Diabetes Care Among Older Adults Enrolled in Medicare Advantage Versus Traditional Medicare Fee-For-Service Plans: The Diabetes Collaborative Registry

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#### OBJECTIVE

Medicare Advantage (MA), Medicare's managed care program, is quickly expanding, yet little is known about diabetes care quality delivered under MA compared with traditional fee-for-service (FFS) Medicare.

#### **RESEARCH DESIGN AND METHODS**

This was a retrospective cohort study of Medicare beneficiaries ≥65 years old enrolled in the Diabetes Collaborative Registry from 2014 to 2019 with type 2 diabetes treated with one or more antihyperglycemic therapies. Quality measures, cardiometabolic risk factor control, and antihyperglycemic prescription patterns were compared between Medicare plan groups, adjusted for sociodemographic and clinical factors.

#### RESULTS

Among 345,911 Medicare beneficiaries, 229,598 (66%) were enrolled in FFS and 116,313 (34%) in MA plans (for  $\geq$ 1 month). MA beneficiaries were more likely to receive ACE inhibitors/angiotensin receptor blockers for coronary artery disease, to-bacco cessation counseling, and screening for retinopathy, foot care, and kidney disease (adjusted  $P \leq 0.001$  for all). MA beneficiaries had modestly but significantly higher systolic blood pressure (+0.2 mmHg), LDL cholesterol (+2.6 mg/dL), and HbA<sub>1c</sub> (+0.1%) (adjusted P < 0.01 for all). MA beneficiaries were independently less likely to receive glucagon-like peptide 1 receptor agonists (6.9% vs. 9.0%; adjusted odds ratio 0.80, 95% CI 0.77–0.84) and sodium–glucose cotransporter 2 inhibitors (5.4% vs. 6.7%; adjusted odds ratio 0.91, 95% CI 0.87–0.95). When integrating Centers for Medicare and Medicaid Services-linked data from 2014 to 2017 and more recent unlinked data from the Diabetes Collaborative Registry through 2019 (total N = 411,465), these therapeutic differences persisted, including among subgroups with established cardiovascular and kidney disease.

#### CONCLUSIONS

While MA plans enable greater access to preventive care, this may not translate to improved intermediate health outcomes. MA beneficiaries are also less likely to receive newer antihyperglycemic therapies with proven outcome benefits in high-risk individuals. Long-term health outcomes under various Medicare plans requires surveillance. <sup>1</sup>Division of General Internal Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA <sup>2</sup>Center for Health Equity Research and Promotion, Veterans Affairs Pittsburgh Healthcare System, Pittsburgh, PA

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© 2022 by the American Diabetes Association. Readers may use this article as long as the work is properly cited, the use is educational and not for profit, and the work is not altered. More information is available at https://www. diabetesjournals.org/journals/pages/license. Diabetes is reported in one in five Medicare beneficiaries aged  $\geq$ 65 years and is associated with >60% higher out-ofpocket prescription expenditures compared with those without diabetes (1). With increasing costs and complexity of diabetes care, insurance structures may be strong determinants of the provision of and access and adherence to select therapies in clinical practice (2,3). Medicare Advantage (MA), the managed care alternative to traditional "fee-for-service" (FFS) Medicare, is growing rapidly and now provides health insurance coverage to nearly 40% of Medicare beneficiaries in the U.S. (4). As MA enrollment increases, so too have efforts to understand the association of MA with the quality of care received by patients with chronic diseases (5,6).

MA plans often leverage incentive structures to maintain care quality while limiting excessive health care utilization. Many MA plans provide broad access to supplemental benefits, such as telehealth services and transportation resources, not potentially available to traditional FFS Medicare, which may in turn theoretically improve care quality (7,8). However, since MA oversees total patient costs, these plans may also use various strategies to limit therapeutic expenditures and potentially introduce barriers to access to newer expensive therapies, including in diabetes management (9-11). On the other hand, MA plans may have longer-term incentives to use more expensive therapies if they can avoid more costly downstream care due to diabetes-related complications. Limited data are available examining how variations in Medicare plan designs may influence access, care quality, and prescription use, including of newer guideline-recommended therapies such as sodium-glucose cotransporter-2 inhibitors (SGLT2i) and glucagon-like peptide-1 receptor agonists (GLP-1RAs) for clinically high-risk patients, among individuals with diabetes in the U.S. Understanding these patterns is important given the rapid growth in MA enrollment over the last decade and ongoing policy debate about whether these plans result in the delivery of higher-value care, particularly for patients with chronic conditions.

The Diabetes Collaborative Registry (DCR) presents a unique opportunity to explore overall quality of care and use of antihyperglycemic therapies among patients with type 2 diabetes under MA versus FFS Medicare plans. Using this national registry, we sought to examine the association of MA versus FFS insurance status with 1) diabetes quality measures (e.g., appropriate screening and access to specialty care), 2) intermediate health outcomes (e.g., metabolic risk factor control), and 3) antihyperglycemic prescription patterns, including among high-risk individuals with established cardiovascular and kidney disease.

### RESEARCH DESIGN AND METHODS Data Sources

The DCR is a U.S.-based outpatient quality improvement registry of >5,000 clinicians from 374 interdisciplinary practices, including 89 primary care, 275 cardiology, and 8 endocrinology clinics (12). As previously described, patient data, including demographics, clinical characteristics, vital signs, laboratory values, and medications, are collected through an automated system integration solution that extracts relevant data elements from electronic health records (13,14). These elements include discrete data fields, billing data, and physician notes. Data collection is standardized using established definitions, uniform data entry and transmission, and quality checks. In addition, rigorous backend data quality checks are performed on the extracted data, and any data not meeting predefined statistical or clinical plausibility thresholds are quarantined from analyses and flagged for manual review and follow-up with individual practices (14).

Adults  $\geq$ 65 years in the DCR were linked to Centers for Medicare and Medicaid Services (CMS) claims data using the Medicare Beneficiary Summary File. We used these linked data sources to determine Medicare plan status, as described below. The Saint Luke's Mid America Heart Institute and University of Missouri-Kansas City served as the data analysis center. Informed consent was not required given collection of usual care data, and Institutional Review Board approval was granted to analyze aggregate deidentified data for research by Chesapeake Research Review Inc. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline.

#### **Study Population**

We identified all patients  $\geq$  65 years diagnosed as having type 2 diabetes (and not prediabetes or type 1 diabetes). To improve diagnostic accuracy of diabetes and given the focus on therapeutic use and access, we included those who were prescribed at least one antihyperglycemic therapy. For the primary analysis, from 2014 to 2017, we selected only patients with confirmed MA or FFS Medicare enrollment after linkage to the Medicare Beneficiary Summary File (Supplementary Fig. 1) (15). Consistent with prior work, patients enrolled in MA for at least 1 month were classified as MA patients (5). Of note, 92.9% of patients enrolled in MA for at least 1 month maintained that enrollment over the next 12 months. The remainder were considered FFS patients. Since Medicare linkage was not available for more recent years, in the secondary analysis, we evaluated treatment patterns through 2019 (relying on registry data alone for 2018 and 2019 to ascertain Medicare MA or FFS status). Among participants who were enrolled in FFS, 80% self-reported concordant enrollment in DCR registry data. Among participants who were enrolled in MA, only 54% self-reported concordant enrollment in DCR registry data. Patient sociodemographic and clinical characteristics were collected at the last patient encounter.

#### **Outcome Measures**

We examined three sets of outcomes related to diabetes care: quality of care metrics, intermediate health outcomes, and antihyperglycemic prescription patterns using clinical and medication data available from the DCR only (Medicare prescription data were not available). Quality of care metrics included seven metrics as defined by the American College of Cardiology/American Heart Association Task Force on Performance Measures and the CMS Physician Quality Reporting System, a Task Force that informs the clinical guidelines used to manage diabetes (16). These include 1) glycemic control within the past year (defined as patients  $\leq$ 75 years with diabetes who had glycosylated hemoglobin [HbA<sub>1c</sub>]) checked and  $\leq 9.0\%$ , 2) blood pressure (BP) control at most recent visit (defined as patients with hypertension who have a BP <140/90 mmHg or who have a BP  $\geq$ 140/90 mmHg and were prescribed two or more antihypertensive medications), 3) receipt of a prescription for ACE inhibitors (ACEi) or angiotensin receptor blockers (ARBs) in beneficiaries with coronary artery disease (CAD) at the most recent visit, 4-6) diabetic screening for nephropathy, retinopathy, and foot care within the past year, and 7) counseling for tobacco cessation within the previous 2 years. We examined intermediate outcomes, including systolic and diastolic BP, LDL cholesterol (LDL-c) concentration, and HbA<sub>1c</sub> level at the most recent visit. We used data from the most recent visit to examine receipt of a prescription for seven antihyperglycemic medication classes, including insulin, metformin, sulfonylureas, thiazolidinediones, dipeptidylpeptidase 4 (DPP-4) inhibitors, GLP-1RAs, and SGLT2i, as described for use in diabetes treatment guidelines (17,18).

#### **Statistical Analysis**

We first compared differences in patient characteristics of Medicare enrollees with MA versus FFS using standardized differences (>10% difference considered clinically relevant). We then compared rates of achievement of quality metrics, intermediate outcomes, and individual antihyperglycemic classes between eligible patients enrolled in MA and FFS Medicare.

We used multivariable hierarchical logistic regression models with patient characteristics as fixed effects and practice sites as a random effect to account for correlation of patients within the same practice. For the continuous intermediate health measures, we used hierarchical linear regression models. For select evidence-based antihyperglycemic therapies (GLP-1RA and SGLT2i) that may more closely reflect care quality, we built multivariable hierarchical logistic regression models. All models were adjusted for patient-level demographic factors shown to be associated with diabetes care quality, including age, sex, and race and ethnicity (i.e., White or other), key medical comorbidities that may influence therapeutic decision making (i.e., atherosclerotic cardiovascular disease, heart failure, and chronic kidney disease), median household income of ZIP Code (obtained from U.S. Census data from the 2018 American Community Survey) (19-21), number of antihyperglycemic therapies, and clinicianlevel factors (i.e., geographic region and clinical specialty). In addition, in sensitivity analyses, a second model was built adjusting for all patient- and clinician-level factors in the main model together with dual eligibility status. Dual Medicare and Medicaid eligibility was determined using CMS claims files, and both partial and full dual eligibility were counted. Dual eligibility was not available for 2014, and thus, this sensitivity analysis encompassed a smaller sample size (2015-2017) with complete covariate adjustment. Owing to failure of convergence and problematic parameterizations of certain models, we fit a mixed model by maximum likelihood with Laplace approximation using the PROC GLIMMIX command in SAS software (SAS Institute).

We finally evaluated trends in antihyperglycemic therapy use by Medicare MA versus FFS in high-risk clinical subsets, in which GLP-1RA or SGLT2i are recommended in current national and international clinical practice guidelines (17,22). In secondary analyses, we evaluated more recent trends in use of various antihyperglycemic therapies among Medicare beneficiaries enrolled in MA versus FFS plans, overall and among high-risk subsets. Since CMS claims data were not available for more recent years, we relied on investigator reported insurance status in the DCR registry alone to classify patients in 2018 and 2019.

All *P* values were 2-sided, and statistical significance was set at a *P* value <0.05. Analyses were performed using SAS 9.4 software. Data were analyzed from March 2020 to 1 April 2021.

#### RESULTS

#### **Clinical Profiles**

There were 478,107 patients with type 2 diabetes from January 2014 to December 2017 in the DCR registry treated with at least one antihyperglycemic therapy. Of these, 345,911 patients were linked to CMS claims data, including 116,313 (33.6%) enrolled in MA and 229,598 (66.4%) enrolled in FFS Medicare (Fig. 1). Medicare MA and FFS beneficiaries had similar age (74.6 ± 6.7 years vs. 74.7 ± 7.0 years) and proportions of women (50.4% vs. 46.1%); both standardized differences  $\leq$ 10% (Table 1). MA enrollees were less likely to be White (80.5% vs. 87.8%), more likely to be dually eligible for Medicare

and Medicaid (20.4% vs. 11.9%), and lived in areas of lower median income level (\$52,700 vs. \$56,200); all standardized differences >10%. MA beneficiaries were less likely to be treated by a cardiologist (41.2% vs. 44.7%) or endocrinologist (7.1% vs. 9.8%); both standardized differences >10%. On average, there were no substantial differences in the burden of clinical comorbidities between enrollees with MA and FFS. Similarly, no significant differences were observed in vital signs and laboratory values between MA and FFS beneficiaries (Fig. 2). Missing variables of key baseline characteristics are reported in Supplementary Table 1.

# Diabetes Quality of Care Metrics and Intermediate Outcomes

No differences were observed in glycemic or BP control between MA and FFS Medicare beneficiaries (Fig. 2). MA beneficiaries were more likely than FFS Medicare enrollees to receive ACEi/ARBs for CAD (39.2% vs. 38.7%; adjusted odds ratio 1.06. 95% CI 1.04-1.09). tobacco cessation counseling (20.0% vs. 16.9%; adjusted odds ratio 1.05, 95% CI 1.02-1.09), and screening for retinopathy (59.1% vs. 55.6%; adjusted odds ratio 1.08, 95% CI 1.04-1.11), foot care (32.6% vs. 26.9%; adjusted odds ratio 1.13, 95% CI 1.09-1.17), and nephropathy (57.1% vs. 54.7%; adjusted odds ratio 1.14, 95% CI 1.10-1.17) (Fig. 2). MA beneficiaries had independently higher systolic BP (+0.2 mmHg), LDL-c (+2.6 mg/dL), and HbA<sub>1c</sub> (+0.1%) (P < 0.01 for all outcomes) (Fig. 2). Similar findings were observed when models were additionally adjusted for dual eligibility status for Medicare and Medicaid (Supplementary Fig. 1).

#### Antihyperglycemic Therapy Use

Compared with Medicare FFS beneficiaries, MA beneficiaries had higher relative use of metformin and sulfonylureas and lower use of DPP-4 inhibitors, GLP-1RAs, and SGLT2i (Fig. 3). After accounting for variable risk profiles, MA beneficiaries remained less likely to receive GLP-1RAs (6.9% vs. 9.0%; adjusted odds ratio 0.80, 95% CI 0.77–0.84) and SGLT2 inhibitors (5.4% vs. 6.7%; adjusted odds ratio 0.91, 95% CI 0.87–0.95). When integrating CMSlinked data from 2014–2017 and more recent unlinked data from DCR through 2019 (total n = 411,465), differences in receipt of newer antihyperglycemic therapies



**Figure 1**—Identification of study cohorts. We started with 1,544,163 individuals in the DCR, and after exclusions, our final study cohort was 345,911 Medicare beneficiaries, including 229,598 individuals in Medicare FFS and 116,313 individuals in MA. DM, diabetes mellitus; NCDR, National Cardiovascular Data Registry.

persisted over time (Fig. 3). These differences also extended across high-risk clinical subgroups such as atherosclerotic cardiovascular disease, heart failure, and chronic kidney disease (Supplementary Fig. 2).

#### CONCLUSIONS

In a contemporary national registry of older adults with type 2 diabetes, we observed notable differences in the quality of care delivered and drug treatment patterns for patients enrolled in MA compared with Medicare FFS. First, after accounting for differences in clinical profiles, patients enrolled in MA had higher rates of preventive care, including receipt of ACEi/ARBs for CAD, screening for retinopathy, foot care, and nephropathy, and tobacco cessation counseling. Despite this, MA beneficiaries had significantly higher BP, cholesterol, and glycemia, although the magnitude of these differences was modest. In addition. Medicare enrollees had overall low use of evidence-based antihyperglycemic therapies such as GLP-1RAs and SGLT2i, with MA beneficiaries significantly less likely to receive these agents, including those with high-risk comorbidities, such

as established cardiovascular or kidney disease, in which these therapies are guideline recommended.

#### Managed Care Approaches to Diabetes Care

Prior studies have examined the association between Medicare plan structures and care patterns in conditions such as heart failure and CAD (5,6), but limited data exist in diabetes care. As a highly prevalent, chronic medical condition with established guideline-directed best practices as well as high therapeutic costs and health care utilization, type 2 diabetes is well-suited for potential managed care approaches. An older study using the Medicare Current Beneficiary Survey found higher rates of health care utilization in Medicare FFS enrollees compared with those enrolled in MA, although with minimal differences in the process of diabetes care or care satisfaction (23). In our study, MA beneficiaries were more likely to achieve select quality measures, including screening and appropriate receipt of ACEi/ ARBs. Together, these data suggest MA plans appear to be meeting key, generally

lower-cost measures of quality compared with FFS Medicare plans.

#### Prescription Drug Therapy for Diabetes Under Medicare Plans

Our contemporary observations of differential medication use in MA versus Medicare FFS enrollees are congruent with prior assessments, including an analysis of MA beneficiaries compared with commercially insured enrollees that observed MA beneficiaries were less likely to initiate newer antihyperglycemic medications, including DPP-4 inhibitors, GLP-1RAs, and SGLT2i (24). The finding of differential prescribing of newer antihyperglycemic therapies among MA enrollees was also observed in an analysis of Medicare Part D claims from 2015 to 2016, which reported a 5 percentage point higher prescription rate in traditional Medicare beneficiaries compared with MA enrollees (25). These data are consistent with historical observations from Medicare data that reported higher use of established, mostly generic oral antihyperglycemic therapies in MA compared with stand-alone prescription drug plans (26).

Several potential explanations may underlie the observed differences in prescription drug use across Medicare plans. Under MA plans, utilization control mechanisms and cost containment strategies may steer clinicians and patients toward using lower-cost, generic therapies in diabetes care (27,28). At the clinician level, we observed differential access to specialty care (e.g., cardiologists and endocrinologists), with beneficiaries with MA plans reporting lesser access, which may in turn limit opportunities for care optimization with newer antihyperglycemic therapies among higher-risk subgroups. Furthermore, physicians who are more likely to prescribe high-cost antihyperglycemic therapies may be excluded from the coverage network, further impacting pharmacoequity (29). Whereas prior reports suggest that MA plans attract healthier individuals than FFS Medicare (30,31), MA enrollees in our study had greater social risk factors (i.e., greater dual eligibility and living in areas with lower median household incomes) compared with Medicare FFS beneficiaries. Even though risk-adjusted associations were largely unchanged after more detailed accounting of demographics and dual eligibility status, these data highlight the need to implement strategies

Patient instructure         MA (n = 116,31)         Medicare Fr5 (n = 239,38)         Standardized difference (%)           Demographic characteristics         Age (vars)         74.6 t.6.7         74.7 t 7.0         2.6           Age (vars)         55.655 (50.5)         14.6,627 (87.8)         0.1         8.6           White         6.6,575 (80.5)         14.6,627 (87.8)         0.1         8.6           Other         16,577 (19.5)         20.419 (12.2)         2.2         1.6           Medical history         T         2.2,11 (11.5)         2.2.2         1.6           Phypipidema         6.6,844 (83.3)         1.80,90 (82.3)         2.6         1.6           Phypipidema         6.6,844 (83.3)         1.80,90 (82.3)         2.6         1.6           Strake/transitics         1.0,731 (40.8)         1.1,839 (15.1)         3.6         1.4           Arral Infrastree disease         2.3,232 (10.0)         2.3.3 (14.1)         3.8         1.4         3.3           Strake/transit inchemic attack         2.4,710 (21.2)         3.3,400 (10.0)         7.0         1.6           Metabolic syndrome         1,221 (12.2)         2.3,60 (10.0)         7.0         1.6         1.2           Network catreloward atreattack         2.7,71 (24.9) <t< th=""><th>Table 1-Clinical promes in those enrolle</th><th>eu in MA versus Meulcare</th><th></th><th></th></t<>	Table 1-Clinical promes in those enrolle	eu in MA versus Meulcare		
Demagnific characteristics Media (Apr 1977) 74.6 ± 6.7 (7.4.7 ± 7.0) 2.6 Moren 58,658 (50.4) 105,926 (46.1) 8.6 Takae/ethnicky 2.2.8 (10.4) 105,926 (46.1) 74.0 Other 6.5.77 (80.5) 1.2.6,663 (57.8) 2.2.6 More 16.5.77 (80.5) 1.2.6,663 (57.8) 2.2.6 More 16.5.77 (80.5) 1.2.6,663 (57.8) 2.2.6 More 16.5.77 (80.5) 1.2.6,663 (57.8) 2.2.6 More 10.5.77 (13.4) 6.63 (23.2.5 (86.5) 6.1 Pypelipetinia 6.5.678 (83.3) 1.89.0.56 (82.3) 2.6 More 10.5.77 (13.4) 4.6,623 (23.3) 2.6 More 10.5.77 (13.4) 4.6,623 (23.3) 2.6 More 10.5.77 (13.4) 4.6,623 (23.3) 2.6 More 10.5.77 (13.4) 10.5 (23.6) (23.2.1) 10.5 (25.6) 10.5 More 10.5 (23.5) 10.5 (25.7) 10.5 (25.6) 10.5 More 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 More 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6) 10.5 (25.7) 10.5 (25.6)	Patient characteristics	MA (n = 116,313)	Medicare FFS ( $n = 229,598$ )	Standardized difference <sup>®</sup> (%)
Age (years)         74.6 ± 6.7         74.7 ± 7.0         2.6           Wormen         58,658 (5.0.1         105,252 (6.1)         8.6           Revel Christing         20,121         3.6         3.6           White         6,575 (80.5)         10,652 (87.8)         20,419 (12.2)           Tousshold income (per \$1,000)         52.7 (143.4, 66.8)         52 (46.3, 73.8)         24.8           Dual eligible strutus         22,487 (20.4)         56 (21.6, 37.8)         2.6           Medical history         """"""""""""""""""""""""""""""""""""	Demographic characteristics			
Women         58,658         105,926         (46.1)         8.6           Mike         66,575         80.5)         1.46,662         87.8)           Motion         66,575         80.5)         1.46,662         87.8)         24.8           Dual eligible stusis         2.2487         20.41         26.313         11.9         22.2           Medical Instany         56,884         68.33         1.89,036         62.31         2.6           Medical Instany         56,884         68.33         1.89,036         2.6.         1.6           Opplighetmin         25,375         60.74         2.49         8.90,67         2.2.0         6.1           Atrial Intelliston         23,375         10.0.1         2.5.6         1.6.1         1.6.7           Stroke/transins Inchemic atriats         2.4,10         12.2         4.949         1.0.5         2.3           Attersciencits Cardinascull disesse         7.2.521         6.3.1         1.3.2         1.0.2         1.0.2           Stroke/transins Intermine         7.4.251         1.0.2.2         2.0000         0.0         7.0.0           Newer         3.0.717         1.0.2.226         0.0.333         0.2.0         0.0.2.2.0         2.2.0	Age (years)	74.6 ± 6.7	74.7 ± 7.0	2.6
Base/Athinity         20.1           White         66.575 (80.5)         146.662 (87.8)           Other         16.170 (19.5)         20.419 (12.2)           Underlighte status         22.887 (20.4)         26.131 (11.9)         23.2           Medical history         ************************************	Women	58,658 (50.4)	105,926 (46.1)	8.6
Mihe         66.575         80.51         146.662         67.83           Household income (per \$1.000)         52.7 (43.4, 66.8)         56.2 (46.3, 73.8)         24.8           Dual elighe stuts         22.887 (20.4)         26.313 (11.9)         23.2           Medical history	Race/ethnicity			20.1
Other         16.170 (19.5)         20.419 (12.2)           Household incone (per \$1.00)         22.71434, 66.84         52.4643, 73.81         23.2           Medical history         23.2         23.2           Hypertension         105.138 (0.04)         203.251 (85.5)         6.1           Dysipidemins         26.644 (83.31         389.056 (82.3)         2.6           Heart future         26.074 (22.4)         48.829 (21.3)         2.8           CAD         57.915 (68.8]         50.567 (22.2)         6.1           Peripheral arry disease         28.828 (28.8]         50.5677 (22.2)         6.1           Mycoardial infinitration         11.678 (10.0)         21.518 (44)         2.3           Atherasolerotic cardiovacular disease         7.821 (6.3)         142.259 (62.0)         0.8           Mycoardial infinitration         14.268 (12.2)         23.066 (10.0)         7.0           Interaction are disease         7.821 (6.4)         10.2         10.2           Verenc         48.771 (43.8)         100.628 (45.6)         6.8           Current         36.463 (13.1)         58.857 (16.7)         10.2           Unit > 20         0.638 (7.0)         17.09         66.1         6.8           Current         36.498 (1	White	66,575 (80.5)	146,662 (87.8)	
Household income (per 51,000) 52,7 (43, 46,68) 55,2 (46,3, 73,8) 24.8 Dual eligible status 22,2887 (20.4) 26,313 (11.9) 32.2 Medical history  Hypertension 105,338 (60.4) 203,251 (85.5) 1.5 Hypertension 26,074 (23.1) 120,252 (18.5) 1.5 (40) 57,915 (48.8) 118,339 (51.6) 3.6 (40) 57,915 (48.8) 118,339 (51.6) 3.6 (41) 45,823 (12.8) 1.5 (42) 45,823 (12.8) 1.5 (43) 45,823 (12.8) 1.5 (44) 45,833 (12.8) 1.5 (44) 45,833 (12.8) 1.5 (44) 45,833 (12.8) 1.5 (44) 1.5 (45) 1.5 (44) 1.5 (45)	Other	16,170 (19.5)	20,419 (12.2)	
Dual eligible status         22,827 (20.4)         26,131 (1.9)         23.2           Medical history         105,338 (90.4)         202,251 (85.5)         6.1           Displiption         96,6848 (83.3)         203,056 (92.3)         2.6           CAD         57,9715 (40.8)         118,339 (51.6)         3.6           Artial fibrillation         23,377 (20.1)         32,268 (12.0)         7.1           Peripheral retry disease         28,252 (48.8)         50,677 (22.2)         6.1           Myocardial Infraction         11,1678 (10.0)         21,513 (4.4)         2.3           Athereoscientic cardiowacular disease         72,521 (62.3)         142,259 (62.0)         0.8           Metabolic syndrome         14,276 (10.2)         31,318 (1.4)         1.3           Depression         14,264 (32.3)         58,657 (26.7)         0.0           Infection-pulmonavy         7,445 (64.3)         100,628 (45.6)         0.333 (27.6)           Upid-lowering monstatin (anyl)         37,594 (32.3)         78,913 (34.4)         6.4           Lipid-lowering monstatin (anyl)         37,594 (32.3)         78,913 (34.4)         6.3           Nation         5,250 (45.5)         10.382 (4.7)         5.0           Statin         83,700 (72.0)         12,220 (20.	Household income (per \$1,000)	52.7 (43.4, 66.8)	56.2 (46.3, 73.8)	24.8
Medical history         96,040 (20.3) (20.25.1 (88.5) (6.1           Dynipitionia         96,046 (83.3) (190,02.5.1 (88.5) (6.1           Haar failure         26,074 (22.4) (48,029 (21.3) (2.6           Hear failure         23,275 (20.1) (5.2,08.1 (21.0) (7.1           Peripheral attery disesse         23,275 (20.1) (5.2,08.1 (21.0) (2.1           Stroke/transient ischemic attack         20,710 (11.2) (44,977 (10.2) (6.1           Mycacrial informic         21,678 (10.0) (21.5) (4.1           Mycacrial informic         11.12 (2.1,3118 (1.4) (1.3           Mettabolic syntrome         1.14 (12.1) (2.3,118 (1.4) (1.3           Mettabolic syntrome         1.42.6 (12.2) (2.3,060 (10.0) (2.5)           Infection-pulmonary         7.454 (6.4) (21.1) (5.8,857 (6.7) (2	Dual eligible status	22,887 (20.4)	26,131 (11.9)	23.2
Hypertension         105,139 (90.4)         203,251 (86.5)         6.1           Ovelapidemia         86.84 (83.3)         189.05 (82.3)         2.6           Heart future         26.074 (22.4)         48.829 (12.3)         2.8           Ariai tinvillation         23.375 (20.1)         52.861 (22.0)         7.1           Peripheral artery disesse         28.282 (28.8)         50.967 (22.2)         6.1           Stroleytransient tickemic attack         24.710 (21.2)         44.947 (19.6)         6.1           Motional infraction         11.678 (10.0)         22.513 (34.2,29 (62.0)         7.0           Infraction-pulmonary         7.445 (6.4)         12.266 (12.0)         7.0           Infraction-pulmonary         7.445 (6.4)         12.266 (12.0)         7.0           Never         43.671 (43.1)         3.6457 (26.7)         20.2           Never         43.671 (43.1)         3.6457 (26.7)         20.2           Out         25.59 (45.5)         106.284 (70.6)         24.8           Upid-lowering monstatin (any)         3.594 (23.3)         78.913 (44.4)         64.4           Externine         80.88 (70.1)         106.284 (70.6)         22.6           Upid-lowering nonstatin (any)         3.594 (42.3)         78.913 (44.9)         6.3<	Medical history			
Optimizentia         96.984 (83.3)         139.036 (82.3)         2.6           Harr failure         26.074 (22.4)         48.893 (21.3)         2.8           Atrial fibrillation         23.375 (20.1)         52.861 (23.3)         7.1           Peripheral attry disease         23.375 (20.1)         52.861 (23.3)         7.1           Peripheral attry disease         23.375 (20.1)         52.861 (23.3)         7.1           Mycordial infraction         11.678 (10.0)         22.1513 (3.4)         2.3           Athersosterotic cardioxascular disease         7.251 (62.3)         142.259 (62.0)         0.8           Metabolic xyndrome         14.11 (12         3.118 (1.4)         1.3           Depression         14.22 (12.2)         23.060 (10.0)         7.0           Inhection-pulmonary         7.445 (6.4)         12.286 (5.4)         45.5           Tobacco use	Hypertension	105,138 (90,4)	203,251 (88,5)	6.1
Hear failure         2607 (22.4)         48.89 (21.3)         2.4           CA0         57.915 (68)         113.399 (51.6)         3.6           Artial fibrillation         23.357 (20.1)         52.861 (23.0)         7.1           Pripheal artery disease         28.222 (2.8)         59.967 (22.2)         6.1           Stroke/transient itschemic attack         28.222 (2.8)         59.967 (22.2)         6.1           Mycoardal infarction         11.678 (10.0)         21.513 (9.4)         2.3           Mattensoletocic cardiovascular disease         7.521 (62.3)         14.229 (2.0)         0.3           Mattensoletocic cardiovascular disease         7.521 (62.3)         14.229 (2.0)         0.3           Depression         14.12 (12.2)         2.3060 (10.0)         7.0           Infection-pulmonary         7.445 (6.4)         12.266 (5.4)         4.5           Otacco use	Dyslipidemia	96.884 (83.3)	189,036 (82,3)	2.6
CA0         57915 [40.8]         113.399 [51.6]         3.6           Atrial fibrillation         23.375 [20.1]         52.881 [23.0]         7.1           Peripheral artery disease         23.375 [20.1]         52.881 [23.0]         7.1           Peripheral artery disease         23.375 [20.1]         52.881 [23.0]         7.1           Stroke/translent ischem istack         24.701 [21.2]         44.947 [19.6]         4.1           Mycardali infrartion         14.678 [10.0]         21.513 [3.4]         2.3           Athersosclerotic cardiovascular disease         7.521 [62.3]         142.259 [62.0]         0.8           Infection-pulmonary         7.445 [64.1]         23.600 [10.0]         7.0           Infection-pulmonary         7.445 [64.3]         13.88.57 [62.7]         0.2           Current         34.644 (31.1]         58.857 [62.7]         0.2           Upid-lowering medications	Heart failure	26 074 (22 4)	48 829 (21 3)	2.8
Arran fibrillation         23,375 (20.3)         52,861 (23.0)         7.1           Peripheral artery disease         28,828 (24.8)         50,967 (22.2)         6.1           Stroke/transient ischemic attack         24,210 (21.2)         44,947 (15.6)         4.1           Mycardial infarction         11,678 (10.0)         21,513 (9.4)         2.3           Metabolic syndrome         1,411 (1.2)         3,118 (1.4)         1.3           Depression         1,4226 (12.2)         22,060 (10.0)         7.0           Infection-pulmonary         7,445 (6.4)         1.2,268 (5.4)         4.5           Tobacc ouse         0.2         7.00         7.00           Quit >121 conoths ago         27,712 (24.9)         60,833 (27.6)         7.00           Upid-lowering medications	CAD	57 915 (49 8)	118 399 (51 6)	3.6
Peripheral artery disease         28,828 (24.8)         50,967 (22.2)         6.1           Strok/transient ischemic attack         24,710 (21.2)         44,947 (19.6)         4.1           Mycardali infarction         11,678 (10.10)         21,913 (9.4)         2.3           Attherosclerotic cardiovascular disease         72,521 (62.3)         142,259 (62.0)         0.8           Metabolic syndrome         14,11 (2)         3,118 (14)         1.3           Depression         14,226 (12.2)         2,3060 (10.0)         7.0           Inflection-pulmonary         7,454 (6.4)         12,286 (5.4)         4.5           Tobacco use         0.2         0.2         0.2         0.2           Verer         48,771 (43.8)         100,628 (45.6)         0.4         0.4         0.5           Quit >12 months ago         27,712 (24.9)         60,833 (27.6)         0.4         0.4         0.5         0.5           Lipid-lowering medications         1.0         1.0         2.2         0         2.2         0         2.4         No.2         0.1         2.2         0         2.2         0         2.2         0         2.2         0         2.2         0         2.2         0         2.2         0         2.2	Atrial fibrillation	23 375 (20 1)	52 861 (23 0)	7 1
Strokey transmit schemic statek         24,730 (21.2)         44,847 (19.6)         4.1           Mycoardial infarction         11,678 (10.0)         21,513 (9.4)         2.3           Matheroscient ischemic ardiovascular disease         72,521 (62.3) (14,22.59 (62.0)         0.8           Metabolic syndrome         1,411 (1.2)         3,118 (1.4)         1.3           Depression         1,42,26 (12.2) (23,040 (10.0)         7.0           Infection-pulmonary         7,445 (6.4)         12,286 (5.4)         4.5           Tobacc ouse	Perinheral artery disease	28 828 (24 8)	50 967 (22.2)	6.1
Angeneratial infraction         11.078         11.071         12.513         12.4           Atherosclerotic cardiovascular disease         72.521         162.23         14.2259         62.01         0.8           Metabolic syndrome         14.121         21.318         14.4         1.3           Depression         14.4226         12.286         62.01         7.0           Infection-pulmonary         7.445         66.4         4.5           Tobacco use         0.2         0.0         0.0           Never         48,671         14.38         100.628         65.6           Current         34,664         13.13         58,857         26.7           Quit >12 months ago         27,712         124.9         60.833         27.6           Upid-lowering medications         10.2         2.4         5.0           Statin         8,088         (7.0)         19.08         6.8           Fibrates         12.122         10.0         22.0         1.0           Upid-lowering notatin (any)         37.594         10.3         22.0         1.0           Upid-lowering notatin (any)         37.594         10.3         23.0         1.0           Upid-lowering notatin (any)	Stroke/transient ischemic attack	24,710 (21.2)	44 947 (19 6)	4 1
mitoculai mitaticular disease         7,252 (62.3)         1.42,26 (62.0)         0.8           Metabolic syndrome         1,411 (1.2)         3,118 (1.4)         1.3           Depression         1,42,26 (12.2)         23,060 (10.0)         7.0           Infection-pulmonary         7,445 (6.4)         12,286 (5.4)         4.5           Tobacco use         0.2         0.2         0.2           Never         48,671 (43.8)         100,628 (45.6)         0.2           Quit >12 months ago         27,712 (24.9)         60,833 (27.6)         0.1           Upid-lowering medications         10         24,228 (5.7)         0.1           Upid-lowering monstatin (any)         37,594 (32.3)         78,913 (34.4)         6.4           Exerimine monstatin (any)         87,594 (32.3)         78,913 (34.4)         6.4           Exerimine monstatin (any)         87,594 (32.3)         78,913 (34.4)         6.4           Partias         12,121 (0.4)         24,241 (0.6)         32.0           Nation         83,770 (72.0)         162,041 (70.6)         32.0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         10           Lipid-lowering therapies, n         3.2         7         5.5           ACE <td< td=""><td>Myocardial infarction</td><td>11678(100)</td><td>(15.0)</td><td>7.1</td></td<>	Myocardial infarction	11678(100)	(15.0)	7.1
Anterbolie Syndhomized in Decision         12,21 (12,2)         12,21 (12,4)         1.3           Depression         14,226 (12,2)         23,060 (10,0)         7,0           Inflection-pulmonary         7,45 (6.4)         12,28 (6.4)         4,5           Tobacco use         0.2         0.7         0.1         10,2           Never         44,644 (31,1)         56,857 (26,7)         0.1         10,2           Quit >12 months ago         27,712 (24,9)         60,833 (27,6)         10,2           Lipid-lowering medications         12,28 (10,4)         24,278 (10,6)         24,4           Nacin         5,250 (4,5)         10,032 (4,7)         5,0           Statin         83,770 (72,0)         126,204 (70,6)         32,0           PCSK9 Inhibitor         358 (0,3)         844 (0,4)         1.0           Lipid-lowering therapies, n         3.2         0         22,582 (19,4)         45,619 (19,9)           1         65,852 (56,6)         126,451 (55,1)         3.0         27,783 (28,9)         27,783 (28,9)         27,783 (24,9)           3         141 (0,1)         326 (0,1)         3.0         27,783 (24,9)         3.0           1         65,852 (56,6)         126,451 (55,1)         3.0         27,783 (24,9)	Athorosclorotic cardiovascular disease	72 521 (62 2)	142 259 (62.0)	2.5
Mickaboli, Synthetine         1, 31 (12)         3, 1.8 (1-4)         1.3           Depression         14,226 (12,2)         23,66 (10,0)         7.0           Infection-pulmonary         7,445 (6,4)         12,286 (6,4)         4.5           Tobacco use         0.2         0.2           Never         48,671 (43,8)         100,628 (45,6)         0.4           Quit >12 months ago         27,712 (24,9)         60,833 (27,6)         0.2           Lipid-lowering medications         1         10,10,828 (45,7)         0.4           Lipid-lowering monstatin (any)         37,594 (32,3)         78,913 (34,4)         6.4           Exerimine         8,088 (7,0)         19,708 (8,6)         6.8           Fibrates         12,122 (10,4)         24,278 (10,6)         2.4           Nacian         5,250 (4,5)         10,832 (4,7)         5.0           Statin         83,770 (72,0)         16,2041 (70,6)         32.0           PCSK9 Inhibitor         358 (0,3)         844 (0,4)         10           Lipid-lowering therapies, n         2         2,7738 (23,8)         57,202 (24,9)           3         1412 (0,1)         326 (0,1)         1.5         3.0           Actii         60,933 (51,7)         166,795 (46,5)	Motabolic cundromo	1 411 (1 2)	142,235(02.0)	0.8
Depression         14,226 (12.2)         23,080 (10.0)         7.0           Infection-pulmonary         7.445 (6.4)         12,268 (5.4)         4.5           Tobacco use         10.2         10.2           Never         48,771 (43.8)         100,628 (45.6)         10.2           Current         34,644 (31.1)         58,857 (26.7)         10.2           Lipid-lowering medications         50,033 (27.6)         6.4           Lipid-lowering nonstatin (any)         37,594 (32.3)         78,913 (34.4)         6.4           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Nacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,770 (72.0)         126,041 (70.6)         32.0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3         141 (0.1)         326 (0.1)           1         25,582 (15.6)         12,64.51 (55.1)         10.5         3.6           ARB         40,797 (35.1)         80,053 (34.9)         2.7         3           1         11,01         32         10.5         5.5           β Blocker         7,751 (6.1,7)         106,795 (46.	Depression	1,411 (1.2)	3,110 (1.4)	1.3
Interctor-pulmonary         7,445 (c.4)         1.2.26 (s.4)         4.3           Never         48,771 (43.8)         100,628 (45.6)	Depression	14,226 (12.2)	23,060 (10.0)	7.0
100acto use         10.2           Never         48,771 (43.8)         100,628 (45.6)           Current         34,644 (13.1)         55,857 (26.7)           Quit >12 months ago         27,712 (24.9)         60,833 (27.6)           Lipid-lowering medications         1         6.4           Lipid-lowering monstatin (any)         37,594 (32.3)         78,913 (34.4)         6.4           Exetimible         8,088 (7.0)         19,708 (8.6)         6.8           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Nacin         5,250 (4.5)         10,832 (4.7)         5.0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3         141 (0.1)         32 (6.1)           10         65,852 (56.6)         126,451 (55.1)         2.7         5.5           2         27,738 (23.8)         57,202 (24.9)         3.0         141 (0.1)         32 (6.1)           Acti         60,186 (51.7)         106,795 (46.5)         3.0         1.7         6.0           Actium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5         5.5           β-Bocker         7,751 (6.7)         8,047	Infection-pulmonary	7,445 (6.4)	12,286 (5.4)	4.5
Never         44, 7/1 (43.8)         100, b28 (43.6)           Current         34, 644 (31.1)         58, 857 (26.7)           Quit >12 months ago         27, 712 (24.9)         60, 833 (27.6)           Lipid-lowering monications	lobacco use	40 774 (42 0)	100 (30 (45 0)	10.2
Urrent         34,944 (a1.)         58,857 (26.7)           Up 12 months ago         27,712 (24.9)         60,833 (27.6)           Lipid-lowering medications         5         5,913 (34.4)         6.4           Exetimibe         8,088 (7.0)         19,708 (8.6)         6.8           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Niacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,707 (72.0)         162,041 (70.6)         32.0           PCSN9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         32,252 (19.4)         45,619 (19.9)         1           0         65,852 (56.6)         126,451 (55.1)         2         2           2         2,738 (23.8)         57,202 (24.9)         3         10.5           3         141 (0.1)         326 (0.1)         44,413         5.5           ARB         40,797 (35.1)         80,053 (34.9)         2.7         5.6           Calcium channel blocker         60,383 (52.4)         114,415 (49.8)         5.5           B-Blocker         74,161 (63.8)         143,375 (64.6)         3.00           Thaizide diuretic         2,772 (2.4)	Never	48,771 (43.8)	100,628 (45.6)	
Cut >12 months ago         27,712 (4/9)         60,833 (27.6)           Lipid-lowering medications         J. 5,943 (32.3)         78,913 (34.4)         6.4           Exetimibe         8,088 (7.0)         19,708 (8.6)         6.8           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Nacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,770 (72.0)         162,041 (70.6)         32.0           PCKS9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2         3.2           0         22,582 (19.4)         45,619 (19.9)         3           1         22,582 (19.4)         45,619 (19.9)         3           1         24,738 (23.8)         57,202 (24.9)         3           1         10.01         326 (0.1)         105           ARB         40,797 (35.1)         80,053 (34.9)         2.7           ARB         40,797 (35.1)         80,053 (34.9)         2.7           ARB         40,797 (35.1)         106,075 (64.6)         3.0           Thiazide diuretic         2,772 (2.4)         4,933 (2.1)         2.3           Loop diuretic	Current	34,644 (31.1)	58,857 (26.7)	
Lipid-lowering medications Lipid-lowering nonstain (any) 37,94 (32.3) 78,913 (34.4) 6.4 Exetimibe 8,088 (7.0) 19,708 (8.6) 6.8 Fibrates 12,122 (10.4) 42,278 (10.6) 2.4 Fibrates 12,122 (10.4) 42,278 (10.6) 32.0 Statin 83,770 (72.0) 162,041 (70.6) 32.0 PCSP Inhibitor 358 (0.3) 84 (0.4) 1.0 Lipid-lowering therapies, <i>n</i> 2,582 (19.4) 45,619 (19.9) 1 2 2,582 (19.4) 45,619 (19.9) 1 2 2,582 (19.4) 45,619 (19.9) 1 2 2,773 (23.8) 57,702 (24.9) 3 141 (0.1) 326 (0.1) Antihypertensive medications ARB 40,797 (35.1) 80,053 (34.9) 2.7 Calcium channel blocker 60,933 (52.4) 114,145 (49.8) 5.5 Fibrade 40,797 (35.1) 80,053 (34.9) 2.7 Calcium channel blocker 74,161 (63.8) 148,375 (64.6) 3.0 Thiazide diuretic 2,772 (2.4) 4,903 (2.1) 2.3 Loop diuretic 36,220 (31.1) 71,630 (31.2) 4.4 Antihypertensive therapies, <i>n</i> 60 7,751 (6.7) 18,047 (7.9) 1 31,126 (26.8) 63,387 (27.6) 2 45,257 (38.9) 88,654 (38.6) 3 42,5534 (22.0) 46,691 (2.0.3) 4 5 Composition 13,193 (11.3) 31,897 (13.9) Northeast 16,884 (14.5) 35,016 (1.5.3) South 16,284 (14.5) 35,016 (1.5.3) South 16,284 (14.5) 35,016 (1.5.3) South 16,284 (14.5) 35,016 (1.5.3) South 74,279 (63.9) 14,2789 (62.2) Kest 10,597 (10.3) 19,896 (8.7) Calciology 47,271 (24.12) 102,539 (44.7) Internal medicine 22,462 (19.3) 36,370 (15.9) PCIBAL 22,534 (22.0) 46,691 (15.9) PCIBAL 23,254 (38.9) 2.7 Calcium characteristics Secontaphic region 7,751 (6.7) 18,047 (7.9) 1 Calciology 47,271 (23.9) 36,370 (15.9) PCIBA 24,343 (20.9) 36,370 (15.9)	Quit >12 months ago	27,712 (24.9)	60,833 (27.6)	
Lipid-lowering nonstatin (any)         37,594 (32.3)         78,913 (34.4)         6.4           Ezetimibe         8,088 (7.0)         19,708 (8.6)         6.8           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Niacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,770 (72.0)         162,041 (70.6)         32.0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2         3.2           0         22,582 (19.4)         45,619 (19.9)         3.2           1         22,585 (35.6)         126,5451 (55.1)         3.0           Anthypertensive medications         441 (0.1)         326 (0.1)         3.1           Anthypertensive medications         5.5         5.5         3.0         3.0           Calcium channel blocker         60,186 (51.7)         106,795 (46.5)         10.5         3.0           ARB         40,797 (35.1)         104,345 (49.8)         5.5         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0         3.0           Thiazide diuretic         2,772 (2.4)         4,903 (2.1)         2.3	Lipid-lowering medications			
Exetimible         8,088 (7,0)         19,708 (8,6)         6.8           Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Niacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,770 (72.0)         162,041 (70.6)         32.0           PCSR9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         22,582 (19.4)         45,619 (19.9)         1           1         65,852 (56.6)         122,6451 (55.1)         3           2         27,738 (23.8)         57,202 (24.9)         3           3         141 (0.1)         326 (0.1)         10.5           ARB         40,797 (35.1)         80,053 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (46.6)         3.0           Thiazide diuretic         27,772 (2.4)         43903 (2.1)         2.3           Loop diuretic         36,220 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0         6.3387 (27.6)         3.3           2         45,287 (33.9)         88,654 (36.6) <td>Lipid-lowering nonstatin (any)</td> <td>37.594 (32.3)</td> <td>78.913 (34.4)</td> <td>6.4</td>	Lipid-lowering nonstatin (any)	37.594 (32.3)	78.913 (34.4)	6.4
Fibrates         12,122 (10.4)         24,278 (10.6)         2.4           Niacin         5,250 (4.5)         10,832 (4.7)         5.0           Statin         83,770 (7.20)         162,041 (70.6)         32.0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2         3.2           0         22,582 (19.4)         45,619 (19.9)         1           2         27,738 (23.8)         57,202 (24.9)         3           3         10 (1)         326 (0.1)         3.2           Antihypertensive medications         410 (0.1)         326 (0.1)         3.2           ARB         40,797 (35.1)         80,805 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5           3.8         40,797 (35.1)         80,705 (34.9)         2.3           Loop diuretic         2,7728 (26.8)         3.03         3.0           Thiazide diuretic         2,772 (2.4)         4,903 (2.1)         2.3           Loop diuretic         36,220 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0         6.0	Ezetimibe	8.088 (7.0)	19.708 (8.6)	6.8
Niacin         5,250 (4,5)         10,832 (4,7)         5.0           Statin         83,770 (72.0)         162,041 (70.6)         32.0           PCSK9 Inhibitor         358 (0.3)         84 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2           0         22,582 (19.4)         45,619 (19.9)         3.2           1         65,852 (56.6)         126,451 (55.1)         3.2           2         77,738 (23.8)         57,202 (24.9)         4.1           3         141 (0.1)         326 (0.1)         3.2           Antihypertensive medications         40,797 (35.1)         80,053 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,415 (49.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0           Thiazide diuretic         2,772 (24)         4,903 (2.1)         2.3           Loop diuretic         36,220 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0         6.3           0         7,751 (6.7)         18,047 (7.9)         1         31,126 (26.8)         63,387 (27.6)         2           2         45,287 (38.9) <td< td=""><td>Fibrates</td><td>12,122 (10,4)</td><td>24,278 (10,6)</td><td>2.4</td></td<>	Fibrates	12,122 (10,4)	24,278 (10,6)	2.4
Nuclai         B3,770 (72,0)         162,041 (70,6)         32,0           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2           0         22,582 (19,4)         45,619 (19,9)           1         65,852 (56.6)         126,451 (55.1)           2         27,738 (23.8)         57,202 (24.9)           3         141 (0.1)         360 (0.1)           Anthypertensive medications         40,797 (35.1)         80,533 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         141,414 (9.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0           Thiazide diuretic         2,772 (2.4)         4,903 (2.1)         2.3           Loop diuretic         3.126 (26.8)         63,387 (27.6)         6.0           0         7,751 (6.7)         18,047 (7.9)         6.0           1         31,126 (26.8)         63,387 (27.6)         6.0           2         45,287 (38.9)         88,564 (38.6)         5           3         25,534 (22.0)         46,691 (20.3)         4           4         6,310 (5.4)         12,303 (5.4)         5	Niacin	5 250 (4 5)	10 832 (4 7)	5.0
Starth         SD(7,10)         12,00         12,00           PCSK9 Inhibitor         358 (0.3)         844 (0.4)         1.0           Lipid-lowering therapies, n         3.2         3.2           0         22,582 (19,4)         45,619 (19,9)           1         65,852 (56.6)         126,451 (55.1)           2         27,738 (23,8)         57,202 (24,9)           3         141 (0.1)         326 (0.1)           ActEi         60,186 (51.7)         106,795 (46.5)         10.5           ARB         40,797 (35.1)         80,053 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0           Thiazide diuretic         2,772 (24)         4,903 (31.2)         2.3           Loop diuretic         36,220 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0         6.0           0         7,751 (6.7)         18,047 (7.9)         1         6.0           1         31,126 (26.8 63,387 (27.6)         2         3         6.3           2         5354 (22.0)         46,691 (20.3)         4 <td>Statin</td> <td>83 770 (72 0)</td> <td>162 0/1 (70.6)</td> <td>32.0</td>	Statin	83 770 (72 0)	162 0/1 (70.6)	32.0
Pictor         1.3           Lipid-lowering therapies, n         3.2           0         22,582 (19.4)         45,619 (19.9)           1         65,852 (56.6)         126,451 (55.1)           2         27,738 (23.8)         57,702 (24.9)           3         141 (0.1)         326 (0.1)           Antihypertensive medications         4         5.5           ARB         40,797 (35.1)         80,053 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0           Thiazide diuretic         2,772 (2.4)         4,903 (2.1)         2.3           Loop diuretic         3,6220 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0           0         7,751 (6.7)         18,047 (7.9)         1           1         31,126 (26.8)         63,387 (27.6)         2           2         3305 (0.3)         516 (0.2)         2           4         6,310 (5.4)         12,303 (5.4)         2           3         25,534 (22.0)         46,691 (20.3)         4           4         530	PCSKQ Inhibitor	258 (0.2)	844 (0.4)	1.0
Lipid-lowering therapies, n 3,2 0 22,582 (19.4) 45,619 (19.9) 1 2,2582 (56.6) 126,451 (55.1) 2 2,7738 (23.8) 57,202 (24.9) 3 141 (0.1) 326 (0.1) Antihypertensive medications ACEi 60,186 (51.7) 106,795 (46.5) 10.5 ARB 40,797 (35.1) 80,053 (34.9) 2.7 Calcium channel blocker 60,933 (52.4) 11,4145 (49.8) 5.5 β-Blocker 74,161 (63.8) 148,375 (64.6) 3.0 Thiazide diuretic 2,772 (2.4) 4,903 (2.1) 2.3 Loop diuretic 36,220 (31.1) 71,630 (31.2) 4.4 Antihypertensive therapies, n 6.0 0 7,751 (6.7) 18,047 (7.9) 1 31,126 (26.8) 63,387 (27.6) 2 45,287 (38.9) 88,654 (38.6) 3 25,534 (22.0) 46,651 (20.3) 4 5 305 (0.3) 516 (0.2) Hospital /clinician characteristics Geographic region 9,305 (0.3) 516 (0.2) Hospital /clinician characteristics Geographic region 9,3 Northeast 13,193 (11.3) 31,897 (13.9) Midwest 16,884 (14.5) 35,016 (15.3) South 74,279 (63.9) 142,789 (62.2) West 17,0 Cardiology 47,912 (41.2) 102,539 (44.7) Internal medicine 2,2,462 (19.3) 36,570 (15.9) Primary care		558 (0.5)	044 (0.4)	1.0
022,582 (19.4)45,619 (19.9)165,552 (56.6)126,451 (55.1)227,738 (23.8)57,202 (24.9)3141 (0.1)326 (0.1)ACEiACEi60,186 (51.7)106,795 (46.5)10.5ARB40,797 (35.1)80,053 (34.9)2.7Calcium channel blocker60,933 (52.4)114,145 (49.8)5.5β-Blocker74,161 (63.8)148,375 (64.6)3.0Thiazide diuretic2,772 (2.4)4,903 (2.1)2.3Loop diuretic3,6220 (31.1)71,630 (31.2)4.4Antihypertensive therapies, n6.007,751 (6.7)18,047 (7.9)131,126 (26.8)63,387 (27.6)245,5287 (38.9)88,654 (38.6)3305 (0.3)516 (0.2)Hospital /clinician characteristicsGeographic region9.3Northeast16,884 (14.5)35,016 (15.3)South74,279 (63.9)142,789 (62.2)West10,957 (10.3)19,896 (8.7)Outies specialty7.0Cardiology47,912 (41.2)102,539 (44.7)Internal medicine22,462 (19.3)36,970 (15.9)Primary caree23,493 (20.2)36,944 (16.1)	Lipid-lowering therapies, n			3.2
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0	22,582 (19.4)	45,619 (19.9)	
2         27,738 (23.8)         57,202 (24.9)           3         141 (0.1)         326 (0.1)           Antihypertensive medications             ACEi         60,186 (51.7)         106,795 (46.5)         10.5           ARB         40,797 (35.1)         80,053 (34.9)         2.7           Calcium channel blocker         60,933 (52.4)         114,145 (49.8)         5.5           β-Blocker         74,161 (63.8)         148,375 (64.6)         3.0           Thiazide diuretic         2,772 (2.4)         4,903 (2.1)         2.3           Loop diuretic         3,120 (31.1)         71,630 (31.2)         4.4           Antihypertensive therapies, n         6.0         6.0         6.0           0         7,751 (6.7)         18,047 (7.9)         6.0           1         31,126 (26.8)         63,387 (27.6)         2           2         45,287 (38.9)         88,654 (38.6)         3           3         25,534 (22.0)         46,691 (20.3)         4           4         6,310 (5.4)         12,303 (5.4)         5           3         305 (0.3)         516 (0.2)         9.3           Motipue tension         6,320 (15.3)         35,016 (15.3)         9.3     <	1	65,852 (56.6)	126,451 (55.1)	
3       141 (0.1)       326 (0.1)         Antihypertensive medications       ACEi       60,186 (51.7)       106,795 (46.5)       10.5         ARB       40,797 (35.1)       80,053 (34.9)       2.7         Calcium channel blocker       60,933 (52.4)       114,145 (49.8)       5.5         β-Blocker       74,161 (63.8)       148,375 (64.6)       3.0         Thiazide diuretic       2,772 (2.4)       4,903 (2.1)       2.3         Loop diuretic       36,220 (31.1)       71,630 (31.2)       4.4         Antihypertensive therapies, n       6.0       6.0       6.0         0       7,751 (6.7)       18,047 (7.9)       6.1         1       31,126 (26.8)       63,387 (27.6)       6.3         2       45,287 (38.9)       88,654 (38.6)       6.3         3       25,534 (22.0)       46,691 (20.3)       4         4       6,310 (5.4)       12,303 (5.4)       5         5       305 (0.3)       516 (0.2)       9.3         Northeast       13,193 (11.3)       31,897 (13.9)       9.3         Midwest       16,884 (14.5)       35,016 (15.3)       50th (15.3)         South       74,279 (63.9)       142,789 (62.2)       4.4         <	2	27,738 (23.8)	57,202 (24.9)	
Antihypertensive medications       ACEi       60,186 (51.7)       106,795 (46.5)       10.5         ARB       40,797 (35.1)       80,053 (34.9)       2.7         Calcium channel blocker       60,933 (52.4)       114,145 (49.8)       5.5         β-Blocker       74,161 (63.8)       148,375 (64.6)       3.0         Thiazide diuretic       2,772 (2.4)       4,903 (2.1)       2.3         Loop diuretic       36,220 (31.1)       71,630 (31.2)       4.4         Antihypertensive therapies, n       6.0       6.0       6.0         0       7,751 (6.7)       18,047 (7.9)       6.0         1       31,126 (26.8)       63,387 (27.6)       6.0         2       45,287 (38.9)       88,654 (38.6)       6.3         3       25,534 (22.0)       46,691 (20.3)       4.4         4       6,310 (5.4)       12,303 (5.4)       5         5       305 (0.3)       516 (0.2)       5         Hospital /clinician characteristics         Geographic region       9.3         Northeast       13,193 (11.3)       31,897 (13.9)       9.3         Midwest       16,884 (14.5)       35,016 (15.3)       50th (15.3)         South       74,279 (63.9) <t< td=""><td>3</td><td>141 (0.1)</td><td>326 (0.1)</td><td></td></t<>	3	141 (0.1)	326 (0.1)	
ACEi60,186 (51.7)106,795 (46.5)10.5ARB40,797 (35.1)80,053 (34.9)2.7Calcium channel blocker60,933 (52.4)114,145 (49.8)5.5 $\beta$ -Blocker74,161 (63.8)148,375 (64.6)3.0Thiazide diuretic2,772 (2.4)4,903 (2.1)2.3Loop diuretic36,220 (31.1)71,630 (31.2)4.4Antihypertensive therapies, n6.007,751 (6.7)18,047 (7.9)131,126 (26.8)63,387 (27.6)245,287 (38.9)88,654 (38.6)325,534 (22.0)46,691 (20.3)46,310 (5.4)12,203 (5.4)5305 (0.3)516 (0.2)Hospital /clinician characteristicsGeographic region9,3Northeast13,193 (11.3)31,897 (13.9)Midwest16,884 (14.5)35,016 (15.3)South74,279 (63.9)142,789 (62.2)West11,957 (10.3)19,896 (8.7)Clinical specialty717.0Cardiology47,912 (41.2)102,539 (44.7)Internal medicine22,462 (19.3)36,370 (15.9)Primary care23,493 (20.2)36,694 (16 1)	Antihypertensive medications			
Ach60,100 (11.7)100,757 (45.7)10.3ARB40,797 (35.1)80,053 (34.9)2.7Calcium channel blocker60,933 (52.4)114,145 (49.8)5.5β-Blocker74,161 (63.8)148,375 (64.6)3.0Thiazide diuretic2,772 (2.4)4,903 (2.1)2.3Loop diuretic36,220 (31.1)71,630 (31.2)4.4Antihypertensive therapies, n6.007,751 (6.7)18,047 (7.9)131,126 (26.8)63,387 (27.6)245,287 (38.9)88,654 (38.6)325,534 (22.0)46,691 (20.3)46,310 (5.4)12,303 (5.4)5305 (0.3)516 (0.2)Hospital /clinician characteristics9.3Midwest16,884 (14.5)35,016 (15.3)South74,279 (63.9)142,789 (62.2)West11,957 (10.3)19,896 (8.7)Clinical specialty7,912 (41.2)102,539 (44.7)Internal medicine22,462 (19.3)36,370 (15.9)Primary care23,493 (20.2)36,690 (15.9)	ACEi	60 186 (51 7)	106 795 (46 5)	10.5
Arb40,79 (33.1)30,035 (34.9)2.7Calcium channel blocker60,933 (52.4)114,145 (49.8)5.5 $\beta$ -Blocker74,161 (63.8)148,375 (64.6)3.0Thiazide diuretic2,772 (2.4)4,903 (2.1)2.3Loop diuretic36,220 (31.1)71,630 (31.2)4.4Antihypertensive therapies, n6.007,751 (6.7)18,047 (7.9)131,126 (26.8)63,387 (27.6)245,287 (38.9)88,654 (38.6)325,534 (22.0)46,691 (20.3)46,310 (5.4)12,303 (5.4)5305 (0.3)516 (0.2)Hospital /clinician characteristicsGeographic regionNortheast13,193 (11.3)31,897 (13.9)Midwest16,884 (14.5)35,016 (15.3)South74,279 (63.9)142,789 (62.2)West11,957 (10.3)19,896 (8.7)Clinical specialty17.0Cardiology47,912 (41.2)102,539 (44.7)Internal medicine22,462 (19.3)36,370 (15.9)Primary care23,493 (0.2)36,994 (16.1)		40 707 (25 1)	80.052 (24.0)	2.7
Catchine blocker60,953 (52.4)114,143 (43.5)3.5 $\beta$ -Blocker74,161 (63.8)148,375 (64.6)3.0Thiazide diuretic2,772 (2.4)4,903 (2.1)2.3Loop diuretic36,220 (31.1)71,630 (31.2)4.4Antihypertensive therapies, n6.007,751 (6.7)18,047 (7.9)131,126 (26.8)63,387 (27.6)245,287 (38.9)88,654 (38.6)325,534 (22.0)46,691 (20.3)46,310 (5.4)12,303 (5.4)5305 (0.3)516 (0.2)Hospital /clinician characteristics9.3NortheastNortheast13,193 (11.3)31,93 (11.3)31,897 (13.9)Midwest16,884 (14.5)35,016 (15.3)30,016 (2.2)West11,957 (10.3)19,896 (8.7)17.0Clinical specialty17.0Cardiology47,912 (41.2)10,02,539 (44.7)11,117 (10,12)11,117 (22,20) (36,904 (16.1)	AND Calaium abannal blackar	40,797 (33.1)	60,055 (54.5) 114 145 (40.8)	2.7
p-Biocker       74,151 (63.8)       148,375 (64.6)       3.0         Thiazide diuretic       2,772 (2.4)       4,903 (2.1)       2.3         Loop diuretic       36,220 (31.1)       71,630 (31.2)       4.4         Antihypertensive therapies, n       6.0         0       7,751 (6.7)       18,047 (7.9)         1       31,126 (26.8)       63,387 (27.6)         2       45,287 (38.9)       88,654 (38.6)         3       25,534 (22.0)       46,691 (20.3)         4       6,310 (5.4)       12,303 (5.4)         5       305 (0.3)       516 (0.2)         9.3         Northeast       13,193 (11.3)       31,897 (13.9)         Midwest       16,884 (14.5)       35,016 (15.3)         South       74,279 (63.9)       142,789 (62.2)         West       11,957 (10.3)       19,896 (8.7)         Clinical specialty       77,012 (41.2)       102,539 (44.7)         Internal medicine       22,462 (19.3)       36,370 (15.9)         Primary care       23,493 (02.2)       36,994 (16 1)		50,933 (52.4)	114,145 (49.8)	5.5
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Antihypertensive therapies, n       6.0         0       7,751 (6.7)       18,047 (7.9)         1       31,126 (26.8)       63,387 (27.6)         2       45,287 (38.9)       88,654 (38.6)         3       25,534 (22.0)       46,691 (20.3)         4       6,310 (5.4)       12,303 (5.4)         5       305 (0.3)       516 (0.2)         Hospital /clinician characteristics         Geographic region       9.3         Northeast       13,193 (11.3)       31,897 (13.9)         Midwest       16,884 (14.5)       35,016 (15.3)         South       74,279 (63.9)       142,789 (62.2)         West       11,957 (10.3)       19,896 (8.7)         Clinical specialty       74,912 (41.2)       102,539 (44.7)         Clinical specialty       22,462 (19.3)       36,370 (15.9)         Primary care       23,493 (20.2)       36.994 (16 1)	Loop diuretic	36,220 (31.1)	71,630 (31.2)	4.4
	Antihypertensive therapies, n			6.0
1     31,126 (26.8)     63,387 (27.6)       2     45,287 (38.9)     88,654 (38.6)       3     25,534 (22.0)     46,691 (20.3)       4     6,310 (5.4)     12,303 (5.4)       5     305 (0.3)     516 (0.2)   Hospital /clinician characteristics Geographic region Northeast       13,193 (11.3) Midwest       16,884 (14.5)     35,016 (15.3)       South     74,279 (63.9)     142,789 (62.2)       West     11,957 (10.3)     19,896 (8.7)       Clinical specialty     17.0       Cardiology     47,912 (41.2)     102,539 (44.7)       Internal medicine     22,462 (19.3)     36,370 (15.9)       Primary care     23,493 (20.2)     36,994 (16 1)	0	7.751 (6.7)	18.047 (7.9)	
2     45,287 (38.9)     88,654 (38.6)       3     25,534 (22.0)     46,691 (20.3)       4     6,310 (5.4)     12,303 (5.4)       5     305 (0.3)     516 (0.2)   Hospital /clinician characteristics  Geographic region 9.3 Northeast 13,193 (11.3) 31,897 (13.9) Midwest 16,884 (14.5) 35,016 (15.3) South 74,279 (63.9) 142,789 (62.2) West 11,957 (10.3) 19,896 (8.7) Clinical specialty Cardiology 47,912 (41.2) 102,539 (44.7) Internal medicine 22,462 (19.3) 36,370 (15.9) Primary care 23,493 (20.2) 36,994 (16 1)	1	31 126 (26.8)	63 387 (27 6)	
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Hospital /clinician characteristics       9.3         Geographic region       9.3         Northeast       13,193 (11.3)       31,897 (13.9)         Midwest       16,884 (14.5)       35,016 (15.3)         South       74,279 (63.9)       142,789 (62.2)         West       11,957 (10.3)       19,896 (8.7)         Clinical specialty       17.0         Cardiology       47,912 (41.2)       102,539 (44.7)         Internal medicine       22,462 (19.3)       36,370 (15.9)         Primary care       23,493 (20.2)       36,994 (16 1)	5	303 (0.3)	510 (0.2)	
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Midwest       16,884 (14.5)       35,016 (15.3)         South       74,279 (63.9)       142,789 (62.2)         West       11,957 (10.3)       19,896 (8.7)         Clinical specialty       74,212 (41.2)       102,539 (44.7)         Internal medicine       22,462 (19.3)       36,370 (15.9)         Primary care       23,493 (20.2)       36,994 (16 1)	Northeast	13,193 (11.3)	31,897 (13.9)	
South         74,279 (63.9)         142,789 (62.2)           West         11,957 (10.3)         19,896 (8.7)           Clinical specialty         17.0           Cardiology         47,912 (41.2)         102,539 (44.7)           Internal medicine         22,462 (19.3)         36,370 (15.9)           Primary care         23,493 (20.2)         36,994 (16 1)	Midwest	16,884 (14.5)	35,016 (15.3)	
West         11,957 (10.3)         19,896 (8.7)           Clinical specialty         17.0           Cardiology         47,912 (41.2)         102,539 (44.7)           Internal medicine         22,462 (19.3)         36,370 (15.9)           Primary care         23,493 (20.2)         36,994 (16 1)	South	74,279 (63.9)	142,789 (62.2)	
Clinical specialty     17.0       Cardiology     47,912 (41.2)     102,539 (44.7)       Internal medicine     22,462 (19.3)     36,370 (15.9)       Primary care     23,493 (20.2)     36,994 (16.1)	West	11.957 (10.3)	19.896 (8.7)	
Cardiology         47,912 (41.2)         102,539 (44.7)           Internal medicine         22,462 (19.3)         36,370 (15.9)           Primary care         23,493 (20.2)         36,994 (16.1)	Clinical specialty			17.0
Internal medicine       22,462 (19.3)       36,370 (15.9)         Primary care       23,493 (20.2)       36,994 (16.1)	Cardiology	47,912 (41.2)	102,539 (44,7)	17.0
Primary care 23.493 (20.2) 36.994 (16.1)	Internal medicine	22 462 (19 3)	36 370 (15 9)	
	Primary care	23,493 (20,2)	36.994 (16.1)	

## Table 1—Clinical profiles in those enrolled in MA versus Medicare FFS

Continued on p. 1554

#### Table 1-Continued

Patient characteristics	MA (n = 116,313)	Medicare FFS ( <i>n</i> = 229,598)	Standardized difference <sup>a</sup> (%)	
Endocrinology Obstetrics/gynecology Nephrology Other	8,306 (7.1) 143 (0.1) 353 (0.3) 13,554 (11.7)	22,406 (9.8) 289 (0.1) 944 (0.4) 29,869 (13.0)		
Objective measures				
Vital signs				
Weight (kg)	86.5 (73.8, 101.2)	88.2 (75.3, 102.7)	6.8	
BMI (kg/m <sup>2</sup> )	30.5 (26.8, 35.1)	30.6 (26.8, 35.1)	0.5	
Waist circumference (cm)	88.0 (77.0, 102.0)	90.0 (77.0, 102.0)	0.5	
Diastolic BP (mmHg)	72.0 (65.0, 80.0)	71.0 (64.0, 80.0)	3.1	
Lipids				
Total cholesterol (mg/dL)	154.5 (132.0, 182.0)	151.0 (128.3, 179.0)	8.1	
HDL cholesterol (mg/dL)	45.0 (37.0, 55.0)	44.0 (37.0, 54.1)	5.0	
Triglycerides (mg/dL)	133.0 (97.0, 187.0)	134.0 (97.0, 188.0)	1.6	
Laboratory measures				
Plasma glucose (mg/dL)	139.0 (117.0, 170.4)	139.4 (117.5, 168.5)	2.4	
Serum creatinine (mg/dL)	1.0 (0.9, 1.3)	1.0 (0.9, 1.3)	4.2	
Urine albumin-to-creatinine ratio (mg/g)	17.0 (8.0, 47.0)	15.6 (7.4, 42.0)	4.6	
Hemoglobin (g/dL)	13.1 (12.0, 14.1)	13.2 (12.1, 14.2)	3.4	

Data are presented as a mean ± SD, n (%), or median (interquartile range). <sup>a</sup>Standardized differences >10% are considered clinically relevant.

for equitable access to evidence-based antihyperglycemic therapies (12). Moreover, a better understanding of the role of patient factors, such as cost-related nonadherence, intermittent prescription filling rates, and how clinical risk may influence preferential enrollment in one insurance program over the other, is warranted.

#### Promoting High Diabetes Care Quality Under Medicare Plans

Achieving high diabetes care quality, such as timely screening for microvascular

complications and receipt of preventative therapies, are linked with fewer diabetesrelated complications (32). Future work is needed to determine whether the mixed results we observed in improved preventive measures in MA compared with FFS Medicare beneficiaries but lower use of

	Medicare	Medicare				
Diabetes Quality Measure	Advantage (%)	Fee-for-Service (%)			Odds Ratio (95% CI)	P-value
Antihyperglycemic Medications						
GLP-1 Receptor Agonist	6.9	9.0	H <b>H</b> H		0.80 (0.77 - 0.84)	<.0001
SGLT2 Inhibitor	5.4	6.7	⊢●⊣ ⋮		0.91 (0.87 - 0.95)	<.0001
Risk Factor Control			:			
Glycemic Control	56.6	57.7			0.98 (0.94 - 1.02)	0.29
Blood Pressure Control	70.3	71.5			0.98 (0.96 - 1.00)	0.07
Receipt of ACEi/ARB (if coexisting CAD)	39.2	38.7	:	I€H	1.06 (1.04 - 1.09)	<.0001
Screening						
Nephropathy	57.1	54.7		H	1.14 (1.10 - 1.17)	<.0001
Ophthalmology	59.1	55.6	:	⊢€H	1.08 (1.04 - 1.11)	<.0001
Foot Exam	32.6	26.9	:	⊢●⊣	1.13 (1.09 - 1.17)	<.0001
Smoking Cessation Counseling	20.0	16.9	н <del>е</del> н		1.05 (1.02 - 1.09)	0.001
			0.8 1.0	0 1.2		
	Medicare	Medicare			β-coefficient	
Intermediate Outcomes, median (IQR)	Advantage	Fee-for-Service			(95% CI)	P-value
Systolic Blood Pressure (mmHg)	130.0 (120.0, 140.0)	130.0 (120.0, 140.0)	н	D	0.21 (0.05 - 0.36)	0.009
Diastolic Blood Pressure (mmHg)	72.0 (65.0, 80.0)	71.0 (64.0, 80.0)			0.18 (0.09 - 0.27)	<.0001
LDL (mg/dL)	81.5 (65.0, 101.0)	78.9 (63.0, 98.4)		HeH	1.02 (0.69 - 1.36)	<.0001
Hemoglobin A1c (%)	7.1 (6.5, 7.9)	7.0 (6.4, 7.8)	•		0.08 (0.06 - 0.09)	<.0001
			-1.5 0.0	) 1.5		

**Figure 2**—Risk-adjusted associations of MA vs. Medicare FFS and diabetes care quality measures. We present risk-adjusted associations between Medicare plan type and quality measures, including GLP-1RAs and SGLT2i receipt, as well as risk factor control, receipt of ACEi or ARBs in beneficiaries with CAD, counseling for tobacco cessation, and screening for nephropathy, retinopathy, and foot care. Intermediate measures of HbA<sub>1c</sub>, BP, and LDL-c were also compared. All models were adjusted for age, sex, race/ethnicity, atherosclerotic cardiovascular disease, heart failure, and chronic kidney disease, median household income of ZIP Code, number of antihyperglycemic therapies, geographic region, and clinician specialty.



Figure 3—Trends in use of antihyperglycemic therapies over time. Enrollment status in MA or FFS was confirmed with CMS claims data for 2014–2017 and was obtained from investigator-reported DCR entries for 2018–2019.

newer antihyperglycemic therapies ultimately results in differential long-term health outcomes for patients with diabetes. Similarly, surveillance of total health system costs is required. While our study did not evaluate health care expenditures, prior investigations have corroborated that Medicare FFS plans spend more per beneficiary on diabetes care, potentially related to increased observed short-term spending on higher-cost antihyperglycemic therapies (33). This observation may be expected, given the strong incentive for MA plans to control cost for their patients. However, assuring that these incentive structures in MA plans are evidence-based and promote intermediate and long-term health is a high priority. Indeed, despite these incentives, patients with diabetes enrolled in MA had slightly higher measures of blood pressure, lipids, and glycemia, suggesting that a better understanding is needed of the role of such incentives in this patient population (34,35).

#### **Strengths and Limitations**

The strengths of this analysis include its linkage to a detailed ambulatory care registry with administrative claims data, which simultaneously allows for understanding dimensions of diabetes care quality, laboratory-based risk factor control, and prescription therapies. Similarly, registry-based analyses allowed for assessment of treatment patterns in high-risk patient subsets that prior studies were unable to evaluate. Finally, while linked CMS claims data were only available through 2017, we confirmed similar therapeutic patterns in more contemporary data through 2019 with data ascertained in the DCR registry.

There are limitations of this study to note. First, the DCR is a voluntary

registry, thus participating practices (and treated patients) may differ from those that do not join, thus limiting the generalizability of our findings.

Second, while the DCR is a detailed clinical registry, residual confounding may explain some differential therapeutic patterns in this analysis. Furthermore, there is potential for selection bias in our analysis, both due to actions of MA and FFS plans and the characteristics of individuals who chose to enroll in one or the other plan (36,37). While we conducted a robust risk-adjusted analysis, there may still be unmeasured differences between the patient populations we studied.

Third, MA plans may vary substantially in plan structures, but they were considered as a single entity in our analysis.

Fourth, we were able to examine median household income and insurance status, yet the DCR contains limited granular patient-level social determinants, such as a broader, disaggregated definition of race and ethnicity, employment status, or individual income level as well as limited clinician- and practicelevel demographic characteristics, which may affect receipt of high-quality diabetes care (38,39).

Fifth, we were limited in our assessment of certain outcomes, including patient-reported outcomes measures, long-term diabetes complications, outof-pocket and total expenditures. or health care utilization related to diabetes care. Similarly, we were not able to account for formulary status, patient preferences, or measures of frailty and functional status, which may influence therapeutic decision making. Additionally, we did not have data regarding medication dosing and adherence or sequencing of medical therapies (e.g., as first or second line) or use of advanced management techniques such as continuous glucose monitoring.

Sixth, follow-up HbA<sub>1c</sub> measurements were missing in many beneficiaries, which limited our assessment of glyce-mic control.

Seventh, our reliance on registry data to ascertain MA and FFS status for our secondary analyses was limited by lower self-report of enrollment status compared with CMS-derived data.

Finally, as with all observational studies, we can only report associations and do not prove a causal relationship between enrollment in MA or FFS and diabetes quality measures.

#### Conclusion

Leveraging data from >300,000 older adults with diabetes in a national outpatient registry, we found that those enrolled in MA had greater access to preventive care compared with Medicare FFS enrollees. However, MA beneficiaries had modestly but significantly poorer intermediate health outcomes and were less likely to be treated with newer, evidence-based antihyperglycemic therapies compared Medicare FFS beneficiaries. These therapeutic patterns extended to adults with established cardiovascular and kidney disease and persisted through 2019 after interval trials and guidelines affirmed their role in these settings. These data

reinforce the need for surveillance of long-term outcomes under various Medicare plan structures and for program evaluation to ensure that indicated but more costly care is not stinted among atrisk beneficiaries under managed care approaches. Identifying strategies to ensure equitable access to high-quality diabetes care across population segments remains a high priority.

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Author Contributions. U.R.E. and T.M.A.L. wrote the manuscript. Y.T., F.T., and P.G.J. performed statistical analyses. M.V. supervised the work. U.R.E., Y.T, J.F.F., T.M.A.L., F.T., P.G.J., R.P., R.K.W., N.R.D., S.N.M., M.N.K., and M.V. contributed to the discussion and reviewed/edited the manuscript. M.V. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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