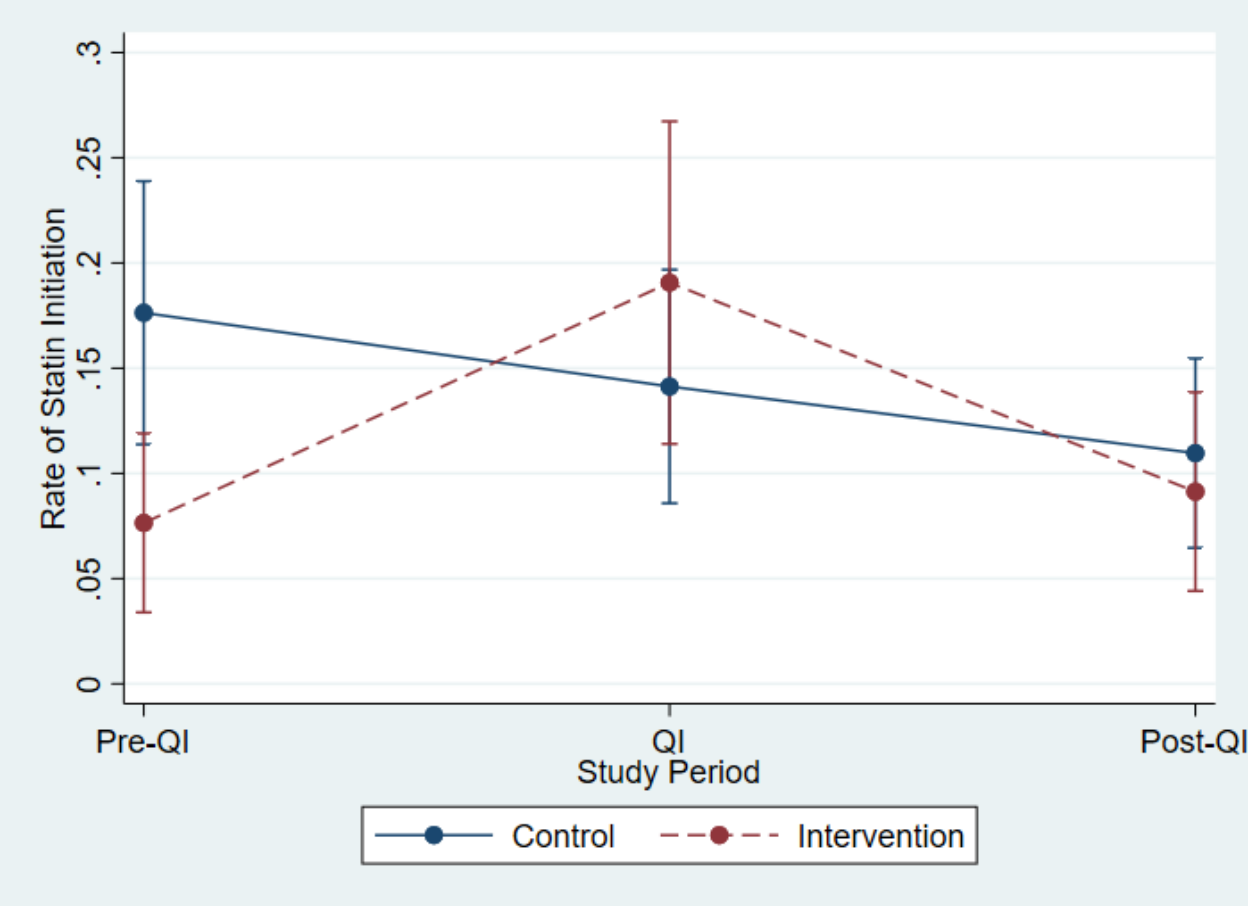
Online Supplementary Figure 3: Results for patients with a history of ASCVD



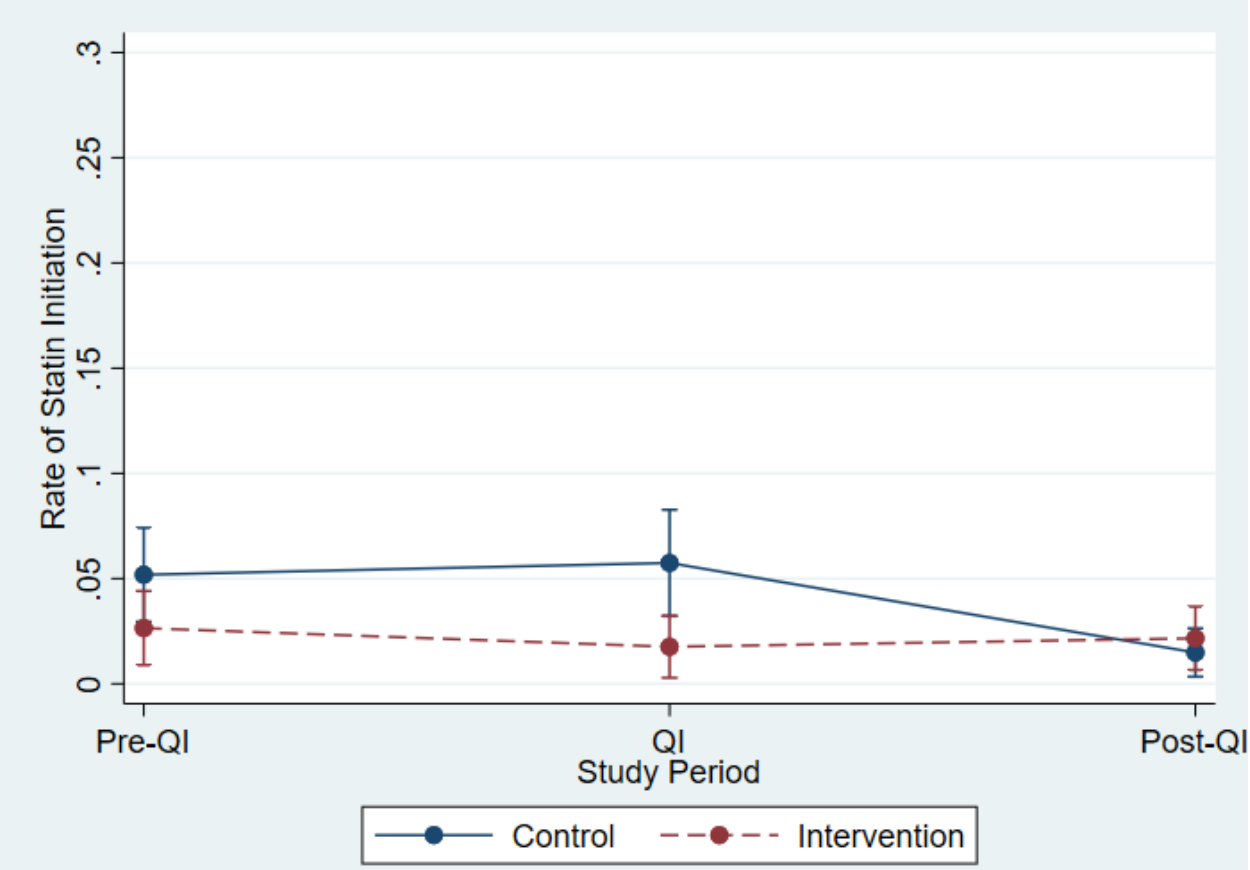
Online Supplementary Figure 4: Results for patients with a history of diabetes



Online Supplementary Figure 5: Results for patients with ≥12% 10-year ASCVD risk



Online Supplementary Figure 6: Results for patients who are not recommended statin use


Rate of Statin Initiation
0
.05
.1
.15
.2
.25
.3
Pre-QI
QI
Post-QI
Study Period
Control
Intervention

Online Supplementary Appendix E: RE-AIM evaluation

1. Reach: The randomized participants of the primary care practice.
2. Effectiveness: See primary outcomes. The intervention did seem to change care.
3. Adoption: We provided the paper-based decision support for 3 months.
4. Implementation: See primary outcomes. We provided the decision support to 573 patient visits.
5. Maintenance: As can be seen in the primary outcomes, when we stopped providing the decision support tool, providers care returned to what they had done prior to it's use.

Online Supplementary Appendix F: Decision Support Tools. These are examples of each of the decision support

Statin Clinical Reminder

- This patient had a heart attack, so he is at high risk of future similar events.
- VA/DoD Guidelines recommend initiating **at least a moderate-potency statin**.
- He is not listed as being on a statin.

During this visit did you change the patient's statin or dose?

- ☐ Yes
- ☐ No

Why not?

- ☐ After discussion, he decided against taking a statin
- ☐ Allergy/Intolerance
- ☐ No time this visit
- ☐ His Life expectancy is <5 years
- ☐ He already receives a statin from another source
- ☐ His health status noted above is wrong. (Please explain in the comments)
- ☐ I do not think he needs one. (Please explain in the comments)

Comments:

Statin Clinical Reminder

- This patient's last measured LDL cholesterol was 200.
- VA/DoD Guidelines recommend initiating **a moderate-potency statin**.
- He is not listed as being on a statin.

During this visit did you change the patient's statin or dose?

- ☐ Yes
- ☐ No

Why not?

- ☐ After discussion, he decided against taking a statin
- ☐ Allergy/Intolerance
- ☐ No time this visit
- ☐ Life expectancy for him is <5 years
- ☐ He already receives a statin from another source
- ☐ His status noted above is wrong. (Please explain in the comments)
- ☐ I do not think he needs one. (Please explain in the comments)

Comments:

Statin Clinical Reminder

- This patient has **diabetes,** so he is at high risk of developing heart disease or having a stroke.
- VA/DoD Guidelines recommend initiating **a moderate-potency statin**.
- He is listed as being on a moderate-potency statin.

During this visit did you change the patient's statin or dose?

- ☐ Yes
- ☐ No

Why not?

- ☐ After discussion, he decided against taking a statin
- ☐ Allergy/Intolerance
- ☐ No time this visit
- ☐ Life expectancy for him is <5 years
- ☐ He already receives a statin from another source
- ☐ His status noted above is wrong. (Please explain in the comments)
- ☐ I do not think he needs one. (Please explain in comments)

Comments:

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Statin Clinical Reminder

- CPRS-based calculations show that this patient has **an elevated (13.22%)** risk of having a heart attack or stroke in 10 years.
- VA/DoD Guidelines recommend initiating **a moderate-potency statin**.
- He is not listed as being on a statin.

During this visit did you change the patient's statin or dose?

- ☐ Yes
- ☐ No

Why not?

- ☐ After discussion, he decided against taking a statin
- ☐ Allergy/Intolerance
- ☐ No time this visit
- ☐ Life expectancy for him is <5 years
- ☐ He already receives a statin from another source
- ☐ His status noted above is wrong. (Please explain in the comments)
- ☐ I do not think he needs one. (Please explain in the comments)

Comments:

Statin Clinical Reminder

- CPRS-based calculations show that he/she has a **low risk (**3.1%) of having a heart attack or stroke in the next 10 years.
- VA/DoD Guidelines recommend that he/she **not receive a statin**.
- He/she is listed as being on a moderate-potency statin.

During this visit did you change the patient's statin or dose?

☐ Yes

☐ No

Why not?

☐ After discussion, he/she strongly **wants to** take his statin

☐ No time this visit

☐ He/she is **not** taking a statin

☐ His/her health status noted above is wrong. (Please explain in the comments)

☐ I think he/she **needs** one. (Please explain in comments)

Comments:

Statin Clinical Reminder

- This patient is missing the information below from his/her medical record, thus his/her risk for a heart attack or stroke cannot be accurately calculated.

    - **Cholesterol**
    - **Blood Pressure**
    - **HDL**
    - **Race**

During this visit did you change the patient's statin or dose?

☐ Yes

☐ No

What is your plan for this patient? Please check all that apply

☐ Obtain the missing information
☐ No change, because he/she doesn't want treatment regardless of the test results
☐ We already have this information from other sources

Comments:

VA CCMR