

Replication of the RECORD1 Anticoagulant Trial in Healthcare Claims Data

NCT05083455

July 9, 2021

1. RCT Details

This section provides a high-level overview of a **published** RCT that the described real-world evidence study is trying to replicate as closely as possible given the remaining limitations inherent in the healthcare databases.

1.1 Title

Rivaroxaban versus Enoxaparin for Thromboprophylaxis after Hip Arthroplasty ([RECORD1](#))

1.2 Intended aim(s)

To compare the risk of any deep vein thrombosis, nonfatal pulmonary embolism, or death in patients who underwent elective total hip arthroplasty for rivaroxaban versus standard therapy of enoxaparin.

1.3 Primary endpoint for replication

The primary outcome of the study was the composite of any deep-vein thrombosis, nonfatal pulmonary embolism, or death from any cause

1.4 Required power for primary endpoint and noninferiority margin (if applicable)

With an assumed outcome rate of 8% and non-inferiority absolute margin of 3.5%, it was determined that 1,562 patients per study group would be needed to achieve 95% power to conclude noninferiority of rivaroxaban over standard therapy at one-sided alpha level of 0.025.

1.5 Secondary endpoint for replication (assay sensitivity) and RCT finding

Major bleeding; 0.3% risk in rivaroxaban group and 0.1% risk in enoxaparin group, with an absolute increase in risk of 0.2% (95% CI -0.1-0.5)

1.6 Trial estimate

0.8% risk of primary outcome in rivaroxaban group and 3.8% risk in enoxaparin group, with a risk reduction of 2.5 percentage points with 95% CI 1.5 to 3.6 (Eriksson et al., 2008)

2. Person responsible for implementation of replication in Aetion

Dureshahwar Jawaid, MPH implemented the study design in the Aetion Evidence Platform. She is not responsible for the validity of the design and analytic choices. All implementation steps are recorded and the implementation history is archived in the platform.

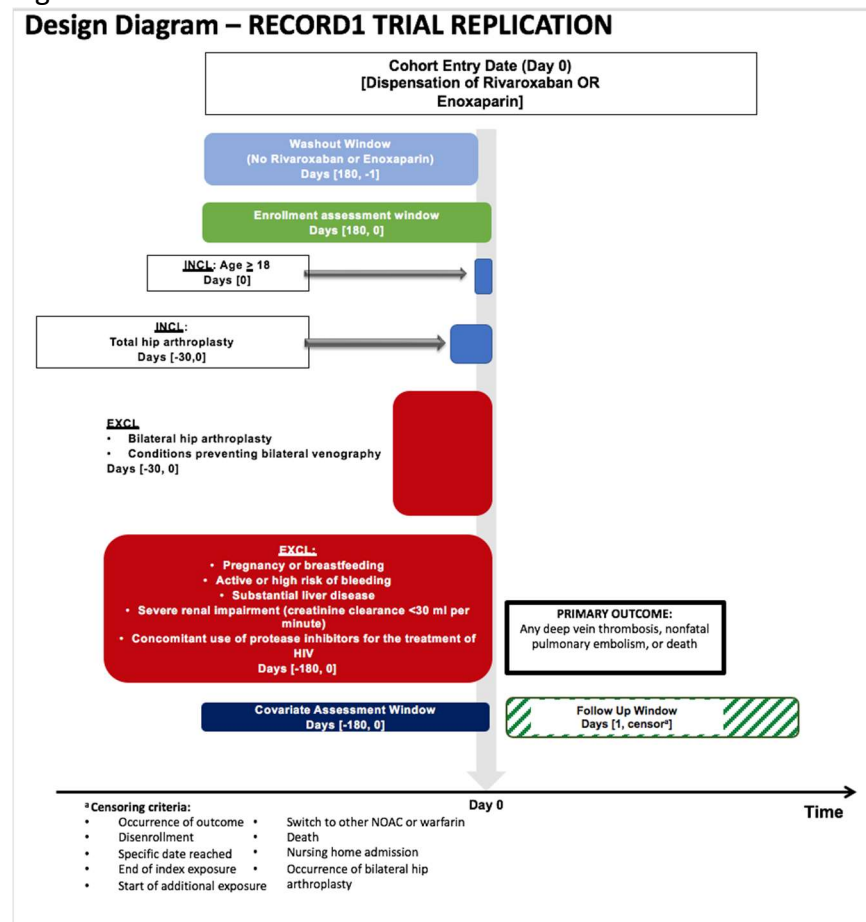
3. Data Source(s)

Optum, MarketScan, Medicare

4. Study Design Diagram

The study design diagram visualizes key aspects of the longitudinal study design for expedited review.

Figure 1



5. Cohort Identification

5.1 Cohort Summary

This study will involve a new user, parallel group, propensity score-matched, retrospective cohort study design comparing rivaroxaban to enoxaparin users. The patients will be required to have continuous enrollment during a baseline period of 180 days before initiation of rivaroxaban or enoxaparin (index date). We will restrict the analyses to patients who underwent a total hip arthroplasty.

5.2 Important steps for cohort formation

New use of rivaroxaban, exposure, and enoxaparin, comparator, is defined as no use of either therapy in the 180 days prior to index date.

5.2.1 Eligible cohort entry dates

Market availability of rivaroxaban in the U.S. for treatment of deep vein thrombosis in patients undergoing knee or hip replacement surgery on July 1, 2011

- For Medicare: July 1, 2011 – December 31, 2017 (end of available data)
- For Marketscan: July 1, 2011 – December 31, 2018 (end of available data)
- For Optum: July 1, 2011 – March 31, 2020 (end of available data)

5.2.2 Specify inclusion/exclusion criteria for cohort entry and define the index date.

Inclusion and exclusion criteria were adapted from the trial as closely as possible. Definitions for all inclusion/exclusion are provided in **Appendix A** and are summarized in the flowcharts below.

5.3 Flowchart of the study cohort assembly

	Optum		Truven		Medicare	
	Less Excluded Patients	Remaining Patients	Less Excluded Patients	Remaining Patients	Less Excluded Patients	Remaining Patients
All patients		78,779,380		200,203,908		6,886,908

Effectiveness research with Real World Data to support FDA's regulatory decision making

Did not meet cohort entry criteria	-78,637,516	141,864	-199,749,129	454,779	-6,288,763	598,145
Excluded due to insufficient enrollment	-19,354	122,510	-43,798	410,981	-155,681	442,464
Excluded due to prior use of referent	-1,842	120,668	-55,562	355,419	-47,539	394,925
Excluded due to prior use of exposure	-18,320	102,348	-19,645	335,774	-60,851	334,074
Excluded because patient qualified in >1 exposure category	-14	102,334	-81	335,693	-197	333,877
Excluded based on Age	0	102,334	0	335,693	-136	333,741
Excluded based on Gender	0	102,334	0	335,693	0	333,741
Excluded based on Use of other NOACs (dabigatran, apixaban, edoxaban)	-905	101,429	-2297	333,396	-7597	326,144
Excluded based on Inclusion # 1 - Age >= 18	-232	101,197	-1,747	331,649	-4	326,140
Excluded based on Inclusion # 2 - total hip arthroplasty	-89,074	12,123	-288,401	43,248	-275,562	50,578
Excluded based on Exclusion #1 - bilateral hip replacement	-18	12,105	-195	43,053	-168	50,410
Excluded based on Exclusion #2 - Pregnancy	-2	12,103	-8	43,045	-5	50,405
Excluded based on Exclusion #3 - Active Bleeding or High Risk of Bleeding (inpatient)	-59	12,044	-262	42,783	-2840	47,565
Excluded based on Exclusion #5 - Conditions Preventing Bilateral Venography	-618	11,426	-1,544	41,239	-4,198	43,367
Excluded based on Exclusion #6 - Substantial Liver Disease	-246	11,180	-668	40,571	-1,036	42,331
Excluded based on Exclusion #7 - Severe Renal Impairment	-29	11,151	-123	40,448	-245	42,086
Excluded based on Exclusion #8 - Concomitant Use of Protease Inhibitors for HIV Treatment	-2	11,149	-33	40,415	-37	42,049
Excluded based on Use of warfarin	-126	11,023	-1383	39,032	-2889	39,160
Final cohort		11,023		39,032		39,160

6. Variables

6.1 Exposure-related variables:

Study drug:

The study exposure of interest is initiation of rivaroxaban. New initiation will be defined by no use of rivaroxaban or enoxaparin in the prior 6 months before treatment initiation (washout period).

Comparator:

New initiators of enoxaparin, defined by no use of rivaroxaban or enoxaparin in the prior 6 months.

6.2 Covariates:

- Age
- Sex
- Combined Comorbidity Index (CCI), measured over the baseline covariate assessment period, defined as 180 days prior to and including index date

Covariates listed above represent only a small subset of covariates that will ultimately be controlled for in the design and analysis. We use the covariates above only for initial feasibility analyses to judge whether there is likely to be sufficient overlap between treatment groups to proceed with the study. Remaining covariates are defined only after the study has passed the initial feasibility analysis and the initial power assessment and are listed in Table 1 (**Appendix B**).

6.3 Outcome variables and study follow-up:

6.3.1 Outcome variables

Primary Effectiveness outcomes of interest: (definitions provided in **Appendix A**):

- **Primary Outcome:** any deep vein thrombosis, non-fatal pulmonary embolism, or death from any cause

Safety outcome of interest:

1. Major bleeding

6.3.2 Study follow-up

Both as-treated (AT) and intention-to-treat (ITT) analyses will be conducted with treatment defined as the index drug on the day of cohort entry. Because adherence in the real-world databases is expected to be much worse than in the trial, the AT analysis is the **primary** analysis, as it targets the relative hazard of outcomes on treatment.

For the AT analyses, the follow-up will start the day after initiation of apixaban and comparator and will continue until the earliest date of the following events:

- The first occurrence of the outcome of interest, unless otherwise specified for selected outcomes,
- The date of end of continuous registration in the database,
- End of the study period,
- Measured death event occurs,
- Nursing home admission
 - Nursing home admissions are considered a censoring event because the data sources utilized typically provide little to no data on a patient, particularly on drug utilization, after admission. We will utilize this as an exclusion reason for cohorts for the same reason.
- The date of drug discontinuation, defined as the date of the last continuous treatment episode of the index drug (apixaban and comparator) plus a defined grace period (i.e., 10 days after the end of the last prescription's days' supply in main analyses).
- The date of augmentation or switching from exposure to comparator or vice versa or augmentation/switching to any other NOAC (e.g. switching from rivaroxaban to apixaban would be a censoring event) or warfarin;
 - A dosage change on the index treatment does not fulfill this criterion
 - An added treatment that is not part of the exposure or comparator group does not fulfill this criterion
- The occurrence of a bilateral hip arthroplasty

For the intention-to-treat (ITT) analyses, the censoring based on the augmentation/switching and treatment discontinuation will be replaced with a maximum allowed follow-up time of 36 days.

7. Initial Feasibility Analysis

Action report name:

Optum- <https://bwh-dope.aetion.com/projects/details/1633/rwrs/70926>

Marketscan- <https://bwh-dope.aetion.com/projects/details/1634/rwrs/70927>

Medicare- <https://bwh-dope.aetion.com/projects/details/1635/rwrs/70928>

Date conducted: 06/03/21

Complete Aetion feasibility analysis using age, sex, and CCI as the only covariates and the primary endpoint (Section 6.3.1) as the outcome. No measures of association will be computed nor will incidence rates stratified by treatment group.

- Report patient characteristics by treatment group

	Optum			Truven			Medicare		
Variable	Referent - enoxaparin 30 or 40 mg	Exposure - rivaroxaban 10 mg	Difference	Referent- enoxaparin 40 mg	Exposure- rivaroxaban 10 mg	Difference	Referent- enoxaparin 40 mg	Exposure- rivaroxaban 10 mg	Difference
Number of patients	139	10,884	- (-, -)	19,921	19,111	- (-, -)	3,318	35,842	- (-, -)
Age									
...mean (sd)	59.07 (10.34)	63.88 (10.73)	-4.81 (-6.55, -3.06)	60.11 (10.24)	60.51 (10.11)	-0.41 (-0.61, -0.21)	71.28 (9.09)	70.86 (8.57)	0.43 (0.10, 0.75)
...median [IQR]	60.00 [53.00, 64.00]	64.00 [57.00, 71.00]	- (-, -)	60.00 [54.00, 65.00]	60.00 [55.00, 66.00]	- (-, -)	72.00 [67.00, 77.00]	71.00 [67.00, 76.00]	- (-, -)
Gender without unknown									
...Male; n (%)	56 (40.3%)	4,760 (43.7%)	-3.4% (- 12.0%, 5.1%)	9,459 (47.5%)	9,129 (47.8%)	-0.3% (- 1.3%, 0.7%)	1,332 (40.1%)	13,078 (36.5%)	3.7% (1.9%, 5.4%)
...Female; n (%)	83 (59.7%)	6,124 (56.3%)	3.4% (- 5.1%, 12.0%)	10,462 (52.5%)	9,982 (52.2%)	0.3% (- 0.7%, 1.3%)	1,986 (59.9%)	22,764 (63.5%)	-3.7% (- 5.4%, - 1.9%)
CCI Combined Comorbidity Score (183 days) with ICD10									
...mean (sd)	1.74 (1.63)	1.82 (1.58)	-0.08 (-0.36, 0.19)	1.49 (1.42)	1.46 (1.36)	0.03 (-0.00, 0.05)	4.82 (3.05)	4.06 (2.75)	0.76 (0.65, 0.86)

...median [IQR]	1.00 [0.00, 3.00]	1.00 [1.00, 3.00]	- (-, -)	1.00 [1.00, 2.00]	1.00 [1.00, 2.00]	- (-, -)	4.00 [2.00, 6.00]	4.00 [2.00, 6.00]	- (-, -)
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- Report summary parameters of study population

FEASIBILITY- FOR STUDY OUTCOME			
	Optum	Truven	Medicare
Variable	Value	Value	Value
Number of patients in full cohort	11,023	39,032	39,160
Number of patients dropped as incomplete cases	0	0	0
Number of patients that did not begin follow-up	3	41	26
Number of patients in analytic cohort	11,020	38,991	39,134
Number of events	8	35	112
Number of person-years	747.15	2,814.10	3,148.61
Number of patients in group: Referent - enoxaparin 40 mg	139	19,902	3,306
Number of patients in group: Exposure - rivaroxaban 10 mg	10,881	19,089	35,828
Risk per 1,000 patients	0.73	0.9	2.86
Rate per 1,000 person-years	10.71	12.44	35.57

- Report median follow-up time by treatment group

MEDIAN FOLLOW-UP TIME FOR STUDY OUTCOME			
Median Follow-Up Time (Days) [IQR]			
	Optum	Truven	Medicare
Patient Group	Median Follow-Up Time (Days) [IQR]	Median Follow-Up Time (Days) [IQR]	Median Follow-Up Time (Days) [IQR]
Overall Patient Population	28 [15, 38]	23 [18, 36]	29 [20, 38]

Referent	11 [10, 13]	20 [18, 28]	20 [16, 27]
Exposure	28 [15, 38]	35 [22, 38]	32 [22, 38]

- Report reasons for censoring in the overall study population

CENSORING REASONS FOR STUDY OUTCOME			
	Optum	Truven	Medicare
Overall			
Outcome	8 (0.1%)	35 (0.1%)	112 (0.3%)
Death	0 (0.0%)	0 (0.0%)	0 (0.0%)
Start of an additional exposure	0 (0.0%)	72 (0.2%)	124 (0.3%)
End of index exposure	8,398 (76.2%)	37,568 (96.4%)	36,891 (94.3%)
Specified date reached	21 (0.2%)	142 (0.4%)	391 (1.0%)
End of patient data	0 (0.0%)	0 (0.0%)	0 (0.0%)
End of patient enrollment	212 (1.9%)	928 (2.4%)	108 (0.3%)
Censoring - Switch to other NOAC + nursing home + bilateral hip arthroplasty Occurred	2,381 (21.6%)	246 (0.6%)	1,508 (3.9%)

- Report overall risk of the primary outcome.

	Optum	Marketscan	Medicare	Pooled
Risk per 1,000 patients	0.73	0.9	2.86	1.74

8. Initial Power Assessment

Action report name:

Optum- <https://bwh-dope.aetion.com/projects/details/1633/rwrs/71036>

Marketscan- <https://bwh-dope.aetion.com/projects/details/1634/rwrs/71035>

Medicare- <https://bwh-dope.aetion.com/projects/details/1635/rwrs/71034>

Date conducted: 06/04/21

In order to complete the initial power analysis, the dummy outcome of a 90-day gap in database enrollment will be used. This outcome is used to ensure that no information on the comparative risks of the outcomes of interest are available at this stage. Complete a 1:1 PS-matched comparative analysis using this outcome. PS should include only 3 covariates: age, sex, and combined comorbidity index. Power calculations are based on the formulas from Chow et al. (2008).

- Stop analyses until feasibility and power are reviewed by primary investigators and FDA. Reviewers evaluate the results of the analyses described above in Sections 7 and 8, including numbers of patients, patient characteristics, follow-up time, and reasons for censoring by treatment group, as well as overall rates of outcomes and study power. These parameters are re-evaluated and reported in the subsequent sections, after incorporating feedback and refining the protocol.

Reviewed by PI:		Date reviewed:	
Reviewed by FDA:		Date reviewed:	
Reasons for stopping analysis (if required):			

9. Balance Assessment

Action report name:

Optum: <https://bwh-dope.aetion.com/projects/details/1633/rwrs/70922>

Marketscan: <https://bwh-dope.aetion.com/projects/details/1634/rwrs/70924>

Medicare: <https://bwh-dope.aetion.com/projects/details/1635/rwrs/70925>

Date conducted: 06/03/21

After review of initial feasibility and power analyses, complete creation of the remaining covariates from Section 6.2. Again, using the

dummy outcome of a 90-day gap in database enrollment, complete a 1:1 PS-matched analysis. The PS should include the complete list of covariates.

- Provide plot of PS distributions stratified by treatment group.

Note- Please refer to **Appendix B**.

- Report covariate balance after matching.

Note- Please refer to **Appendix B**.

- Report reasons for censoring by treatment group.

	Overall	Referent	Exposure
Dummy outcome	0 (0%)	0 (0%)	0 (0%)
Death	10 (0.03%)	5 (0.03%)	5 (0.03%)
Start of an additional exposure	127 (0.36%)	101 (0.58%)	26 (0.15%)
End of index exposure	33,215 (95.24%)	16,577 (95.06%)	16,638 (95.41%)
Specified date reached	192 (0.55%)	83 (0.48%)	109 (0.63%)
End of patient enrollment	712 (2.04%)	281 (1.61%)	431 (2.47%)
Censoring - Switch to other NOAC + nursing home + bilateral hip arthroplasty Occurred	620 (1.78%)	391 (2.24%)	229 (1.31%)

- Report follow-up time by treatment group.

Median Follow-Up Time (Days) [IQR]			
Patient Group	Optum	Marketscan	Medicare
Overall Patient Population	15 [10, 32]	24 [18, 36]	22 [18, 36]
Referent	11 [10, 15]	20 [18, 28]	20 [16, 28]
Exposure	31 [18, 38]	35 [22, 38]	31 [22, 38]

10. Final Power Assessment

Date conducted: 06/03/21

- Re-calculate power in the appropriate excel table, using the revised number of matched patients from the PS-match in Section 9. All other parameters in the table should be the same as in Section 8.

Note: Although the pooled power calculation from the emulation is below the 95% power threshold under similar assumptions as the trial, we saw the trial was overpowered for noninferiority, given the actual size of the effect. Given the trial finding of a 70% lower risk, we expect to have enough power in this trial emulation.

○ Pooled

Non-inferiority Analysis	
Number of patients matched	34,876
Reference	17,438
Exposed	17,438
Risk per 1000 patients	1.74
Assumed HR from RCT	1
Alpha (2-sided)	0.05
Non-inferiority margin	1.95
Number of events expected	60.68424
Power	0.739314806

○ Optum

Effectiveness research with Real World Data to support FDA's regulatory decision making

Non-inferiority Analysis	
Number of patients matched	214
Reference	107
Exposed	107
Risk per 1000 patients	0.73
Assumed HR from RCT	1
Alpha (2-sided)	0.05
Non-inferiority margin	1.95
Number of events expected	0.15622
Power	0.03377588

○ MarketScan

Non-inferiority Analysis	
Number of patients matched	28,132
Reference	14,066
Exposed	14,066
Risk per 1000 patients	0.90
Assumed HR from RCT	1
Alpha (2-sided)	0.05
Non-inferiority margin	1.95
Number of events expected	25.3188
Power	0.389823503

○ Medicare

Non-inferiority Analysis	
Number of patients matched	6,530
Reference	3,265
Exposed	3,265
Risk per 1000 patients	2.86
Assumed HR from RCT	1
Alpha (2-sided)	0.05
Non-inferiority margin	1.95
Number of events expected	18.6758
Power	0.302600852

- Stop analyses until balance and final power assessment are reviewed by primary investigators, FDA, and assigned members of advisory board.

Reviewed by PI:		Date reviewed:	
Reviewed by FDA:		Date reviewed:	
Reasons for stopping analysis (if required):			

11. Study Confidence and Concerns

Deadline for voting on study confidence and listing concerns:

Date votes and concerns are summarized:

- If final feasibility and power analyses are reviewed and approved, proceed to the remaining protocol steps.
- All study team and advisory board members that review this protocol should at this stage provide their level of confidence for the success of the RWD study in the [Google Form](#). This form also provides space for reviewers to list any concerns that they feel may

contribute to a failure to replicate the findings of the RCT, including differences in study populations, poor measurement of study variables, or residual confounding. All responses will be kept confidential and individual-level results will only be shared with the individual respondent.

- After the deadline for voting has passed, provide the distribution of responses and summarize all concerns here.

12. Register study protocol on clinicalTrials.gov

Date conducted:

- Register the study on [clinicalTrials.gov](https://clinicaltrials.gov) and upload this document.

13. Comparative Analyses

Action report name:

Date conducted:

13.1 For primary analysis:

13.2 For sensitivity analyses:

14. Requested Results

14.1 Table 1: Baseline characteristics before and after adjustment

Variable	Before adjustment			After adjustment		
	Referent	Exposure	Std. diff.	Referent	Exposure	Std. diff.
Number of patients			-			-
Age categories						
...						

14.2 Table 2: Follow-up time

Patient Group	Median Follow-Up Time (Days) [IQR]
Overall Patient Population	
Referent	
Exposure	

14.3 Table 3: Censoring events

	Overall	Referent	Exposure
Outcome			
Death			
Start of an additional exposure			
End of index exposure			
Specified date reached			
End of patient data			
End of patient enrollment			
...			

14.4 Table 4: Results from primary analyses;

Analysis	No. exposed events	No. referent events	Exposed rate	Referent rate	HR (95% CI)
Crude					
Analysis 1					
Analysis 2					
...					

HR, Hazard Ratio; CI, Confidence Interval.

14.5 Table 5: Results from secondary analyses;

15. References

Eriksson B, Borris L, Friedman R, et al. Rivaroxaban versus Enoxaparin for Thromboprophylaxis after Hip Arthroplasty. N Engl J Med. 2008; 358:2765-75

Chow S, Shao J, Wang H. 2008. *Sample Size Calculations in Clinical Research*. 2nd Ed. Chapman & Hall/CRC Biostatistics Series. page 177

Appendix A

Trial Name (with web links)

[RECORD1](#)

Trial Name (with pdf links)

[RECORD1](#)

NCT

[NCT00329628](#)

Therapeutic Area

Cardiology/Vascular Diseases

Study Batch

NOACs

Brand Name

Xarelto

Generic Name

Rivaroxaban

Sponsor

Bayer

Year

2008

Measurable Endpoint

Composite endpoint of total VTE i.e.: Any DVT (proximal and/or distal), Non fatal PE, Death of all causes [Time Frame: Treatment period : up to day 36+/-6]

Exposure

Rivaroxaban

Comparator

Enoxaparin

Population

Patients of legal age who were scheduled for elective total hip replacement

Trial Finding

HR = 1

No. of Patients

4,591 (2,266 in exposed arm)

Non-inferiority

HR = 1.95

Margin

0.95. If these assumptions were correct, 1562 patients per study group would be sufficient to show noninferiority with a power of 95% and a one-sided type I error rate of 2.5%. It was assumed that 25% of patients would not have valid venograms, resulting in a target sample size of 4200 patients.

Power

Appendix A

Title

PE DVT outcome

ICD-9 Dx inpatient primary position

PE

415.1	PULMONARY EMBOLISM AND INFARCTION
415.11	IATROGENIC PULMONARY EMBOLISM AND INFARCTION
415.19	OTHER PULMONARY EMBOLISM AND INFARCTION

DVT

451.1	PHLEBITIS AND THROMBOPHLEBITIS OF DEEP VEINS OF LOWER EXTREMITIES
451.11	PHLEBITIS AND THROMBOPHLEBITIS OF FEMORAL VEIN (DEEP) (SUPERFICIAL)
451.19	PHLEBITIS AND THROMBOPHLEBITIS OF OTHER
451.2	PHLEBITIS AND THROMBOPHLEBITIS OF LOWER EXTREMITIES UNSPECIFIED
451.81	PHLEBITIS AND THROMBOPHLEBITIS OF ILIAC VEIN
451.9	PHLEBITIS AND THROMBOPHLEBITIS OF UNSPECIFIED SITE
453	BUDD-CHIARI SYNDROME
453.1	THROMBOPHLEBITIS MIGRANS
453.2	EMBOLISM AND THROMBOSIS OF INFERIOR VENA CAVA
453.4	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF LOWER EXTREMITY
453.40	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF UNSPECIFIED DEEP VESSELS OF LOWER EXTREMITY
453.41	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF PROXIMAL LOWER EXTREMITY
453.42	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF DISTAL LOWER EXTREMITY
453.5	CHRONIC VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF LOWER EXTREMITY
453.50	CHRONIC VENOUS EMBOLISM AND THROMBOSIS OF UNSPECIFIED DEEP VESSELS OF LOWER EXTREMITY
453.51	CHRONIC VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF PROXIMAL LOWER EXTREMITY
453.52	CHRONIC VENOUS EMBOLISM AND THROMBOSIS OF DEEP VESSELS OF DISTAL LOWER EXTREMITY
453.8	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF OTHER SPECIFIED VEINS
453.82	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF DEEP VEINS OF UPPER EXTREMITY
453.83	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF UPPER EXTREMITY UNSPECIFIED
453.84	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF AXILLARY VEINS
453.85	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF SUBCLAVIAN VEINS
453.86	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF INTERNAL JUGULAR VEINS
453.87	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF OTHER THORACIC VEINS

Appendix A

453.89	ACUTE VENOUS EMBOLISM AND THROMBOSIS OF OTHER SPECIFIED VEINS
453.9	EMBOLISM AND THROMBOSIS OF UNSPECIFIED SITE

ICD-10 Dx inpatient primary position

PE

I26.0	Pulmonary embolism with acute cor pulmonale
I26.01	Septic pulmonary embolism with acute cor pulmonale
I26.02	Saddle embolus of pulmonary artery with acute cor pulmonale
I26.09	Other pulmonary embolism with acute cor pulmonale
I26.9	Pulmonary embolism without acute cor pulmonale
I26.99	Other pulmonary embolism without acute cor pulmonale

DVT

I80.1	Phlebitis and thrombophlebitis of femoral vein
I80.10	Phlebitis and thrombophlebitis of unspecified femoral vein
I80.11	Phlebitis and thrombophlebitis of right femoral vein
I80.12	Phlebitis and thrombophlebitis of left femoral vein
I80.13	Phlebitis and thrombophlebitis of femoral vein, bilateral
I80.2	Phlebitis and thrombophlebitis of other and unspecified deep vessels of lower extremities
I80.20	Phlebitis and thrombophlebitis of unspecified deep vessels of lower extremities
I80.201	Phlebitis and thrombophlebitis of unspecified deep vessels of right lower extremity
I80.202	Phlebitis and thrombophlebitis of unspecified deep vessels of left lower extremity
I80.203	Phlebitis and thrombophlebitis of unspecified deep vessels of lower extremities, bilateral
I80.209	Phlebitis and thrombophlebitis of unspecified deep vessels of unspecified lower extremity
I80.21	Phlebitis and thrombophlebitis of iliac vein
I80.211	Phlebitis and thrombophlebitis of right iliac vein
I80.212	Phlebitis and thrombophlebitis of left iliac vein
I80.213	Phlebitis and thrombophlebitis of iliac vein, bilateral
I80.219	Phlebitis and thrombophlebitis of unspecified iliac vein
I80.22	Phlebitis and thrombophlebitis of popliteal vein
I80.221	Phlebitis and thrombophlebitis of right popliteal vein
I80.222	Phlebitis and thrombophlebitis of left popliteal vein
I80.223	Phlebitis and thrombophlebitis of popliteal vein, bilateral
I80.229	Phlebitis and thrombophlebitis of unspecified popliteal vein

Appendix A

I80.23	Phlebitis and thrombophlebitis of tibial vein
I80.231	Phlebitis and thrombophlebitis of right tibial vein
I80.232	Phlebitis and thrombophlebitis of left tibial vein
I80.233	Phlebitis and thrombophlebitis of tibial vein, bilateral
I80.239	Phlebitis and thrombophlebitis of unspecified tibial vein
I80.29	Phlebitis and thrombophlebitis of other deep vessels of lower extremities
I80.291	Phlebitis and thrombophlebitis of other deep vessels of right lower extremity
I80.292	Phlebitis and thrombophlebitis of other deep vessels of left lower extremity
I80.293	Phlebitis and thrombophlebitis of other deep vessels of lower extremity, bilateral
I80.299	Phlebitis and thrombophlebitis of other deep vessels of unspecified lower extremity
I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified
I80.9	Phlebitis and thrombophlebitis of unspecified site
I82.0	Budd-Chiari syndrome
I82.1	Thrombophlebitis migrans
I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified
I82.4	Acute embolism and thrombosis of deep veins of lower extremity
I82.40	Acute embolism and thrombosis of unspecified deep veins of lower extremity
I82.401	Acute embolism and thrombosis of unspecified deep veins of right lower extremity
I82.402	Acute embolism and thrombosis of unspecified deep veins of left lower extremity
I82.403	Acute embolism and thrombosis of unspecified deep veins of lower extremity, bilateral
I82.409	Acute embolism and thrombosis of unspecified deep veins of unspecified lower extremity
I82.41	Acute embolism and thrombosis of femoral vein
I82.411	Acute embolism and thrombosis of right femoral vein
I82.412	Acute embolism and thrombosis of left femoral vein
I82.413	Acute embolism and thrombosis of femoral vein, bilateral
I82.419	Acute embolism and thrombosis of unspecified femoral vein
I82.42	Acute embolism and thrombosis of iliac vein
I82.421	Acute embolism and thrombosis of right iliac vein
I82.422	Acute embolism and thrombosis of left iliac vein
I82.423	Acute embolism and thrombosis of iliac vein, bilateral
I82.429	Acute embolism and thrombosis of unspecified iliac vein
I82.43	Acute embolism and thrombosis of popliteal vein
I82.431	Acute embolism and thrombosis of right popliteal vein
I82.432	Acute embolism and thrombosis of left popliteal vein

Appendix A

I82.433	Acute embolism and thrombosis of popliteal vein, bilateral
I82.439	Acute embolism and thrombosis of unspecified popliteal vein
I82.44	Acute embolism and thrombosis of tibial vein
I82.441	Acute embolism and thrombosis of right tibial vein
I82.442	Acute embolism and thrombosis of left tibial vein
I82.443	Acute embolism and thrombosis of tibial vein, bilateral
I82.449	Acute embolism and thrombosis of unspecified tibial vein
I82.49	Acute embolism and thrombosis of other specified deep vein of lower extremity
I82.491	Acute embolism and thrombosis of other specified deep vein of right lower extremity
I82.492	Acute embolism and thrombosis of other specified deep vein of left lower extremity
I82.493	Acute embolism and thrombosis of other specified deep vein of lower extremity, bilateral
I82.499	Acute embolism and thrombosis of other specified deep vein of unspecified lower extremity
I82.4Y	Acute embolism and thrombosis of unspecified deep veins of proximal lower extremity
I82.4Y1	Acute embolism and thrombosis of unspecified deep veins of right proximal lower extremity
I82.4Y2	Acute embolism and thrombosis of unspecified deep veins of left proximal lower extremity
I82.4Y3	Acute embolism and thrombosis of unspecified deep veins of proximal lower extremity, bilateral
I82.4Y9	Acute embolism and thrombosis of unspecified deep veins of unspecified proximal lower extremity
I82.4Z	Acute embolism and thrombosis of unspecified deep veins of distal lower extremity
I82.4Z1	Acute embolism and thrombosis of unspecified deep veins of right distal lower extremity
I82.4Z2	Acute embolism and thrombosis of unspecified deep veins of left distal lower extremity
I82.4Z3	Acute embolism and thrombosis of unspecified deep veins of distal lower extremity, bilateral
I82.4Z9	Acute embolism and thrombosis of unspecified deep veins of unspecified distal lower extremity
I82.5	Chronic embolism and thrombosis of deep veins of lower extremity
I82.50	Chronic embolism and thrombosis of unspecified deep veins of lower extremity
I82.501	Chronic embolism and thrombosis of unspecified deep veins of right lower extremity
I82.502	Chronic embolism and thrombosis of unspecified deep veins of left lower extremity
I82.503	Chronic embolism and thrombosis of unspecified deep veins of lower extremity, bilateral
I82.509	Chronic embolism and thrombosis of unspecified deep veins of unspecified lower extremity
I82.51	Chronic embolism and thrombosis of femoral vein
I82.511	Chronic embolism and thrombosis of right femoral vein
I82.512	Chronic embolism and thrombosis of left femoral vein
I82.513	Chronic embolism and thrombosis of femoral vein, bilateral
I82.519	Chronic embolism and thrombosis of unspecified femoral vein
I82.52	Chronic embolism and thrombosis of iliac vein

Appendix A

I82.521	Chronic embolism and thrombosis of right iliac vein
I82.522	Chronic embolism and thrombosis of left iliac vein
I82.523	Chronic embolism and thrombosis of iliac vein, bilateral
I82.529	Chronic embolism and thrombosis of unspecified iliac vein
I82.53	Chronic embolism and thrombosis of popliteal vein
I82.531	Chronic embolism and thrombosis of right popliteal vein
I82.532	Chronic embolism and thrombosis of left popliteal vein
I82.533	Chronic embolism and thrombosis of popliteal vein, bilateral
I82.539	Chronic embolism and thrombosis of unspecified popliteal vein
I82.54	Chronic embolism and thrombosis of tibial vein
I82.541	Chronic embolism and thrombosis of right tibial vein
I82.542	Chronic embolism and thrombosis of left tibial vein
I82.543	Chronic embolism and thrombosis of tibial vein, bilateral
I82.549	Chronic embolism and thrombosis of unspecified tibial vein
I82.59	Chronic embolism and thrombosis of other specified deep vein of lower extremity
I82.591	Chronic embolism and thrombosis of other specified deep vein of right lower extremity
I82.592	Chronic embolism and thrombosis of other specified deep vein of left lower extremity
I82.593	Chronic embolism and thrombosis of other specified deep vein of lower extremity, bilateral
I82.599	Chronic embolism and thrombosis of other specified deep vein of unspecified lower extremity
I82.5Y	Chronic embolism and thrombosis of unspecified deep veins of proximal lower extremity
I82.5Y1	Chronic embolism and thrombosis of unspecified deep veins of right proximal lower extremity
I82.5Y2	Chronic embolism and thrombosis of unspecified deep veins of left proximal lower extremity
I82.5Y3	Chronic embolism and thrombosis of unspecified deep veins of proximal lower extremity, bilateral
I82.5Y9	Chronic embolism and thrombosis of unspecified deep veins of unspecified proximal lower extremity
I82.5Z	Chronic embolism and thrombosis of unspecified deep veins of distal lower extremity
I82.5Z1	Chronic embolism and thrombosis of unspecified deep veins of right distal lower extremity
I82.5Z2	Chronic embolism and thrombosis of unspecified deep veins of left distal lower extremity
I82.5Z3	Chronic embolism and thrombosis of unspecified deep veins of distal lower extremity, bilateral
I82.5Z9	Chronic embolism and thrombosis of unspecified deep veins of unspecified distal lower extremity
I82.6	Acute embolism and thrombosis of veins of upper extremity
I82.60	Acute embolism and thrombosis of unspecified veins of upper extremity
I82.601	Acute embolism and thrombosis of unspecified veins of right upper extremity
I82.602	Acute embolism and thrombosis of unspecified veins of left upper extremity
I82.603	Acute embolism and thrombosis of unspecified veins of upper extremity, bilateral

Appendix A

I82.609	Acute embolism and thrombosis of unspecified veins of unspecified upper extremity
I82.62	Acute embolism and thrombosis of deep veins of upper extremity
I82.621	Acute embolism and thrombosis of deep veins of right upper extremity
I82.622	Acute embolism and thrombosis of deep veins of left upper extremity
I82.623	Acute embolism and thrombosis of deep veins of upper extremity, bilateral
I82.629	Acute embolism and thrombosis of deep veins of unspecified upper extremity
I82.890	Acute embolism and thrombosis of other specified veins
I82.90	Acute embolism and thrombosis of unspecified vein
I82.A1	Acute embolism and thrombosis of axillary vein
I82.A11	Acute embolism and thrombosis of right axillary vein
I82.A12	Acute embolism and thrombosis of left axillary vein
I82.A13	Acute embolism and thrombosis of axillary vein, bilateral
I82.A19	Acute embolism and thrombosis of unspecified axillary vein
I82.B1	Acute embolism and thrombosis of subclavian vein
I82.B11	Acute embolism and thrombosis of right subclavian vein
I82.B12	Acute embolism and thrombosis of left subclavian vein
I82.B13	Acute embolism and thrombosis of subclavian vein, bilateral
I82.B19	Acute embolism and thrombosis of unspecified subclavian vein
I82.C1	Acute embolism and thrombosis of internal jugular vein
I82.C11	Acute embolism and thrombosis of right internal jugular vein
I82.C12	Acute embolism and thrombosis of left internal jugular vein
I82.C13	Acute embolism and thrombosis of internal jugular vein, bilateral
I82.C19	Acute embolism and thrombosis of unspecified internal jugular vein

Appendix A

Title

Major Bleeding

1 inpatient or 2 outpatient diagnosis

ICD-9 Dx inpatient any position

423	(ICD9) HEMOPERICARDIUM
430	(ICD9) SUBARACHNOID HEMORRHAGE
431	(ICD9) INTRACEREBRAL HEMORRHAGE
432	(ICD9) NONTRAUMATIC EXTRADURAL HEMORRHAGE
432.1	(ICD9) SUBDURAL HEMORRHAGE
432.9	(ICD9) UNSPECIFIED INTRACRANIAL HEMORRHAGE
459	(ICD9) HEMORRHAGE UNSPECIFIED
531	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE
531	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
531.01	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE WITH OBSTRUCTION
531.2	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION
531.2	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
531.21	(ICD9) ACUTE GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
531.4	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE
531.4	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
531.41	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE WITH OBSTRUCTION
531.6	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION
531.6	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
531.61	(ICD9) CHRONIC OR UNSPECIFIED GASTRIC ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
532	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE
532	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
532.01	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE WITH OBSTRUCTION
532.2	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION
532.2	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
532.21	(ICD9) ACUTE DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
532.4	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE
532.4	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
532.41	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE WITH OBSTRUCTION

Appendix A

532.6	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION
532.6	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
532.61	(ICD9) CHRONIC OR UNSPECIFIED DUODENAL ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
533	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE
533	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE WITHOUT OBSTRUCTION
533.01	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE WITH OBSTRUCTION
533.2	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION
533.2	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
533.21	(ICD9) ACUTE PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
533.4	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE
533.4	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE WITHOUT OBSTRUCTION
533.41	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE WITH OBSTRUCTION
533.6	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION
533.6	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
533.61	(ICD9) CHRONIC OR UNSPECIFIED PEPTIC ULCER OF UNSPECIFIED SITE WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
534	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE
534	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
534.01	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE WITH OBSTRUCTION
534.2	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION
534.2	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
534.21	(ICD9) ACUTE GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
534.4	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE
534.4	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE WITHOUT OBSTRUCTION
534.41	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE WITH OBSTRUCTION
534.6	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION

Appendix A

534.6	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION WITHOUT OBSTRUCTION
534.61	(ICD9) CHRONIC OR UNSPECIFIED GASTROJEJUNAL ULCER WITH HEMORRHAGE AND PERFORATION WITH OBSTRUCTION
562.02	(ICD9) DIVERTICULOSIS OF SMALL INTESTINE WITH HEMORRHAGE
562.03	(ICD9) DIVERTICULITIS OF SMALL INTESTINE WITH HEMORRHAGE
562.12	(ICD9) DIVERTICULOSIS OF COLON WITH HEMORRHAGE
562.13	(ICD9) DIVERTICULITIS OF COLON WITH HEMORRHAGE
568.81	(ICD9) HEMOPERITONEUM (NONTRAUMATIC)
569.3	(ICD9) HEMORRHAGE OF RECTUM AND ANUS
569.83	(ICD9) PERFORATION OF INTESTINE
569.85	(ICD9) ANGIODYSPLASIA OF INTESTINE WITH HEMORRHAGE
569.86	(ICD9) DIEULAFOY LESION (HEMORRHAGIC) OF INTESTINE
578	(ICD9) HEMATEMESIS
578.1	(ICD9) BLOOD IN STOOL
578.9	(ICD9) HEMORRHAGE OF GASTROINTESTINAL TRACT UNSPECIFIED
719.1	(ICD9) HEMARTHROSIS
719.1	(ICD9) HEMARTHROSIS SITE UNSPECIFIED
719.11	(ICD9) HERARTHROSIS INVOLVING SHOULDER REGION
719.12	(ICD9) HEMARTHORSIS INVOLVING UPPER ARM
719.13	(ICD9) HEMARTHROSIS INVOLVING FOREARM
719.14	(ICD9) HEMARTHROSIS INVOLVING HAND
719.15	(ICD9) HEMARTHROSIS INVOLVING PELVIC REGION AND THIGH
719.16	(ICD9) HEMARTHROSIS INVOLVING LOWER LEG
719.17	(ICD9) HEMARTHROSIS INVOLVING ANKLE AND FOOT
719.18	(ICD9) HEMARTHROSIS INVOLVING OTHER SPECIFIED SITES
719.19	(ICD9) HEMARTHROSIS INVOLVING MULTIPLE SITES
784.7	(ICD9) EPISTAXIS
784.8	(ICD9) HEMORRHAGE FROM THROAT
599.7	(ICD9) HEMATURIA
599.7	(ICD9) HEMATURIA UNSPECIFIED
599.71	(ICD9) GROSS HEMATURIA
599.72	(ICD9) MICROSCOPIC HEMATURIA
786.3	(ICD9) HEMOPTYSIS

Appendix A

786.3	(ICD9) HEMOPTYSIS UNSPECIFIED
786.31	(ICD9) ACUTE IDIOPATHIC PULMONARY HEMORRHAGE IN INFANTS
786.39	(ICD9) OTHER HEMOPTYSIS

ICD-10 Dx inpatient any position

I31.2	(ICD10) Hemopericardium, not elsewhere classified
I60.00	(ICD10) Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation
I60.01	(ICD10) Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation
I60.02	(ICD10) Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation
I60.10	(ICD10) Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery
I60.11	(ICD10) Nontraumatic subarachnoid hemorrhage from right middle cerebral artery
I60.12	(ICD10) Nontraumatic subarachnoid hemorrhage from left middle cerebral artery
I60.2	(ICD10) Nontraumatic subarachnoid hemorrhage from anterior communicating artery
I60.30	(ICD10) Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery
I60.31	(ICD10) Nontraumatic subarachnoid hemorrhage from right posterior communicating artery
I60.32	(ICD10) Nontraumatic subarachnoid hemorrhage from left posterior communicating artery
I60.4	(ICD10) Nontraumatic subarachnoid hemorrhage from basilar artery
I60.50	(ICD10) Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery
I60.51	(ICD10) Nontraumatic subarachnoid hemorrhage from right vertebral artery
I60.52	(ICD10) Nontraumatic subarachnoid hemorrhage from left vertebral artery
I60.6	(ICD10) Nontraumatic subarachnoid hemorrhage from other intracranial arteries
I60.7	(ICD10) Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery
I60.8	(ICD10) Other nontraumatic subarachnoid hemorrhage
I60.9	(ICD10) Nontraumatic subarachnoid hemorrhage, unspecified
I61.0	(ICD10) Nontraumatic intracerebral hemorrhage in hemisphere, subcortical
I61.1	(ICD10) Nontraumatic intracerebral hemorrhage in hemisphere, cortical
I61.2	(ICD10) Nontraumatic intracerebral hemorrhage in hemisphere, unspecified
I61.3	(ICD10) Nontraumatic intracerebral hemorrhage in brain stem
I61.4	(ICD10) Nontraumatic intracerebral hemorrhage in cerebellum
I61.5	(ICD10) Nontraumatic intracerebral hemorrhage, intraventricular
I61.6	(ICD10) Nontraumatic intracerebral hemorrhage, multiple localized
I61.8	(ICD10) Other nontraumatic intracerebral hemorrhage
I61.9	(ICD10) Nontraumatic intracerebral hemorrhage, unspecified
I62.00	(ICD10) Nontraumatic subdural hemorrhage, unspecified

Appendix A

I62.01	(ICD10) Nontraumatic acute subdural hemorrhage
I62.02	(ICD10) Nontraumatic subacute subdural hemorrhage
I62.03	(ICD10) Nontraumatic chronic subdural hemorrhage
I62.1	(ICD10) Nontraumatic extradural hemorrhage
I62.9	(ICD10) Nontraumatic intracranial hemorrhage, unspecified
K25.0	(ICD10) Acute gastric ulcer with hemorrhage
K25.2	(ICD10) Acute gastric ulcer with both hemorrhage and perforation
K25.4	(ICD10) Chronic or unspecified gastric ulcer with hemorrhage
K25.6	(ICD10) Chronic or unspecified gastric ulcer with both hemorrhage and perforation
K26.0	(ICD10) Acute duodenal ulcer with hemorrhage
K26.2	(ICD10) Acute duodenal ulcer with both hemorrhage and perforation
K26.4	(ICD10) Chronic or unspecified duodenal ulcer with hemorrhage
K26.6	(ICD10) Chronic or unspecified duodenal ulcer with both hemorrhage and perforation
K27.0	(ICD10) Acute peptic ulcer, site unspecified, with hemorrhage
K27.2	(ICD10) Acute peptic ulcer, site unspecified, with both hemorrhage and perforation
K27.4	(ICD10) Chronic or unspecified peptic ulcer, site unspecified, with hemorrhage
K27.6	(ICD10) Chronic or unspecified peptic ulcer, site unspecified, with both hemorrhage and perforation
K28.0	(ICD10) Acute gastrojejunal ulcer with hemorrhage
K28.2	(ICD10) Acute gastrojejunal ulcer with both hemorrhage and perforation
K28.4	(ICD10) Chronic or unspecified gastrojejunal ulcer with hemorrhage
K28.6	(ICD10) Chronic or unspecified gastrojejunal ulcer with both hemorrhage and perforation
K55.21	(ICD10) Angiodysplasia of colon with hemorrhage
K56.60	(ICD10) Unspecified intestinal obstruction
K57.01	(ICD10) Diverticulitis of small intestine with perforation and abscess with bleeding
K57.11	(ICD10) Diverticulosis of small intestine without perforation or abscess with bleeding
K57.13	(ICD10) Diverticulitis of small intestine without perforation or abscess with bleeding
K57.21	(ICD10) Diverticulitis of large intestine with perforation and abscess with bleeding
K57.31	(ICD10) Diverticulosis of large intestine without perforation or abscess with bleeding
K57.33	(ICD10) Diverticulitis of large intestine without perforation or abscess with bleeding
K57.41	(ICD10) Diverticulitis of both small and large intestine with perforation and abscess with bleeding
K57.51	(ICD10) Diverticulosis of both small and large intestine without perforation or abscess with bleeding
K57.53	(ICD10) Diverticulitis of both small and large intestine without perforation or abscess with bleeding
K57.81	(ICD10) Diverticulitis of intestine, part unspecified, with perforation and abscess with bleeding
K57.91	(ICD10) Diverticulosis of intestine, part unspecified, without perforation or abscess with bleeding

Appendix A

K57.93	(ICD10) Diverticulitis of intestine, part unspecified, without perforation or abscess with bleeding
K62.5	(ICD10) Hemorrhage of anus and rectum
K63.1	(ICD10) Perforation of intestine (nontraumatic)
K63.81	(ICD10) Dieulafoy lesion of intestine
K66.1	(ICD10) Hemoperitoneum
K92.0	(ICD10) Hematemesis
K92.1	(ICD10) Melena
K92.2	(ICD10) Gastrointestinal hemorrhage, unspecified
M25.00	(ICD10) Hemarthrosis, unspecified joint
M25.011	(ICD10) Hemarthrosis, right shoulder
M25.012	(ICD10) Hemarthrosis, left shoulder
M25.019	(ICD10) Hemarthrosis, unspecified shoulder
M25.021	(ICD10) Hemarthrosis, right elbow
M25.022	(ICD10) Hemarthrosis, left elbow
M25.029	(ICD10) Hemarthrosis, unspecified elbow
M25.031	(ICD10) Hemarthrosis, right wrist
M25.032	(ICD10) Hemarthrosis, left wrist
M25.039	(ICD10) Hemarthrosis, unspecified wrist
M25.041	(ICD10) Hemarthrosis, right hand
M25.042	(ICD10) Hemarthrosis, left hand
M25.049	(ICD10) Hemarthrosis, unspecified hand
M25.051	(ICD10) Hemarthrosis, right hip
M25.052	(ICD10) Hemarthrosis, left hip
M25.059	(ICD10) Hemarthrosis, unspecified hip
M25.061	(ICD10) Hemarthrosis, right knee
M25.062	(ICD10) Hemarthrosis, left knee
M25.069	(ICD10) Hemarthrosis, unspecified knee
M25.071	(ICD10) Hemarthrosis, right ankle
M25.072	(ICD10) Hemarthrosis, left ankle
M25.073	(ICD10) Hemarthrosis, unspecified ankle
M25.074	(ICD10) Hemarthrosis, right foot
M25.075	(ICD10) Hemarthrosis, left foot
M25.076	(ICD10) Hemarthrosis, unspecified foot
M25.08	(ICD10) Hemarthrosis, other specified site

Appendix A

R58	(ICD10) Hemorrhage, not elsewhere classified
R04	(ICD10) Hemorrhage from respiratory passages
R04.0	(ICD10) Epistaxis
R04.1	(ICD10) Hemorrhage from throat
R04.2	(ICD10) Hemoptysis
R04.8	(ICD10) Hemorrhage from other sites in respiratory passages
R04.81	(ICD10) Acute idiopathic pulmonary hemorrhage in infants
R04.89	(ICD10) Hemorrhage from other sites in respiratory passages
R04.9	(ICD10) Hemorrhage from respiratory passages, unspecified
R31	(ICD10) Hematuria
R31.0	(ICD10) Gross hematuria
R31.1	(ICD10) Benign essential microscopic hematuria
R31.2	(ICD10) Other microscopic hematuria
R31.21	(ICD10) Asymptomatic microscopic hematuria
R31.29	(ICD10) Other microscopic hematuria
R31.9	(ICD10) Hematuria, unspecified
Px inpatient any position	
44.43	(ICD9) ENDOSCOPIC CONTROL OF GASTRIC OR DUODENAL BLEEDING
0W3P8ZZ	(ICD10) Control Bleeding in Gastrointestinal Tract, Via Natural or Artificial Opening Endoscopic (HCPCS) Esophagogastroduodenoscopy, flexible, transoral; with control of bleeding, any method / Upper gastrointestinal endoscopy including esophagus, stomach, and either the duodenum and/or jejunum as appropriate; with control of bleeding, any method
43255	

Appendix A

Title

Pregnancy

ICD-9 Dx inpatient any position

650	Normal delivery
660	Obstructed labor
661	Abnormality of forces of labor
662	Long labor
663	Umbilical cord complications during labor and delivery
664	Trauma to perineum and vulva during delivery
665	Other obstetrical trauma
667	Retained placenta or membranes without hemorrhage
668	Complications of the administration of anesthetic or other sedation in labor and delivery
669.94	Unspecified complication of labor and delivery postpartum condition or complication
V24	Postpartum care and examination
V24.0	Postpartum care and examination immediately after delivery
V24.1	Postpartum care and examination of lactating mother
V24.2	Routine postpartum follow
V27	Outcome of delivery
V27.0	Mother with single liveborn
V27.1	Mother with single stillborn
V27.2	Mother with twins both liveborn
V27.3	Mother with twins one liveborn and one stillborn
V27.4	Mother with twins both stillborn
V27.5	Mother with other multiple birth all liveborn
V27.6	Mother with other multiple birth some liveborn
V27.7	Mother with other multiple birth all stillborn
V27.9	Mother with unspecified outcome of delivery

ICD-9 Px inpatient any position

72.0	Low forceps operation
72.1	Low forceps operation with episiotomy

Appendix A

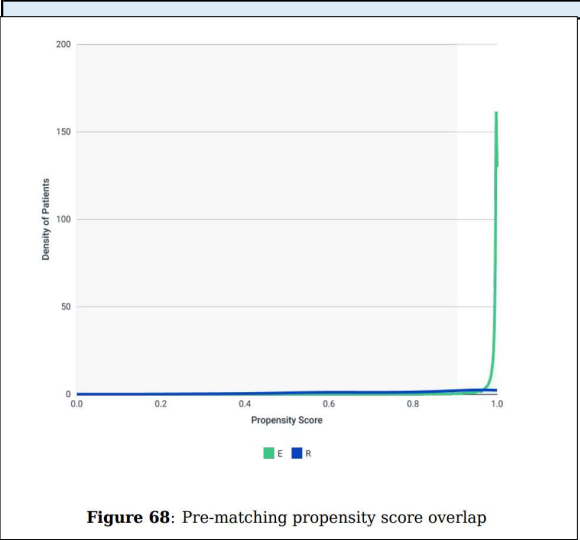
72.2	Mid forceps operation
72.21	Mid forceps operation with episiotomy
72.29	Other mid forceps operation
72.3	High forceps operation
72.31	High forceps operation with episiotomy
72.39	Other high forceps operation
72.4	Forceps rotation of fetal head
72.5	Breech extraction
72.51	Partial breech extraction with forceps to aftercoming head
72.52	Other partial breech extraction
72.53	Total breech extraction with forceps to aftercoming head
72.54	Other total breech extraction
72.6	Forceps application to aftercoming head
72.7	Vacuum extraction
72.71	Vacuum extraction with episiotomy
72.79	Other vacuum extraction
72.8	Other specified instrumental delivery
72.9	Unspecified instrumental delivery
73.0	Artificial rupture of membranes
73.01	Induction of labor by artificial rupture of membranes
73.09	Other artificial rupture of membranes
73.1	Other surgical induction of labor
73.2	Internal and combined version and extraction
73.21	Internal and combined version without extraction
73.22	Internal and combined version with extraction
73.3	Failed forceps
73.4	Medical induction of labor
73.5	Manually assisted delivery
73.51	Manual rotation of fetal head
73.59	Other manually assisted delivery
73.6	Episiotomy
73.8	Operations on fetus to facilitate delivery

Appendix A

73.9	Other operations assisting delivery
73.91	External version assisting delivery
73.92	Replacement of prolapsed umbilical cord
73.93	Incision of cervix to assist delivery
73.94	Pubiotomy to assist delivery
73.99	Other operations assisting delivery
74.0	Classical cesarean section
74.1	Low cervical cesarean section
74.2	Extraperitoneal cesarean section
74.3	Removal of extratubal ectopic pregnancy
74.4	Cesarean section of other specified type
74.9	Cesarean section of unspecified type
74.91	Hysterotomy to terminate pregnancy
74.99	Other cesarean section of unspecified type
75.4	Manual removal of retained placenta
75.5	Repair of current obstetric laceration of uterus
75.6	Repair of other current obstetric laceration
75.7	Manual exploration of uterine cavity, postpartum
75.9	Other obstetric operations

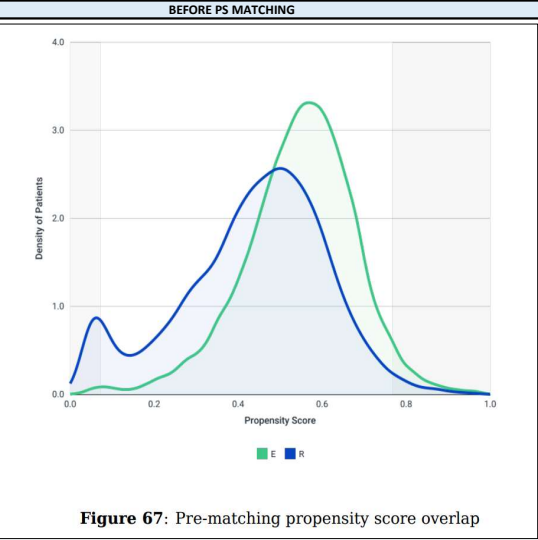
Appendix B

Optum



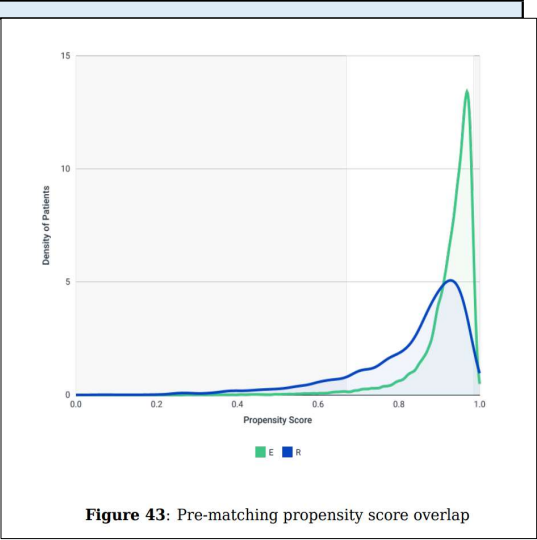
The c-statistics for the propensity score model, pre-matching was 0.858. The post-matching c-statistic was 0.796

MarketScan

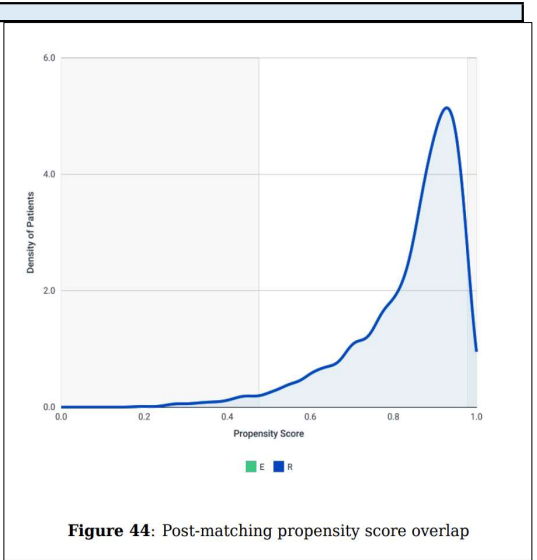
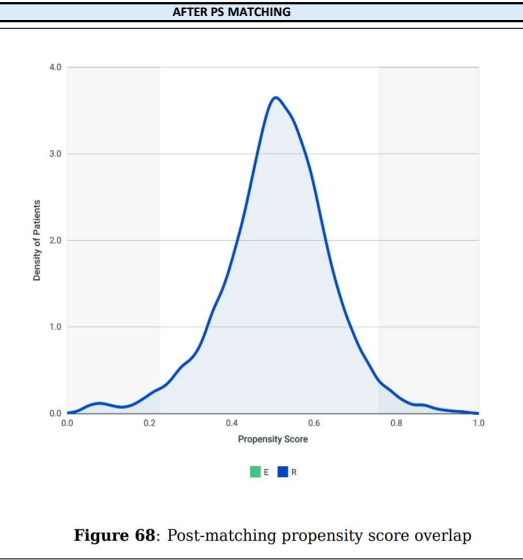
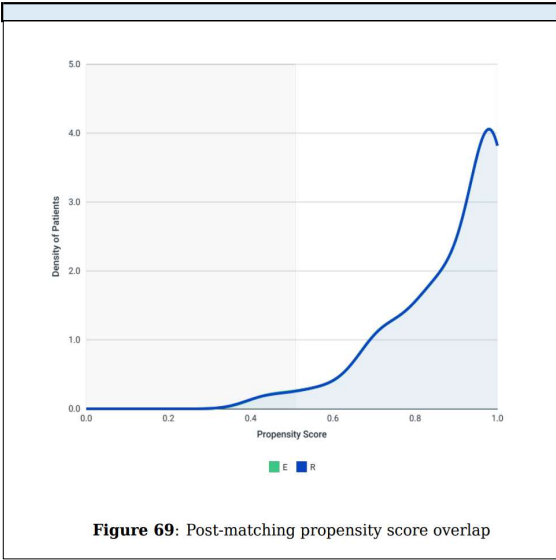


The c-statistics for the propensity score model, pre-matching was 0.692. The post-matching c-statistic was 0.545.

Medicare



The c-statistics for the propensity score model, pre-matching was 0.749. The post-matching c-statistic was 0.552.



Appendix B

Unmatched												
Variable	Optum			MarketScan			Medicare			POOLED		
	Referent - enoxaparin 30 or 40 mg	Exposure - rivaroxaban 10 mg	St. Diff.	Referent - enoxaparin 30 or 40 mg	Exposure - rivaroxaban 10 mg	St. Diff.	Referent - enoxaparin 30 or 40 mg	rivaroxaban 10 mg	St. Diff.	Referent - enoxaparin 30 or 40 mg	Exposure - rivaroxaban 10 mg	St. Diff.
Number of patients	139	10,884		19,921	19,111		3,318	35,842		23,378	65,837	
Age												
...mean (sd)	59.07 (10.34)	63.88 (10.73)	-0.46	60.11 (10.24)	60.51 (10.11)	-0.04	71.28 (9.09)	70.86 (8.57)	0.05	61.69 (10.09)	66.70 (9.42)	-0.51
Age categories without zero category												
...18 - 54; n (%)	38 (27.3%)	2,010 (18.5%)	0.21	5,174 (26.0%)	4,754 (24.9%)	0.03	189 (5.7%)	1,749 (4.9%)	0.04	5,401 (23.1%)	8513 (12.9%)	0.27
...55 - 64; n (%)	70 (50.4%)	3,480 (32.0%)	0.38	9,296 (46.7%)	9,049 (47.3%)	-0.01	260 (7.8%)	2,506 (7.0%)	0.03	9,626 (41.2%)	15,035 (22.8%)	0.40
...65 - 74; n (%)	21 (15.1%)	3,580 (32.9%)	-0.43	3,699 (18.6%)	3,423 (17.9%)	0.02	1,698 (51.2%)	20,246 (56.5%)	-0.11	5,418 (23.2%)	27,249 (41.4%)	-0.40
...> 75; n (%)	** (7.2%)	1,814 (16.7%)	-0.30	1,752 (8.8%)	1,885 (9.9%)	-0.04	1,171 (35.3%)	11,341 (31.6%)	0.08	#VALUE!	15,040 (22.8%)	#VALUE!
Gender without zero category- United												
...Males; n (%)	56 (40.3%)	4,760 (43.7%)	-0.07	9,459 (47.5%)	9,129 (47.8%)	-0.01	1,332 (40.1%)	13,078 (36.5%)	0.07	10,847 (46.4%)	26,967 (41.0%)	0.11
...Females; n (%)	83 (59.7%)	6,124 (56.3%)	0.07	10,462 (52.5%)	9,982 (52.2%)	0.01	1,986 (59.9%)	22,764 (63.5%)	-0.07	12,531 (53.6%)	38,870 (59.0%)	-0.11
Race												
...White; n (%)	-	-	-	-	-	-	3,042 (91.7%)	32,865 (91.7%)	0.00	3,042 (91.7%)	32,865 (91.7%)	0.00
...Black; n (%)	-	-	-	-	-	-	204 (6.1%)	1,944 (5.4%)	0.03	204 (6.1%)	1,944 (5.4%)	0.03
...Asian; n (%)	-	-	-	-	-	-	7 (0.2%)	125 (0.3%)	-0.02	7 (0.2%)	125 (0.3%)	-0.02
...Hispanic; n (%)	-	-	-	-	-	-	14 (0.4%)	194 (0.5%)	-0.01	14 (0.4%)	194 (0.5%)	-0.01
...North American Native; n (%)	-	-	-	-	-	-	13 (0.4%)	127 (0.4%)	0.00	13 (0.4%)	127 (0.4%)	0.00
...Other/Unknown; n (%)	-	-	-	-	-	-	38 (1.1%)	587 (1.6%)	-0.04	38 (1.1%)	587 (1.6%)	-0.04
Region without zero category- United v3 (lumping missing&other category with West)												
...Northeast; n (%)	15 (10.8%)	764 (7.0%)	0.13	3,721 (18.7%)	2,807 (14.7%)	0.11	595 (17.9%)	4,860 (13.6%)	0.12	4331 (18.5%)	8,431 (12.8%)	0.16
...South; n (%)	41 (29.5%)	4,477 (41.1%)	-0.24	4,974 (25.0%)	6,048 (31.6%)	-0.15	1,288 (38.8%)	14,004 (39.1%)	-0.01	6,303 (27.0%)	24,529 (37.3%)	-0.22
...Midwest; n (%)	57 (41.0%)	3,329 (30.6%)	0.22	7,167 (36.0%)	7,407 (38.8%)	-0.06	845 (25.5%)	11,225 (31.3%)	-0.13	8,069 (34.5%)	21,961 (33.4%)	0.02
...West; n (%)	26 (18.7%)	2,314 (21.3%)	-0.07	3,856 (19.4%)	2,607 (13.6%)	0.16	588 (17.7%)	5,729 (16.0%)	0.05	4,470 (19.1%)	10,650 (16.2%)	0.08
...Unknown-missing; n (%)	N/A	N/A	#VALUE!	203 (1.0%)	242 (1.3%)	-0.03	N/A	N/A	#VALUE!	203 (1.0%)	242 (1.3%)	-0.03
Metropolitan Statistical Area - Urban (any MSA) vs Rural (non-MSA)												
...Urban; n (%)	-	-	-	15,704 (78.8%)	14,277 (74.7%)	0.10	-	-	-	15,704 (78.8%)	14,277 (74.7%)	0.10
...Rural; n (%)	-	-	-	522 (2.6%)	573 (3.0%)	-0.02	-	-	-	522 (2.6%)	573 (3.0%)	-0.02
...Unknown/Missing; n (%)	-	-	-	3,695 (18.5%)	4,261 (22.3%)	-0.09	-	-	-	3,695 (18.5%)	4,261 (22.3%)	-0.09
Commercial vs Medicare Advantage- Data Type												
...1 - Fee For Service; n (%)	-	-	-	12,420 (62.3%)	12,513 (65.5%)	-0.07	-	-	-	12,420 (62.3%)	12,513 (65.5%)	-0.07
...2 - Encounter; n (%)	-	-	-	2,035 (10.2%)	1,222 (6.4%)	0.14	-	-	-	2,035 (10.2%)	1,222 (6.4%)	0.14
...3 - Medicare; n (%)	-	-	-	4,495 (22.6%)	4,772 (25.0%)	-0.06	-	-	-	4,495 (22.6%)	4,772 (25.0%)	-0.06
...4 - Medicare Encounter; n (%)	-	-	-	971 (4.9%)	604 (3.2%)	0.09	-	-	-	971 (4.9%)	604 (3.2%)	0.09
CV Covariates												
Ischemic heart disease; n (%)	15 (10.8%)	1,346 (12.4%)	-0.05	2,150 (10.8%)	2,063 (10.8%)	0.00	815 (24.6%)	6,934 (19.3%)	0.13	2,980 (12.7%)	10,343 (15.7%)	-0.09
Acute MI; n (%)	0 (0.0%)	43 (0.4%)	-0.09	90 (0.5%)	77 (0.4%)	0.01	21 (0.6%)	198 (0.6%)	0.00	111 (0.5%)	318 (0.5%)	0.00
ACS/unstable angina; n (%)	** (0.7%)	53 (0.5%)	0.03	88 (0.4%)	68 (0.4%)	0.00	25 (0.8%)	194 (0.5%)	0.04	#VALUE!	315 (0.5%)	#VALUE!
Old MI; n (%)	** (2.2%)	328 (3.0%)	-0.05	354 (1.8%)	338 (1.8%)	0.00	198 (6.0%)	1,556 (4.3%)	0.08	#VALUE!	2222 (3.4%)	#VALUE!
Stable angina; n (%)	0 (0.0%)	160 (1.5%)	-0.17	227 (1.1%)	204 (1.1%)	0.00	71 (2.1%)	608 (1.7%)	0.03	298 (1.3%)	972 (1.5%)	-0.02
Coronary atherosclerosis and other forms of chronic ischemic heart disease; n (%)	15 (10.8%)	1,222 (11.2%)	-0.01	1,938 (9.7%)	1,858 (9.7%)	0.00	756 (22.8%)	6,427 (17.9%)	0.12	2709 (11.6%)	9,507 (14.4%)	-0.08
Other atherosclerosis with ICD10 v2 Copy; n (%)	0 (0.0%)	62 (0.6%)	-0.11	124 (0.6%)	120 (0.6%)	0.00	31 (0.9%)	361 (1.0%)	-0.01	155 (0.7%)	543 (0.8%)	-0.01
Previous cardiac procedure (CABG or PTCA or Stent) v4; n (%)	0 (0.0%)	10 (0.1%)	-0.04	14 (0.1%)	9 (0.0%)	0.04	7 (0.2%)	57 (0.2%)	0.00	21 (0.1%)	76 (0.1%)	0.00
History of CABG or PTCA; n (%)	** (2.2%)	441 (4.1%)	-0.11	397 (2.0%)	400 (2.1%)	-0.01	329 (9.9%)	2,757 (7.7%)	0.08	#VALUE!	3,598 (5.5%)	#VALUE!
Any stroke; n (%)	** (3.6%)	326 (3.0%)	0.03	452 (2.3%)	445 (2.3%)	0.00	152 (4.6%)	1,560 (4.4%)	0.01	#VALUE!	2,331 (3.5%)	#VALUE!
Ischemic stroke (w and w/o mention of cerebral infarction); n (%)	** (3.6%)	324 (3.0%)	0.03	447 (2.2%)	442 (2.3%)	-0.01	152 (4.6%)	1,558 (4.3%)	0.01	#VALUE!	2,324 (3.5%)	#VALUE!
Hemorrhagic stroke; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	5 (0.0%)	4 (0.0%)	#DIV/0!	0 (0.0%)	3 (0.0%)	#DIV/0!	005 (0.0%)	#VALUE!	#VALUE!
TIA; n (%)	** (0.7%)	88 (0.8%)	-0.01	124 (0.6%)	122 (0.6%)	0.00	36 (1.1%)	300 (0.8%)	0.03	#VALUE!	510 (0.8%)	#VALUE!
Other cerebrovascular disease; n (%)	** (0.7%)	89 (0.8%)	-0.01	103 (0.5%)	90 (0.5%)	0.00	29 (0.9%)	321 (0.9%)	0.00	#VALUE!	500 (0.8%)	#VALUE!
Cerebrovascular procedure; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	7 (0.0%)	4 (0.0%)	#DIV/0!	2 (0.1%)	32 (0.1%)	0.00	009 (0.0%)	#VALUE!	#VALUE!
Heart failure (CHF); n (%)	** (1.4%)	107 (1.0%)	0.04	109 (0.5%)	114 (0.6%)	-0.01	103 (3.1%)	567 (1.6%)	0.10	#VALUE!	788 (1.2%)	#VALUE!
Peripheral Vascular Disease (PVD) or PVD Surgery v2; n (%)	** (4.3%)	403 (3.7%)	0.03	441 (2.2%)	462 (2.4%)	-0.01	209 (6.3%)	1,746 (4.9%)	0.06	#VALUE!	2,611 (4.0%)	#VALUE!
Atrial fibrillation; n (%)	** (1.4%)	437 (4.0%)	-0.16	560 (2.8%)	579 (3.0%)	-0.01	682 (20.6%)	2,083 (5.8%)	0.45	#VALUE!	3,099 (4.7%)	#VALUE!
Other cardiac dysrhythmia; n (%)	21 (15.1%)	1,304 (12.0%)	0.09	1,906 (9.6%)	1,869 (9.8%)	-0.01	812 (24.5%)	4,816 (13.4%)	0.29	2,739 (11.7%)	7,989 (12.1%)	-0.01
Cardiac conduction disorders; n (%)	** (2.9%)	488 (4.5%)	-0.08	654 (3.3%)	608 (3.2%)	0.01	251 (7.6%)	1,982 (5.5%)	0.08	#VALUE!	3078 (4.7%)	#VALUE!
Other CVD; n (%)	13 (9.4%)	1,015 (9.3%)	0.00	1,551 (7.8%)	1,443 (7.6%)	0.01	560 (16.9%)	4,172 (11.6%)	0.15	2,124 (9.1%)	6,630 (10.1%)	-0.03

Appendix B

Diabetes-related complications												
Occurrence of Diabetic Neuropathy v2 Copy; n (%)	** (1.4%)	299 (2.7%)	-0.09	331 (1.7%)	301 (1.6%)	0.01	109 (3.3%)	991 (2.8%)	0.03	#VALUE!	1591 (2.4%)	#VALUE!
Occurrence of diabetic nephropathy V3 with ICD10 Copy; n (%)	** (0.7%)	204 (1.9%)	-0.11	184 (0.9%)	123 (0.6%)	0.03	53 (1.6%)	404 (1.1%)	0.04	#VALUE!	731 (1.1%)	#VALUE!
Hypoglycemia v2; n (%)	0 (0.0%)	49 (0.5%)	-0.10	126 (0.6%)	91 (0.5%)	0.01	49 (1.5%)	398 (1.1%)	0.04	175 (0.7%)	538 (0.8%)	-0.01
Hyperglycemia; n (%)	12 (8.6%)	727 (6.7%)	0.07	846 (4.2%)	763 (4.0%)	0.01	283 (8.5%)	2,584 (7.2%)	0.05	1141 (4.9%)	4074 (6.2%)	-0.06
Diabetic ketoacidosis; n (%)	0 (0.0%)	** (0.1%)	-0.04	15 (0.1%)	8 (0.0%)	0.04	2 (0.1%)	24 (0.1%)	0.00	017 (0.1%)	#VALUE!	#VALUE!
Hypertension: 1 inpatient or 2 outpatient claims within 365 days; n (%)	80 (57.6%)	7,019 (64.5%)	-0.14	11,425 (57.4%)	11,326 (59.3%)	-0.04	2,697 (81.3%)	27,636 (77.1%)	0.10	14,202 (60.7%)	45,981 (69.8%)	-0.19
Hyperlipidemia v2; n (%)	65 (46.8%)	6,037 (55.5%)	-0.17	8,975 (45.1%)	8,800 (46.0%)	-0.02	2,020 (60.9%)	22,035 (61.5%)	-0.01	11,060 (47.3%)	36,872 (56.0%)	-0.17
Edema; n (%)	** (5.0%)	514 (4.7%)	0.01	567 (2.8%)	558 (2.9%)	-0.01	200 (6.0%)	1,340 (3.7%)	0.11	#VALUE!	2412 (3.7%)	#VALUE!
Renal Dysfunction (non-diabetic) v2; n (%)	14 (10.1%)	1,218 (11.2%)	-0.04	1,436 (7.2%)	1,210 (6.3%)	0.04	545 (16.4%)	3,863 (10.8%)	0.16	1,995 (8.5%)	6,291 (9.6%)	-0.04
Occurrence of acute renal disease v2; n (%)	** (3.6%)	246 (2.3%)	0.08	374 (1.9%)	299 (1.6%)	0.02	154 (4.6%)	927 (2.6%)	0.11	#VALUE!	1472 (2.2%)	#VALUE!
Occurrence of chronic renal insufficiency; n (%)	** (5.0%)	764 (7.0%)	-0.08	811 (4.1%)	609 (3.2%)	0.05	367 (11.1%)	2,446 (6.8%)	0.15	#VALUE!	3,819 (5.8%)	#VALUE!
Chronic kidney disease v2; n (%)	** (4.3%)	736 (6.8%)	-0.11	781 (3.9%)	582 (3.0%)	0.05	358 (10.8%)	2,335 (6.5%)	0.15	#VALUE!	3,653 (5.5%)	#VALUE!
CKD Stage 3-4; n (%)	** (3.6%)	459 (4.2%)	-0.03	461 (2.3%)	299 (1.6%)	0.05	230 (6.9%)	1,317 (3.7%)	0.14	#VALUE!	2,075 (3.2%)	#VALUE!
Occurrence of hypertensive nephropathy; n (%)	** (5.0%)	491 (4.5%)	0.02	496 (2.5%)	351 (1.8%)	0.05	282 (8.5%)	1,779 (5.0%)	0.14	#VALUE!	2,621 (4.0%)	#VALUE!
Occurrence of miscellaneous renal insufficiency v2; n (%)	** (4.3%)	457 (4.2%)	0.00	493 (2.5%)	468 (2.4%)	0.01	155 (4.7%)	1,371 (3.8%)	0.04	#VALUE!	2,296 (3.5%)	#VALUE!
Other Covariates												
Liver disease; n (%)	** (0.7%)	187 (1.7%)	-0.09	252 (1.3%)	228 (1.2%)	0.01	64 (1.9%)	518 (1.4%)	0.04	#VALUE!	933 (1.4%)	#VALUE!
Osteoarthritis; n (%)	134 (96.4%)	10,669 (98.0%)	-0.10	19,329 (97.0%)	18,746 (98.1%)	-0.07	3,172 (95.6%)	34,972 (97.6%)	-0.11	22635 (96.8%)	64387 (97.8%)	-0.06
Other arthritis, arthropathies and musculoskeletal pain; n (%)	130 (93.5%)	9,890 (90.9%)	0.10	17,212 (86.4%)	16,823 (88.0%)	-0.05	2,941 (88.6%)	31,128 (86.8%)	0.05	20283 (86.8%)	57841 (87.9%)	-0.03
Dorsopathies; n (%)	60 (43.2%)	4,652 (42.7%)	0.01	7,491 (37.6%)	7,564 (39.6%)	-0.04	1,500 (45.2%)	15,155 (42.3%)	0.06	9051 (38.7%)	27371 (41.6%)	-0.06
Fractures; n (%)	13 (9.4%)	831 (7.6%)	0.06	1,625 (8.2%)	1,248 (6.5%)	0.07	496 (14.9%)	3,348 (9.3%)	0.17	2134 (9.1%)	5427 (8.2%)	0.03
Falls v2; n (%)	** (4.3%)	554 (5.1%)	-0.04	416 (2.1%)	306 (1.6%)	0.04	90 (2.7%)	563 (1.6%)	0.08	#VALUE!	1423 (2.2%)	#VALUE!
Osteoporosis; n (%)	** (6.5%)	1,064 (9.8%)	-0.12	1,222 (6.1%)	1,201 (6.3%)	-0.01	488 (14.7%)	4,845 (13.5%)	0.03	#VALUE!	7110 (10.8%)	#VALUE!
Depression; n (%)	35 (25.2%)	1,873 (17.2%)	0.20	2,694 (13.5%)	2,426 (12.7%)	0.02	616 (18.6%)	6,160 (17.2%)	0.04	3345 (14.3%)	10459 (15.9%)	-0.04
Anxiety; n (%)	32 (23.0%)	1,808 (16.6%)	0.16	2,198 (11.0%)	2,180 (11.4%)	-0.01	605 (18.2%)	5,418 (15.1%)	0.08	2835 (12.1%)	9406 (14.3%)	-0.07
Sleep Disorder; n (%)	** (7.2%)	1,206 (11.1%)	-0.14	2,331 (11.7%)	2,254 (11.8%)	0.00	292 (8.8%)	3,878 (10.8%)	-0.07	#VALUE!	7338 (11.1%)	#VALUE!
Dementia; n (%)	** (1.4%)	159 (1.5%)	-0.01	165 (0.8%)	162 (0.8%)	0.00	106 (3.2%)	866 (2.4%)	0.05	#VALUE!	1187 (1.8%)	#VALUE!
Delirium; n (%)	** (0.7%)	112 (1.0%)	-0.03	142 (0.7%)	125 (0.7%)	0.00	75 (2.3%)	501 (1.4%)	0.07	#VALUE!	738 (1.1%)	#VALUE!
Psychosis; n (%)	0 (0.0%)	62 (0.6%)	-0.11	80 (0.4%)	76 (0.4%)	0.00	50 (1.5%)	482 (1.3%)	0.02	130 (0.6%)	620 (0.9%)	-0.03
Obesity; n (%)	50 (36.0%)	2,913 (26.8%)	0.20	4,426 (22.2%)	4,230 (22.1%)	0.00	811 (24.4%)	7,621 (21.3%)	0.07	5287 (22.6%)	14764 (22.4%)	0.00
Overweight; n (%)	** (5.8%)	646 (5.9%)	0.00	576 (2.9%)	579 (3.0%)	-0.01	184 (5.5%)	1,628 (4.5%)	0.05	#VALUE!	2853 (4.3%)	#VALUE!
Smoking; n (%)	50 (36.0%)	3,407 (31.3%)	0.10	3,476 (17.4%)	3,375 (17.7%)	-0.01	1,265 (38.1%)	12,192 (34.0%)	0.09	4791 (20.5%)	18974 (28.8%)	-0.19
Alcohol abuse or dependence; n (%)	** (6.5%)	278 (2.6%)	0.19	387 (1.9%)	324 (1.7%)	0.02	52 (1.6%)	351 (1.0%)	0.05	#VALUE!	953 (1.4%)	#VALUE!
Drug abuse or dependence; n (%)	** (5.0%)	271 (2.5%)	0.13	325 (1.6%)	254 (1.3%)	0.03	112 (3.4%)	430 (1.2%)	0.15	#VALUE!	955 (1.5%)	#VALUE!
COPD; n (%)	16 (11.5%)	1,084 (10.0%)	0.05	1,213 (6.1%)	1,262 (6.6%)	-0.02	491 (14.8%)	4,398 (12.3%)	0.07	1720 (7.4%)	6744 (10.2%)	-0.10
Asthma; n (%)	20 (14.4%)	1,136 (10.4%)	0.12	1,653 (8.3%)	1,537 (8.0%)	0.01	418 (12.6%)	3,756 (10.5%)	0.07	2091 (8.9%)	6429 (9.8%)	-0.03
Obstructive sleep apnea; n (%)	19 (13.7%)	1,275 (11.7%)	0.06	2,004 (10.1%)	2,001 (10.5%)	-0.01	401 (12.1%)	3,279 (9.1%)	0.10	2424 (10.4%)	6555 (10.0%)	0.01
Pneumonia; n (%)	** (1.4%)	191 (1.8%)	-0.03	268 (1.3%)	252 (1.3%)	0.00	109 (3.3%)	690 (1.9%)	0.09	#VALUE!	1133 (1.7%)	#VALUE!
Other Medications												
Use of ACE inhibitors; n (%)	32 (23.0%)	2,596 (23.9%)	-0.02	4,387 (22.0%)	4,419 (23.1%)	-0.03	929 (28.0%)	10,210 (28.5%)	-0.01	5348 (22.9%)	17225 (26.2%)	-0.08
Use of ARBs; n (%)	20 (14.4%)	1,781 (16.4%)	-0.06	3,111 (15.6%)	3,105 (16.2%)	-0.02	665 (20.0%)	6,843 (19.1%)	0.02	3796 (16.2%)	11729 (17.8%)	-0.04
Use of Loop Diuretics - United; n (%)	** (3.6%)	425 (3.9%)	-0.02	710 (3.6%)	686 (3.6%)	0.00	352 (10.6%)	2,466 (6.9%)	0.13	#VALUE!	3577 (5.4%)	#VALUE!
Use of other diuretics- United; n (%)	** (1.4%)	113 (1.0%)	0.04	216 (1.1%)	192 (1.0%)	0.01	89 (2.7%)	536 (1.5%)	0.08	#VALUE!	841 (1.3%)	#VALUE!
Use of nitrates-United; n (%)	** (0.7%)	157 (1.4%)	-0.07	292 (1.5%)	227 (1.2%)	0.03	120 (3.6%)	970 (2.7%)	0.05	#VALUE!	1354 (2.1%)	#VALUE!
Use of other hypertension drugs; n (%)	** (0.7%)	344 (3.2%)	-0.18	571 (2.9%)	486 (2.5%)	0.02	186 (5.6%)	1,624 (4.5%)	0.05	#VALUE!	2454 (3.7%)	#VALUE!
Use of Anti-arrhythmics; n (%)	0 (0.0%)	69 (0.6%)	-0.11	131 (0.7%)	121 (0.6%)	0.01	142 (4.3%)	400 (1.1%)	0.20	273 (1.2%)	590 (0.9%)	0.03
Use of COPD/asthma meds- United; n (%)	15 (10.8%)	1,446 (13.3%)	-0.08	2,740 (13.8%)	2,573 (13.5%)	0.01	651 (19.6%)	5,973 (16.7%)	0.08	3406 (14.6%)	9992 (15.2%)	-0.02
Use of statins; n (%)	33 (23.7%)	3,971 (36.5%)	-0.28	6,536 (32.8%)	6,413 (33.6%)	-0.02	1,512 (45.6%)	16,255 (45.4%)	0.00	8081 (34.6%)	26639 (40.5%)	-0.12
Use of other lipid-lowering drugs; n (%)	** (4.3%)	545 (5.0%)	-0.03	1,161 (5.8%)	1,168 (6.1%)	-0.01	232 (7.0%)	2,427 (6.8%)	0.01	#VALUE!	4140 (6.3%)	#VALUE!
Use of antiplatelet agents; n (%)	15 (10.8%)	489 (4.5%)	0.24	1,348 (6.8%)	864 (4.5%)	0.10	247 (7.4%)	2,223 (6.2%)	0.05	1610 (6.9%)	3576 (5.4%)	0.06
Use of heparin and other low-molecular weight heparins ; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	2 (0.0%)	2 (0.0%)	#DIV/0!	21 (0.6%)	35 (0.1%)	0.08	23 (0.1%)	#VALUE!	#VALUE!
Use of NSAIDs; n (%)	58 (41.7%)	4,197 (38.6%)	0.06	8,013 (40.2%)	7,707 (40.3%)	0.00	1,135 (34.2%)	13,126 (36.6%)	-0.05	9206 (39.4%)	25030 (38.0%)	0.03
Use of opioids- United; n (%)	81 (58.3%)	9,462 (86.9%)	-0.68	17,760 (89.2%)	16,956 (88.7%)	0.02	2,874 (86.6%)	30,567 (85.3%)	0.04	20715 (88.6%)	56985 (86.6%)	0.06
Use of antidepressants; n (%)	42 (30.2%)	2,756 (25.3%)	0.11	4,750 (23.8%)	4,608 (24.1%)	-0.01	1,035 (31.2%)	9,939 (27.7%)	0.08	5827 (24.9%)	17303 (26.3%)	-0.03
Use of antipsychotics; n (%)	** (1.4%)	186 (1.7%)	-0.02	333 (1.7%)	311 (1.6%)	0.01	135 (4.1%)	1,030 (2.9%)	0.07	#VALUE!	1527 (2.3%)	#VALUE!
Labs												
Lab values- HbA1c (%) v3; n (%)	12 (8.6%)	1,307 (12.0%)	-0.11	250 (1.3%)	151 (0.8%)	0.05	N/A	N/A	#VALUE!	262 (1.3%)	1,458 (4.9%)	-0.21

Appendix B

Lab values- HbA1c (%) (within 3 months) v3; n (%)	** (5.8%)	859 (7.9%)	-0.08	169 (0.8%)	96 (0.5%)	0.04	N/A	N/A	#VALUE!	#VALUE!	955 (3.2%)	#VALUE!
Lab values- HbA1c (%) (within 6 months) v3; n (%)	12 (8.6%)	1,307 (12.0%)	-0.11	250 (1.3%)	151 (0.8%)	0.05	N/A	N/A	#VALUE!	262 (1.3%)	1,458 (4.9%)	-0.21
Lab values- BNP; n (%)	0 (0.0%)	20 (0.2%)	-0.06	2 (0.0%)	3 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	002 (0.0%)	023 (0.1%)	-0.04
Lab values- BNP (within 3 months); n (%)	0 (0.0%)	** (0.1%)	-0.04	2 (0.0%)	1 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	002 (0.0%)	#VALUE!	#VALUE!
Lab values- BNP (within 6 months); n (%)	0 (0.0%)	20 (0.2%)	-0.06	2 (0.0%)	3 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	002 (0.0%)	023 (0.1%)	-0.04
Lab values- BUN (mg/dl); n (%)	28 (20.1%)	3,470 (31.9%)	-0.27	234 (1.2%)	214 (1.1%)	0.01	N/A	N/A	#VALUE!	262 (1.3%)	3,684 (12.3%)	-0.45
Lab values- BUN (mg/dl) (within 3 months); n (%)	21 (15.1%)	2,788 (25.6%)	-0.26	190 (1.0%)	165 (0.9%)	0.01	N/A	N/A	#VALUE!	211 (1.1%)	2,953 (9.8%)	-0.39
Lab values- BUN (mg/dl) (within 6 months); n (%)	28 (20.1%)	3,470 (31.9%)	-0.27	234 (1.2%)	214 (1.1%)	0.01	N/A	N/A	#VALUE!	262 (1.3%)	3,684 (12.3%)	-0.45
Lab values- Creatinine (mg/dl) v2; n (%)	30 (21.6%)	3,543 (32.6%)	-0.25	241 (1.2%)	222 (1.2%)	0.00	N/A	N/A	#VALUE!	271 (1.4%)	3,765 (12.6%)	-0.45
Lab values- Creatinine (mg/dl) (within 3 months) v2; n (%)	22 (15.8%)	2,851 (26.2%)	-0.26	197 (1.0%)	171 (0.9%)	0.01	N/A	N/A	#VALUE!	219 (1.1%)	3,022 (10.1%)	-0.40
Lab values- Creatinine (mg/dl) (within 6 months) v2; n (%)	30 (21.6%)	3,543 (32.6%)	-0.25	241 (1.2%)	222 (1.2%)	0.00	N/A	N/A	#VALUE!	271 (1.4%)	3,765 (12.6%)	-0.45
Lab values- HDL level (mg/dl); n (%)	23 (16.5%)	2,029 (18.6%)	-0.06	217 (1.1%)	162 (0.8%)	0.03	N/A	N/A	#VALUE!	240 (1.2%)	2,191 (7.3%)	-0.31
Lab values- HDL level (mg/dl) (within 3 months); n (%)	17 (12.2%)	1,178 (10.8%)	0.04	118 (0.6%)	93 (0.5%)	0.01	N/A	N/A	#VALUE!	135 (0.7%)	1,271 (4.2%)	-0.23
Lab values- HDL level (mg/dl) (within 6 months); n (%)	23 (16.5%)	2,029 (18.6%)	-0.06	217 (1.1%)	162 (0.8%)	0.03	N/A	N/A	#VALUE!	240 (1.2%)	2,191 (7.3%)	-0.31
Lab values- LDL level (mg/dl) v2; n (%)	22 (15.8%)	2,073 (19.0%)	-0.08	237 (1.2%)	161 (0.8%)	0.04	N/A	N/A	#VALUE!	259 (1.3%)	2,234 (7.4%)	-0.30
Lab values- LDL level (mg/dl) (within 3 months) v2; n (%)	16 (11.5%)	1,204 (11.1%)	0.01	131 (0.7%)	93 (0.5%)	0.03	N/A	N/A	#VALUE!	147 (0.7%)	1,297 (4.3%)	-0.23
Lab values- LDL level (mg/dl) (within 6 months) v2; n (%)	22 (15.8%)	2,073 (19.0%)	-0.08	237 (1.2%)	161 (0.8%)	0.04	N/A	N/A	#VALUE!	259 (1.3%)	2,234 (7.4%)	-0.30
Lab values- NT-proBNP; n (%)	0 (0.0%)	** (0.1%)	-0.04	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	#VALUE!	#VALUE!
Lab values- NT-proBNP (within 3 months); n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	#VALUE!	-
Lab values- NT-proBNP (within 6 months); n (%)	0 (0.0%)	** (0.1%)	-0.04	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	#VALUE!	-
Lab values- Total cholesterol (mg/dl) v2; n (%)	23 (16.5%)	2,070 (19.0%)	-0.07	215 (1.1%)	162 (0.8%)	0.03	N/A	N/A	#VALUE!	238 (1.2%)	2,232 (7.4%)	-0.31
Lab values- Total cholesterol (mg/dl) (within 3 months) v2; n (%)	17 (12.2%)	1,207 (11.1%)	0.03	116 (0.6%)	93 (0.5%)	0.01	N/A	N/A	#VALUE!	133 (0.7%)	1,300 (4.3%)	-0.23
Lab values- Total cholesterol (mg/dl) (within 6 months) v2; n (%)	23 (16.5%)	2,070 (19.0%)	-0.07	215 (1.1%)	162 (0.8%)	0.03	N/A	N/A	#VALUE!	238 (1.2%)	2,232 (7.4%)	-0.31
Lab values- Triglyceride level (mg/dl); n (%)	23 (16.5%)	2,052 (18.9%)	-0.06	211 (1.1%)	156 (0.8%)	0.03	N/A	N/A	#VALUE!	234 (1.2%)	2,208 (7.4%)	-0.31
Lab values- Triglyceride level (mg/dl) (within 3 months); n (%)	17 (12.2%)	1,198 (11.0%)	0.04	114 (0.6%)	88 (0.5%)	0.01	N/A	N/A	#VALUE!	131 (0.7%)	1,286 (4.3%)	-0.23
Lab values- Triglyceride level (mg/dl) (within 6 months); n (%)	23 (16.5%)	2,052 (18.9%)	-0.06	211 (1.1%)	156 (0.8%)	0.03	N/A	N/A	#VALUE!	234 (1.2%)	2,208 (7.4%)	-0.31
Lab result number- HbA1c (%) mean (only 2 to 20 included) v4	12	1,304		194	140		N/A	N/A		206	1,444	
...mean (sd)	5.72 (0.62)	6.12 (0.96)	-0.49	6.79 (1.45)	6.49 (1.20)	0.23	N/A	N/A	#VALUE!	6.73 (1.42)	6.16 (0.99)	0.47
...Missing; n (%)	127 (91.4%)	9,580 (88.0%)	0.11	19,727 (99.0%)	18,971 (99.3%)	-0.03	N/A	N/A	#VALUE!	19,854 (99.0%)	28,551 (95.2%)	0.23
Lab result number- BNP mean v2	-	20		2	3		N/A	N/A		2	23	
...mean (sd)	- (-)	49.77 (32.33)	#VALUE!	102.50 (89.80)	38.03 (27.78)	0.97	N/A	N/A	#VALUE!	#VALUE!	48.24 (32.71)	#VALUE!
...Missing; n (%)	139 (100.0%)	10,864 (99.8%)	0.06	19,919 (100.0%)	19,108 (100.0%)	#DIV/0!	N/A	N/A	#VALUE!	20,058 (100.0%)	29,972 (99.9%)	0.04
Lab result number- BUN (mg/dl) mean v2	28	3,470		234	214		N/A	N/A		262	3,684	
...mean (sd)	14.89 (5.35)	16.95 (5.50)	-0.38	16.87 (6.16)	17.62 (7.31)	-0.11	N/A	N/A	#VALUE!	16.66 (6.09)	16.99 (5.62)	-0.06
...Missing; n (%)	111 (79.9%)	7,414 (68.1%)	0.27	19,687 (98.8%)	18,897 (98.9%)	-0.01	N/A	N/A	#VALUE!	19,798 (98.7%)	26,311 (87.7%)	0.45
Lab result number- Creatinine (mg/dl) mean (only 0.1 to 15 included) v3	30	3,523		232	209		N/A	N/A		262	3,732	
...mean (sd)	0.80 (0.18)	0.90 (0.23)	-0.48	0.91 (0.25)	0.94 (0.27)	-0.12	N/A	N/A	#VALUE!	0.90 (0.24)	0.90 (0.23)	0.00
...Missing; n (%)	109 (78.4%)	7,361 (67.6%)	0.25	19,689 (98.8%)	18,902 (98.9%)	-0.01	N/A	N/A	#VALUE!	19,798 (98.7%)	26,263 (87.6%)	0.45
Lab result number- HDL level (mg/dl) mean (only <=5000 included) v2	23	2,029		217	162		N/A	N/A		240	2,191	
...mean (sd)	55.54 (14.15)	56.38 (17.14)	-0.05	50.15 (18.06)	51.63 (19.80)	-0.08	N/A	N/A	#VALUE!	50.67 (17.77)	56.03 (17.35)	-0.31
...Missing; n (%)	116 (83.5%)	8,855 (81.4%)	0.06	19,704 (98.9%)	18,949 (99.2%)	-0.03	N/A	N/A	#VALUE!	19,820 (98.8%)	27,804 (92.7%)	0.31
Lab result number- LDL level (mg/dl) mean (only <=5000 included) v2	22	2,058		217	152		N/A	N/A		239	2,210	
...mean (sd)	110.18 (29.39)	101.97 (36.21)	0.25	94.81 (43.44)	94.78 (40.78)	0.00	N/A	N/A	#VALUE!	96.22 (42.47)	101.48 (36.55)	-0.13

Appendix B

...Missing; n (%)	117 (84.2%)	8,826 (81.1%)	0.08	19,704 (98.9%)	18,959 (99.2%)	-0.03	N/A	N/A	#VALUE!	19,821 (98.8%)	27,785 (92.6%)	0.31
Lab result number- Total cholesterol (mg/dl)												
mean (only <=5000 included) v2	23	2,070		215	162		N/A	N/A		238	2,232	
...mean (sd)	192.88 (32.76)	186.35 (41.87)	0.17	174.53 (53.02)	177.81 (51.65)	-0.06	N/A	N/A	#VALUE!	176.30 (51.58)	185.73 (42.66)	-0.20
...Missing; n (%)	116 (83.5%)	8,814 (81.0%)	0.07	19,706 (98.9%)	18,949 (99.2%)	-0.03	N/A	N/A	#VALUE!	19,822 (98.8%)	27,763 (92.6%)	0.31
Lab result number- Triglyceride level (mg/dl)												
mean (only <=5000 included) v2	23	2,052		211	156		N/A	N/A		234	2,208	
...mean (sd)	132.00 (54.92)	135.93 (106.35)	-0.05	146.81 (90.14)	146.64 (91.58)	0.00	N/A	N/A	#VALUE!	145.35 (87.60)	136.69 (105.40)	0.09
...Missing; n (%)	116 (83.5%)	8,832 (81.1%)	0.06	19,710 (98.9%)	18,955 (99.2%)	-0.03	N/A	N/A	#VALUE!	19,826 (98.8%)	27,787 (92.6%)	0.31
Lab result number- Hemoglobin mean (only >0 included)	29	3,101		192	177		N/A	N/A		221	3,278	
...mean (sd)	14.05 (1.15)	13.77 (1.55)	0.21	13.16 (2.67)	13.10 (2.88)	0.02	N/A	N/A	#VALUE!	13.28 (2.53)	13.73 (1.65)	-0.21
...Missing; n (%)	110 (79.1%)	7,783 (71.5%)	0.18	19,729 (99.0%)	18,934 (99.1%)	-0.01	N/A	N/A	#VALUE!	19,839 (98.9%)	26,717 (89.1%)	0.42
Lab result number- Serum sodium mean (only > 90 and < 190 included)	30	3,425		215	198		N/A	N/A		245	3,623	
...mean (sd)	140.78 (2.27)	140.11 (2.68)	0.27	139.71 (2.37)	139.63 (2.23)	0.03	N/A	N/A	#VALUE!	139.84 (2.36)	140.08 (2.66)	-0.10
...Missing; n (%)	109 (78.4%)	7,459 (68.5%)	0.23	19,706 (98.9%)	18,913 (99.0%)	-0.01	N/A	N/A	#VALUE!	19,815 (98.8%)	26,372 (87.9%)	0.45
Lab result number- Albumin mean (only >0 and <=10 included)	29	2,981		176	170		N/A	N/A		205	3,151	
...mean (sd)	4.24 (0.39)	4.30 (0.31)	-0.17	4.23 (0.63)	4.20 (0.85)	0.04	N/A	N/A	#VALUE!	4.23 (0.60)	4.29 (0.36)	-0.12
...Missing; n (%)	110 (79.1%)	7,903 (72.6%)	0.15	19,745 (99.1%)	18,941 (99.1%)	0.00	N/A	N/A	#VALUE!	19,855 (99.0%)	26,844 (89.5%)	0.42
Lab result number- Glucose (fasting or random) mean (only 10-1000 included)	30	3,396		221	183		N/A	N/A		251	3,579	
...mean (sd)	101.12 (30.85)	101.93 (27.56)	-0.03	119.26 (38.81)	116.28 (35.17)	0.08	N/A	N/A	#VALUE!	117.09 (38.05)	102.66 (28.00)	0.43
...Missing; n (%)	109 (78.4%)	7,488 (68.8%)	0.22	19,700 (98.9%)	18,928 (98.9%)	-0.01	N/A	N/A	#VALUE!	19,809 (98.7%)	26,416 (88.1%)	0.44
Lab result number- Potassium mean (only 1-7 included)	30	3,537		225	199		N/A	N/A		255	3,736	
...mean (sd)	4.37 (0.32)	4.37 (0.39)	0.00	4.36 (0.37)	4.37 (0.43)	-0.02	N/A	N/A	#VALUE!	4.36 (0.37)	4.37 (0.39)	-0.03
...Missing; n (%)	109 (78.4%)	7,347 (67.5%)	0.25	19,696 (98.9%)	18,912 (99.0%)	-0.01	N/A	N/A	#VALUE!	19,805 (98.7%)	26,259 (87.5%)	0.45
Comorbidity Scores												
Combined comorbidity score, 365 days Copy												
...mean (sd)	1.09 (1.86)	0.95 (1.77)	0.08	0.56 (1.51)	0.49 (1.46)	0.05	1.72 (2.27)	0.97 (1.79)	0.37	0.73 (1.64)	0.83 (1.70)	-0.06
Non-Frailty; n (%)	79 (56.8%)	5,863 (53.9%)	0.06	9,606 (48.2%)	9,464 (49.5%)	-0.03	88 (2.7%)	778 (2.2%)	0.03	9,773 (41.8%)	16,105 (24.5%)	0.37
Frailty Score (mean): Empirical Version 365 days, v2												
...mean (sd)	0.17 (0.05)	0.17 (0.05)	0.00	0.16 (0.04)	0.16 (0.04)	0.00	0.19 (0.06)	0.18 (0.05)	0.18	0.16 (0.04)	0.17 (0.05)	-0.22
Healthcare Utilization												
Any hospitalization; n (%)	138 (99.3%)	10,882 (100.0%)	-0.12	19,921 (100.0%)	19,111 (100.0%)	#DIV/0!	3,318 (100.0%)	35,840 (100.0%)	#DIV/0!	23,377 (100.0%)	65,833 (100.0%)	#DIV/0!
Any hospitalization within prior 30 days; n (%)	137 (98.6%)	10,834 (99.5%)	-0.09	19,909 (99.9%)	19,083 (99.9%)	0.00	3,306 (99.6%)	35,537 (99.1%)	0.06	23352 (99.9%)	65454 (99.4%)	0.08
Any hospitalization during prior 31-180 days; n (%)	** (5.8%)	532 (4.9%)	0.04	726 (3.6%)	672 (3.5%)	0.01	342 (10.3%)	2,410 (6.7%)	0.13	#VALUE!	3614 (5.5%)	#VALUE!
Internal medicine/family medicine visits; n (%)	106 (76.3%)	8,987 (82.6%)	-0.16	15,983 (80.2%)	16,324 (85.4%)	-0.14	3,041 (91.7%)	33,013 (92.1%)	-0.01	19130 (81.8%)	58324 (88.6%)	-0.19
Internal medicine/family medicine visits (30 days prior) v2; n (%)	90 (64.7%)	7,463 (68.6%)	-0.08	12,184 (61.2%)	12,416 (65.0%)	-0.08	2,641 (79.6%)	28,843 (80.5%)	-0.02	14915 (63.8%)	48722 (74.0%)	-0.22
Internal medicine/family medicine visits (31 to 180 days prior) v2; n (%)	61 (43.9%)	6,975 (64.1%)	-0.41	13,299 (66.8%)	13,646 (71.4%)	-0.10	2,466 (74.3%)	26,111 (72.9%)	0.03	15826 (67.7%)	46732 (71.0%)	-0.07
Cardiologist visit; n (%)	76 (54.7%)	4,595 (42.2%)	0.25	6,746 (33.9%)	6,902 (36.1%)	-0.05	2,027 (61.1%)	18,680 (52.1%)	0.18	8849 (37.9%)	30177 (45.8%)	-0.16
Number of Cardiologist visits (30 days prior); n (%)	61 (43.9%)	3,394 (31.2%)	0.26	5,022 (25.2%)	5,119 (26.8%)	-0.04	1,425 (42.9%)	13,200 (36.8%)	0.12	6508 (27.8%)	21713 (33.0%)	-0.11
Number of Cardiologist visits (31 to 180 days prior); n (%)	24 (17.3%)	1,981 (18.2%)	-0.02	2,723 (13.7%)	2,775 (14.5%)	-0.02	1,185 (35.7%)	9,490 (26.5%)	0.20	3932 (16.8%)	14246 (21.6%)	-0.12
Electrocardiogram v2; n (%)	108 (77.7%)	8,919 (81.9%)	-0.10	14,942 (75.0%)	15,119 (79.1%)	-0.10	2,883 (86.9%)	31,257 (87.2%)	-0.01	17933 (76.7%)	55295 (84.0%)	-0.18
Use of glucose test strips; n (%)	0 (0.0%)	45 (0.4%)	-0.09	112 (0.6%)	99 (0.5%)	0.01	23 (0.7%)	222 (0.6%)	0.01	135 (0.6%)	366 (0.6%)	0.00
Dialysis; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	1 (0.0%)	1 (0.0%)	#DIV/0!	1 (0.0%)	4 (0.0%)	#DIV/0!	2 (0.0%)	#VALUE!	#VALUE!
number of different/distinct medication prescriptions												
...mean (sd)	7.42 (5.11)	8.68 (4.52)	-0.26	8.60 (4.53)	8.52 (4.52)	0.02	10.47 (4.98)	9.29 (4.51)	0.25	8.86 (4.60)	8.97 (4.51)	0.00
Number of Hospitalizations												
...mean (sd)	1.09 (0.33)	1.07 (0.29)	0.06	1.06 (0.29)	1.06 (0.27)	0.00	1.22 (0.58)	1.14 (0.42)	0.16	1.08 (0.35)	1.11 (0.36)	0.00
Number of hospital days												
...mean (sd)	2.18 (2.41)	3.70 (3.32)	-0.52	3.56 (2.24)	3.52 (2.41)	0.02	4.99 (4.62)	4.87 (4.37)	0.03	3.75 (2.71)	4.28 (3.73)	0.00
Number of Emergency Department (ED) visits v3												
...mean (sd)	0.55 (1.38)	0.32 (1.00)	0.19	0.17 (1.24)	0.11 (0.90)	0.06	0.76 (2.00)	0.46 (1.44)	0.17	0.26 (1.37)	0.34 (1.24)	0.00
Number of Office visits												
...mean (sd)	7.66 (8.00)	6.58 (3.94)	0.17	6.52 (4.13)	6.40 (4.00)	0.03	16.89 (13.03)	15.60 (11.79)	0.10	8.00 (6.25)	11.44 (9.10)	0.00

Appendix B

Number of internal medicine/family medicine visits												
...mean (sd)	4.01 (6.39)	7.87 (10.96)	-0.43	5.92 (8.06)	6.47 (8.68)	-0.07	9.46 (10.07)	8.96 (9.05)	0.05	6.41 (8.37)	8.06 (9.29)	0.00
Number of Cardiologist visits												
...mean (sd)	1.64 (3.03)	1.28 (2.64)	0.13	0.93 (2.16)	0.99 (2.35)	-0.03	2.52 (4.15)	1.95 (3.70)	0.14	1.16 (2.54)	1.56 (3.20)	0.00
Number electrocardiograms received v2												
...mean (sd)	1.55 (1.37)	1.35 (1.15)	0.16	1.15 (1.01)	1.21 (0.98)	-0.06	1.82 (1.56)	1.60 (1.25)	0.16	1.25 (1.11)	1.45 (1.16)	0.00
Number of HbA1c tests ordered												
...mean (sd)	0.46 (0.65)	0.36 (0.67)	0.15	0.26 (0.59)	0.24 (0.57)	0.03	0.41 (0.75)	0.37 (0.68)	0.06	0.28 (0.62)	0.33 (0.65)	0.00
Number of glucose tests ordered												
...mean (sd)	0.12 (0.35)	0.09 (0.51)	0.07	0.13 (0.49)	0.07 (0.36)	0.14	0.11 (0.48)	0.09 (0.42)	0.04	0.13 (0.49)	0.08 (0.42)	0.00
Number of lipid tests ordered												
...mean (sd)	0.49 (0.81)	0.56 (0.73)	-0.09	0.48 (0.85)	0.46 (0.78)	0.02	0.57 (0.69)	0.60 (0.70)	-0.04	0.49 (0.83)	0.55 (0.73)	0.00
Total N distinct ICD9/ICD10 diagnoses at the 3rd digit level Copy												
...mean (sd)	11.04 (11.16)	7.32 (9.40)	0.36	3.53 (6.42)	3.58 (6.21)	-0.01	12.49 (12.95)	8.02 (10.00)	0.39	4.85 (7.72)	6.62 (8.96)	0.00
For PS												
Hemorrhagic stroke+Other cerebrovascular disease+Cerebrovascular procedure (for PS); n (%)												
	** (0.7%)	94 (0.9%)	-0.02	112 (0.6%)	98 (0.5%)	0.01	31 (0.9%)	349 (1.0%)	-0.01	#VALUE!	541 (0.8%)	#VALUE!
Major trauma potentially causing prolonged Occurrence of creatinine tests ordered (for PS); n (%)												
	** (2.2%)	319 (2.9%)	-0.04	557 (2.8%)	411 (2.2%)	0.04	2.45 (1.23)	2.63 (1.25)	#NUM!	557 (2.8%)	411 (2.2%)	0.24
Occurrence of BUN tests ordered (for PS); n (%)												
	22 (15.8%)	614 (5.6%)	0.33	2,077 (10.4%)	929 (4.9%)	0.21	382 (11.5%)	2,755 (7.7%)	0.13	2481 (10.6%)	4298 (6.5%)	0.15
Occurrence of chronic renal insufficiency w/o CKD (for PS) v2; n (%)												
	13 (9.4%)	308 (2.8%)	0.28	1,508 (7.6%)	575 (3.0%)	0.21	206 (6.2%)	1,547 (4.3%)	0.09	1727 (7.4%)	2430 (3.7%)	0.16
Chronic kidney disease Stage 1-2 (for PS); n (%)												
	** (1.4%)	308 (2.8%)	-0.10	346 (1.7%)	295 (1.5%)	0.02	161 (4.9%)	1,221 (3.4%)	0.08	#VALUE!	1824 (2.8%)	#VALUE!
Chronic kidney disease Stage 3-6 (for PS); n (%)												
	0 (0.0%)	165 (1.5%)	-0.17	166 (0.8%)	122 (0.6%)	0.02	0	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Acute kidney injury; n (%)												
	** (3.6%)	459 (4.2%)	-0.03	461 (2.3%)	299 (1.6%)	0.05	230 (6.9%)	1,317 (3.7%)	0.14	#VALUE!	2075 (3.2%)	#VALUE!
Bladder stones+Kidney stones (for PS); n (%)												
	** (3.6%)	262 (2.4%)	0.07	404 (2.0%)	333 (1.7%)	0.02	0 (0.0%)	** (0.0%)	#DIV/0!	404 (2.0%)	333 (1.7%)	0.20
Alcohol abuse or dependence+Drug abuse or dependence (for PS); n (%)												
	15 (10.8%)	521 (4.8%)	0.23	686 (3.4%)	544 (2.8%)	0.03	155 (4.7%)	752 (2.1%)	0.14	856 (3.7%)	1817 (2.8%)	0.05
Other atherosclerosis+Cardiac conduction disorders+Other CVD (for PS) v2 Copy; n (%)												
	15 (10.8%)	1,442 (13.2%)	-0.07	2,179 (10.9%)	2,046 (10.7%)	0.01	753 (22.7%)	5,973 (16.7%)	0.15	2947 (12.6%)	9461 (14.4%)	-0.05
Previous cardiac procedure (CABG or PTCA or Stent) + History of CABG or PTCA (for PS) v3; n (%)												
	** (2.2%)	443 (4.1%)	-0.11	402 (2.0%)	403 (2.1%)	-0.01	331 (10.0%)	2,766 (7.7%)	0.08	#VALUE!	3612 (5.5%)	#VALUE!
Diabetes with complication; n (%)												
	** (3.6%)	599 (5.5%)	-0.09	757 (3.8%)	627 (3.3%)	0.03	185 (5.6%)	1,122 (3.1%)	0.12	757 (3.8%)	627 (3.3%)	0.28
Delirium + Psychosis (for PS); n (%)												
	** (0.7%)	161 (1.5%)	-0.08	207 (1.0%)	187 (1.0%)	0.00	114 (3.4%)	919 (2.6%)	0.05	#VALUE!	1267 (1.9%)	#VALUE!
Any use of Meglitinides (for PS); n (%)												
	0 (0.0%)	** (0.0%)	#DIV/0!	20 (0.1%)	24 (0.1%)	0.00	3 (0.1%)	52 (0.1%)	0.00	23 (0.1%)	#VALUE!	#VALUE!
Any use of AGIs (for PS); n (%)												
	** (0.7%)	** (0.0%)	0.12	8 (0.0%)	8 (0.0%)	#DIV/0!	1 (0.0%)	17 (0.0%)	#DIV/0!	#VALUE!	#VALUE!	#VALUE!
CKD stage 3-6 + dialysis (for PS); n (%)												
	** (3.6%)	460 (4.2%)	-0.03	462 (2.3%)	300 (1.6%)	0.05	230 (6.9%)	1,320 (3.7%)	0.14	#VALUE!	2080 (3.2%)	#VALUE!
Use of thiazide- United; n (%)												
	** (6.5%)	1,002 (9.2%)	-0.10	1,805 (9.1%)	1,642 (8.6%)	0.02	406 (12.2%)	4,461 (12.4%)	-0.01	#VALUE!	7105 (10.8%)	#VALUE!
Use of beta blockers; n (%)												
	25 (18.0%)	2,388 (21.9%)	-0.10	4,065 (20.4%)	3,988 (20.9%)	-0.01	1,276 (38.5%)	11,174 (31.2%)	0.15	5366 (23.0%)	17550 (26.7%)	-0.09
Use of calcium channel blockers; n (%)												
	27 (19.4%)	1,964 (18.0%)	0.04	3,202 (16.1%)	3,037 (15.9%)	0.01	855 (25.8%)	8,105 (22.6%)	0.07	4084 (17.5%)	13106 (19.9%)	-0.06
All antidiabetic medications except Insulin; n (%)												
	12 (8.6%)	1,221 (11.2%)	-0.09	1,987 (10.0%)	1,960 (10.3%)	-0.01	435 (13.1%)	4,734 (13.2%)	0.00	2434 (10.4%)	7915 (12.0%)	-0.05
DM Medications - Insulin Copy; n (%)												
	0 (0.0%)	214 (2.0%)	-0.20	431 (2.2%)	387 (2.0%)	0.01	96 (2.9%)	680 (1.9%)	0.07	527 (2.3%)	1281 (1.9%)	0.03
Use of Low Intensity Statins; n (%)												
	14 (10.1%)	2,360 (21.7%)	-0.32	3,970 (19.9%)	3,853 (20.2%)	-0.01	893 (26.9%)	10,561 (29.5%)	-0.06	4877 (20.9%)	16774 (25.5%)	-0.11
Use of High Intensity Statins; n (%)												
	17 (12.2%)	1,626 (14.9%)	-0.08	2,485 (12.5%)	2,476 (13.0%)	-0.01	639 (19.3%)	5,766 (16.1%)	0.08	3141 (13.4%)	9868 (15.0%)	-0.05
Malignant hypertension; n (%)												
	** (0.7%)	133 (1.2%)	-0.05	8,674 (43.5%)	8,565 (44.8%)	-0.03	228 (6.9%)	2,335 (6.5%)	0.02	#VALUE!	11033 (16.8%)	#VALUE!
Cardiovascular stress test; n (%)												
	0 (0.0%)	15 (0.1%)	-0.04	33 (0.2%)	34 (0.2%)	0.00	20 (0.6%)	96 (0.3%)	0.04	53 (0.2%)	145 (0.2%)	0.00
Echocardiogram; n (%)												
	17 (12.2%)	1,134 (10.4%)	0.06	2,133 (10.7%)	2,072 (10.8%)	0.00	695 (20.9%)	5,364 (15.0%)	0.15	2845 (12.2%)	8570 (13.0%)	-0.02
Number of BNP tests												
...mean (sd)	0.02 (0.15)	0.02 (0.14)	0.00	0.01 (0.13)	0.01 (0.12)	0.00	0.04 (0.23)	0.03 (0.18)	0.05	0.01 (0.15)	0.02 (0.16)	-0.06
Number of Cardiac biomarkers tests (troponin, CK-MBs, Myoglobin, CPK)												
...mean (sd)	0.12 (0.62)	0.11 (0.58)	0.02	0.10 (0.66)	0.09 (0.53)	0.02	0.14 (0.44)	0.11 (0.37)	0.07	0.11 (0.63)	0.10 (0.46)	0.00
Number of Ambulatory Blood pressure monitoring tests												
...mean (sd)	0.00 (0.00)	0.00 (0.02)	0.00	0.00 (0.03)	0.00 (0.05)	0.00	0.00 (0.02)	0.00 (0.02)	0.00	0.00 (0.03)	0.00 (0.03)	0.00

Appendix B

N of days on antihypertensive medications during baseline												
...mean (sd)	76.12 (80.99)	84.53 (81.34)	-0.10	78.54 (81.20)	80.62 (81.24)	-0.03	117.86 (75.46)	108.41 (79.14)	0.12	84.11 (80.41)	96.40 (80.12)	0.00
N of days in database anytime prior												
...mean (sd)	1,935.15 (1,404.74)	1,778.37 (1,325.30)	0.11	1,945.19 (1,314.79)	2,012.46 (1,354.87)	-0.05	851.97 (590.35)	682.18 (363.83)	0.35	1789.97 (1238.66)	1249.55 (946.19)	0.00
Mean Copay for per prescription cost (charges in U.S. \$) (180-1 day prior)												
...mean (sd)	32.23 (150.62)	20.77 (23.25)	0.11	15.73 (19.19)	14.88 (22.80)	0.04	109.51 (85.40)	105.78 (106.74)	0.04	29.14 (38.51)	65.34 (80.27)	-0.01
...Missing; n (%)	** (5.0%)	394 (3.6%)	0.07	867 (4.4%)	820 (4.3%)	0.00	42 (1.3%)	741 (2.1%)	-0.06	#VALUE!	1955 (3.0%)	#VALUE!
Colonoscopy; n (%)	** (4.3%)	545 (5.0%)	-0.03	959 (4.8%)	946 (5.0%)	-0.01	159 (4.8%)	1,533 (4.3%)	0.02	#VALUE!	3024 (4.6%)	#VALUE!
Fecal occult blood (FOB) test; n (%)	** (2.9%)	381 (3.5%)	-0.03	971 (4.9%)	781 (4.1%)	0.04	80 (2.4%)	1,033 (2.9%)	-0.03	#VALUE!	2195 (3.3%)	#VALUE!
Flu vaccine; n (%)	33 (23.7%)	1,998 (18.4%)	0.13	2,607 (13.1%)	2,534 (13.3%)	-0.01	1,030 (31.0%)	11,550 (32.2%)	-0.03	3670 (15.7%)	16082 (24.4%)	-0.22
Mammogram; n (%)	19 (13.7%)	1,604 (14.7%)	-0.03	2,647 (13.3%)	2,400 (12.6%)	0.02	480 (14.5%)	5,978 (16.7%)	-0.06	3146 (13.5%)	9982 (15.2%)	-0.05
Pap smear; n (%)	** (3.6%)	558 (5.1%)	-0.07	1,371 (6.9%)	1,252 (6.6%)	0.01	123 (3.7%)	1,606 (4.5%)	-0.04	#VALUE!	3416 (5.2%)	#VALUE!
Pneumonia vaccine; n (%)	39 (28.1%)	1,712 (15.7%)	0.30	1,233 (6.2%)	1,258 (6.6%)	-0.02	842 (25.4%)	7,109 (19.8%)	0.13	2114 (9.0%)	10079 (15.3%)	-0.19
PSA test or Prostate exam for DRE; n (%)	17 (12.2%)	1,370 (12.6%)	-0.01	2,321 (11.7%)	2,185 (11.4%)	0.01	416 (12.5%)	4,318 (12.0%)	0.02	2754 (11.8%)	7873 (12.0%)	-0.01
Bone mineral density; n (%)	** (2.9%)	586 (5.4%)	-0.13	685 (3.4%)	706 (3.7%)	-0.02	207 (6.2%)	2,353 (6.6%)	-0.02	#VALUE!	3645 (5.5%)	#VALUE!
Use of CNS stimulants; n (%)	** (1.4%)	72 (0.7%)	0.07	162 (0.8%)	159 (0.8%)	0.00	18 (0.5%)	118 (0.3%)	0.03	#VALUE!	349 (0.5%)	#VALUE!
Use of estrogens, progestins, androgens; n (%)	17 (12.2%)	753 (6.9%)	0.18	1,722 (8.6%)	1,629 (8.5%)	0.00	184 (5.5%)	1,981 (5.5%)	0.00	1923 (8.2%)	4363 (6.6%)	0.06
Use of Angiogenesis inhibitors; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	11 (0.1%)	5 (0.0%)	0.04	3 (0.1%)	15 (0.0%)	0.04	14 (0.1%)	#VALUE!	#VALUE!
Use of Oral Immunosuppressants; n (%)	0 (0.0%)	11 (0.1%)	-0.04	56 (0.3%)	19 (0.1%)	0.04	4 (0.1%)	31 (0.1%)	0.00	60 (0.3%)	61 (0.1%)	0.04
Use of fondaparinux or Bivalirudin; n (%)	0 (0.0%)	** (0.1%)	-0.04	21 (0.1%)	18 (0.1%)	0.00	2 (0.1%)	18 (0.1%)	0.00	23 (0.1%)	#VALUE!	#VALUE!
Use of other direct thrombin inhibitors (lepirudin, desirudin, argatroban); n (%)												
Use of Ticagrelor ON CED; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	6 (0.0%)	2 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	6 (0.0%)	#VALUE!	#VALUE!
Use of Ticagrelor; n (%)	0 (0.0%)	** (0.1%)	-0.04	8 (0.0%)	7 (0.0%)	#DIV/0!	7 (0.2%)	26 (0.1%)	0.03	15 (0.1%)	#VALUE!	#VALUE!
Number of D-dimer tests												
...mean (sd)	0.02 (0.15)	0.01 (0.12)	0.07	0.01 (0.10)	0.01 (0.11)	0.00	0.02 (0.15)	0.01 (0.13)	0.07	0.01 (0.11)	0.01 (0.12)	0.00
Numbe of CRP, high-sensitivity CRP tests												
...mean (sd)	0.27 (0.68)	0.12 (0.46)	0.26	0.11 (0.47)	0.09 (0.38)	0.05	0.25 (0.83)	0.14 (0.51)	0.16	0.13 (0.54)	0.12 (0.47)	0.00
Number of PT or aPTTt tests												
...mean (sd)	0.95 (1.16)	0.87 (1.19)	0.07	0.88 (1.28)	0.77 (1.22)	0.09	0.78 (1.29)	0.61 (0.93)	0.15	0.87 (1.28)	0.70 (1.07)	0.00
Number of Bleeding time tests												
...mean (sd)	0.00 (0.00)	0.00 (0.00)	#DIV/0!	0.00 (0.02)	0.00 (0.02)	0.00	0.00 (0.00)	0.00 (0.02)	0.00	0.00 (0.02)	0.00 (0.02)	0.00
HAS-BLED Score (ICD-9 and ICD-10), 180 days												
...mean (sd)	2.90 (1.05)	3.20 (1.08)	-0.28	2.87 (1.05)	2.91 (1.05)	-0.04	3.76 (0.91)	3.74 (0.95)	0.02	3.00 (1.03)	3.41 (1.00)	0.00
N of Generic name drugs												
...mean (sd)	13.86 (12.71)	15.02 (12.51)	-0.09	14.21 (11.01)	13.44 (10.99)	0.07	20.14 (14.72)	16.53 (13.12)	0.26	15.05 (11.62)	15.38 (12.44)	0.00
N of Brand name drugs												
...mean (sd)	3.01 (4.72)	3.39 (3.92)	-0.09	2.94 (4.13)	3.82 (4.06)	-0.21	3.03 (5.27)	3.72 (4.36)	-0.14	2.95 (4.31)	3.69 (4.20)	0.00
Use of clopidogrel ; n (%)	** (2.2%)	216 (2.0%)	0.01	438 (2.2%)	406 (2.1%)	0.01	159 (4.8%)	1,355 (3.8%)	0.05	#VALUE!	1977 (3.0%)	#VALUE!
Systemic embolism; n (%)	0 (0.0%)	14 (0.1%)	-0.04	31 (0.2%)	10 (0.1%)	0.03	6 (0.2%)	47 (0.1%)	0.03	37 (0.2%)	71 (0.1%)	0.03
DVT; n (%)	** (1.4%)	224 (2.1%)	-0.05	289 (1.5%)	301 (1.6%)	-0.01	189 (5.7%)	629 (1.8%)	0.21	#VALUE!	1154 (1.8%)	#VALUE!
Post-thrombotic syndrome; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	** (0.0%)	0 (0.0%)	#DIV/0!	63 (1.9%)	718 (2.0%)	-0.01	** (0.0%)	0 (0.0%)	#DIV/0!
PE; n (%)	0 (0.0%)	60 (0.6%)	-0.11	63 (0.3%)	88 (0.5%)	-0.03	64 (1.9%)	161 (0.4%)	0.14	127 (0.5%)	309 (0.5%)	0.00
Coagulation defects; n (%)	0 (0.0%)	134 (1.2%)	-0.16	210 (1.1%)	274 (1.4%)	-0.03			#DIV/0!	210 (1.1%)	274 (1.4%)	0.15
Diabetes: 1 inpatient or 2 outpatient claims within 183 days ; n (%)												
16 (11.5%)	1,773 (16.3%)	-0.14	2,832 (14.2%)	2,714 (14.2%)	0.00	676 (20.4%)	7,074 (19.7%)	0.02	3524 (15.1%)	11561 (17.6%)	-0.07	
Intracranial or retroperitoneal hemorrhage: 1 inpatient or 2 outpatient claims within 183 days ; n (%)												
0 (0.0%)	** (0.1%)	-0.04	15 (0.1%)	14 (0.1%)	0.00	4 (0.1%)	19 (0.1%)	0.00	19 (0.1%)	#VALUE!	#VALUE!	
Peptic Ulcer Disease; n (%)	46 (33.1%)	3,473 (31.9%)	0.03	4,260 (21.4%)	4,176 (21.9%)	-0.01	1,302 (39.2%)	12,496 (34.9%)	0.09	5608 (24.0%)	20145 (30.6%)	-0.15
Upper GI bleed; n (%)	0 (0.0%)	18 (0.2%)	-0.06	29 (0.1%)	16 (0.1%)	0.00	2 (0.1%)	39 (0.1%)	0.00	31 (0.1%)	73 (0.1%)	0.00
Lower/ unspecified GI bleed; n (%)	** (1.4%)	161 (1.5%)	-0.01	250 (1.3%)	220 (1.2%)	0.01	8 (0.2%)	56 (0.2%)	0.00	#VALUE!	437 (0.7%)	#VALUE!
Urogenital bleed; n (%)	** (3.6%)	340 (3.1%)	0.03	466 (2.3%)	506 (2.6%)	-0.02	39 (1.2%)	559 (1.6%)	-0.03	#VALUE!	1405 (2.1%)	#VALUE!
Other bleeds; n (%)	48 (34.5%)	3,015 (27.7%)	0.15	5,036 (25.3%)	4,905 (25.7%)	-0.01	991 (29.9%)	11,276 (31.5%)	-0.03	6075 (26.0%)	19196 (29.2%)	-0.07
Prior cancer; n (%)	21 (15.1%)	1,367 (12.6%)	0.07	1,410 (7.1%)	1,317 (6.9%)	0.01	589 (17.8%)	4,401 (12.3%)	0.15	2020 (8.6%)	7085 (10.8%)	-0.07
Antibiotics; n (%)	53 (38.1%)	4,441 (40.8%)	-0.06	8,121 (40.8%)	7,772 (40.7%)	0.00	558 (16.8%)	4,161 (11.6%)	0.15	8,121 (40.8%)	7,772 (40.7%)	1.17
Aspirin; n (%)	12 (8.6%)	123 (1.1%)	0.35	630 (3.2%)	194 (1.0%)	0.15	11 (0.3%)	109 (0.3%)	0.00	653 (2.8%)	426 (0.6%)	0.17
Aspirin/dipyridamole; n (%)	0 (0.0%)	** (0.0%)	#DIV/0!	20 (0.1%)	21 (0.1%)	0.00	4 (0.1%)	65 (0.2%)	-0.03	24 (0.1%)	#VALUE!	#VALUE!
Other antiplatelet agents; n (%)	0 (0.0%)	11 (0.1%)	-0.04	21 (0.1%)	15 (0.1%)	0.00	9 (0.3%)	66 (0.2%)	0.02	30 (0.1%)	92 (0.1%)	0.00
PGP inhibitors; n (%)	19 (13.7%)	1,705 (15.7%)	-0.06	3,248 (16.3%)	3,118 (16.3%)	0.00	846 (25.5%)	7,135 (19.9%)	0.13	4113 (17.6%)	11958 (18.2%)	-0.02
Other gastroprotective agents; n (%)	** (1.4%)	125 (1.1%)	0.03	309 (1.6%)	273 (1.4%)	0.02	69 (2.1%)	527 (1.5%)	0.05	#VALUE!	925 (1.4%)	#VALUE!
Number of lipid tests ordered												
...mean (sd)	0.49 (0.81)	0.56 (0.73)	-0.09	0.48 (0.85)	0.46 (0.78)	0.02	0.59 (0.75)	0.62 (0.77)	-0.04	0.50 (0.84)	0.56 (0.77)	0.00
Proton pump inhibitor; n (%)	31 (22.3%)	2,149 (19.7%)	0.06	3,867 (19.4%)	3,740 (19.6%)	-0.01	1,004 (30.3%)	9,498 (26.5%)	0.08	4902 (21.0%)	15387 (23.4%)	-0.06
H2 receptor antagonist; n (%)	** (2.2%)	267 (2.5%)	-0.02	608 (3.1%)	513 (2.7%)	0.02	209 (6.3%)	1,737 (4.8%)	0.07	#VALUE!	2517 (3.8%)	#VALUE!
Vitamin K therapy; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	** (0.0%)	** (0.0%)	#DIV/0!	0 (0.0%)	1 (0.0%)	#DIV/0!	#VALUE!	#VALUE!	#VALUE!
Number of INR (prothrombin) tests ordered												
...mean (sd)	0.58 (0.66)	0.49 (0.66)	0.14	0.51 (0.74)	0.44 (0.68)	0.10	0.64 (1.08)	0.49 (0.68)	0.17	0.53 (0.80)	0.48 (0.68)	0.00
Treating prescriber - Cardiologist; n (%)	63 (45.3%)	3,504 (32.2%)	0.27	5,695 (28.6%)	5,613 (29.4%)	-0.02	1,425 (42.9%)	13,200 (36.8%)	0.12	7183 (30.7%)	22317 (33.9%)	-0.07
Treating prescriber - Primary Care Physician; n (%)	109 (78.4%)	8,804 (80.9%)	-0.06	7,125 (35.8%)	7,775 (40.7%)	-0.10	1,075 (32.4%)	13,283 (37.1%)	-0.10	8309 (35.5%)	29862 (45.4%)	-0.20

Appendix B

Treating prescriber - Other; n (%)	139 (100.0%)	10,881 (100.0%)	#DIV/0!	19,725 (99.0%)	18,871 (98.7%)	0.03	3,318 (100.0%)	35,807 (99.9%)	0.04	23182 (99.2%)	65559 (99.6%)	-0.05
Alpha blockers; n (%)	** (4.3%)	693 (6.4%)	-0.09	1,101 (5.5%)	1,076 (5.6%)	0.00	347 (10.5%)	3,170 (8.8%)	0.06	#VALUE!	4939 (7.5%)	#VALUE!
CHA2DS2 VASc score, 180 days, V												
...mean (sd)	1.36 (1.26)	1.93 (1.35)	-0.44	1.70 (1.32)	1.73 (1.34)	-0.02	2.45 (1.23)	2.63 (1.25)	-0.15	1.80 (1.31)	2.25 (1.29)	0.00
Use of Prasugrel; n (%)	0 (0.0%)	15 (0.1%)	-0.04	36 (0.2%)	33 (0.2%)	0.00	0 (0.0%)	** (0.0%)	#DIV/0!	36 (0.2%)	#VALUE!	#VALUE!
Use of Loop Diuretics+other diuretics+other hypertension drugs; n (%)	** (5.0%)	811 (7.5%)	-0.10	1,363 (6.8%)	1,248 (6.5%)	0.01	558 (16.8%)	4,161 (11.6%)	0.15	#VALUE!	6220 (9.4%)	#VALUE!
*For Optum PS												
Acute MI + Old MI; n (%)	** (2.2%)	350 (3.2%)	-0.06	416 (2.1%)	388 (2.0%)	0.01	207 (6.2%)	1,679 (4.7%)	0.07	#VALUE!	2417 (3.7%)	#VALUE!
ACS/unstable angina + stable angina; n (%)	** (0.7%)	197 (1.8%)	-0.10	296 (1.5%)	258 (1.4%)	0.01	90 (2.7%)	769 (2.1%)	0.04	#VALUE!	1224 (1.9%)	#VALUE!
Ischemic stroke + TIA + Late effects of	** (3.6%)	407 (3.7%)	-0.01	561 (2.8%)	546 (2.9%)	-0.01	191 (5.8%)	1,950 (5.4%)	0.02	#VALUE!	2903 (4.4%)	#VALUE!
DVT + PE; n (%)	** (1.4%)	265 (2.4%)	-0.07	340 (1.7%)	361 (1.9%)	-0.02	237 (7.1%)	749 (2.1%)	0.24	#VALUE!	1375 (2.1%)	#VALUE!

Upper GI bleeds + Lower GI bleeds + Urogenital bleeds + Other bleeds; n (%)	53 (38.1%)	3,342 (30.7%)	0.16	5,570 (28.0%)	5,435 (28.4%)	-0.01	1,021 (30.8%)	11,697 (32.6%)	-0.04	6644 (28.4%)	20474 (31.1%)	-0.06
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Due to CMS cell suppression policy, all values less than 11 are denoted with **

Appendix B

P5-matched												
	Optum			MarketScan			Medicare			POOLED		
Variable	- enoxaparin 30 or 40 mg sure - rivaroxaban 10 mg		St. Diff. - enoxaparin 30 or 40 mg sure - rivaroxaban 10 mg	- enoxaparin 30 or 40 mg sure - rivaroxaban 10 mg		St. Diff. - enoxaparin 30 or 40 mg sure - rivaroxaban 10 mg	- enoxaparin 30 or 40 mg sure - rivaroxaban 10 mg		St. Diff.	Referent- enoxaparin 30 or 40 mg	Exposure- rivaroxaban 10 mg	St. Diff.
Number of patients	107	107		14,066	14,066		3,265	3,265		17,438	17,438	
Age												
...mean (sd)	60.34 (9.90)	59.53 (11.06)	0.08	60.19 (10.11)	60.18 (10.21)	0.00	71.28 (9.08)	71.03 (9.16)	0.03	62.27 (9.92)	62.21 (10.03)	0.01
Age categories without zero category												
...18 - 54; n (%)	25 (23.4%)	35 (32.7%)	-0.21	3,610 (25.7%)	3,677 (26.1%)	-0.01	184 (5.6%)	181 (5.5%)	0.00	3819 (21.9%)	3893 (22.3%)	-0.01
...55 - 64; n (%)	53 (49.5%)	35 (32.7%)	0.35	6,621 (47.1%)	6,587 (46.8%)	0.01	256 (7.8%)	258 (7.9%)	0.00	6,930 (39.7%)	6,880 (39.5%)	0.00
...65 - 74; n (%)	19 (17.8%)	30 (28.0%)	-0.24	2,601 (18.5%)	2,457 (17.5%)	0.03	1,672 (51.2%)	1,741 (53.3%)	-0.04	4,292 (24.6%)	4,228 (24.2%)	0.01
...≥ 75; n (%)	10 (9.3%)	7 (6.5%)	0.10	1,234 (8.8%)	1,345 (9.6%)	-0.03	1,153 (35.3%)	1,085 (33.2%)	0.04	2,397 (13.7%)	2,437 (14.0%)	-0.01
Gender without zero category- United												
...Males; n (%)	39 (36.4%)	48 (44.9%)	-0.17	6,734 (47.9%)	6,677 (47.5%)	0.01	1,303 (39.9%)	1,310 (40.1%)	0.00	8,076 (46.3%)	8,035 (46.1%)	0.00
...Females; n (%)	68 (63.6%)	59 (55.1%)	0.17	7,332 (52.1%)	7,389 (52.5%)	-0.01	1,962 (60.1%)	1,955 (59.9%)	0.00	9,362 (53.7%)	9,403 (53.9%)	0.00
Race												
...White; n (%)	-	-	-	-	-	-	2,993 (91.7%)	2,990 (91.6%)	0.00	2,993 (91.7%)	2,990 (91.6%)	0.00
...Black; n (%)	-	-	-	-	-	-	200 (6.1%)	201 (6.2%)	0.00	200 (6.1%)	201 (6.2%)	0.00
...Asian; n (%)	-	-	-	-	-	-	7 (0.2%)	6 (0.2%)	0.00	7 (0.2%)	6 (0.2%)	0.00
...Hispanic; n (%)	-	-	-	-	-	-	14 (0.4%)	14 (0.4%)	0.00	14 (0.4%)	14 (0.4%)	0.00
...North American Native; n (%)	-	-	-	-	-	-	13 (0.4%)	22 (0.7%)	-0.04	13 (0.4%)	22 (0.7%)	-0.04
...Other/Unknown; n (%)	-	-	-	-	-	-	38 (1.2%)	32 (1.0%)	0.02	38 (1.2%)	32 (1.0%)	0.02
Region without zero category- United v3 (lumping missing&other category												
...Northeast; n (%)	10 (9.3%)	12 (11.2%)	-0.06	2,293 (16.3%)	2,417 (17.2%)	-0.02	582 (17.8%)	567 (17.4%)	0.01	2,885 (16.5%)	2,996 (17.2%)	-0.02
...South; n (%)	39 (36.4%)	42 (39.3%)	-0.06	4,002 (28.5%)	3,829 (27.2%)	0.03	1,270 (38.9%)	1,258 (38.5%)	0.01	5,311 (30.5%)	5,129 (29.4%)	0.02
...Midwest; n (%)	37 (34.6%)	34 (31.8%)	0.06	5,476 (38.9%)	5,373 (38.2%)	0.01	832 (25.5%)	850 (26.0%)	-0.01	6,345 (36.4%)	6,257 (35.9%)	0.01
...West; n (%)	21 (19.6%)	19 (17.8%)	0.05	2,129 (15.1%)	2,291 (16.3%)	-0.03	581 (17.8%)	590 (18.1%)	-0.01	2,731 (15.7%)	2,900 (16.6%)	-0.02
...Unknown-missing; n (%)	N/A	N/A	#VALUE!	166 (1.2%)	156 (1.1%)	0.01	N/A	N/A	#VALUE!	166 (1.2%)	156 (1.1%)	0.01
Metropolitan Statistical Area - Urban (any MSA) vs Rural (non-MSA)										0	0	0.00
...Urban; n (%)	-	-	-	10,777 (76.6%)	10,818 (76.9%)	-0.01	-	-	-	10,777 (76.6%)	10,818 (76.9%)	-0.01
...Rural; n (%)	-	-	-	420 (3.0%)	411 (2.9%)	0.01	-	-	-	420 (3.0%)	411 (2.9%)	0.01
...Unknown/Missing; n (%)	-	-	-	2,869 (20.4%)	2,837 (20.2%)	0.00	-	-	-	2,869 (20.4%)	2,837 (20.2%)	0.00
Commercial vs Medicare Advantage- D												
...1 - Fee For Service; n (%)	-	-	-	9,208 (65.5%)	9,122 (64.9%)	0.01	-	-	-	9,208 (65.5%)	9,122 (64.9%)	0.01
...2 - Encounter; n (%)	-	-	-	1,007 (7.2%)	1,074 (7.6%)	-0.02	-	-	-	1,007 (7.2%)	1,074 (7.6%)	-0.02
...3 - Medicare; n (%)	-	-	-	3,378 (24.0%)	3,356 (23.9%)	0.00	-	-	-	3,378 (24.0%)	3,356 (23.9%)	0.00
...4 - Medicare Encounter; n (%)	-	-	-	473 (3.4%)	514 (3.7%)	-0.02	-	-	-	473 (3.4%)	514 (3.7%)	-0.02
CV Covariates												
Ischemic heart disease; n (%)	12 (11.2%)	17 (15.9%)	-0.14	1,488 (10.6%)	1,506 (10.7%)	0.00	794 (24.3%)	776 (23.8%)	0.01	2,294 (13.2%)	2,299 (13.2%)	0.00
Acute MI; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	63 (0.4%)	57 (0.4%)	0.00	20 (0.6%)	18 (0.6%)	0.00	83 (0.5%)	75 (0.4%)	0.01
ACS/unstable angina; n (%)	1 (0.9%)	1 (0.9%)	0.00	51 (0.4%)	52 (0.4%)	0.00	24 (0.7%)	27 (0.8%)	-0.01	76 (0.4%)	80 (0.5%)	-0.01
Old MI; n (%)	3 (2.8%)	4 (3.7%)	-0.05	247 (1.8%)	248 (1.8%)	0.00	192 (5.9%)	168 (5.1%)	0.04	442 (2.5%)	420 (2.4%)	0.01
Stable angina; n (%)	0 (0.0%)	1 (0.9%)	-0.13	155 (1.1%)	145 (1.0%)	0.01	68 (2.1%)	72 (2.2%)	-0.01	223 (1.3%)	218 (1.3%)	0.00
Coronary atherosclerosis and other forms of chronic ischemic heart disease; n (%)	12 (11.2%)	17 (15.9%)	-0.14	1,340 (9.5%)	1,358 (9.7%)	-0.01	735 (22.5%)	718 (22.0%)	0.01	2,087 (12.0%)	2,093 (12.0%)	0.00
Other atherosclerosis with ICD10 v2 Copy; n (%)	0 (0.0%)	1 (0.9%)	-0.13	92 (0.7%)	87 (0.6%)	0.01	31 (0.9%)	36 (1.1%)	-0.02	123 (0.7%)	124 (0.7%)	0.00
Previous cardiac procedure (CABG or PTCA or Stent) v4; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	9 (0.1%)	8 (0.1%)	0.00	7 (0.2%)	7 (0.2%)	0.00	16 (0.1%)	15 (0.1%)	0.00
History of CABG or PTCA; n (%)	3 (2.8%)	2 (1.9%)	0.06	267 (1.9%)	269 (1.9%)	0.00	321 (9.8%)	308 (9.4%)	0.01	591 (3.4%)	579 (3.3%)	0.01
Any stroke; n (%)	4 (3.7%)	1 (0.9%)	0.19	306 (2.2%)	302 (2.1%)	0.01	147 (4.5%)	145 (4.4%)	0.00	457 (2.6%)	448 (2.6%)	0.00
Ischemic stroke (w and w/o mention of cerebral infarction); n (%)	4 (3.7%)	1 (0.9%)	0.19	302 (2.1%)	299 (2.1%)	0.00	147 (4.5%)	145 (4.4%)	0.00	453 (2.6%)	445 (2.6%)	0.00
Hemorrhagic stroke; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	4 (0.0%)	4 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	4 (0.0%)	4 (0.0%)	#DIV/0!
TIA; n (%)	1 (0.9%)	0 (0.0%)	0.13	88 (0.6%)	83 (0.6%)	0.00	35 (1.1%)	40 (1.2%)	-0.01	124 (0.7%)	123 (0.7%)	0.00
Other cerebrovascular disease; n (%)	1 (0.9%)	0 (0.0%)	0.13	70 (0.5%)	71 (0.5%)	0.00	29 (0.9%)	33 (1.0%)	-0.01	100 (0.6%)	104 (0.6%)	0.00
Cerebrovascular procedure; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	5 (0.0%)	3 (0.0%)	#DIV/0!	2 (0.1%)	2 (0.1%)	0.00	7 (0.0%)	5 (0.0%)	#DIV/0!
Heart failure (CHF); n (%)	2 (1.9%)	1 (0.9%)	0.09	73 (0.5%)	81 (0.6%)	-0.01	98 (3.0%)	106 (3.2%)	-0.01	173 (1.0%)	188 (1.1%)	-0.01
Peripheral Vascular Disease (PVD) or PVD Surgery v2; n (%)	5 (4.7%)	4 (3.7%)	0.05	305 (2.2%)	309 (2.2%)	0.00	200 (6.1%)	185 (5.7%)	0.02	510 (2.9%)	498 (2.9%)	0.00
Atrial fibrillation; n (%)	1 (0.9%)	2 (1.9%)	-0.09	402 (2.9%)	408 (2.9%)	0.00	656 (20.1%)	664 (20.3%)	0.00	1,059 (6.1%)	1,074 (6.2%)	0.00
Other cardiac dysrhythmia; n (%)	14 (13.1%)	18 (16.8%)	-0.10	1,352 (9.6%)	1,356 (9.6%)	0.00	791 (24.2%)	813 (24.9%)	-0.02	2,157 (12.4%)	2,187 (12.5%)	0.00
Cardiac conduction disorders; n (%)	1 (0.9%)	11 (10.3%)	-0.42	465 (3.3%)	452 (3.2%)	0.01	244 (7.5%)	241 (7.4%)	0.00	710 (4.1%)	704 (4.0%)	0.01
Other CVD; n (%)	12 (11.2%)	7 (6.5%)	0.17	1,088 (7.7%)	1,073 (7.6%)	0.00	540 (16.5%)	502 (15.4%)	0.03	1,640 (9.4%)	1,582 (9.1%)	0.01

Appendix B

Diabetes-related complications

Occurrence of Diabetic Neuropathy v2												
Copy; n (%)	1 (0.9%)	6 (5.6%)	-0.27	208 (1.5%)	235 (1.7%)	-0.02	106 (3.2%)	127 (3.9%)	-0.04	315 (1.8%)	368 (2.1%)	-0.02
Occurrence of diabetic nephropathy												
V3 with ICD10 Copy; n (%)	1 (0.9%)	2 (1.9%)	-0.09	95 (0.7%)	98 (0.7%)	0.00	50 (1.5%)	54 (1.7%)	-0.02	146 (0.8%)	154 (0.9%)	-0.01
Hypoglycemia v2; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	73 (0.5%)	69 (0.5%)	0.00	48 (1.5%)	50 (1.5%)	0.00	121 (0.7%)	119 (0.7%)	0.00
Hyperglycemia; n (%)	11 (10.3%)	2 (1.9%)	0.36	595 (4.2%)	550 (3.9%)	0.02	279 (8.5%)	265 (8.1%)	0.01	885 (5.1%)	817 (4.7%)	0.02
Diabetic ketoacidosis; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	11 (0.1%)	3 (0.0%)	0.04	2 (0.1%)	3 (0.1%)	0.00	13 (0.1%)	6 (0.0%)	0.04
Hypertension: 1 inpatient or 2 outpatient claims within 365 days; n (%)	67 (62.6%)	67 (62.6%)	0.00	8,177 (58.1%)	8,203 (58.3%)	0.00	2,648 (81.1%)	2,676 (82.0%)	-0.02	10,892 (62.5%)	10,946 (62.8%)	-0.01
Hyperlipidemia v2; n (%)	55 (51.4%)	48 (44.9%)	0.13	6,362 (45.2%)	6,406 (45.5%)	-0.01	1,981 (60.7%)	1,950 (59.7%)	0.02	8,398 (48.2%)	8,404 (48.2%)	0.00
Edema; n (%)	6 (5.6%)	8 (7.5%)	-0.08	403 (2.9%)	406 (2.9%)	0.00	194 (5.9%)	186 (5.7%)	0.01	603 (3.5%)	600 (3.4%)	0.01
Renal Dysfunction (non-diabetic) v2; n (%)	13 (12.1%)	9 (8.4%)	0.12	911 (6.5%)	947 (6.7%)	-0.01	530 (16.2%)	488 (14.9%)	0.04	1454 (8.3%)	1444 (8.3%)	0.00
Occurrence of acute renal disease v2; n (%)	4 (3.7%)	2 (1.9%)	0.11	240 (1.7%)	245 (1.7%)	0.00	150 (4.6%)	151 (4.6%)	0.00	394 (2.3%)	398 (2.3%)	0.00
Occurrence of chronic renal insufficiency; n (%)	7 (6.5%)	5 (4.7%)	0.08	482 (3.4%)	491 (3.5%)	-0.01	355 (10.9%)	342 (10.5%)	0.01	844 (4.8%)	838 (4.8%)	0.00
Chronic kidney disease v2; n (%)	6 (5.6%)	5 (4.7%)	0.04	461 (3.3%)	472 (3.4%)	-0.01	346 (10.6%)	329 (10.1%)	0.02	813 (4.7%)	806 (4.6%)	0.00
CKD Stage 3-4; n (%)	5 (4.7%)	3 (2.8%)	0.10	247 (1.8%)	256 (1.8%)	0.00	222 (6.8%)	214 (6.6%)	0.01	474 (2.7%)	473 (2.7%)	0.00
Occurrence of hypertensive nephropathy; n (%)	7 (6.5%)	3 (2.8%)	0.18	281 (2.0%)	288 (2.0%)	0.00	272 (8.3%)	256 (7.8%)	0.02	560 (3.2%)	547 (3.1%)	0.01
Occurrence of miscellaneous renal insufficiency v2; n (%)	6 (5.6%)	7 (6.5%)	-0.04	348 (2.5%)	344 (2.4%)	0.01	152 (4.7%)	126 (3.9%)	0.04	506 (2.9%)	477 (2.7%)	0.01
Other Covariates												
Liver disease; n (%)	0 (0.0%)	1 (0.9%)	-0.13	183 (1.3%)	171 (1.2%)	0.01	63 (1.9%)	60 (1.8%)	0.01	246 (1.4%)	232 (1.3%)	0.01
Osteoarthritis; n (%)	105 (98.1%)	105 (98.1%)	0.00	13,771 (97.9%)	13,741 (97.7%)	0.01	3,127 (95.8%)	3,134 (96.0%)	-0.01	17003 (97.5%)	16980 (97.4%)	0.01
Other arthritis, arthropathies and musculoskeletal pain; n (%)	99 (92.5%)	96 (89.7%)	0.10	12,323 (87.6%)	12,304 (87.5%)	0.00	2,889 (88.5%)	2,902 (88.9%)	-0.01	15311 (87.8%)	15302 (87.8%)	0.00
Dorsopathies; n (%)	46 (43.0%)	45 (42.1%)	0.02	5,480 (39.0%)	5,477 (38.9%)	0.00	1,465 (44.9%)	1,504 (46.1%)	-0.02	6991 (40.1%)	7026 (40.3%)	0.00
Fractures; n (%)	9 (8.4%)	6 (5.6%)	0.11	986 (7.0%)	1,027 (7.3%)	-0.01	483 (14.8%)	484 (14.8%)	0.00	1478 (8.5%)	1517 (8.7%)	-0.01
Falls v2; n (%)	4 (3.7%)	4 (3.7%)	0.00	247 (1.8%)	268 (1.9%)	-0.01	85 (2.6%)	104 (3.2%)	-0.04	336 (1.9%)	376 (2.2%)	-0.02
Osteoporosis; n (%)	8 (7.5%)	7 (6.5%)	0.04	846 (6.0%)	853 (6.1%)	0.00	483 (14.8%)	485 (14.9%)	0.00	1337 (7.7%)	1345 (7.7%)	0.00
Depression; n (%)	25 (23.4%)	31 (29.0%)	-0.13	1,829 (13.0%)	1,881 (13.4%)	-0.01	607 (18.6%)	624 (19.1%)	-0.01	2461 (14.1%)	2536 (14.5%)	-0.01
Anxiety; n (%)	21 (19.6%)	26 (24.3%)	-0.11	1,602 (11.4%)	1,590 (11.3%)	0.00	590 (18.1%)	603 (18.5%)	-0.01	2213 (12.7%)	2219 (12.7%)	0.00
Sleep_Disorder; n (%)	8 (7.5%)	11 (10.3%)	-0.10	1,629 (11.6%)	1,685 (12.0%)	-0.01	286 (8.8%)	287 (8.8%)	0.00	1923 (11.0%)	1983 (11.4%)	-0.01
Dementia; n (%)	2 (1.9%)	1 (0.9%)	0.09	109 (0.8%)	118 (0.8%)	0.00	102 (3.1%)	97 (3.0%)	0.01	213 (1.2%)	216 (1.2%)	0.00
Delirium; n (%)	1 (0.9%)	2 (1.9%)	-0.09	88 (0.6%)	100 (0.7%)	-0.01	71 (2.2%)	68 (2.1%)	0.01	160 (0.9%)	170 (1.0%)	-0.01
Psychosis; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	53 (0.4%)	51 (0.4%)	0.00	49 (1.5%)	72 (2.2%)	-0.05	102 (0.6%)	123 (0.7%)	-0.01
Obesity; n (%)	37 (34.6%)	42 (39.3%)	-0.10	3,102 (22.1%)	3,175 (22.6%)	-0.01	798 (24.4%)	823 (25.2%)	-0.02	3937 (22.6%)	4040 (23.2%)	-0.01
Overweight; n (%)	7 (6.5%)	7 (6.5%)	0.00	430 (3.1%)	436 (3.1%)	0.00	179 (5.5%)	189 (5.8%)	0.01	616 (3.5%)	632 (3.6%)	-0.01
Smoking; n (%)	42 (39.3%)	38 (35.5%)	0.08	2,492 (17.7%)	2,423 (17.2%)	0.01	1,241 (38.0%)	1,174 (36.0%)	0.04	3775 (21.6%)	3635 (20.8%)	0.02
Alcohol abuse or dependence; n (%)	8 (7.5%)	3 (2.8%)	0.21	244 (1.7%)	271 (1.9%)	-0.02	49 (1.5%)	61 (1.9%)	-0.03	301 (1.7%)	335 (1.9%)	-0.02
Drug abuse or dependence; n (%)	5 (4.7%)	5 (4.7%)	0.00	205 (1.5%)	211 (1.5%)	0.00	106 (3.2%)	95 (2.9%)	0.02	316 (1.8%)	311 (1.8%)	0.00
COPD; n (%)	12 (11.2%)	12 (11.2%)	0.00	880 (6.3%)	890 (6.3%)	0.00	481 (14.7%)	470 (14.4%)	0.01	1373 (7.9%)	1372 (7.9%)	0.00
Asthma; n (%)	17 (15.9%)	16 (15.0%)	0.02	1,138 (8.1%)	1,170 (8.3%)	-0.01	415 (12.7%)	426 (13.0%)	-0.01	1570 (9.0%)	1612 (9.2%)	-0.01
Obstructive sleep apnea; n (%)	15 (14.0%)	11 (10.3%)	0.11	1,442 (10.3%)	1,469 (10.4%)	0.00	381 (11.7%)	389 (11.9%)	-0.01	1838 (10.5%)	1869 (10.7%)	-0.01
Pneumonia; n (%)	2 (1.9%)	4 (3.7%)	-0.11	177 (1.3%)	181 (1.3%)	0.00	104 (3.2%)	106 (3.2%)	0.00	283 (1.6%)	291 (1.7%)	-0.01
Other Medications												
Use of ACE inhibitors; n (%)	27 (25.2%)	23 (21.5%)	0.09	3,154 (22.4%)	3,178 (22.6%)	0.00	913 (28.0%)	952 (29.2%)	-0.03	4094 (23.5%)	4153 (23.8%)	-0.01
Use of ARBs; n (%)	17 (15.9%)	14 (13.1%)	0.08	2,240 (15.9%)	2,264 (16.1%)	-0.01	653 (20.0%)	652 (20.0%)	0.00	2910 (16.7%)	2930 (16.8%)	0.00
Use of Loop Diuretics - United; n (%)	5 (4.7%)	0 (0.0%)	0.31	494 (3.5%)	517 (3.7%)	-0.01	340 (10.4%)	344 (10.5%)	0.00	839 (4.8%)	861 (4.9%)	0.00
Use of other diuretics - United; n (%)	2 (1.9%)	0 (0.0%)	0.20	149 (1.1%)	142 (1.0%)	0.01	87 (2.7%)	77 (2.4%)	0.02	238 (1.4%)	219 (1.3%)	0.01
Use of nitrates-United; n (%)	1 (0.9%)	1 (0.9%)	0.00	179 (1.3%)	182 (1.3%)	0.00	113 (3.5%)	101 (3.1%)	0.02	293 (1.7%)	284 (1.6%)	0.01
Use of other hypertension drugs; n (%)	1 (0.9%)	1 (0.9%)	0.00	366 (2.6%)	387 (2.8%)	-0.01	179 (5.5%)	184 (5.6%)	0.00	546 (3.1%)	572 (3.3%)	-0.01
Use of Anti-arrhythmics; n (%)	0 (0.0%)	1 (0.9%)	-0.13	91 (0.6%)	89 (0.6%)	0.00	138 (4.2%)	143 (4.4%)	-0.01	229 (1.3%)	233 (1.3%)	0.00
Use of COPD/asthma meds- United; n (%)	12 (11.2%)	16 (15.0%)	-0.11	1,984 (14.1%)	1,911 (13.6%)	0.01	640 (19.6%)	594 (18.2%)	0.04	2636 (15.1%)	2521 (14.5%)	0.02
Use of statins; n (%)	29 (27.1%)	26 (24.3%)	0.06	4,598 (32.7%)	4,654 (33.1%)	-0.01	1,483 (45.4%)	1,448 (44.3%)	0.02	6110 (35.0%)	6128 (35.1%)	0.00
Use of other lipid-lowering drugs; n (%)	6 (5.6%)	5 (4.7%)	0.04	800 (5.7%)	841 (6.0%)	-0.01	228 (7.0%)	221 (6.8%)	0.01	1034 (5.9%)	1067 (6.1%)	-0.01
Use of antiplatelet agents; n (%)	6 (5.6%)	12 (11.2%)	-0.20	702 (5.0%)	658 (4.7%)	0.01	242 (7.4%)	218 (6.7%)	0.03	950 (5.4%)	888 (5.1%)	0.01
Use of heparin and other low-molecular weight heparins; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	2 (0.0%)	2 (0.0%)	#DIV/0!	18 (0.6%)	19 (0.6%)	0.00	20 (0.1%)	21 (0.1%)	0.00
Use of NSAIDs; n (%)	50 (46.7%)	49 (45.8%)	0.02	5,648 (40.2%)	5,696 (40.5%)	-0.01	1,122 (34.4%)	1,144 (35.0%)	-0.01	6820 (39.1%)	6889 (39.5%)	-0.01
Use of opioids- United; n (%)	72 (67.3%)	74 (69.2%)	-0.04	12,495 (88.8%)	12,506 (88.9%)	0.00	2,831 (86.7%)	2,834 (86.8%)	0.00	15398 (88.3%)	15414 (88.4%)	0.00
Use of antidepressants; n (%)	33 (30.8%)	27 (25.2%)	0.12	3,339 (23.7%)	3,410 (24.2%)	-0.01	1,018 (31.2%)	1,029 (31.5%)	-0.01	4390 (25.2%)	4466 (25.6%)	-0.01
Use of antipsychotics; n (%)	2 (1.9%)	1 (0.9%)	0.09	214 (1.5%)	246 (1.7%)	-0.02	130 (4.0%)	146 (4.5%)	-0.02	346 (2.0%)	393 (2.3%)	-0.02
Labs												
Lab values- HbA1c (%) v3; n (%)	11 (10.3%)	16 (15.0%)	-0.14	136 (1.0%)	118 (0.8%)	0.02	N/A	N/A	#VALUE!	14,173 147 (1.0%)	14,173 134 (0.9%)	0.01

Appendix B

Lab values- HbA1c (%) (within 3 months) v3; n (%)	7 (6.5%)	15 (14.0%)	-0.25	95 (0.7%)	72 (0.5%)	0.03	N/A	N/A	#VALUE!	102 (0.7%)	087 (0.6%)	0.01
Lab values- HbA1c (%) (within 6 months) v3; n (%)	11 (10.3%)	16 (15.0%)	-0.14	136 (1.0%)	118 (0.8%)	0.02	N/A	N/A	#VALUE!	147 (1.0%)	134 (0.9%)	0.01
Lab values- BNP; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	2 (0.0%)	2 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	2 (0.0%)	2 (0.0%)	#DIV/0!
Lab values- BNP (within 3 months); n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	2 (0.0%)	1 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	02 (0.0%)	01 (0.0%)	#DIV/0!
Lab values- BNP (within 6 months); n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	2 (0.0%)	2 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	2 (0.0%)	2 (0.0%)	#DIV/0!
Lab values- BUN (mg/dl); n (%)	25 (23.4%)	40 (37.4%)	-0.31	166 (1.2%)	161 (1.1%)	0.01	N/A	N/A	#VALUE!	191 (1.3%)	201 (1.4%)	-0.01
Lab values- BUN (mg/dl) (within 3 months); n (%)	18 (16.8%)	34 (31.8%)	-0.36	139 (1.0%)	121 (0.9%)	0.01	N/A	N/A	#VALUE!	157 (1.1%)	155 (1.1%)	0.00
Lab values- BUN (mg/dl) (within 6 months); n (%)	25 (23.4%)	40 (37.4%)	-0.31	166 (1.2%)	161 (1.1%)	0.01	N/A	N/A	#VALUE!	191 (1.3%)	201 (1.4%)	-0.01
Lab values- Creatinine (mg/dl) v2; n (%)	27 (25.2%)	41 (38.3%)	-0.28	171 (1.2%)	167 (1.2%)	0.00	N/A	N/A	#VALUE!	198 (1.4%)	208 (1.5%)	-0.01
Lab values- Creatinine (mg/dl) (within 3 months) v2; n (%)	19 (17.8%)	35 (32.7%)	-0.35	144 (1.0%)	125 (0.9%)	0.01	N/A	N/A	#VALUE!	163 (1.2%)	160 (1.1%)	0.01
Lab values- Creatinine (mg/dl) (within 6 months) v2; n (%)	27 (25.2%)	41 (38.3%)	-0.28	171 (1.2%)	167 (1.2%)	0.00	N/A	N/A	#VALUE!	198 (1.4%)	208 (1.5%)	-0.01
Lab values- HDL level (mg/dl); n (%)	21 (19.6%)	22 (20.6%)	-0.02	125 (0.9%)	126 (0.9%)	0.00	N/A	N/A	#VALUE!	146 (1.0%)	148 (1.0%)	0.00
Lab values- HDL level (mg/dl) (within 3 months); n (%)	15 (14.0%)	16 (15.0%)	-0.03	72 (0.5%)	70 (0.5%)	0.00	N/A	N/A	#VALUE!	087 (0.6%)	086 (0.6%)	0.00
Lab values- HDL level (mg/dl) (within 6 months); n (%)	21 (19.6%)	22 (20.6%)	-0.02	125 (0.9%)	126 (0.9%)	0.00	N/A	N/A	#VALUE!	146 (1.0%)	148 (1.0%)	0.00
Lab values- LDL level (mg/dl) v2; n (%)	20 (18.7%)	22 (20.6%)	-0.05	131 (0.9%)	125 (0.9%)	0.00	N/A	N/A	#VALUE!	151 (1.1%)	147 (1.0%)	0.01
Lab values- LDL level (mg/dl) (within 3 months) v2; n (%)	14 (13.1%)	16 (15.0%)	-0.05	77 (0.5%)	69 (0.5%)	0.00	N/A	N/A	#VALUE!	091 (0.6%)	085 (0.6%)	0.00
Lab values- LDL level (mg/dl) (within 6 months) v2; n (%)	20 (18.7%)	22 (20.6%)	-0.05	131 (0.9%)	125 (0.9%)	0.00	N/A	N/A	#VALUE!	151 (1.1%)	147 (1.0%)	0.01
Lab values- NT-proBNP; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	0 (0.0%)	#DIV/0!
Lab values- NT-proBNP (within 3 months); n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	0 (0.0%)	#DIV/0!
Lab values- NT-proBNP (within 6 months); n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	N/A	N/A	#VALUE!	00 (0.0%)	0 (0.0%)	#DIV/0!
Lab values- Total cholesterol (mg/dl) v2; n (%)	21 (19.6%)	22 (20.6%)	-0.02	126 (0.9%)	126 (0.9%)	0.00	N/A	N/A	#VALUE!	147 (1.0%)	148 (1.0%)	0.00
Lab values- Total cholesterol (mg/dl) (within 3 months) v2; n (%)	15 (14.0%)	16 (15.0%)	-0.03	72 (0.5%)	70 (0.5%)	0.00	N/A	N/A	#VALUE!	087 (0.6%)	086 (0.6%)	0.00
Lab values- Total cholesterol (mg/dl) (within 6 months) v2; n (%)	21 (19.6%)	22 (20.6%)	-0.02	126 (0.9%)	126 (0.9%)	0.00	N/A	N/A	#VALUE!	147 (1.0%)	148 (1.0%)	0.00
Lab values- Triglyceride level (mg/dl); n (%)	21 (19.6%)	22 (20.6%)	-0.02	125 (0.9%)	122 (0.9%)	0.00	N/A	N/A	#VALUE!	146 (1.0%)	144 (1.0%)	0.00
Lab values- Triglyceride level (mg/dl) (within 3 months); n (%)	15 (14.0%)	16 (15.0%)	-0.03	71 (0.5%)	66 (0.5%)	0.00	N/A	N/A	#VALUE!	086 (0.6%)	082 (0.6%)	0.00
Lab values- Triglyceride level (mg/dl) (within 6 months); n (%)	21 (19.6%)	22 (20.6%)	-0.02	125 (0.9%)	122 (0.9%)	0.00	N/A	N/A	#VALUE!	146 (1.0%)	144 (1.0%)	0.00
Lab result number- HbA1c (%) mean (only 2 to 20 included) v4	11	16		115	109		N/A	N/A		126	125	
...mean (sd)	5.69 (0.65)	5.72 (0.61)	-0.05	6.86 (1.63)	6.46 (1.29)	0.27	N/A	N/A	#VALUE!	6.76 (1.58)	6.37 (1.23)	0.28
...Missing; n (%)	96 (89.7%)	91 (85.0%)	0.14	13,951 (99.2%)	13,957 (99.2%)	0.00	N/A	N/A	#VALUE!	14,047 (99.1%)	14,048 (99.1%)	0.00
Lab result number- BNP mean v2	-	-		2	2		N/A	N/A		2	2	
...mean (sd)	- (-)	- (-)	#VALUE!	102.50 (89.80)	35.55 (38.82)	0.97	N/A	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!
...Missing; n (%)	107 (100.0%)	107 (100.0%)	#DIV/0!	14,064 (100.0%)	14,064 (100.0%)	#DIV/0!	N/A	N/A	#VALUE!	14,171 (100.0%)	14,171 (100.0%)	#DIV/0!
Lab result number- BUN (mg/dl) mean v2	25	40		166	161		N/A	N/A		191	201	
...mean (sd)	14.94 (5.61)	16.13 (4.47)	-0.23	16.91 (5.75)	17.73 (7.38)	-0.12	N/A	N/A	#VALUE!	16.65 (5.75)	17.41 (6.92)	-0.12
...Missing; n (%)	82 (76.6%)	67 (62.6%)	0.31	13,900 (98.8%)	13,905 (98.9%)	-0.01	N/A	N/A	#VALUE!	13,982 (98.7%)	13,972 (98.6%)	0.01
Lab result number- Creatinine (mg/dl) mean (only 0.1 to 15 included) v3	27	41		164	158		N/A	N/A		191	199	
...mean (sd)	0.79 (0.18)	0.90 (0.25)	-0.50	0.90 (0.23)	0.95 (0.25)	-0.21	N/A	N/A	#VALUE!	0.88 (0.22)	0.94 (0.25)	-0.25
...Missing; n (%)	80 (74.8%)	66 (61.7%)	0.28	13,902 (98.8%)	13,908 (98.9%)	-0.01	N/A	N/A	#VALUE!	13,982 (98.7%)	13,974 (98.6%)	0.01
Lab result number- HDL level (mg/dl) mean (only <=5000 included) v2	21	22		125	126		N/A	N/A		146	148	
...mean (sd)	56.98 (13.95)	60.50 (21.22)	-0.20	49.39 (17.42)	51.96 (20.30)	-0.14	N/A	N/A	#VALUE!	50.48 (17.04)	53.23 (20.51)	-0.15
...Missing; n (%)	86 (80.4%)	85 (79.4%)	0.02	13,941 (99.1%)	13,940 (99.1%)	0.00	N/A	N/A	#VALUE!	14,027 (99.0%)	14,025 (99.0%)	0.00
Lab result number- LDL level (mg/dl) mean (only <=5000 included) v2	20	22		125	119		N/A	N/A		145	141	
...mean (sd)	110.05 (30.80)	110.57 (33.47)	-0.02	95.17 (41.62)	95.19 (40.07)	0.00	N/A	N/A	#VALUE!	97.22 (40.49)	97.59 (39.29)	-0.01

Appendix B

...Missing; n (%)	87 (81.3%)	85 (79.4%)	0.05	13,941 (99.1%)	13,947 (99.2%)	-0.01	N/A	N/A	#VALUE!	14,028 (99.0%)	14,032 (99.0%)	0.00
Lab result number- Total cholesterol (mg/dl) mean (only <=5000 included) v2	21	22		126	126		N/A	N/A		147	148	
...mean (sd)	194.67 (33.54)	190.14 (40.99)	0.12	173.55 (50.72)	178.39 (50.25)	-0.10	N/A	N/A	#VALUE!	176.57 (48.88)	180.14 (49.19)	-0.07
...Missing; n (%)	86 (80.4%)	85 (79.4%)	0.02	13,940 (99.1%)	13,940 (99.1%)	0.00	N/A	N/A	#VALUE!	14,026 (99.0%)	14,025 (99.0%)	0.00
Lab result number- Triglyceride level (mg/dl) mean (only <=5000 included) v2	21	22		125	122		N/A	N/A		146	144	
...mean (sd)	133.29 (57.02)	97.52 (48.21)	0.68	147.76 (90.74)	154.99 (95.96)	-0.08	N/A	N/A	#VALUE!	145.68 (87.15)	146.21 (90.82)	-0.01
...Missing; n (%)	86 (80.4%)	85 (79.4%)	0.02	13,941 (99.1%)	13,944 (99.1%)	0.00	N/A	N/A	#VALUE!	14,027 (99.0%)	14,029 (99.0%)	0.00
Lab result number- Hemoglobin mean (only >0 included)	27	36		134	132		N/A	N/A		161	168	
...mean (sd)	14.11 (1.18)	13.80 (1.77)	0.21	13.30 (2.58)	12.99 (2.98)	0.11	N/A	N/A	#VALUE!	13.44 (2.42)	13.16 (2.78)	0.11
...Missing; n (%)	80 (74.8%)	71 (66.4%)	0.19	13,932 (99.0%)	13,934 (99.1%)	-0.01	N/A	N/A	#VALUE!	14,012 (98.9%)	14,005 (98.8%)	0.01
Lab result number- Serum sodium mean (only > 90 and < 190 included)	27	41		153	146		N/A	N/A		180	187	
...mean (sd)	140.69 (2.32)	140.84 (2.63)	-0.06	139.67 (2.23)	139.69 (2.13)	-0.01	N/A	N/A	#VALUE!	139.82 (2.25)	139.94 (2.25)	-0.05
...Missing; n (%)	80 (74.8%)	66 (61.7%)	0.28	13,913 (98.9%)	13,920 (99.0%)	-0.01	N/A	N/A	#VALUE!	13,993 (98.7%)	13,986 (98.7%)	0.00
Lab result number- Albumin mean (only >0 and <=10 included)	26	36		119	126		N/A	N/A		145	162	
...mean (sd)	4.24 (0.39)	4.31 (0.27)	-0.21	4.23 (0.63)	4.23 (0.82)	0.00	N/A	N/A	#VALUE!	4.23 (0.60)	4.25 (0.74)	-0.03
...Missing; n (%)	81 (75.7%)	71 (66.4%)	0.21	13,947 (99.2%)	13,940 (99.1%)	0.01	N/A	N/A	#VALUE!	14,028 (99.0%)	14,011 (98.9%)	0.01
Lab result number- Glucose (fasting or random) mean (only 10-1000 included)	27	40		153	137		N/A	N/A		180	177	
...mean (sd)	102.14 (31.99)	97.65 (21.67)	0.16	122.92 (42.46)	116.13 (35.05)	0.17	N/A	N/A	#VALUE!	119.80 (41.21)	111.95 (32.64)	0.21
...Missing; n (%)	80 (74.8%)	67 (62.6%)	0.27	13,913 (98.9%)	13,929 (99.0%)	-0.01	N/A	N/A	#VALUE!	13,993 (98.7%)	13,996 (98.8%)	-0.01
Lab result number- Potassium mean (only 1-7 included)	27	41		160	149		N/A	N/A		187	190	
...mean (sd)	4.36 (0.33)	4.30 (0.46)	0.15	4.35 (0.38)	4.36 (0.43)	-0.02	N/A	N/A	#VALUE!	4.35 (0.37)	4.35 (0.44)	0.00
...Missing; n (%)	80 (74.8%)	66 (61.7%)	0.28	13,906 (98.9%)	13,917 (98.9%)	0.00	N/A	N/A	#VALUE!	13,986 (98.7%)	13,983 (98.7%)	0.00
Comorbidity Scores												
CCI (180 days)- ICD9 and ICD10 v2												
...mean (sd)	1.12 (2.02)	1.40 (1.95)	-0.14	0.51 (1.45)	0.52 (1.50)	-0.01	1.70 (2.24)	1.67 (2.23)	0.01	0.74 (1.63)	0.74 (1.66)	0.00
Non-Frailty; n (%)	63 (58.9%)	59 (55.1%)	0.08	6,861 (48.8%)	6,990 (49.7%)	-0.02	86 (2.6%)	52 (1.6%)	0.07	7010 (40.2%)	7101 (40.7%)	-0.01
Frailty Score (mean): Empirical												
Version 365 days, v2												
...mean (sd)	0.17 (0.05)	0.17 (0.05)	0.00	0.16 (0.04)	0.16 (0.04)	0.00	0.19 (0.06)	0.19 (0.06)	0.00	0.17 (0.04)	0.17 (0.04)	0.00
Healthcare Utilization												
Any hospitalization; n (%)	106 (99.1%)	107 (100.0%)	-0.13	14,066 (100.0%)	14,066 (100.0%)	#DIV/0!	3,265 (100.0%)	3,265 (100.0%)	#DIV/0!	17,437 (100.0%)	17,438 (100.0%)	#DIV/0!
Any hospitalization within prior 30 days; n (%)	105 (98.1%)	107 (100.0%)	-0.20	14,055 (99.9%)	14,047 (99.9%)	0.00	3,253 (99.6%)	3,234 (99.1%)	0.06	17413 (99.9%)	17388 (99.7%)	0.04
Any hospitalization during prior 31-180 days; n (%)	8 (7.5%)	7 (6.5%)	0.04	486 (3.5%)	507 (3.6%)	-0.01	324 (9.9%)	349 (10.7%)	-0.03	818 (4.7%)	863 (4.9%)	-0.01
Internal medicine/family medicine visits; n (%)	83 (77.6%)	82 (76.6%)	0.02	11,722 (83.3%)	11,926 (84.8%)	-0.04	2,991 (91.6%)	2,995 (91.7%)	0.00	14796 (84.8%)	15003 (86.0%)	-0.03
Internal medicine/family medicine visits (30 days prior) v2; n (%)	72 (67.3%)	59 (55.1%)	0.25	9,021 (64.1%)	8,971 (63.8%)	0.01	2,593 (79.4%)	2,591 (79.4%)	0.00	11686 (67.0%)	11621 (66.6%)	0.01
Internal medicine/family medicine visits (31 to 180 days prior) v2; n (%)	51 (47.7%)	71 (66.4%)	-0.38	9,702 (69.0%)	10,038 (71.4%)	-0.05	2,423 (74.2%)	2,452 (75.1%)	-0.02	12176 (69.8%)	12561 (72.0%)	-0.05
Cardiologist visit; n (%)	54 (50.5%)	61 (57.0%)	-0.13	4,970 (35.3%)	4,982 (35.4%)	0.00	1,988 (60.9%)	1,977 (60.6%)	0.01	7012 (40.2%)	7020 (40.3%)	0.00
Number of Cardiologist visits (30 days prior); n (%)	45 (42.1%)	49 (45.8%)	-0.07	3,723 (26.5%)	3,655 (26.0%)	0.01	1,396 (42.8%)	1,355 (41.5%)	0.03	5164 (29.6%)	5059 (29.0%)	0.01
Number of Cardiologist visits (31 to 180 days prior); n (%)	17 (15.9%)	27 (25.2%)	-0.23	2,001 (14.2%)	2,015 (14.3%)	0.00	1,155 (35.4%)	1,204 (36.9%)	-0.03	3173 (18.2%)	3246 (18.6%)	-0.01
Electrocardiogram v2; n (%)	85 (79.4%)	97 (90.7%)	-0.32	10,886 (77.4%)	10,967 (78.0%)	-0.01	2,831 (86.7%)	2,861 (87.6%)	-0.03	13802 (79.1%)	13925 (79.9%)	-0.02
Use of glucose test strips; n (%)	0 (0.0%)	1 (0.9%)	-0.13	54 (0.4%)	87 (0.6%)	-0.03	23 (0.7%)	26 (0.8%)	-0.01	77 (0.4%)	114 (0.7%)	-0.04
Dialysis; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	1 (0.0%)	1 (0.0%)	#DIV/0!	1 (0.0%)	0 (0.0%)	#DIV/0!	2 (0.0%)	1 (0.0%)	#DIV/0!
number of different/distinct medication prescriptions												
...mean (sd)	8.14 (5.20)	7.94 (4.36)	0.04	8.46 (4.46)	8.59 (4.56)	-0.03	10.42 (4.93)	10.53 (4.98)	-0.02	8.83 (4.56)	8.95 (4.64)	-0.03
Number of Hospitalizations												
...mean (sd)	1.11 (0.37)	1.09 (0.35)	0.06	1.06 (0.28)	1.06 (0.27)	0.00	1.20 (0.54)	1.21 (0.54)	-0.02	1.09 (0.34)	1.09 (0.34)	0.00
Number of hospital days												
...mean (sd)	2.44 (2.66)	2.59 (1.99)	-0.06	3.51 (2.21)	3.54 (2.43)	-0.01	4.96 (4.57)	4.93 (4.38)	0.01	3.77 (2.81)	3.79 (2.89)	-0.01
Number of Emergency Department (ED) visits v3												
...mean (sd)	0.48 (1.22)	0.42 (1.17)	0.05	0.13 (1.01)	0.13 (1.01)	0.00	0.74 (1.94)	0.81 (2.53)	-0.03	0.25 (1.24)	0.26 (1.42)	-0.01
Number of Office visits												
...mean (sd)	7.42 (5.03)	7.62 (5.67)	-0.04	6.41 (3.99)	6.50 (4.12)	-0.02	16.83 (12.94)	16.94 (12.61)	-0.01	8.37 (6.66)	8.46 (6.61)	-0.01

Appendix B

Number of internal medicine/family medicine visits												
...mean (sd)	4.64 (7.05)	7.58 (16.00)	-0.24	6.16 (8.17)	6.37 (8.70)	-0.02	9.34 (9.94)	9.35 (9.72)	0.00	6.75 (8.52)	6.94 (8.96)	-0.02
Number of Cardiologist visits												
...mean (sd)	1.65 (3.01)	1.95 (3.07)	-0.10	0.97 (2.21)	0.97 (2.27)	0.00	2.49 (4.14)	2.59 (4.60)	-0.02	1.26 (2.68)	1.28 (2.86)	-0.01
Number electrocardiograms received v2												
...mean (sd)	1.49 (1.25)	1.62 (1.07)	-0.11	1.19 (1.01)	1.19 (0.98)	0.00	1.80 (1.54)	1.82 (1.52)	-0.01	1.31 (1.13)	1.31 (1.10)	0.00
Number of HbA1c tests ordered												
...mean (sd)	0.41 (0.61)	0.49 (0.79)	-0.11	0.24 (0.57)	0.25 (0.58)	-0.02	0.40 (0.73)	0.41 (0.72)	-0.01	0.27 (0.60)	0.28 (0.61)	-0.02
Number of glucose tests ordered												
...mean (sd)	0.10 (0.33)	0.18 (1.20)	-0.09	0.08 (0.36)	0.08 (0.40)	0.00	0.11 (0.48)	0.11 (0.47)	0.00	0.09 (0.39)	0.09 (0.42)	0.00
Number of lipid tests ordered												
...mean (sd)	0.55 (0.87)	0.49 (0.65)	0.08	0.46 (0.81)	0.47 (0.81)	-0.01	0.57 (0.69)	0.57 (0.71)	0.00	0.48 (0.79)	0.49 (0.79)	-0.01
Total N distinct ICD9/ICD10 diagnoses at the 3rd digit level Copy												
...mean (sd)	11.04 (11.14)	9.78 (10.49)	0.12	3.63 (6.39)	3.62 (6.31)	0.00	12.35 (12.72)	12.26 (12.44)	0.01	5.31 (8.00)	5.28 (7.86)	0.00
For PS												
Hemorrhagic stroke+Other cerebrovascular disease+Cerebrovascular procedure (for PS); n (%)	1 (0.9%)	0 (0.0%)	0.13	76 (0.5%)	78 (0.6%)	-0.01	31 (0.9%)	35 (1.1%)	-0.02	108 (0.6%)	113 (0.6%)	0.00
Major trauma potentially causing prok Occurrence of creatinine tests ordered (for PS); n (%)	** (2.8%)	** (1.9%)	#DIV/0!	316 (2.2%)	336 (2.4%)	#DIV/0!	180 (5.5%)	174 (5.3%)	#DIV/0!	316 (2.2%)	336 (2.4%)	-0.01
Occurrence of BUN tests ordered (for PS); n (%)	14 (13.1%)	4 (3.7%)	0.34	1,125 (8.0%)	693 (4.9%)	0.13	374 (11.5%)	264 (8.1%)	0.11	1513 (8.7%)	961 (5.5%)	0.12
Occurrence of chronic renal insufficiency w/o CKD (for PS) v2; n (%)	8 (7.5%)	3 (2.8%)	0.21	775 (5.5%)	437 (3.1%)	0.12	203 (6.2%)	164 (5.0%)	0.05	986 (5.7%)	604 (3.5%)	0.11
Chronic kidney disease Stage 1-2 (for PS); n (%)	2 (1.9%)	1 (0.9%)	0.09	225 (1.6%)	224 (1.6%)	0.00	156 (4.8%)	161 (4.9%)	0.00	383 (2.2%)	386 (2.2%)	0.00
Chronic kidney disease Stage 3-6 (for PS); n (%)	0 (0.0%)	2 (1.9%)	-0.20	106 (0.8%)	101 (0.7%)	0.01	47 (1.4%)	47 (1.4%)	0.00	153 (0.9%)	150 (0.9%)	0.00
Acute kidney injury; n (%)	5 (4.7%)	3 (2.8%)	0.10	247 (1.8%)	256 (1.8%)	0.00	222 (6.8%)	214 (6.6%)	0.01	474 (2.7%)	473 (2.7%)	0.00
Bladder stones+Kidney stones (for PS); n (%)	** (3.7%)	** (1.9%)	#DIV/0!	261 (1.9%)	270 (1.9%)	#DIV/0!	158 (4.8%)	160 (4.9%)	#DIV/0!	261 (1.9%)	270 (1.9%)	0.00
Alcohol abuse or dependence+Drug abuse or dependence (for PS); n (%)	4 (3.7%)	2 (1.9%)	0.11	266 (1.9%)	223 (1.6%)	0.02	66 (2.0%)	70 (2.1%)	-0.01	336 (1.9%)	295 (1.7%)	0.02
Other atherosclerosis+Cardiac conduction disorders+Other CVD (for PS) v2 Copy; n (%)	12 (11.2%)	8 (7.5%)	0.13	435 (3.1%)	450 (3.2%)	-0.01	147 (4.5%)	151 (4.6%)	0.00	594 (3.4%)	609 (3.5%)	-0.01
Previous cardiac procedure (CABG or PTCA or Stent) + History of CABG or PTCA (for PS) v3; n (%)	12 (11.2%)	17 (15.9%)	-0.14	1,530 (10.9%)	1,529 (10.9%)	0.00	729 (22.3%)	699 (21.4%)	0.02	2271 (13.0%)	2245 (12.9%)	0.00
Diabetes with complication; n (%)	3 (2.8%)	2 (1.9%)	0.06	271 (1.9%)	272 (1.9%)	0.00	323 (9.9%)	308 (9.4%)	0.02	597 (3.4%)	582 (3.3%)	0.01
Delirium + Psychosis (for PS); n (%)	** (3.7%)	11 (10.3%)	#DIV/0!	469 (3.3%)	484 (3.4%)	#DIV/0!	235 (7.2%)	249 (7.6%)	#DIV/0!	469 (3.3%)	484 (3.4%)	-0.01
Any use of Meglitinides (for PS); n (%)	1 (0.9%)	2 (1.9%)	-0.09	133 (0.9%)	139 (1.0%)	-0.01	110 (3.4%)	129 (4.0%)	-0.03	244 (1.4%)	270 (1.5%)	-0.01
Any use of AGIs (for PS); n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	12 (0.1%)	20 (0.1%)	0.00	3 (0.1%)	6 (0.2%)	-0.03	15 (0.1%)	26 (0.1%)	0.00
CKD stage 3-6 + dialysis (for PS); n (%)	1 (0.9%)	0 (0.0%)	0.13	5 (0.0%)	6 (0.0%)	#DIV/0!	1 (0.0%)	4 (0.1%)	-0.04	7 (0.0%)	10 (0.1%)	-0.04
Use of thiazide; n (%)	5 (4.7%)	3 (2.8%)	0.10	248 (1.8%)	257 (1.8%)	0.00	222 (6.8%)	214 (6.6%)	0.01	475 (2.7%)	474 (2.7%)	0.00
Use of beta blockers; n (%)	8 (7.5%)	5 (4.7%)	0.12	1,232 (8.8%)	1,242 (8.8%)	0.00	397 (12.2%)	397 (12.2%)	0.00	1637 (9.4%)	1644 (9.4%)	0.00
Use of calcium channel blockers; n (%)	22 (20.6%)	18 (16.8%)	0.10	2,871 (20.4%)	2,910 (20.7%)	-0.01	1,249 (38.3%)	1,261 (38.6%)	-0.01	4142 (23.8%)	4189 (24.0%)	0.00
All antidiabetic medications except Ins DM Medications - Insulin Copy; n (%)	22 (20.6%)	19 (17.8%)	0.07	2,230 (15.9%)	2,250 (16.0%)	0.00	834 (25.5%)	858 (26.3%)	-0.02	3086 (17.7%)	3127 (17.9%)	-0.01
Use of Low Intensity Statins; n (%)	10 (9.3%)	10 (9.3%)	0.00	1,390 (9.9%)	1,403 (10.0%)	0.00	426 (13.0%)	428 (13.1%)	0.00	1826 (10.5%)	1841 (10.6%)	0.00
Use of High Intensity Statins; n (%)	0 (0.0%)	2 (1.9%)	-0.20	271 (1.9%)	289 (2.1%)	-0.01	93 (2.8%)	100 (3.1%)	-0.02	364 (2.1%)	391 (2.2%)	-0.01
Malignant hypertension; n (%)	14 (13.1%)	11 (10.3%)	0.09	2,738 (19.5%)	2,854 (20.3%)	-0.02	874 (26.8%)	925 (28.3%)	-0.03	3626 (20.8%)	3790 (21.7%)	-0.02
Cardiovascular stress test; n (%)	13 (12.1%)	15 (14.0%)	-0.06	1,802 (12.8%)	1,748 (12.4%)	0.01	629 (19.3%)	548 (16.8%)	0.07	2444 (14.0%)	2311 (13.3%)	0.02
Echocardiogram; n (%)	1 (0.9%)	1 (0.9%)	0.00	6,163 (43.8%)	6,140 (43.7%)	0.00	222 (6.8%)	238 (7.3%)	-0.02	6386 (36.6%)	6379 (36.6%)	0.00
Number of BNP tests	0 (0.0%)	0 (0.0%)	#DIV/0!	23 (0.2%)	22 (0.2%)	0.00	20 (0.6%)	10 (0.3%)	0.04	43 (0.2%)	32 (0.2%)	0.00
...mean (sd)	13 (12.1%)	14 (13.1%)	-0.03	1,508 (10.7%)	1,524 (10.8%)	0.00	677 (20.7%)	675 (20.7%)	0.00	2198 (12.6%)	2213 (12.7%)	0.00
Number of Cardiac biomarkers tests (troponin, CK-MBs, Myoglobin, CPK)												
...mean (sd)	0.02 (0.14)	0.03 (0.17)	-0.06	0.01 (0.13)	0.01 (0.13)	0.00	0.04 (0.23)	0.04 (0.23)	0.00	0.02 (0.15)	0.02 (0.15)	0.00
Number of Ambulatory Blood pressure monitoring tests												
...mean (sd)	0.08 (0.39)	0.10 (0.43)	-0.05	0.10 (0.63)	0.10 (0.54)	0.00	0.14 (0.43)	0.14 (0.43)	0.00	0.11 (0.60)	0.11 (0.52)	0.00
Number of Ambulatory Blood pressure monitoring tests												
...mean (sd)	0.00 (0.00)	0.00 (0.00)	#DIV/0!	0.00 (0.03)	0.00 (0.04)	0.00	0.00 (0.02)	0.00 (0.00)	0.00	0.00 (0.03)	0.00 (0.04)	0.00

Appendix B

N of days on antihypertensive medications during baseline												
...mean (sd)	82.41 (82.13)	69.62 (79.26)	0.16	79.44 (81.28)	79.84 (81.30)	0.00	117.64 (75.56)	116.32 (76.36)	0.02	86.61 (80.25)	86.61 (80.39)	0.00
N of days in database anytime prior												
...mean (sd)	1,974.76 (1,364.00)	1,826.59 (1,479.87)	0.10	1,995.34 (1,338.60)	1,959.03 (1,335.68)	0.03	851.39 (590.43)	718.16 (409.59)	0.26	1781.03 (1233.73)	1725.88 (1218.17)	0.00
Mean Copay for per prescription cost (charges in U.S. \$) (180-1 day prior)												
...mean (sd)	20.62 (28.12)	17.60 (21.97)	0.12	15.14 (17.44)	15.12 (24.94)	0.00	109.49 (85.68)	108.86 (92.05)	0.01	32.84 (40.30)	32.69 (45.73)	0.00
...Missing; n (%)	3 (2.8%)	4 (3.7%)	-0.05	615 (4.4%)	599 (4.3%)	0.00	41 (1.3%)	36 (1.1%)	0.02	659 (3.8%)	639 (3.7%)	0.01
Colonoscopy; n (%)	6 (5.6%)	5 (4.7%)	0.04	669 (4.8%)	696 (4.9%)	0.00	154 (4.7%)	166 (5.1%)	-0.02	829 (4.8%)	867 (5.0%)	-0.01
Fecal occult blood (FOB) test; n (%)	4 (3.7%)	3 (2.8%)	0.05	597 (4.2%)	630 (4.5%)	-0.01	80 (2.5%)	78 (2.4%)	0.01	681 (3.9%)	711 (4.1%)	-0.01
Flu vaccine; n (%)	27 (25.2%)	18 (16.8%)	0.21	1,927 (13.7%)	1,898 (13.5%)	0.01	1,023 (31.3%)	1,029 (31.5%)	0.00	2977 (17.1%)	2945 (16.9%)	0.01
Mammogram; n (%)	16 (15.0%)	18 (16.8%)	-0.05	1,810 (12.9%)	1,825 (13.0%)	0.00	472 (14.5%)	498 (15.3%)	-0.02	2298 (13.2%)	2341 (13.4%)	-0.01
Pap smear; n (%)	5 (4.7%)	7 (6.5%)	-0.08	935 (6.6%)	950 (6.8%)	-0.01	122 (3.7%)	126 (3.9%)	-0.01	1062 (6.1%)	1083 (6.2%)	0.00
Pneumonia vaccine; n (%)	33 (30.8%)	22 (20.6%)	0.24	922 (6.6%)	891 (6.3%)	0.01	833 (25.5%)	805 (24.7%)	0.02	1788 (10.3%)	1718 (9.9%)	0.01
PSA test or Prostate exam for DRE; n (%)	14 (13.1%)	12 (11.2%)	0.06	1,608 (11.4%)	1,632 (11.6%)	-0.01	409 (12.5%)	408 (12.5%)	0.00	2031 (11.6%)	2052 (11.8%)	-0.01
Bone mineral density; n (%)	4 (3.7%)	4 (3.7%)	0.00	502 (3.6%)	484 (3.4%)	0.01	206 (6.3%)	182 (5.6%)	0.03	712 (4.1%)	670 (3.8%)	0.02
Use of CNS stimulants; n (%)	2 (1.9%)	1 (0.9%)	0.09	95 (0.7%)	130 (0.9%)	-0.02	18 (0.6%)	19 (0.6%)	0.00	115 (0.7%)	150 (0.9%)	-0.02
Use of estrogens, progestins, androger	16 (15.0%)	8 (7.5%)	0.24	1,199 (8.5%)	1,245 (8.9%)	-0.01	179 (5.5%)	197 (6.0%)	-0.02	1394 (8.0%)	1450 (8.3%)	-0.01
Use of Angiogenesis inhibitors; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	8 (0.1%)	5 (0.0%)	0.04	3 (0.1%)	0 (0.0%)	0.04	11 (0.1%)	5 (0.0%)	0.04
Use of Oral Immunosuppressants; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	29 (0.2%)	15 (0.1%)	0.03	4 (0.1%)	6 (0.2%)	-0.03	33 (0.2%)	21 (0.1%)	0.03
Use of fondaparinux or Bivalirudin; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	16 (0.1%)	16 (0.1%)	0.00	2 (0.1%)	11 (0.3%)	-0.04	18 (0.1%)	27 (0.2%)	-0.03
Use of other direct thrombin inhibitors												
Use of Ticagrelor ON CED; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	3 (0.0%)	2 (0.0%)	#DIV/0!	0 (0.0%)	0 (0.0%)	#DIV/0!	3 (0.0%)	2 (0.0%)	#DIV/0!
Use of Ticagrelor; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	5 (0.0%)	7 (0.0%)	#DIV/0!	7 (0.2%)	4 (0.1%)	0.03	12 (0.1%)	11 (0.1%)	0.00
Number of D-dimer tests												
...mean (sd)	0.01 (0.10)	0.04 (0.23)	-0.17	0.01 (0.10)	0.01 (0.11)	0.00	0.02 (0.15)	0.02 (0.16)	0.00	0.01 (0.11)	0.01 (0.12)	0.00
Numbe of CRP, high-sensitivity CRP tests												
...mean (sd)	0.29 (0.73)	0.11 (0.50)	0.29	0.10 (0.41)	0.10 (0.41)	0.00	0.25 (0.80)	0.26 (0.91)	-0.01	0.13 (0.51)	0.13 (0.54)	0.00
Number of PT or aPTT tests												
...mean (sd)	0.93 (1.18)	1.03 (1.34)	-0.08	0.81 (1.23)	0.82 (1.24)	-0.01	0.77 (1.27)	0.75 (1.08)	0.02	0.80 (1.24)	0.81 (1.21)	0.00
Number of Bleeding time tests												
...mean (sd)	0.00 (0.00)	0.00 (0.00)	#DIV/0!	0.00 (0.01)	0.00 (0.01)	0.00	0.00 (0.00)	0.00 (0.03)	0.00	0.00 (0.01)	0.00 (0.02)	0.00
HAS-BLED Score (ICD-9 and ICD-10), 180 days												
...mean (sd)	3.03 (1.05)	2.98 (1.11)	0.05	2.88 (1.05)	2.89 (1.05)	-0.01	3.76 (0.91)	3.76 (0.93)	0.00	3.05 (1.03)	3.05 (1.03)	0.00
N of Generic name drugs												
...mean (sd)	15.08 (13.34)	13.54 (11.69)	0.12	13.67 (10.34)	13.93 (11.31)	-0.02	19.98 (14.50)	20.37 (16.10)	-0.03	14.86 (11.26)	15.13 (12.35)	0.00
N of Brand name drugs												
...mean (sd)	3.48 (5.01)	3.21 (3.94)	0.06	3.17 (4.44)	3.43 (3.63)	-0.06	3.03 (5.29)	3.27 (3.97)	-0.05	3.15 (4.61)	3.40 (3.70)	0.00
Use of clopidogrel ; n (%)	3 (2.8%)	2 (1.9%)	0.06	292 (2.1%)	304 (2.2%)	-0.01	156 (4.8%)	156 (4.8%)	0.00	451 (2.6%)	462 (2.6%)	0.00
Systemic embolism; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	11 (0.1%)	10 (0.1%)	0.00	6 (0.2%)	7 (0.2%)	0.00	17 (0.1%)	17 (0.1%)	0.00
DVT; n (%)	2 (1.9%)	1 (0.9%)	0.09	210 (1.5%)	204 (1.5%)	0.00	170 (5.2%)	191 (5.8%)	-0.03	382 (2.2%)	396 (2.3%)	-0.01
Post-thrombotic syndrome; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	** (0.0%)	0 (0.0%)	#DIV/0!	** (0.0%)	** (0.1%)	#DIV/0!	** (0.0%)	0 (0.0%)	#DIV/0!
PE; n (%)	0 (0.0%)	1 (0.9%)	-0.13	52 (0.4%)	51 (0.4%)	0.00	58 (1.8%)	63 (1.9%)	-0.01	110 (0.6%)	115 (0.7%)	-0.01
Coagulation defects; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	172 (1.2%)	168 (1.2%)	#DIV/0!	61 (1.9%)	57 (1.7%)	0.00	172 (1.2%)	168 (1.2%)	0.00
Diabetes: 1 inpatient or 2 outpatient cl												
	14 (13.1%)	21 (19.6%)	-0.18	1,941 (13.8%)	1,944 (13.8%)	0.00	663 (20.3%)	664 (20.3%)	0.00	2618 (15.0%)	2629 (15.1%)	0.00
Intracranial or retroperitoneal hemorrh												
	0 (0.0%)	0 (0.0%)	#DIV/0!	9 (0.1%)	11 (0.1%)	0.00	4 (0.1%)	1 (0.0%)	0.04	13 (0.1%)	12 (0.1%)	0.00
Peptic Ulcer Disease; n (%)	35 (32.7%)	42 (39.3%)	-0.14	3,059 (21.7%)	3,058 (21.7%)	0.00	1,278 (39.1%)	1,271 (38.9%)	0.00	4372 (25.1%)	4371 (25.1%)	0.00
Upper GI bleed; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	17 (0.1%)	15 (0.1%)	0.00	2 (0.1%)	7 (0.2%)	-0.03	19 (0.1%)	22 (0.1%)	0.00
Lower/ unspecified GI bleed; n (%)	1 (0.9%)	2 (1.9%)	-0.09	173 (1.2%)	170 (1.2%)	0.00	8 (0.2%)	9 (0.3%)	-0.02	182 (1.0%)	181 (1.0%)	0.00
Urogenital bleed; n (%)	5 (4.7%)	5 (4.7%)	0.00	339 (2.4%)	358 (2.5%)	-0.01	39 (1.2%)	44 (1.3%)	-0.01	383 (2.2%)	407 (2.3%)	-0.01
Other bleeds; n (%)	34 (31.8%)	34 (31.8%)	0.00	3,581 (25.5%)	3,558 (25.3%)	0.00	972 (29.8%)	945 (28.9%)	0.02	4587 (26.3%)	4537 (26.0%)	0.01
Prior cancer; n (%)	15 (14.0%)	17 (15.9%)	-0.05	978 (7.0%)	1,013 (7.2%)	-0.01	578 (17.7%)	560 (17.2%)	0.01	1571 (9.0%)	1590 (9.1%)	0.00
Antibiotics; n (%)	43 (40.2%)	44 (41.1%)	#DIV/0!	5,663 (40.3%)	5,720 (40.7%)	#DIV/0!	1,684 (51.6%)	1,704 (52.2%)	#DIV/0!	5,663 (40.3%)	5,720 (40.7%)	-0.01
Aspirin; n (%)	3 (2.8%)	9 (8.4%)	-0.25	187 (1.3%)	185 (1.3%)	0.00	11 (0.3%)	9 (0.3%)	0.00	201 (1.2%)	203 (1.2%)	0.00
Aspirin/dipyridamole; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	13 (0.1%)	14 (0.1%)	0.00	4 (0.1%)	5 (0.2%)	-0.03	17 (0.1%)	19 (0.1%)	0.00
Other antiplatelet agents; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	16 (0.1%)	11 (0.1%)	0.00	8 (0.2%)	6 (0.2%)	0.00	24 (0.1%)	17 (0.1%)	0.00
PGP inhibitors; n (%)	17 (15.9%)	16 (15.0%)	0.02	2,289 (16.3%)	2,339 (16.6%)	-0.01	825 (25.3%)	818 (25.1%)	0.00	3131 (18.0%)	3173 (18.2%)	-0.01
Other gastroprotective agents; n (%)	2 (1.9%)	3 (2.8%)	-0.06	190 (1.4%)	201 (1.4%)	0.00	68 (2.1%)	68 (2.1%)	0.00	260 (1.5%)	272 (1.6%)	-0.01
Number of lipid tests ordered												
...mean (sd)	0.55 (0.87)	0.49 (0.65)	0.08	0.46 (0.81)	0.47 (0.81)	-0.01	0.60 (0.75)	0.60 (0.76)	0.00	0.49 (0.80)	0.49 (0.80)	0.00
Proton pump inhibitor; n (%)	25 (23.4%)	28 (26.2%)	-0.06	2,726 (19.4%)	2,771 (19.7%)	-0.01	983 (30.1%)	996 (30.5%)	-0.01	3734 (21.4%)	3795 (21.8%)	-0.01
H2 receptor antagonist; n (%)	** (1.9%)	** (0.9%)	0.09	378 (2.7%)	404 (2.9%)	-0.01	203 (6.2%)	203 (6.2%)	0.00	#VALUE!	#VALUE!	#VALUE!
Vitamin K therapy; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	** (0.0%)	** (0.0%)	#DIV/0!	0 (0.0%)	1 (0.0%)	#DIV/0!	#VALUE!	#VALUE!	#VALUE!
Number of INR (prothrombin) tests ordered												
...mean (sd)	0.56 (0.66)	0.64 (0.85)	-0.11	0.47 (0.71)	0.46 (0.70)	0.01	0.63 (1.06)	0.61 (0.82)	0.02	0.50 (0.79)	0.49 (0.72)	0.00
Treating prescriber - Cardiologist; n (%)	46 (43.0%)	50 (46.7%)	-0.07	4,111 (29.2%)	4,078 (29.0%)	0.00	1,396 (42.8%)	1,355 (41.5%)	0.03	5553 (31.8%)	5483 (31.4%)	0.01
Treating prescriber - Primary Care Phy:												
	88 (82.2%)	75 (70.1%)	0.29	5,479 (39.0%)	5,380 (38.2%)	0.02	1,061 (32.5%)	1,039 (31.8%)	0.01	6628 (38.0%)	6494 (37.2%)	0.02

Appendix B

Treating prescriber - Other; n (%)	107 (100.0%)	107 (100.0%)	#DIV/0!	13,904 (98.8%)	13,911 (98.9%)	-0.01	3,265 (100.0%)	3,263 (99.9%)	0.04	17276 (99.1%)	17281 (99.1%)	0.00
Alpha blockers; n (%)	** (2.8%)	** (4.7%)	-0.10	763 (5.4%)	775 (5.5%)	0.00	339 (10.4%)	344 (10.5%)	0.00	#VALUE!	#VALUE!	#VALUE!
CHA2DS2 VASc score, 180 days, V												
...mean (sd)	1.57 (1.30)	1.49 (1.21)	0.06	1.68 (1.31)	1.69 (1.33)	-0.01	2.45 (1.23)	2.44 (1.28)	0.01	1.82 (1.30)	1.83 (1.32)	0.00
Use of Prasugrel; n (%)	0 (0.0%)	0 (0.0%)	#DIV/0!	23 (0.2%)	28 (0.2%)	0.00	0 (0.0%)	0 (0.0%)	#DIV/0!	23 (0.1%)	28 (0.2%)	-0.03
Use of Loop Diuretics+other diuretics+	** (6.5%)	** (0.9%)	0.30	924 (6.6%)	958 (6.8%)	-0.01	538 (16.5%)	525 (16.1%)	0.01	#VALUE!	#VALUE!	#VALUE!
Acute MI + Old MI; n (%)	** (2.8%)	** (3.7%)	-0.05	291 (2.1%)	288 (2.0%)	0.01	200 (6.1%)	180 (5.5%)	0.03	#VALUE!	#VALUE!	#VALUE!
ACS/unstable angina + stable angina; r	** (0.9%)	** (1.9%)	-0.09	196 (1.4%)	185 (1.3%)	0.01	87 (2.7%)	97 (3.0%)	-0.02	#VALUE!	#VALUE!	#VALUE!
Ischemic stroke + TIA + Late effects of i	** (3.7%)	** (1.9%)	0.11	384 (2.7%)	368 (2.6%)	0.01	186 (5.7%)	183 (5.6%)	0.00	#VALUE!	#VALUE!	#VALUE!
DVT + PE; n (%)	** (1.9%)	** (1.9%)	0.00	251 (1.8%)	239 (1.7%)	0.01	217 (6.6%)	232 (7.1%)	-0.02	#VALUE!	#VALUE!	#VALUE!
Upper GI bleeds + Lower GI bleeds +												
Urogenital bleeds + Other bleeds; n												
(%)	38 (35.5%)	37 (34.6%)	0.02	3,971 (28.2%)	3,956 (28.1%)	0.00	1,002 (30.7%)	985 (30.2%)	0.01	5011 (28.7%)	4978 (28.5%)	0.00