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Working Paper: A Preliminary Comparison of Utilization Measures Among Diabetes and Heart Disease Patients in Eight Regional Medicare Advantage Plans and Medicare Fee-for-Service in the Same Service Areas

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SUMMARY

This report describes a new effort to compare patterns of care among patients in Medicare Advantage (MA) plans and in Medicare's traditional fee-for-service (FFS) program. The utilization measures include hospital admissions and days, re-admissions, "potentially avoidable" admissions, as well as outpatient, emergency room (ER), and office visits. Health status data include markers for 70 claims-based diagnosis code groupings. Illustrative comparisons were conducted among patients with diabetes and heart disease, based on data for 2005 and 2006 from eight MA plans and from FFS beneficiaries in the same local areas. There are some indications that enrollees in the MA plans had lower co-morbidity rates than patients in the local FFS samples. On either a per-person basis or controlling for co-morbidities and demographic risk factors, the diabetes and the heart disease patients in these MA plans had roughly equal or lower average rates of hospital admissions and days, ER visits, and re-admissions than patients in FFS. In seven of the eight plans, diabetes patients in MA had lower rates of potentially avoidable admissions. In six of the eight plans, heart disease patients in MA had lower rates of potentially avoidable admissions. Comparisons of outpatient and office visits were mixed, with beneficiaries in some MA plans having more visits than those in Medicare FFS, and others having fewer visits.

INTRODUCTION

Direct comparisons of patient health status and utilization between Medicare beneficiaries enrolled in Medicare Advantage (MA) and in the traditional fee-for-service (FFS) program are difficult to obtain. Since 1997, MA plans have reported several indicators of health care quality or appropriateness based on HEDIS measures.[1] However, FFS providers are not required to report HEDIS data. While the HEDIS measures are very precisely defined, they are based on a relatively small list of specific preventive screenings and recommended processes. Thus, they do not address broader patterns of health care use or outcomes.

On the other hand, Medicare's 5 percent sample claims files provide a rich set of information on the demographics, diagnoses, and utilization patterns of FFS beneficiaries. Until now, however, researchers have not had equivalent data from MA plans.

In early 2008, the authors developed a detailed data specification for MA plans that would allow direct comparisons of a variety of utilization measures with FFS data from the 5 percent sample files.[2] The hospital measures include: inpatient hospital days, inpatient hospital admissions, ER visits, hospital re-admissions for the same diagnosis-related group (DRG) within the same calendar quarter, and 13 potentially avoidable hospital admissions categories for "ambulatory-treatable" conditions (as defined by AHRQ), which range from uncontrolled diabetes to dehydration.

As of June 2009, eight small to medium-sized regional HMOs had completed their datasets for 2005 and 2006. In this paper, we report preliminary data for each plan's patients with diabetes and heart disease. Comparison data from the FFS program reflect health care use among patients with diabetes and heart disease in Medicare's 5 percent sample claims files within the same counties. In many of the tables, particularly in the appendices, we have also provided nationwide FFS figures for reference.

Medicare's long-term fiscal sustainability likely depends on learning how to better manage care, drive quality improvements, and limit illness or prevent recurrence. For example, Medicare needs to learn how to prevent co-morbidities among diabetes and heart disease patients and help keep them out of the hospital, not just pay their claims. The wide range of experiences in MA plans can provide vital observations and natural experiments. We believe that this preliminary analysis demonstrates the promise of a long-term research effort comparing health care use in Medicare Advantage and FFS Medicare.[3]

RECENT STUDIES

Empirical studies comparing the patient outcomes or utilization patterns in MA plans and FFS tend to be fairly old and have shown mixed results.

In their 2002 *Health Affairs* meta-analysis of 79 studies released from 1997-2001, generally using data from the early and mid-1990s comparing the quality of care in HMOs and FFS plans (including non-Medicare comparisons), Miller and Luft reported results suggesting that HMO and FFS plans provide roughly comparable quality of care, while HMOs reduce use of hospital and other expensive resources somewhat. However, HMO enrollees reported less favorable results on access to care and satisfaction measures compared with their FFS counterparts. The researchers concluded that health care quality results were heterogeneous, varying widely among providers, plans (HMO and non-HMO), and geographic regions.[4]

A 2003 report in *Inquiry* (Davidson), based on a study of more than 80,000 patients with three chronic conditions (asthma, diabetes, and congestive heart failure), found that health plan patients were more likely than those with FFS coverage to see primary care physicians and specialists within a year and less likely to use hospital emergency rooms or have inpatient admissions.[5]

An October 2004 study in *Health Services Research* (Dhanani) on hospital use among Medicare HMO and FFS beneficiaries in California found that when beneficiaries joined a group/staff HMO, their total inpatient days per year were 18 percent lower than if they had remained in Medicare FFS. Medicare group/staff and IPA-model HMO members had approximately 60 percent of the total inpatient days per thousand in 1995 as did FFS beneficiaries. The study did not compare the quality of care received by the two groups.[6]

A report in the May 2003 issue of *JAMA* (McCarthy) found that Medicare health plan members who were dying from cancer had higher rates of hospice use than did those with FFS Medicare. Among hospice users, length of stay was longer for Medicare health plan members than for those with FFS coverage.[7]

A 2004 article in *JAMA* (Landon) showed that Medicare health plan members reported fewer problems with paperwork, information, and customer service than did beneficiaries with Medicare FFS coverage. In addition, those in Medicare health plans were more likely to report having received shots for flu and pneumonia, and smokers in Medicare health plans were more likely than those with Medicare FFS coverage to report having received counseling to quit. However, those with FFS Medicare rated their experiences with care higher than did those in Medicare health plans.[8]

A 2004 study in *Inquiry* (Meara) found that the presence of Medicare health plans in a local market had a slight spillover effect in FFS Medicare with respect to use of a diagnostic procedure for heart attack patients. Specifically, increased penetration of Medicare managed care in local markets modestly reduced the likelihood that beneficiaries in FFS Medicare who were hospitalized for heart attacks would receive the diagnostic imaging procedure known as coronary angiography (also called cardiac catheterization) for all categories of appropriateness (appropriate, discretionary, or inappropriate).[9]

Based on analysis and modeling of data from the Medicare Current Beneficiary Survey (MCBS) cost and use files, Michael Chernew (NBER 2008) found that a one percentage point increase in Medicare HMO penetration in a county was associated with reduced spending on Medicare FFS beneficiaries by 0.9 percent. This relationship was driven by beneficiaries with at least one chronic condition, and there was no systematic relationship for beneficiaries with no reported chronic conditions.[10]

Recently, MedPAC has focused mostly on relative costs, not quality, comparing the county-by-county estimates of projected FFS costs with MA plan reimbursements,[11] and consumer satisfaction surveys. In its March 2008 *Report to Congress*, MedPAC reported an empirical finding that beneficiaries in FFS and MA had similar experiences in accessing care, obtaining needed care, and delaying care because of costs, based on data derived from the 2005 MCBS. Higher proportions of FFS beneficiaries reported not having a usual source of care or a usual doctor.

A recent non-empirical study in *Health Affairs* by Marsha Gold of Mathematica Policy Research, Inc. concluded that private fee-for-service (PFFS) plans, a subset currently comprising about 20 percent of all MA plans, would likely not be able to raise quality levels because of inherent difficulties coordinating care with non-network physicians.[12]

BASIC DATA SPECIFICATIONS

The demographic data gathered from the eight MA plans in our study include age, sex, county of residence, member months of enrollment during the year, and type of MA plan – including HMOs, regional preferred provider organizations (PPOs), local PPOs, special needs plans (SNPs), and PFFS plans.

Diagnosis codes were grouped using Hierarchical Condition Categories (HCCs) for 70 serious diseases. Specifically, a marker for each HCC was generated using ICD-9 diagnosis codes found on each beneficiary claim for inpatient, outpatient, and physician services, including primary and secondary diagnoses (up to 12 diagnoses per claim). We calculated HCCs for FFS patients from the detailed diagnosis codes submitted in the 5 percent sample claims files for inpatient, outpatient, and physician services.

The FFS data do not allow computation of 30-day and 90-day hospital re-admissions for the same DRG, the typical computations used by private health insurance plans, because the 5 percent FFS sample claims data available to us do not show specific dates of service. However, the FFS data do report the calendar quarter in which the service occurred. Therefore, we asked MA plans to submit re-admissions within the same calendar quarter for comparison with FFS data.[13]

Potentially avoidable admissions were defined by AHRQ in 13 disease categories: dehydration, bacterial pneumonia, urinary infection, hypertension, angina, perforated appendix, asthma, uncontrolled diabetes, diabetes with short-term complications, diabetes with long-term complications, congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), and lower extremity amputation for patients with diabetes.[14]

Number of Records. For simplicity, the preliminary comparisons in this report use pooled data for 2005 and 2006, and include only records marked as 12-month enrollees (using Part A enrollment for the FFS data), although records of patients who died in December (and were thus recorded in both the FFS and MA datasets as 12-month enrollees) were included. We also included only beneficiaries between the ages of 65 and 89, and for the MA plans we included only people enrolled in HMO coverage.[15]

As discussed below, we also excluded certain likely Medicaid beneficiaries from the FFS data for most of the preliminary comparisons presented.[16] (At this time, we are not able to exclude Medicaid enrollees from the MA data.)[17] The Medicaid enrollees in FFS seem to have quite different average characteristics than overall FFS enrollees, with higher rates of certain diseases, such as renal or kidney disease.[18]

Currently, the data use agreements governing this research require that the identities of the responding companies remain confidential. We have attempted to characterize the demographic and health status information from enrollees of these eight plans fairly, but in a way that does not allow their identities to be inferred.

The data from Company 1 represent its MA enrollment in six counties in and around a large metropolitan area; the data from Company 2 are from ten contiguous counties within its service area; Company 3 and Company 5's comparison areas are each nine contiguous counties (in different parts of the country); Company 4's dataset includes fifteen counties; Company 6's data are from five counties; Company 7's data are from eight counties, and Company 8 has a six-county comparison area. In each case, these counties make up a reasonably large share of each company's MA enrollment, although companies may have had considerable enrollment outside of these study areas. The areas were chosen for their geographical coherence — our belief is that the overall health cost structure and the general clinical practice and utilization patterns within areas should be relatively uniform.

However, the regions served by each company are in different parts of the country and have different health cost structures. For example, the weighted average FFS cost rate in the studied counties served by Company 1 is more than $200 per

month higher than the rate in the 10 counties studied for Company 2.

Likewise, the HMO models represented in the study varied widely. One of the eight plans was mostly a group/staff model HMO, and the other seven were based on networks of providers; some plans used broad, non-exclusive networks that contracted with most health care providers in the region. Seven of the plans were non-profit.

Overall, there were 2,638,943 records for people aged 65-89 with 12 months of enrollment per year in the national FFS data, including 271,289 records for people we identified as Medicaid enrollees, and 2,367,654 enrollees considered non-Medicaid. A "record" is defined as a data element for a beneficiary in a year. We use the term "record" interchangeably with "person," "patient," "beneficiary," or "enrollee" in this report. However, because we have pooled the data from 2005 and 2006, there may be two records for the same person in either the FFS or MA plan data.

The number of records in the MA plan datasets over the two-year period in these county groupings ranged from less than 50,000 for Companies 1 and 5 to over 200,000 for Company 4. In general, the local FFS samples in the county group areas were smaller than the MA samples; however, this does not mean there were more MA beneficiaries than FFS beneficiaries in the area — the FFS samples represent 5 percent of the total FFS enrollment in an area.

Table 1 shows the numbers of records and overall HCC markers in each comparison group for beneficiaries with diabetes (HCCs 15, 16, 17, 18, or 19) and beneficiaries with heart disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105), respectively, as well as the average ages in the samples. There were 533,552 records for patients with diabetes and 735,380 for patients with a heart disease HCC in the national FFS sample (excluding Medicaid). The number of non-Medicaid records in the local FFS comparison areas ranged from over 1,300 diabetes patients in Company 8's comparison area to more than 15,000 heart disease patients in the Company 3 area.

The MA plans in the study had varying shares of their local markets. For example, Company 4 had over 90,000 diabetes patients, and there were approximately 6,100 FFS diabetes records in its comparison area. Since FFS records are 5 percent of the total, we can estimate that there were approximately 122,000 diabetes patients in FFS overall in that region. Thus, Company 4 had nearly as many diabetes patients as FFS — 90,000 versus 122,000. In other areas, the MA plan enrollees represented a much smaller level of enrollment relative to local FFS.

The MA plan enrollees in the comparison areas had similar higher average age levels as beneficiaries in the corresponding FFS samples, although the distribution of ages in the MA plans tended to be more compressed toward the average. For example, the MA plans generally had a higher proportion of beneficiaries in their 70s, with lower shares in the upper (above age 80 or 85) and lower (age 65 to 69) age ranges. One of the plans, Company 5, had a notably older age profile than its FFS comparison sample, with relatively more enrollees above age 80 and fewer below age 75, among both diabetes and heart disease patients. Company 8's age profile was younger than FFS in its local area.

Appendix D and Appendix H have much more detailed information about the distribution of ages within each sample, the county-by-county distribution of enrollment in the samples, as well as highly detailed information about co-morbidities and utilization patterns.

HEALTH STATUS AND DEMOGRAPHIC DATA COMPARISONS

Table 2 shows the relative rates of HCC codes overall, cancers (HCCs 7, 8, 9, or 10), diabetes (HCCs 15, 16, 17, 18, or 19), heart diseases (HCCs 79, 80, 81, 82, 83, 92, 104, or 105), and kidney diseases (HCCs 130, 131, or 132) and calculated "risk scores" for FFS nationally and locally in the eight company areas. The average risk scores incorporate predicted costs of the HCCs in the samples, as well as the impact of age and sex factors used by CMS to make risk-adjusted payments.[19]

With Medicaid enrollees included, the national FFS data had 4,597,448 total HCCs, an average of 1.74 HCCs per person. Excluding the Medicaid records, which averaged 2.78 HCCs per person, there were a total of 3,844,615 HCCs found in the national FFS sample, or an average of 1.62 per person. Companies 1-3 and 5 reported lower average HCCs than this national FFS average (excluding Medicaid from FFS), and

Companies 4, 6, 7, and 8 had equal or higher average HCCs than national FFS (also excluding Medicaid from FFS).

While HCC rates varied widely from place to place, they tracked fairly closely between MA and FFS comparison samples in a given area. Companies 1-3 and Companies 6-8 had lower average HCCs than the local FFS comparison data. Company 1 had an average of 1.47 HCCs per person, compared with 1.64 for local FFS; Company 2 had 1.36 HCCs compared with 1.41 in local FFS; Company 3 had 1.61 HCCs per person compared with 1.77 in local FFS; Company 6 had 1.62 HCCs per person compared with 1.76; Company 7 had 1.74 HCCs per person compared with 1.79; and Company 8 had 1.62 HCCs per person compared with 1.82.

By contrast, Company 4 had higher average HCCs (2.08) than both the national FFS and the local FFS (1.97). Company 5 had higher average HCCs (1.35) than the local FFS (1.30) comparison area, although both Company 5 and its local FFS counterpart had far lower average HCCs than the nation as a whole.

All eight MA plans had equal or higher average HCCs for diabetes than the local FFS comparison group. Companies 1-3 had lower average HCCs for cancer and heart disease than local FFS; Company 4 had higher average HCCs than local FFS for both disease groups; and Companies 6-8 had slightly higher average HCCs for cancer, but lower for heart disease. The rates of HCC markers for kidney diseases were similar between the MA plans and their comparison local FFS samples.

Risk scores were also calculated for each record using the predicted age/sex and HCC relative cost factors used by CMS for MA risk-adjustment (but not including factors related to program or institutional status, or disease interaction factors). As with overall HCC counts, the risk scores computed in this manner tended to be similar between FFS and MA samples, with 6 of the MA plans having slightly lower average risk scores than the FFS comparison sample. However, there was notable variation between regions, with some regions showing much higher scores than others. In addition to a higher rate of observed HCCs, higher risk scores can result from a relatively older population distribution, or from a tendency of particular HCCs to have higher predicted costs.

In general, we chose to exclude Medicaid enrollees from the FFS samples for comparison purposes because the Medicaid enrollees had much higher-than-average HCCs and rates of utilization. Including the Medicaid enrollees in FFS comparisons seemed to accentuate the differences between the FFS data and that of the MA plans. For example, the differences between MA plan and FFS local area measures of inpatient hospitalization rates, re-admission rates, and rates of potentially avoidable admissions were larger when these Medicaid patients were included in the FFS samples.

Excluding the Medicaid enrollees narrowed the observed differences on co-morbidities and utilization. Appendix M replicates the comparison tables in this report and the detailed tables in Appendix D and Appendix H with Medicaid included in the FFS comparison samples.

Co-morbidities Among Diabetes and Heart Disease Patients. Table 3 illustrates co-morbidities among diabetes and heart disease patients in the samples. In general, the diabetes patients in MA plans had lower average HCCs overall, and the diabetes patients in all eight MA plans had equal or lower co-morbidity rates in the heart disease and pneumonia (HCCs 111 and 112) categories. Seven of the eight plans' diabetes patients had lower co-morbidity rates for stroke (HCC 96), and five of the plans' diabetes patients had lower rates of kidney diseases (HCCs 130-132).

A share of the difference in non-diabetes related co-morbidities is almost certainly exogenous. Many of the non-diabetes related HCC codes reported among diabetes patients in both the MA and FFS samples are for very serious genetically based diseases, mental illnesses, and traumas. It seems unlikely that good diabetes care could explain the lower levels of these codes among MA diabetes patients.

On the other hand, the lower observed co-morbidities related to diabetes, such as heart disease, could be related to preventive or well-managed care in the HMO plans. To be sure, all eight MA plans had equal or higher overall rates of diabetes than their local FFS comparison samples, and six of the eight had lower overall rates of heart disease, so it makes sense that diabetes patients in MA might have lower rates of heart diseases just based on their likelihoods of "primary" diseases.

However, we tested the co-morbidities among patients with diabetes and heart diseases in reverse, computing the number of heart disease patients with other HCCs, including diabetes. As with diabetes patients, all eight companies' heart disease patients had lower average HCCs overall than their local FFS counterparts. Six of the eight companies' heart disease patients had lower rates of diabetes, and seven of the eight had lower rates of stroke. On the other hand, five of

the eight companies' heart disease patients had higher rates of kidney disease.

Because of the uncertainty over the cause of co-morbidity rates – exogenous or the result of superior care – the average utilization rates below are shown by three measures: average numbers of events per person, average number of events per HCC, and average number of events per risk score value. If one believes that the co-morbidity rates could be related to better care, then the average per-person utilization rates would be the appropriate comparison. However, if one thinks that particular co-morbidities were mostly unrelated to the care received, then comparing the per-HCC utilization rates or the utilization rates adjusted by computed risk scores would make sense.

Utilization Definitions. We attempted to define utilization variables strictly, so that there would be as little plan-to-plan variation in measurement as possible, and so that comparison variables could be computed as closely as possible from the FFS claims. The coding logics and programming syntax that we used for the FFS calculations were provided to the MA plans in advance, including the lists of ICD-9 diagnosis codes that comprise the HCC aggregations, the precise algorithms for using diagnosis and procedure codes in the computation of potentially avoidable admissions, and the general utilization definitions. In some cases, plans could use this syntax directly in their internal systems; in other cases, the logics could be used although the MA plans used different software.[20]

For the purpose of calculating admissions and days, hospitals were defined as "acute care facilities … a short-term hospital that has facilities, medical staff and all necessary personnel to provide diagnosis, care and treatment of a wide range of acute conditions, including injuries." Thus, admissions and stays in post-acute care, long-term or rehabilitation hospitals were not included.

Office visits were defined as "each interface between a provider and a patient for a given day, at the provider's office." Specific procedure codes were sent to the MA plans to help define this variable. Home health visits, telephone consultations, nurse help-line calls, remote telemedicine events, and secure e-visits with health providers via email or an MA plan's Internet or other computerized systems were not included.

Outpatient visits were characterized in the instructions as follows: "visits to a facility outpatient setting … [a]n outpatient setting is one where the patient can receive treatment or diagnosis of a condition, but is not hospitalized in an inpatient facility; e.g. ambulatory surgery center, dialysis center, MH-SA clinics. Includes in-and-out same day hospital events that don't require an overnight stay. Exclude ER and physician office visits."

Issues in Defining Utilization Variables. In general, the potentially avoidable admissions were defined very strictly, and plans reported no problems creating those data points. Likewise, the calculations of hospital admissions and days were relatively straightforward. However, computing the numbers of ER visits can be tricky. For example, a health plan may receive separate bills from the hospital, a radiology group, and a diagnostic testing unit resulting from one ER visit. Even a short ER visit can span two calendar days if, for example, a patient entered the ER near midnight and was sent home in the early morning hours of the next day. For the FFS data, we created logic for defining unique ER visits leading to an admission from the hospital inpatient claims file and a separate logic for finding ER visits not leading to admission from the outpatient claims data. Although these logics were also shared with the MA plans, their responses often required independent judgment and programming.

The definitions of outpatient facility visits and office visits also have some gray areas. One plan asked if it should count a separate outpatient facility visit if a patient came to a hospital to donate his or her own blood a few days before a surgery. (Our answer was "yes," and we presume such visits were also captured for FFS from the 5 percent claims data.) Other MA plans that use self-contained, 24-hour urgent care centers wondered if some visits to these centers should be considered outpatient hospital or ER visits, especially since they could often serve patients who would otherwise end up in an ER or have their conditions treated at an outpatient facility. In general, we asked that visits to these centers be considered office visits, even if they involved complex procedures or multi-disciplinary work (e.g., X-rays, lab work) in addition to the primary provider visit. One MA plan used hospitalist physicians for post-discharge follow-up care. We coded these as outpatient facility visits. Thus the intensity of some office visits at MA plans that have multi-disciplinary or urgent care facilities may be higher in some instances than some routine outpatient hospital visits at other plans.

In the FFS 5 percent sample file, certain claims have some technical issues that can place duplicative diagnosis and utilization information in the same claim. To avoid double-counting HCCs or utilization on these FFS claims, we used a simple screening method suggested by Dr. Chris Hogan, of Direct Research, LLC.[21]

COMPARISONS OF UTILIZATION

Tables 4 and 5 present preliminary comparisons of utilization for diabetes patients and heart disease patients, respectively. By either measure, per-person, per-HCC, or per risk score value, the diabetes patients in all eight MA plans had equal or lower rates of inpatient days and re-admissions than the local FFS comparison samples. Seven of the eight plans' diabetes patients had lower rates of ER visits controlled for HCC counts or risk score values. Six of the eight companies' diabetes patients had lower rates of overall inpatient admissions on a per-HCC basis, and seven of the eight had lower admission rates in a per risk score value basis. Seven of the eight MA plans had lower rates of potentially avoidable admissions on all three measures.

By contrast, patterns of outpatient utilization among diabetes patients differed widely between the MA plans and their respective FFS samples, and among the plans themselves. For example, Companies 1, 4, and 7 reported higher rates of hospital outpatient visits; Companies 2, 3, and 8 had sharply lower rates. The rates of office visits for diabetes patients were higher than local FFS in five of the eight companies on a per-person basis, and higher in seven of the eight companies on a per-HCC or per risk score value basis.

The data for the heart disease patients followed similar patterns, although the differences between the MA and FFS utilization rates were not quite as consistent. Among heart disease patients, all eight plans had lower rates of ER visits and re-admissions on either a per-person, per-HCC, or per risk score basis. However, one MA plan had a slightly higher rate of hospital days on a per-HCC basis, and two plans had slightly higher rates of potentially avoidable admissions, again by any of the three measures. As with diabetes patients, patterns of outpatient and office visits among heart disease patients varied widely.

DISCUSSION

These preliminary comparisons illustrate two important points. First, although it was not necessarily the goal of the project, the preliminary data illustrate that health care services are delivered very differently in different parts of the country and even among various types of MA plans. Second, we believe these comparisons imply that MA plans are likely to help patients avoid inpatient hospital stays and ER visits among their diabetes and heart disease patients, sometimes by substituting additional outpatient or office visits. Our data specification is not detailed enough to determine whether some plans are also substituting in-home or remote patient contacts for in-person office visits themselves, or using highly intense office visits at multi-disciplinary clinics or urgent care centers as a substitute for outpatient hospital visits.

The data from these eight HMO plans also show favorable preliminary comparisons with FFS on re-admissions and potentially avoidable admissions, although the number of observations on these measures is smaller. Finally, the data on HCC health status measures show fewer reported co-morbidities among MA plan enrollees. Although we believe that this result may be due at least in part to superior care received, we have not yet fully analyzed whether these reductions in co-morbidities show clinical patterns that could shed light on that hypothesis.

Likewise, it would be premature to generalize from these preliminary results from eight small- to medium-sized MA plans to all HMOs in MA, or to the MA program as a whole. However, our preliminary analysis of AHRQ data on hospital admissions in California and Nevada also indicates substantially lower rates of hospital days and re-admissions, and slightly lower rates of potentially avoidable admissions among MA patients, as compared with FFS patients. The AHRQ data allows controls for risk scores based on age, sex, and diagnosis codes gathered from hospital inpatient stays (but not from outpatient services or office visits). These new findings provide some initial confirmation of the results of the eight-company comparisons presented in this report, and the California and Nevada results will be the subject of a separate working paper this July or August.

We also hope to expand the data comparisons to 2007 when we receive the 2007 FFS data. Although our main goal in undertaking this project was to provide basic descriptive data, we recognize that these new datasets also represent a powerful new tool to help researchers understand the similarities and differences in care received by patients in MA plans and with FFS coverage.

Table 1.
Sample Characteristics: HMO Enrollees in Eight MA Plans and FFS Enrollees Nationally and in Local Comparison Areas

		Enrollees with Diabetes (HCCs 15-19)		Enrollees with Heart Diseases (HCCs 79-83, 92, 104, 105)	
Data for 2005 and 2006 (Pooled)	Average Age (All Enrollees)	Number of Records	Total HCCs	Number of Records	Total HCCs
National					
FFS Including Medicaid	74.2	639,124	2,344,115	859,916	3,342,530
FFS Medicaid Only	75.1	105,572	468,752	124,536	588,944
FFS Without Medicaid	74.1	533,552	1,875,363	735,380	2,753,586
Company 1 Area					
MA Plan	74.9	8,031	26,409	8,491	32,322
Local FFS Without Medicaid	73.4	5,916	22,147	8,045	32,300
Company 2 Area					
MA Plan	75.4	17,904	59,404	23,783	83,927
Local FFS Without Medicaid	74.1	5,071	16,911	7,420	26,721
Company 3 Area					
MA Plan	75.1	23,364	76,092	29,499	103,792
Local FFS Without Medicaid	74.7	10,306	40,273	15,544	61,416
Company 4 Area					
MA Plan	75.4	90,195	336,345	126,527	495,751
Local FFS Without Medicaid	75.6	6,099	24,400	9,291	37,401
Company 5 Area					
MA Plan	75.8	8,912	26,592	12,694	42,837
Local FFS Without Medicaid	73.9	2,576	8,258	3,644	12,755
Company 6 Area					
MA Plan	75.9	13,196	46,428	17,016	65,499
Local FFS Without Medicaid	74.7	6,523	25,623	9,701	38,865
Company 7 Area					
MA Plan	74.7	13,891	45,952	16,639	62,619
Local FFS Without Medicaid	75.0	2,915	10,955	3,921	15,389
Company 8 Area					
MA Plan	74.4	24,951	77,249	30,649	104,265
Local FFS Without Medicaid	75.2	1,353	4,812	1,738	6,818

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = enrollees in Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees. HCC is Hierarchical Condition Category; the study asked for HCC markers for 70 serious illness categories. A record is a data element for each beneficiary in a year. Based on beneficiaries aged 65-89, with 12 months of enrollment in a year (MA) or 12 Part A enrollment months (FFS). Determination of FFS Medicaid enrollees based on 12 months of reported state buy-in, from the FFS 5 percent sample claims demographic file.

Table 2.
Average Rates of Illness Diagnoses (HCC Groups) and Overall Risk-Scores* - Medicare FFS and Eight Medicare Advantage HMO Plans

Average HCC Markers per Beneficiary Record, 2005 and 2006 (Pooled)	Average HCCs (All Enrollees)	Cancers (HCCs 7-10)	Diabetes (HCCs 15-19)	Heart Diseases (HCCs 79-83, 92, 104, 105)	Kidney and Renal Disease (HCCs 130-132)	Average Overall Computed Risk Score*
National						
FFS Including Medicaid	1.74	0.16	0.34	0.58	0.06	1.13
FFS Medicaid Only	2.78	0.14	0.59	0.87	0.11	1.61
FFS Without Medicaid	1.62	0.16	0.31	0.54	0.05	1.08
Company 1 Area						
MA Plan	1.47	0.10	0.36	0.46	0.06	1.03
Local FFS Without Medicaid	1.64	0.14	0.31	0.54	0.06	1.09
Company 2 Area						
MA Plan	1.36	0.13	0.28	0.40	0.05	0.99
Local FFS Without Medicaid	1.41	0.16	0.25	0.46	0.05	1.00
Company 3 Area						
MA Plan	1.61	0.15	0.37	0.54	0.06	1.11
Local FFS Without Medicaid	1.77	0.19	0.32	0.59	0.06	1.16
Company 4 Area						
MA Plan	2.08	0.19	0.39	0.72	0.08	1.29
Local FFS Without Medicaid	1.97	0.17	0.36	0.70	0.07	1.25
Company 5 Area						
MA Plan	1.35	0.14	0.23	0.44	0.06	1.00
Local FFS Without Medicaid	1.30	0.14	0.23	0.41	0.05	0.96
Company 6 Area						
MA Plan	1.62	0.20	0.33	0.50	0.07	1.12
Local FFS Without Medicaid	1.76	0.19	0.32	0.58	0.06	1.16
Company 7 Area						
MA Plan	1.74	0.19	0.36	0.55	0.07	1.13
Local FFS Without Medicaid	1.79	0.17	0.36	0.59	0.06	1.16
Company 8 Area						
MA Plan	1.62	0.18	0.36	0.56	0.06	1.08
Local FFS Without Medicaid	1.82	0.17	0.35	0.59	0.06	1.18

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = enrollees with Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees. Based on beneficiaries aged 65-89, with 12 months of enrollment in a year (MA) or 12 Part A enrollment months (FFS). Determination of FFS Medicaid enrollees based on 12 months of reported state buy-in, from the FFS 5 percent sample claims demographic file.

* Risk scores for FFS and MA enrollees are based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Table 3.
Percentage Difference in Observed Co-Morbidity Rates Among Patients with Diabetes and Heart Disease, Eight Regional MA HMOs Relative to Local FFS

Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
Patients with Diabetes (HCC 15, 16, 17, 18, or 19), MA vs. FFS								
Co-Morbidities								
All HCCs	-12%	-1%	-17%	-7%	-7%	-10%	-12%	-13%
Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	-22%	-16%	-23%	-10%	-4%	-18%	-19%	-13%
Stroke (HCC 96)	-21%	-1%	-46%	-19%	+3%	-17%	-26%	-12%
Pneumonia (HCCs 111 or 112)	-37%	-24%	-58%	-13%	-18%	-6%	-48%	-40%
Kidney and Renal Disease (HCCs 130, 131, or 132)	-7%	-10%	-19%	+6%	0%	+3%	-10%	-5%
Patients with Heart Disease (HCC 79, 80, 81, 82, 83, 92, 104, or 105), MA vs. FFS								
Co-Morbidities								
All HCCs	-5%	-2%	-11%	-3%	-4%	-4%	-4%	-13%
Diabetes (HCCs 15, 16, 17, 18, or 19)	+12%	+9%	-1%	-3%	-9%	-4%	-9%	-8%
Stroke (HCC 96)	-9%	+7%	-40%	-17%	-6%	-8%	-9%	-5%
Pneumonia (HCCs 111 or 112)	-38%	-15%	-47%	+1%	-3%	+8%	-21%	-34%
Kidney and Renal Disease (HCCs 130, 131, or 132)	+12%	-2%	-6%	+11%	+9%	+11%	+3%	-7%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees with Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees. FFS enrollees do not include certain Medicaid patients (defined as those with 12 months of state assistance in the 5 percent sample claims data).

Table 4.
Percentage Difference in Observed Utilization Rates Among Patients with Diabetes, Eight Regional Medicare Advantage HMOs Relative to Local FFS

Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
MA Rate vs. FFS Rate (Per Person)								
Inpatient								
Hospital Days	-16%	-20%	-43%	-25%	-7%	-43%	-33%	-25%
Hospital Admissions	-11%	-14%	-35%	-20%	-3%	-26%	-31%	-23%
Outpatient								
ER Visits	-39%	-47%	-22%	-31%	-48%	-36%	-56%	-8%
Outpatient Visits	+64%	-63%	-61%	+5%	-20%	-16%	+11%	-61%
Office Visits	+24%	-12%	-9%	+64%	+3%	-4%	+55%	+14%
Same-Quarter Re-Admissions for Same DRG	-67%	-21%	-58%	-69%	-21%	-46%	-54%	-43%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-32%	-9%	-35%	-17%	+1%	-13%	-39%	-27%
MA Rate vs. FFS Rate (Per HCC)								
Inpatient								
Hospital Days	-5%	-20%	-32%	-20%	0%	-37%	-24%	-13%
Hospital Admissions	+1%	-14%	-22%	-14%	+4%	-17%	-22%	-11%
Outpatient								
ER Visits	-31%	-47%	-7%	-26%	-44%	-29%	-50%	+6%
Outpatient Visits	+87%	-63%	-53%	+13%	-14%	-6%	+27%	-56%
Office Visits	+41%	-11%	+9%	+76%	+10%	+7%	+77%	+31%
Same-Quarter Re-Admissions for Same DRG	-63%	-21%	-50%	-67%	-15%	-40%	-48%	-35%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-23%	-8%	-22%	-11%	+9%	-3%	-31%	-16%
MA Rate vs. FFS Rate (Per Risk Score* Value)								
Inpatient								
Hospital Days	-7%	-21%	-34%	-21%	-3%	-39%	-24%	-14%
Hospital Admissions	-1%	-14%	-25%	-15%	+2%	-19%	-22%	-12%
Outpatient								
ER Visits	-32%	-47%	-10%	-27%	-45%	-31%	-50%	+5%
Outpatient Visits	+83%	-63%	-55%	+12%	-16%	-8%	+26%	-56%
Office Visits	+38%	-12%	+5%	+74%	+7%	+4%	+75%	+30%
Same-Quarter Re-Admissions for Same DRG	-63%	-21%	-52%	-68%	-17%	-41%	-48%	-35%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-25%	-9%	-25%	-12%	+6%	-6%	-32%	-17%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees with Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees; ER = Emergency Room; patients with diabetes defined as HCCs 15, 16, 17, 18, or 19. FFS does not include certain Medicaid enrollees (defined as those with 12 months of state assistance in the 5 percent sample claims data).

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Table 5.
Percentage Difference in Observed Utilization Rates Among Patients with Heart Disease, Eight Regional Medicare Advantage HMOs Relative to Local FFS

Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
MA Rate vs. FFS Rate (Per Person)								
Inpatient								
Hospital Days	-1%	-15%	-31%	-20%	-3%	-33%	-14%	-20%
Hospital Admissions	+3%	-7%	-22%	-15%	-1%	-13%	-11%	-18%
Outpatient								
ER Visits	-32%	-37%	-12%	-29%	-47%	-30%	-45%	-15%
Outpatient Visits	+81%	-55%	-58%	+11%	-24%	-7%	+23%	-60%
Office Visits	+32%	-11%	-8%	+64%	+2%	-2%	+72%	+8%
Same-Quarter Re-Admissions for Same DRG	-67%	-14%	-50%	-65%	-15%	-37%	-25%	-35%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-19%	+2%	-23%	-11%	+4%	-4%	-21%	-26%
MA Rate vs. FFS Rate (Per HCC)								
Inpatient								
Hospital Days	+4%	-14%	-22%	-18%	0%	-30%	-11%	-8%
Hospital Admissions	+9%	-5%	-13%	-12%	+2%	-9%	-7%	-5%
Outpatient								
ER Visits	-29%	-35%	-1%	-27%	-45%	-28%	-42%	-2%
Outpatient Visits	+91%	-54%	-52%	+14%	-21%	-3%	+29%	-54%
Office Visits	+39%	-9%	+4%	+68%	+5%	+2%	+79%	+25%
Same-Quarter Re-Admissions for Same DRG	-65%	-13%	-44%	-64%	-12%	-35%	-22%	-25%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-15%	+4%	-13%	-8%	+8%	0%	-18%	-15%
MA Rate vs. FFS Rate (Per Risk Score* Value)								
Inpatient								
Hospital Days	+4%	-15%	-26%	-19%	-3%	-31%	-11%	-10%
Hospital Admissions	+8%	-6%	-17%	-13%	-1%	-11%	-8%	-8%
Outpatient								
ER Visits	-29%	-36%	-6%	-28%	-47%	-29%	-43%	-5%
Outpatient Visits	+90%	-55%	-55%	+13%	-24%	-5%	+28%	-55%
Office Visits	+38%	-10%	-1%	+67%	+1%	0%	+78%	+22%
Same-Quarter Re-Admissions for Same DRG	-65%	-14%	-46%	-64%	-15%	-36%	-22%	-27%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-15%	+2%	-17%	-9%	+4%	-2%	-18%	-17%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees with Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees; ER = Emergency Room; patients with heart disease defined as HCCs 79, 80, 81, 82, 83, 92, 104, or 105. FFS does not include certain Medicaid enrollees (defined as those with 12 months of state assistance in the 5 percent sample claims data).

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

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ENDNOTES

[1] Descriptions of Healthcare Effectiveness Data and Information Set (HEDIS) measures are available from the National Council on Quality Assurance (NCQA) website at www.ncqa.org.

[2] The authors would like to thank Julie Lee, PhD, of the Brookings Engelberg Center for Health Care Reform, for providing technical commentary throughout the design and data-gathering phases of this project.

[3] Our hope is that these initial comparisons will be seen as a successful test of the concept that consistent and robust data can be developed in cooperation with MA plans. We are working to expand this project in the coming months, possibly bringing in other research groups, adding measures, and continuing to broaden participation among MA plans.

[4] Miller, R., & Luft, H.S. (2002). HMO Plan Performance Update: An Analysis of the Literature, 1997-2001. *Health Affairs*. 21(4). 63-86.

[5] Davidson, S.M. (2003). Utilization of Services by Chronically Ill People in Managed Care and Indemnity Plans: Implications for Quality. *Inquiry*. 40(Spring 2003). 57-70.

[6] Dhanani, N., et al. (2004). The Effect of HMOs on the Inpatient Utilization of Medicare Beneficiaries. *Health Services Research*. 39(5). 1607-1627.

[7] McCarthy, E. et al. (2003) Hospice Use Among Medicare Managed Care and Fee-for-Service Patients Dying with Cancer. *JAMA*. 289(17). 2238-2245.

[8] Landon, B. (2004). Comparison of Performance of Traditional Medicare vs Medicare Managed Care. *JAMA*. 291(14). 1744-1752.

[9] Meara, E. (2004). The Effect of Managed Care Market Share on Appropriate Use of Coronary Angiography Among Traditional Medicare Beneficiaries. *Inquiry*. 41(Summer 2004). 144-158.

[10] Chernew, M. et al. (2008). Managed Care and Medical Expenditures of Medicare Beneficiaries. Working Paper 13747. Cambridge, MA: National Bureau of Economic Research.

[11] See, for example, Chapter 3 of MedPAC's "Report to Congress: Medicare Payment Policy" (March 2008), and Carlos Zarabosa and Scott Harrison, "Payment Policy and the Growth of Medicare Advantage," *Health Affairs* (January 2009).

[12] Gold, M. "Medicare's Private Plans: A Report Card on Medicare Advantage." *Health Affairs*. (January 2009). Gold's article asserted that there were "no apparent quality gains" among all MA plans, but the analysis of the potential for quality improvements was not empirical and was based only on PFFS plans.

[13] We compared the same-quarter re-admission rates with 30- and 90-day re-admission rates for the first eight MA plans to submit preliminary datasets. In seven of the eight MA plans, the same-quarter re-admission rate was between the reported 30- and 90-day re-admission rates, and in all cases the same-quarter rate was closest to the 30-day rate.

[14] Details and specifications at AHRQ *Prevention Quality Indicators*, Technical Specifications, October 2001 (Version 3.1, March 12, 2007), technical details accessed at http://www.qualityindicators.ahrq.gov/pqi_download.htm. For more general information, please see AHRQ's *Guide to the Prevention Quality Indicators*, accessible at http://www.qualityindicators.ahrq.gov.

ENDNOTES (CONTINUED)

[15] Privacy rules regarding research datasets of these kinds do not allow ages to be reported by year for those 90 and above. The eight responding companies reported very little PPO, SNP, and PFFS data in 2005 and 2006, although we hope for a greater amount of data from these alternative forms of coverage as more companies respond in 2009 and as companies are able to report 2007 data.

[16] The FFS 5 percent sample claims file (the "denominator" file) does not specifically identify enrollees who were dually-eligible; however, we chose to presume dual eligibility by using the buy-in indicator in the dataset and excluded enrollees with 12 months of buy-in for both Parts A and B. By this method, the numbers of dually-eligible enrollees were likely undercounted. See *Dual Medicare-Medicaid Enrollees and the Medicare Denominator File*, Technical Note, ResDAC Publication Number TN-010, March 2006. Research Data Assistance Center, University of Minnesota, Minneapolis, MN. http://www.resdac.umn.edu.

[17] We did not ask for Medicaid enrollment in the original MA data request. Of four responding companies queried subsequently, three indicated to the authors that the numbers of Medicaid enrollees in their care were probably small (2-5 percent), and suggested that MA enrollment may be a substitute for Medicaid enrollment. The other had estimated that its percentage of MA enrollees with Medicaid was about the same (11 percent) as national FFS (10.3 percent).

[18] Tables 3-5 are available with Medicaid in the FFS samples can be found in Appendix M.

[19] Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

[20] Our preliminary coding is available to researchers at www.ahipresearch.org. Comments and suggestions to improve or make corrections to the coding systems would be welcomed by the authors. Although the ICD-9 codes vary slightly from year to year, we used the CMS revision dated November 19, 2007 for the computation of HCCs in 2005 and 2006.

[21] The FFS claims files are designed so that each claim, including its utilization information, diagnosis information, and revenue codes, can occasionally have more than one "segment." Multiple segments are the result of the claim containing more revenue codes than are able to be captured in a single line of data – typical lines can hold up to 45 revenue codes. When that number is exceeded, a new "segment" is created for the overflow. While each new segment (for a single claim) contains unique additional, non-duplicated revenue code information, all other information is duplicated (diagnosis, demographics, etc.). Therefore, counting utilization and diagnosis information from claims with multiple segments can cause duplication. Potential double-counting of utilization or diagnosis information is avoided by only counting one segment per claim. We believe this avoids counting duplicate utilization or diagnosis information from the FFS claims. The authors would like to thank Dr. Hogan for very helpful suggestions on this topic.

APPENDIX D: DIABETES

Appendix Table D1. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans D-2

Appendix Table D2. HCCs, Risk Scores, and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans.....D-4

Appendix Table D3. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans D-6

Appendix Table D4. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans D-8

Appendix Table D1. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Diabetes (HCCs 15, 16, 17, 18, or 19)	533,552	5,916	8,031	5,071	17,904	10,306	23,364	6,099	90,195
Average Diabetes HCCs (per MA enrollee)	0.308	0.306	0.355	0.252	0.284	0.323	0.366	0.356	0.390
Average Diabetes HCCs (per patient with diabetes)	1.367	1.389	1.427	1.381	1.540	1.495	1.462	1.423	1.384
Average Age of Patients with Diabetes	74.5	73.6	74.9	74.6	75.2	75.4	75.1	76.4	75.5
Age Distribution:									
Percent 85-89	8%	6%	6%	9%	8%	10%	7%	12%	9%
Percent 80-84	16%	14%	16%	17%	19%	20%	17%	23%	18%
Percent 75-79	23%	21%	28%	22%	25%	24%	26%	27%	26%
Percent 70-74	25%	26%	31%	24%	26%	23%	32%	19%	28%
Percent 65-69	28%	33%	19%	29%	22%	24%	18%	19%	19%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		4%	5%	3%	3%	8%	4%	31%	34%
		9%	1%	37%	42%	12%	8%	3%	3%
		10%	20%	7%	6%	14%	8%	5%	9%
		65%	64%	3%	2%	7%	11%	2%	1%
		6%	7%	2%	3%	22%	37%	5%	4%
		7%	4%	20%	11%	12%	14%	5%	5%
				3%	7%	9%	8%	4%	7%
				12%	11%	8%	2%	10%	5%
				6%	10%	8%	9%	6%	3%
				5%	5%			3%	2%
								3%	3%
								5%	2%
								2%	3%
								5%	7%
								11%	12%
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

Appendix Table D1 Continued. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Diabetes (HCCs 15, 16, 17, 18, or 19)	533,552	2,576	8,912	6,523	13,196	2,915	13,891	1,353	24,951
Average Diabetes HCCs (per MA enrollee)	0.308	0.228	0.226	0.321	0.326	0.358	0.363	0.355	0.358
Average Diabetes HCCs (per patient with diabetes)	1.367	1.320	1.214	1.495	1.483	1.445	1.385	1.369	1.332
Average Age of Patients with Diabetes	74.5	74.7	76.1	75.4	76.3	75.3	74.8	75.7	74.4
Age Distribution:									
Percent 85-89	8%	7%	11%	10%	9%	9%	7%	10%	7%
Percent 80-84	16%	17%	22%	20%	19%	19%	16%	22%	16%
Percent 75-79	23%	24%	25%	25%	30%	25%	24%	24%	23%
Percent 70-74	25%	27%	22%	22%	29%	24%	30%	22%	27%
Percent 65-69	28%	24%	20%	23%	13%	22%	23%	22%	27%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		9%	15%	22%	17%	5%	1%	9%	4%
		2%	1%	35%	47%	6%	4%	5%	5%
		2%	1%	18%	17%	13%	6%	58%	74%
		11%	7%	13%	16%	49%	62%	13%	7%
		41%	41%	11%	4%	4%	2%	5%	3%
		23%	28%			18%	22%	10%	7%
		3%	1%			2%	1%		
		2%	1%			2%	2%		
		7%	4%						
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

Appendix Table D2. HCCs, Risk Scores,* and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Diabetes	1,875,363	22,147	26,409	16,911	59,404	40,273	76,092	24,400	336,345
Average	3.515	3.744	3.288	3.335	3.318	3.908	3.257	4.001	3.729
Total Risk Score* Values Among Patients with Diabetes	945,270	11,283	13,731	8,615	30,498	20,564	40,329	12,307	171,406
Average	1.772	1.907	1.710	1.699	1.703	1.995	1.726	2.018	1.900
Selected Co-Morbidities Among Diabetes Patients									
HCCs 79, 80, 81, 82, 83, 92, 104, or 105 (Heart Disease)									
Number of HCCs	491,975	5,814	6,163	4,095	12,078	10,689	18,719	6,956	92,521
Average (total heart disease HCCs per diabetes patient)	0.922	0.983	0.767	0.808	0.675	1.037	0.801	1.141	1.026
HCC 96 (Stroke)									
Number of HCCs	38,095	535	575	311	1,092	774	940	554	6,653
Average (total stroke HCC per diabetes patient)	0.071	0.090	0.072	0.061	0.061	0.075	0.040	0.091	0.074
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	11,166	141	121	114	304	292	276	157	2,021
Average (total pneumonia HCCs per diabetes patient)	0.021	0.024	0.015	0.022	0.017	0.028	0.012	0.026	0.022
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	69,757	939	1,186	687	2,193	1,581	2,920	955	15,028
Average (total kidney and renal disease HCCs per diabetes patient)	0.131	0.159	0.148	0.135	0.122	0.153	0.125	0.157	0.167

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table D2 Continued. HCCs, Risk Scores,* and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Diabetes	1,875,363	8,258	26,592	25,623	46,428	10,955	45,952	4,812	77,249
Average	3.515	3.206	2.984	3.928	3.518	3.758	3.308	3.556	3.096
Total Risk Score* Values Among Patients with Diabetes	945,270	4,265	14,114	13,073	24,321	5,540	23,407	2,449	39.658
Average	1.772	1.656	1.584	2.004	1.843	1.901	1.685	1.810	1.590
Selected Co-Morbidities Among Diabetes Patients									
HCCs 79, 80, 81, 82, 83, 92, 104, or 105 (Heart Disease)									
Number of HCCs	491,975	1,988	6,621	6,734	11,155	2,902	11,240	1,255	20,221
Average (total heart disease HCCs per diabetes patient)	0.922	0.772	0.743	1.032	0.845	0.996	0.809	0.928	0.810
HCC 96 (Stroke)									
Number of HCCs	38,095	133	476	494	830	230	808	122	1,970
Average (total stroke HCC per diabetes patient)	0.071	0.052	0.053	0.757	0.063	0.079	0.058	0.090	0.079
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	11,166	48	136	191	365	70	175	26	287
Average (total pneumonia HCCs per diabetes patient)	0.021	0.019	0.015	0.029	0.028	0.024	0.013	0.019	0.012
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	69,757	384	1,325	1,003	2,080	455	1,958	176	3,085
Average (total kidney and renal disease HCCs per diabetes patient)	0.131	0.149	0.149	0.154	0.158	0.156	0.141	0.130	0.124

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table D3. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	1,524,199	25,268	28,728	9,172	25,802	34,607	44,728	25,303	278,982
Average (Per Person)	2.86	4.27	3.58	1.81	1.44	3.36	1.91	4.15	3.09
Average (Per HCC)	0.81	1.14	1.09	0.54	0.43	0.86	0.59	1.04	0.83
Average (Per Risk Score* Value)	1.61	2.24	2.09	1.06	0.85	1.68	1.11	2.06	1.63
Max	359	196	247	102	337	134	167	240	303
Inpatient Admissions									
Total	264,736	3,529	4,251	1,953	5,928	5,623	8,303	3,997	47,226
Average (Per Person)	0.50	0.60	0.53	0.39	0.33	0.55	0.36	0.66	0.52
Average (Per HCC)	0.14	0.16	0.16	0.12	0.10	0.14	0.11	0.16	0.14
Average (Per Risk Score* Value)	0.28	0.31	0.31	0.23	0.19	0.27	0.21	0.32	0.28
Max	30	21	16	10	11	15	11	12	17
Outpatient Hospital Visits									
Total	2,733,230	19,105	42,646	28,162	36,672	81,843	72,996	45,282	705,390
Average (Per Person)	5.12	3.23	5.31	5.55	2.05	7.94	3.12	7.42	7.82
Average (Per HCC)	1.46	0.86	1.61	1.67	0.62	2.03	0.96	1.86	2.10
Average (Per Risk Score* Value)	2.89	1.69	3.11	3.27	1.20	3.98	1.81	3.68	4.12
Max	320	54	320	107	72	98	365	156	144
ER Visits									
Total	282,667	3,157	2,608	2,972	5,525	5,176	9,097	3,150	32,038
Average (Per Person)	0.53	0.53	0.32	0.59	0.31	0.50	0.39	0.52	0.36
Average (Per HCC)	0.15	0.14	0.10	0.18	0.09	0.13	0.12	0.13	0.10
Average (Per Risk Score* Value)	0.30	0.28	0.19	0.34	0.18	0.25	0.23	0.26	0.19
Max	140	26	24	20	15	23	18	11	42
Office or Clinic Visits									
Total	5,550,589	62,262	104,863	53,415	166,710	105,308	216,908	53,972	1,305,982
Average (Per Person)	10.40	10.52	13.06	10.53	9.31	10.22	9.28	8.85	14.48
Average (Per HCC)	2.96	2.81	3.97	3.16	2.81	2.61	2.85	2.21	3.88
Average (Per Risk Score* Value)	5.87	5.52	7.64	6.20	5.47	5.12	5.38	4.39	7.62
Max	215	137	172	77	124	101	138	68	194

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table D3 Continued. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	1,524,199	6,383	20,537	22,700	25,972	8,832	28,244	3,712	51,606
Average (Per Person)	2.86	2.48	2.30	3.48	1.97	3.03	2.03	2.74	2.07
Average (Per HCC)	0.81	0.77	0.77	0.89	0.56	0.81	0.61	0.77	0.67
Average (Per Risk Score* Value)	1.61	1.50	1.46	1.74	1.07	1.60	1.21	1.52	1.30
Max	359	116	177	134	122	109	232	132	288
Inpatient Admissions									
Total	264,736	1,309	4,404	3,661	5,513	1,430	4,700	607	8,669
Average (Per Person)	0.50	0.51	0.49	0.56	0.42	0.49	0.34	0.45	0.35
Average (Per HCC)	0.14	0.16	0.17	0.14	0.12	0.13	0.10	0.13	0.11
Average (Per Risk Score* Value)	0.28	0.31	0.31	0.28	0.23	0.26	0.20	0.25	0.22
Max	30	11	13	15	15	13	10	8	14
Outpatient Hospital Visits									
Total	2,733,230	14,827	41,056	56,289	95,906	18,918	100,464	11,380	81,132
Average (Per Person)	5.12	5.76	4.61	8.63	7.27	6.49	7.23	8.41	3.25
Average (Per HCC)	1.46	1.80	1.54	2.20	2.07	1.73	2.19	2.36	1.05
Average (Per Risk Score* Value)	2.89	3.48	2.91	4.31	3.94	3.41	4.29	4.65	2.05
Max	320	67	358	93	117	72	194	70	380
ER Visits									
Total	282,667	1,203	2,174	3,249	4,195	1,472	3,108	628	10,662
Average (Per Person)	0.53	0.47	0.24	0.50	0.32	0.50	0.22	0.46	0.43
Average (Per HCC)	0.15	0.15	0.08	0.13	0.09	0.13	0.07	0.13	0.14
Average (Per Risk Score* Value)	0.30	0.28	0.15	0.25	0.17	0.27	0.13	0.26	0.27
Max	140	25	13	23	10	15	11	11	35
Office or Clinic Visits									
Total	5,550,589	22,254	78,944	65,845	127,652	27,348	202,497	12,150	254,799
Average (Per Person)	10.40	8.64	8.86	10.09	9.67	9.38	14.58	8.98	10.21
Average (Per HCC)	2.96	2.69	2.97	2.57	2.75	2.50	4.41	2.52	3.30
Average (Per Risk Score* Value)	5.87	5.22	5.59	5.04	5.25	4.94	8.65	4.96	6.42
Max	215	60	54	101	64	75	204	57	89

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table D4. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	10,141	184	82	52	145	274	260	161	727
Average (Per Person)	0.019	0.031	0.010	0.010	0.008	0.027	0.011	0.026	0.008
Average (Per HCC)	0.006	0.008	0.003	0.003	0.002	0.007	0.003	0.007	0.002
Average (Per Risk Score* Value)	0.011	0.016	0.006	0.006	0.005	0.013	0.006	0.013	0.004
"Potentially Avoidable" Admissions=									
Total	54,875	772	709	357	1,149	1,213	1,792	886	10,913
Average (Per Person)	0.103	0.130	0.088	0.070	0.064	0.118	0.077	0.145	0.121
Average (Per HCC)	0.029	0.035	0.027	0.021	0.019	0.030	0.024	0.036	0.032
Average (Per Risk Score* Value)	0.058	0.068	0.052	0.041	0.038	0.059	0.044	0.072	0.064
Selected Specific Potentially Avoidable Admissions									
Congestive Heart Failure (CHF)									
Total	19,267	260	255	105	336	441	582	352	4,062
Average (Per Person)	0.036	0.044	0.032	0.021	0.019	0.043	0.025	0.058	0.045
Average (Per HCC)	0.010	0.012	0.010	0.006	0.006	0.011	0.008	0.014	0.012
Average (Per Risk Score* Value)	0.020	0.023	0.019	0.012	0.011	0.021	0.014	0.029	0.024
Chronic Obstructive Pulmonary Disease (COPD)									
Total	5,437	87	36	36	94	144	235	95	1,173
Average (Per Person)	0.010	0.015	0.004	0.007	0.005	0.014	0.010	0.016	0.013
Average (Per HCC)	0.003	0.004	0.001	0.002	0.002	0.004	0.003	0.004	0.003
Average (Per Risk Score* Value)	0.006	0.008	0.003	0.004	0.003	0.007	0.006	0.008	0.007

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

Appendix Table D4 Continued. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	10,141	49	134	178	195	55	120	22	230
Average (Per Person)	0.019	0.019	0.015	0.027	0.015	0.019	0.009	0.016	0.009
Average (Per HCC)	0.006	0.006	0.005	0.007	0.004	0.005	0.002	0.005	0.003
Average (Per Risk Score* Value)	0.011	0.011	0.009	0.014	0.008	0.009	0.005	0.009	0.006
"Potentially Avoidable" Admissions=									
Total	54,875	214	748	789	1,382	324	937	125	1,681
Average (Per Person)	0.103	0.083	0.084	0.121	0.105	0.111	0.067	0.092	0.067
Average (Per HCC)	0.029	0.026	0.028	0.031	0.030	0.030	0.020	0.026	0.022
Average (Per Risk Score* Value)	0.058	0.050	0.053	0.060	0.057	0.058	0.040	0.051	0.042
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	19,267	82	244	281	406	114	338	32	681
Average (Per Person)	0.036	0.032	0.027	0.043	0.031	0.039	0.024	0.024	0.027
Average (Per HCC)	0.010	0.010	0.009	0.011	0.009	0.010	0.007	0.007	0.009
Average (Per Risk Score* Value)	0.020	0.019	0.017	0.021	0.017	0.021	0.014	0.013	0.017
Chronic Obstructive Pulmonary Disease (COPD)									
Total	5,437	13	81	104	127	21	105	15	177
Average (Per Person)	0.010	0.005	0.009	0.016	0.010	0.007	0.008	0.011	0.007
Average (Per HCC)	0.003	0.002	0.003	0.004	0.003	0.002	0.002	0.003	0.002
Average (Per Risk Score* Value)	0.006	0.003	0.006	0.008	0.005	0.004	0.004	0.006	0.004

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

APPENDIX H: HEART DISEASE

Appendix Table H1. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans H-2

Appendix Table H2. HCCs, Risk Scores, and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans H-4

Appendix Table H3. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans H-6

Appendix Table H4. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans H-8

Appendix Table H1. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	735,380	8,045	8,491	7,420	23,783	15,544	29,499	9,291	126,527
Average Heart Disease HCCs (per MA enrollee)	0.544	0.543	0.461	0.455	0.402	0.589	0.541	0.698	0.716
Average Heart Disease HCCs (per patient with heart disease)	1.75	1.81	1.75	1.70	1.64	1.81	1.71	1.83	1.81
Average Age of Patients with Heart Disease	76.4	75.5	76.5	76.8	77.7	77.4	76.8	78.2	77.0
Age Distribution:									
Percent 85-89	13%	10%	10%	15%	17%	16%	12%	18%	14%
Percent 80-84	22%	20%	21%	23%	25%	25%	22%	28%	23%
Percent 75-79	24%	24%	29%	23%	25%	25%	27%	26%	27%
Percent 70-74	22%	23%	26%	20%	20%	19%	27%	16%	24%
Percent 65-69	19%	23%	13%	18%	13%	15%	12%	12%	13%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		7%	4%	3%	4%	9%	4%	35%	36%
		5%	6%	37%	41%	10%	8%	2%	3%
		63%	62%	7%	6%	14%	9%	4%	8%
		10%	22%	3%	1%	7%	12%	2%	1%
		11%	1%	2%	3%	22%	35%	5%	4%
		4%	5%	19%	10%	12%	14%	5%	5%
				4%	7%	9%	8%	5%	7%
				12%	11%	8%	2%	9%	5%
				6%	11%	8%	8%	4%	2%
				6%	6%			3%	2%
								3%	3%
								5%	2%
								2%	3%
								6%	7%
								11%	11%
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

Appendix Table H1 Continued. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	735,380	3,644	12,694	9,701	17,016	3,921	16,639	1,738	30,649
Average Heart Disease HCCs (per MA enrollee)	0.544	0.410	0.442	0.579	0.503	0.594	0.547	0.589	0.562
Average Heart Disease HCCs (per patient with heart disease)	1.75	1.68	1.67	1.81	1.78	1.78	1.74	1.77	1.70
Average Age of Patients with Heart Disease	76.4	76.4	78.2	77.5	77.7	77.2	76.5	76.7	76.3
Age Distribution:									
Percent 85-89	13%	13%	20%	17%	15%	15%	12%	17%	13%
Percent 80-84	22%	21%	26%	24%	24%	24%	21%	26%	21%
Percent 75-79	24%	25%	24%	25%	30%	25%	25%	24%	24%
Percent 70-74	22%	23%	17%	19%	23%	20%	26%	18%	23%
Percent 65-69	19%	18%	12%	15%	9%	15%	16%	15%	19%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		8%	14%	22%	18%	5%	1%	8%	4%
		2%	1%	36%	47%	8%	4%	7%	5%
		3%	1%	20%	18%	12%	6%	59%	75%
		10%	6%	12%	13%	51%	63%	12%	7%
		42%	45%	10%	3%	4%	3%	4%	3%
		24%	27%			16%	21%	10%	6%
		2%	1%			2%	1%		
		3%	1%			2%	2%		
		6%	3%						
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

Appendix Table H2. HCCs, Risk Scores,* and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Heart Disease	2,753,586	32,300	32,322	26,721	83,927	61,416	103,792	37,401	495,751
Average	3.744	4.015	3.807	3.601	3.529	3.951	3.518	4.026	3.918
Total Risk Score* Values Among Patients with Heart Disease	1,457,255	17,166	17,235	14,375	45,793	32,627	57,884	19,925	266,365
Average	1.982	2.134	2.030	1.937	1.925	2.099	1.962	2.145	2.105
Selected Co-Morbidities Among Heart Disease Patients									
HCCs 15, 16, 17, 18, or 19 (Diabetes)									
Number of HCCs	378,997	4,450	5,276	3,375	11,793	8,414	15,872	5,229	69,034
Average (total diabetes HCCs per heart disease patient)	0.515	0.553	0.621	0.455	0.496	0.541	0.538	0.563	0.546
HCC 96 (Stroke)									
Number of HCCs	68,325	926	892	582	1,994	1,526	1,739	1,055	11,966
Average (total stroke HCC per heart disease patient)	0.093	0.115	0.105	0.078	0.084	0.098	0.059	0.114	0.095
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	22,561	297	193	259	703	614	617	295	4,049
Average (total pneumonia HCCs per heart disease patient)	0.031	0.037	0.023	0.035	0.030	0.040	0.021	0.032	0.032
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	95,177	1,184	1,394	1,020	3,210	2,236	3,986	1,354	20,532
Average (total kidney and renal disease HCCs per heart disease patient)	0.129	0.147	0.164	0.138	0.135	0.144	0.135	0.146	0.162

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table H2 Continued. HCCs, Risk Scores,* and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Heart Disease	2,753,586	12,755	42,837	38,865	65,499	15,389	62,619	6,818	104,265
Average	3.744	3.500	3.375	4.006	3.849	3.925	3.763	3.923	3.402
Total Risk Score* Values Among Patients with Heart Disease	1,457,255	6,927	24,149	20,669	35,561	8,158	33,385	3,616	56,731
Average	1.982	1.901	1.902	2.131	2.090	2.081	2.006	2.081	1.851
Selected Co-Morbidities Among Heart Disease Patients									
HCCs 15, 16, 17, 18, or 19 (Diabetes)									
Number of HCCs	378,997	1,498	4,761	5,397	9,111	2,311	8,965	961	15,636
Average (total diabetes HCCs per heart disease patient)	0.515	0.411	0.375	0.556	0.535	0.589	0.539	0.553	0.510
HCC 96 (Stroke)									
Number of HCCs	68,325	298	980	952	1,534	361	1,399	207	3,470
Average (total stroke HCC per heart disease patient)	0.093	0.082	0.077	0.098	0.090	0.092	0.084	0.119	0.113
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	22,561	99	335	402	763	117	391	52	605
Average (total pneumonia HCCs per heart disease patient)	0.031	0.027	0.026	0.041	0.045	0.030	0.023	0.030	0.020
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	95,177	555	2,104	1,446	2,828	559	2,453	255	4,189
Average (total kidney and renal disease HCCs per heart disease patient)	0.129	0.152	0.166	0.149	0.166	0.143	0.147	0.147	0.137

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table H3. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	2,860,443	43,940	45,708	20,478	55,514	67,572	88,554	46,868	508,977
Average (Per Person)	3.89	5.46	5.38	2.76	2.33	4.35	3.00	5.04	4.02
Average (Per HCC)	1.04	1.36	1.41	0.77	0.66	1.10	0.85	1.25	1.03
Average (Per Risk Score* Value)	1.96	2.56	2.65	1.42	1.21	2.07	1.53	2.35	1.91
Max	359	196	247	102	337	221	186	247	303
Inpatient Admissions									
Total	514,744	6,365	6,925	4,410	13,192	11,260	16,598	7,573	88,109
Average (Per Person)	0.70	0.79	0.82	0.59	0.56	0.72	0.56	0.82	0.70
Average (Per HCC)	0.19	0.20	0.21	0.17	0.16	0.18	0.16	0.20	0.18
Average (Per Risk Score* Value)	0.35	0.37	0.40	0.31	0.29	0.35	0.29	0.38	0.33
Max	30	21	18	10	11	15	11	12	24
Outpatient Hospital Visits									
Total	4,499,327	29,900	57,012	49,618	71,010	143,109	115,209	77,401	1,173,129
Average (Per Person)	6.12	3.72	6.71	6.69	2.99	9.21	3.91	8.33	9.27
Average (Per HCC)	1.63	0.93	1.76	1.86	0.85	2.33	1.11	2.07	2.37
Average (Per Risk Score* Value)	3.09	1.74	3.31	3.45	1.55	4.39	1.99	3.88	4.40
Max	212	56	320	103	117	98	365	156	148
ER Visits									
Total	494,410	5,368	3,834	5,917	12,006	9,748	16,293	5,748	55,699
Average (Per Person)	0.67	0.67	0.45	0.80	0.50	0.63	0.55	0.62	0.44
Average (Per HCC)	0.18	0.17	0.12	0.22	0.14	0.16	0.16	0.15	0.11
Average (Per Risk Score* Value)	0.34	0.31	0.22	0.41	0.26	0.30	0.28	0.29	0.21
Max	324	35	78	20	17	23	20	16	42
Office or Clinic Visits									
Total	8,597,965	93,887	130,513	90,630	259,910	171,189	300,249	86,981	1,941,979
Average (Per Person)	11.69	11.67	15.37	12.21	10.93	11.01	10.18	9.36	15.35
Average (Per HCC)	3.12	2.91	4.04	3.39	3.10	2.79	2.89	2.33	3.92
Average (Per Risk Score* Value)	5.90	5.47	7.57	6.30	5.68	5.25	5.19	4.37	7.29
Max	296	137	169	77	124	143	97	68	219

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table H3 Continued. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	2,860,443	12,912	43,478	43,935	51,988	15,145	55,004	6,920	97,190
Average (Per Person)	3.89	3.54	3.43	4.53	3.06	3.86	3.31	3.98	3.17
Average (Per HCC)	1.04	1.01	1.01	1.13	0.79	0.98	0.88	1.02	0.93
Average (Per Risk Score* Value)	1.96	1.86	1.80	2.13	1.46	1.86	1.65	1.91	1.71
Max	359	116	177	207	147	125	232	132	329
Inpatient Admissions									
Total	514,744	2,839	9,752	7,312	11,207	2,533	9,541	1,157	16,746
Average (Per Person)	0.70	0.78	0.77	0.75	0.66	0.65	0.57	0.67	0.55
Average (Per HCC)	0.19	0.22	0.23	0.19	0.17	0.16	0.15	0.17	0.16
Average (Per Risk Score* Value)	0.35	0.41	0.40	0.35	0.32	0.31	0.29	0.32	0.30
Max	30	11	14	15	15	13	15	8	14
Outpatient Hospital Visits									
Total	4,499,327	25,978	69,187	96,085	156,487	28,925	151,315	17,720	123,975
Average (Per Person)	6.12	7.13	5.45	9.90	9.20	7.38	9.10	10.20	4.05
Average (Per HCC)	1.63	2.04	1.62	2.47	2.39	1.88	2.42	2.60	1.19
Average (Per Risk Score* Value)	3.09	3.75	2.86	4.65	4.40	3.55	4.53	4.90	2.19
Max	212	69	358	93	315	109	194	70	380
ER Visits									
Total	494,410	2,279	4,176	6,159	7,524	2,233	5,235	1,143	17,113
Average (Per Person)	0.67	0.63	0.33	0.63	0.44	0.57	0.31	0.66	0.56
Average (Per HCC)	0.18	0.18	0.10	0.16	0.11	0.15	0.08	0.17	0.16
Average (Per Risk Score* Value)	0.34	0.33	0.17	0.30	0.21	0.27	0.16	0.32	0.30
Max	324	25	13	23	13	15	15	45	35
Office or Clinic Visits									
Total	8,597,965	37,655	133,209	105,641	181,852	38,357	279,982	17,793	340,107
Average (Per Person)	11.69	10.33	10.49	10.89	10.69	9.78	16.83	10.24	11.10
Average (Per HCC)	3.12	2.95	3.11	2.72	2.78	2.49	4.47	2.61	3.26
Average (Per Risk Score* Value)	5.90	5.44	5.52	5.11	5.11	4.70	8.39	4.92	6.00
Max	296	81	62	101	72	75	204	57	79

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table H4. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	18,227	311	109	114	313	514	488	280	1,350
Average (Per Person)	0.025	0.040	0.010	0.015	0.013	0.033	0.017	0.030	0.011
Average (Per HCC)	0.007	0.010	0.003	0.004	0.004	0.008	0.005	0.007	0.003
Average (Per Risk Score* Value)	0.013	0.018	0.006	0.008	0.007	0.016	0.008	0.014	0.005
"Potentially Avoidable" Admissions=									
Total	96,506	1,223	1,046	710	2,312	2,167	3,176	1,475	17,976
Average (Per Person)	0.131	0.152	0.120	0.096	0.097	0.139	0.108	0.159	0.142
Average (Per HCC)	0.035	0.038	0.032	0.027	0.028	0.035	0.031	0.039	0.036
Average (Per Risk Score* Value	0.066	0.071	0.061	0.049	0.050	0.066	0.055	0.074	0.067
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	34,284	440	418	251	698	709	1,083	607	6,875
Average (Per Person)	0.047	0.050	0.050	0.034	0.029	0.046	0.037	0.065	0.054
Average (Per HCC)	0.012	0.014	0.013	0.009	0.008	0.012	0.010	0.016	0.014
Average (Per Risk Score* Value	0.024	0.026	0.024	0.017	0.015	0.022	0.019	0.030	0.026
Chronic Obstructive Pulmonary Disease (COPD)									
Total	12,090	158	41	77	256	308	529	167	2,597
Average (Per Person)	0.016	0.020	0.005	0.010	0.011	0.020	0.018	0.018	0.021
Average (Per HCC)	0.004	0.005	0.001	0.003	0.003	0.005	0.005	0.004	0.005
Average (Per Risk Score* Value	0.008	0.009	0.002	0.005	0.006	0.009	0.009	0.008	0.010

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

Appendix Table H4 Continued. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	18,227	93	276	330	362	73	232	33	380
Average (Per Person)	0.025	0.026	0.022	0.034	0.021	0.019	0.014	0.019	0.012
Average (Per HCC)	0.007	0.007	0.006	0.008	0.006	0.005	0.004	0.005	0.004
Average (Per Risk Score* Value)	0.013	0.013	0.011	0.016	0.010	0.009	0.007	0.009	0.007
"Potentially Avoidable" Admissions=									
Total	96,506	426	1,544	1,398	2,365	496	1,661	235	3,058
Average (Per Person)	0.131	0.117	0.122	0.144	0.139	0.126	0.100	0.135	0.100
Average (Per HCC)	0.035	0.033	0.036	0.036	0.036	0.032	0.027	0.035	0.029
Average (Per Risk Score* Value	0.066	0.062	0.064	0.068	0.067	0.061	0.050	0.065	0.054
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	34,284	156	543	468	731	192	573	70	1,178
Average (Per Person)	0.047	0.043	0.043	0.048	0.043	0.049	0.034	0.040	0.038
Average (Per HCC)	0.012	0.012	0.013	0.012	0.011	0.012	0.009	0.010	0.011
Average (Per Risk Score* Value	0.024	0.023	0.022	0.023	0.021	0.024	0.017	0.019	0.021
Chronic Obstructive Pulmonary Disease (COPD)									
Total	12,090	45	212	195	298	47	250	32	403
Average (Per Person)	0.016	0.012	0.017	0.020	0.018	0.012	0.015	0.018	0.013
Average (Per HCC)	0.004	0.004	0.005	0.005	0.005	0.003	0.004	0.005	0.004
Average (Per Risk Score* Value	0.008	0.006	0.009	0.009	0.008	0.006	0.007	0.009	0.007

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled 12 months of the calendar year. FFS enrollees do not include full-year Medicaid recipients.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

APPENDIX M: MEDICAID IN FEE-FOR-SERVICE

Appendix Table M1. Percentage Difference in Observed Co-Morbidity Rates Among Patients with Diabetes and Heart Disease, Eight Regional Medicare Advantage HMOs Relative to Local FFS M-2

Appendix Table M-D1. Percentage Difference in Observed Utilization and Rates Among Patients with Diabetes, Eight Regional Medicare Advantage HMOs Relative to Local FFS M-3

Appendix Table M-D2. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans M-4

Appendix Table M-D3. HCCs, Risk Scores, and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans M-6

Appendix Table M-D4. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans M-8

Appendix Table M-D5. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans M-10

Appendix Table M-H1. Percentage Difference in Observed Utilization and Rates Among Patients with Heart Disease, Eight Regional Medicare Advantage HMOs Relative to Local FFS M-12

Appendix Table M-H2. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans M-13

Appendix Table M-H3. HCCs, Risk Scores, and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans M-15

Appendix Table M-H4. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans M-17

Appendix Table M-H5. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans M-19

Appendix Table M1. Percentage Difference in Observed Co-Morbidity Rates Among Patients with Diabetes and Heart Disease, Eight Regional Medicare Advantage HMOs Relative to Local FFS								
Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
Patients with Diabetes (HCC 15, 16, 17, 18, or 19), MA vs. FFS								
Co-Morbidities								
All HCCs	-16%	-4%	-18%	-9%	-8%	-11%	-13%	-15%
Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	-24%	-20%	-24%	-12%	-4%	-18%	-21%	-14%
Stroke (HCC 96)	-28%	-11%	-49%	-21%	+4%	-19%	-29%	-10%
Pneumonia (HCCs 111 or 112)	-44%	-36%	-61%	-20%	-23%	-8%	-50%	-44%
Kidney and Renal Disease (HCCs 130, 131, or 132	-15%	-15%	-20%	+1%	-2%	+2%	-11%	-8%
Patients with Heart Disease (HCC 79, 80, 81, 82, 83, 92, 104, or 105), MA vs. FFS								
Co-Morbidities								
All HCCs	-8%	-5%	-13%	-5%	-4%	-6%	-6%	-15%
Diabetes (HCCs 15, 16, 17, 18, or 19)	+4%	+3%	-6%	-6%	-10%	-8%	-11%	-13%
Stroke (HCC 96)	-13%	-4%	-43%	-19%	-6%	-11%	-12%	-6%
Pneumonia (HCCs 111 or 112)	-42%	-27%	-52%	-5%	-6%	+3%	-27%	-40%
Kidney and Renal Disease (HCCs 130, 131, or 132)	+2%	-6%	-10%	+6%	+7%	+8%	0%	-8%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees in Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees. FFS enrollees includes Medicaid beneficiaries in FFS (defined as those with 12 months of state assistance in the 5 percent sample claims data).

Table M-D1.
Percentage Difference in Observed Utilization and Rates Among Patients with Diabetes, Eight Regional Medicare Advantage HMOs Relative to Local FFS

Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
MA Rate vs. FFS Rate (Per Person)								
Inpatient								
Hospital Days	-23%	-25%	-46%	-28%	-8%	-44%	-36%	-27%
Hospital Admissions	-15%	-18%	-38%	-32%	-4%	-27%	-33%	-27%
Outpatient								
ER Visits	-42%	-52%	-29%	-35%	-50%	-41%	-58%	-17%
Outpatient Visits	+55%	-65%	-61%	+3%	-23%	-18%	+6%	-63%
Office Visits	+26%	-9%	-7%	+66%	+3%	-2%	+58%	+15%
Same-Quarter Re-Admissions for Same DRG	-69%	-27%	-62%	-72%	-24%	-49%	-53%	-45%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-36%	-16%	-40%	-20%	-4%	-16%	-43%	-32%
MA Rate vs. FFS Rate (Per HCC)								
Inpatient								
Hospital Days	-9%	-22%	-35%	-21%	0%	-37%	-26%	-14%
Hospital Admissions	+1%	-15%	-24%	-15%	+4%	-18%	-23%	-14%
Outpatient								
ER Visits	-32%	-50%	-14%	-29%	-46%	-33%	-52%	-3%
Outpatient Visits	+83%	-63%	-53%	+13%	-17%	-7%	+23%	-56%
Office Visits	+49%	-5%	+14%	+83%	+12%	+10%	+82%	+35%
Same-Quarter Re-Admissions for Same DRG	-63%	-24%	-54%	-70%	-18%	-42%	-46%	-35%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-25%	-13%	-27%	-12%	+4%	-5%	-35%	-20%
MA Rate vs. FFS Rate (Per Risk Score* Unit)								
Inpatient								
Hospital Days	-10%	-23%	-37%	-22%	-2%	-39%	-27%	-15%
Hospital Admissions	-1%	-15%	-27%	-16%	+1%	-20%	-24%	-15%
Outpatient								
ER Visits	-33%	-50%	-17%	-30%	-47%	-35%	-52%	-3%
Outpatient Visits	+81%	-64%	-55%	+12%	-19%	-10%	+21%	-56%
Office Visits	+47%	-6%	+10%	+81%	+9%	+7%	+81%	+34%
Same-Quarter Re-Admissions for Same DRG	-64%	-24%	-56%	-70%	-20%	-44%	-46%	-35%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-26%	-13%	-30%	-13%	+2%	-8%	-35%	-21%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees in Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees; ER = Emergency Room; patients with diabetes defined as HCCs 15, 16, 17, 18, or 19. FFS includes Medicaid enrollees (defined as those with 12 months of state assistance in the 5 percent sample claims data).

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-D2. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Diabetes (HCCs 15, 16, 17, 18, or 19)	639,124	7,135	8,031	5,888	17,904	12,651	23,364	6,825	90,195
Average Diabetes HCCs (per MA enrollee)	0.337	0.338	0.355	0.273	0.284	0.352	0.366	0.372	0.390
Average Diabetes HCCs (per patient with diabetes)	1.390	1.418	1.427	1.397	1.540	1.504	1.462	1.435	1.384
Average Age of Patients with Diabetes	74.5	73.7	74.9	74.7	75.2	75.3	75.1	76.2	75.5
Age Distribution:									
Percent 85-89	8%	6%	6%	9%	8%	10%	7%	12%	9%
Percent 80-84	16%	14%	16%	17%	19%	19%	17%	22%	18%
Percent 75-79	23%	21%	28%	22%	25%	24%	26%	27%	26%
Percent 70-74	25%	27%	31%	24%	26%	23%	32%	19%	28%
Percent 65-69	28%	32%	19%	28%	22%	24%	18%	20%	19%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		3%	5%	3%	3%	7%	4%	31%	34%
		8%	1%	39%	42%	13%	8%	3%	3%
		9%	20%	7%	6%	13%	8%	4%	9%
		66%	64%	3%	2%	8%	11%	2%	1%
		6%	7%	2%	3%	21%	37%	5%	4%
		7%	4%	20%	11%	11%	14%	5%	5%
				3%	7%	8%	8%	5%	7%
				13%	11%	11%	2%	10%	5%
				6%	10%	8%	9%	6%	3%
				5%	5%			3%	2%
								3%	3%
								5%	2%
								3%	3%
								5%	7%
								11%	12%
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

Appendix Table M-D2 Continued. Characteristics of Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Diabetes (HCCs 15, 16, 17, 18, or 19)	639,124	2,724	8,912	7,880	13,196	3,268	13,891	1,562	24,951
Average Diabetes HCCs (per MA enrollee)	0.337	0.234	0.226	0.347	0.326	0.371	0.363	0.372	0.357
Average Diabetes HCCs (per patient with diabetes)	1.390	1.326	1.214	1.506	1.483	1.452	1.385	1.382	1.332
Average Age of Patients with Diabetes	74.5	74.7	76.1	75.3	76.3	75.2	74.8	75.5	74.4
Age Distribution:									
Percent 85-89	8%	7%	11%	10%	9%	9%	7%	10%	7%
Percent 80-84	16%	18%	22%	19%	19%	19%	16%	21%	16%
Percent 75-79	23%	23%	25%	25%	30%	25%	24%	23%	23%
Percent 70-74	25%	27%	22%	23%	29%	24%	30%	23%	27%
Percent 65-69	28%	25%	20%	24%	13%	23%	23%	23%	27%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		9%	15%	22%	17%	5%	1%	9%	4%
		2%	1%	34%	47%	7%	4%	5%	5%
		2%	1%	17%	17%	13%	6%	59%	74%
		11%	7%	18%	16%	50%	62%	12%	7%
		41%	41%	10%	4%	4%	2%	5%	3%
		24%	28%			17%	22%	11%	7%
		3%	1%			2%	1%		
		2%	1%			2%	2%		
		7%	4%						
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plans 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

Appendix Table M-D3. HCCs, Risk Scores,* and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Diabetes	2,344,115	27,804	26,409	20,371	59,404	50,304	76,092	28,007	336,345
Average	3.668	3.897	3.288	3.460	3.318	3.976	3.257	4.104	3.729
Total Risk Score* Values Among Patients with Diabetes	1,184,263	14,254	13,731	10,385	30,498	25,662	40,329	14,135	171,406
Average	1.853	1.998	1.710	1.764	1.703	2.028	1.726	2.071	1.900
Selected Co-Morbidities Among Diabetes Patients									
HCCs 79, 80, 81, 82, 83, 92, 104, or 105 (Heart Disease)									
Number of HCCs	616,943	7,183	6,163	4,936	12,078	13,353	18,719	7,955	92,521
Average (total heart disease HCCs per diabetes patient)	0.965	1.007	0.767	0.838	0.675	1.055	0.801	1.166	1.026
HCC 96 (Stroke)									
Number of HCCs	50,611	708	575	404	1,092	1,005	940	640	6,653
Average (total stroke HCC per diabetes patient)	0.079	0.099	0.072	0.069	0.061	0.079	0.040	0.094	0.074
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	15,098	192	121	157	304	385	276	191	2,021
Average (total pneumonia HCCs per diabetes patient)	0.024	0.027	0.015	0.027	0.017	0.030	0.012	0.028	0.022
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	90,988	1,236	1,186	845	2,193	1,977	2,920	1,129	15,028
Average (total kidney and renal disease HCCs per diabetes patient)	0.142	0.173	0.148	0.144	0.122	0.156	0.125	0.165	0.167

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-D3 Continued. HCCs, Risk Scores,* and Selected Co-Morbidities Among Diabetes Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Diabetes	2,344,115	8,831	26,592	31,259	46,428	12,475	45,952	5,669	77,249
Average	3.668	3.242	2.984	3.967	3.518	3.817	3.308	3.629	3.096
Total Risk Score* Values Among Patients with Diabetes	1,184,263	4,566	14,114	15,937	24,321	6,296	23,407	2,893	39,658
Average	1.853	1.676	1.584	2.022	1.843	1.926	1.685	1.852	1.589
Selected Co-Morbidities Among Diabetes Patients									
HCCs 79, 80, 81, 82, 83, 92, 104, or 105 (Heart Disease)									
Number of HCCs	616,943	2,110	6,621	8,157	11,155	3,329	11,240	1,483	20,221
Average (total heart disease HCCs per diabetes patient)	0.965	0.775	0.743	1.035	0.845	1.019	0.809	0.949	0.810
HCC 96 (Stroke)									
Number of HCCs	50,611	140	476	613	830	266	808	137	1,970
Average (total stroke HCC per diabetes patient)	0.079	0.051	0.053	0.078	0.063	0.081	0.058	0.088	0.079
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	15,098	54	136	236	365	82	175	32	287
Average (total pneumonia HCCs per diabetes patient)	0.024	0.020	0.015	0.030	0.028	0.025	0.013	0.021	0.012
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	90,998	414	1,325	1,216	2,080	520	1,958	211	3,085
Average (total kidney and renal disease HCCs per diabetes patient)	0.142	0.152	0.149	0.154	0.158	0.159	0.141	0.135	0.124

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-D4. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	1,986,964	33,100	28,728	11,344	25,802	45,166	44,728	29,387	278,982
Average (Per Person)	3.11	4.64	3.58	1.93	1.44	3.57	1.91	4.31	3.09
Average (Per HCC)	0.85	1.19	1.09	0.56	0.43	0.90	0.59	1.05	0.83
Average (Per Risk Score* Value)	1.68	2.32	2.09	1.09	0.85	1.76	1.11	2.08	1.63
Max	359	305	247	148	337	240	167	240	303
Inpatient Admissions									
Total	339,159	4,446	4,251	2,381	5,928	7,262	8,303	4,649	47,226
Average (Per Person)	0.53	0.62	0.53	0.40	0.33	0.57	0.36	0.68	0.52
Average (Per HCC)	0.14	0.16	0.16	0.12	0.10	0.14	0.11	0.17	0.14
Average (Per Risk Score* Value)	0.29	0.31	0.31	0.23	0.19	0.28	0.21	0.33	0.28
Max	30	21	16	10	11	17	11	12	17
Outpatient Hospital Visits									
Total	3,469,939	24,507	42,646	34,313	36,672	102,569	72,996	51,868	705,390
Average (Per Person)	5.43	3.43	5.31	5.83	2.05	8.11	3.12	7.60	7.82
Average (Per HCC)	1.48	0.88	1.61	1.68	0.62	2.04	0.96	1.85	2.10
Average (Per Risk Score* Value)	2.93	1.72	3.11	3.30	1.20	4.00	1.81	3.67	4.12
Max	320	54	320	107	72	133	365	156	144
ER Visits									
Total	377,701	4,018	2,608	3,770	5,525	6,981	9,097	3,757	32,038
Average (Per Person)	0.59	0.56	0.32	0.64	0.31	0.55	0.39	0.55	0.36
Average (Per HCC)	0.16	0.14	0.10	0.19	0.09	0.14	0.12	0.13	0.10
Average (Per Risk Score* Value)	0.32	0.28	0.19	0.36	0.18	0.27	0.23	0.27	0.19
Max	143	26	24	20	15	51	18	17	42
Office or Clinic Visits									
Total	6,577,601	74,041	104,863	60,460	166,710	125,638	216,908	59,440	1,305,982
Average (Per Person)	10.29	10.38	13.06	10.27	9.31	9.93	9.28	8.71	14.48
Average (Per HCC)	2.81	2.66	3.97	2.97	2.81	2.50	2.85	2.12	3.88
Average (Per Risk Score* Value)	5.55	5.19	7.64	5.82	5.47	4.90	5.38	4.21	7.62
Max	215	137	172	77	124	101	138	68	194

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-D4 Continued. Utilization Measures for Patients with Diabetes in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	1,986,964	6,791	20,537	27,875	25,972	10,419	28,244	4,421	51,606
Average (Per Person)	3.11	2.49	2.30	3.54	1.97	3.19	2.03	2.83	2.07
Average (Per HCC)	0.85	0.77	0.77	0.89	0.56	0.84	0.61	0.78	0.67
Average (Per Risk Score* Value)	1.68	1.49	1.46	1.75	1.07	1.65	1.21	1.53	1.30
Max	359	116	177	180	122	117	232	132	288
Inpatient Admissions									
Total	339,159	1,408	4,404	4,517	5,513	1,655	4,700	740	8,669
Average (Per Person)	0.53	0.52	0.49	0.57	0.42	0.51	0.34	0.47	0.35
Average (Per HCC)	0.14	0.16	0.17	0.15	0.12	0.13	0.10	0.13	0.11
Average (Per Risk Score* Value)	0.29	0.31	0.31	0.28	0.23	0.26	0.20	0.26	0.22
Max	30	11	13	15	15	13	10	8	14
Outpatient Hospital Visits									
Total	3,469,939	16,367	41,056	69,673	95,906	22,243	100,464	13,577	81,132
Average (Per Person)	5.43	6.01	4.61	8.84	7.27	6.81	7.23	8.69	3.25
Average (Per HCC)	1.48	1.85	1.54	2.23	2.07	1.78	2.19	2.39	1.05
Average (Per Risk Score* Value)	2.93	3.58	2.91	4.37	3.94	3.53	4.29	4.69	2.05
Max	320	67	358	133	177	72	194	81	380
ER Visits									
Total	377,701	1,335	2,174	4,232	4,195	1,749	3,108	806	10,662
Average (Per Person)	0.59	0.49	0.24	0.54	0.32	0.54	0.22	0.52	0.43
Average (Per HCC)	0.16	0.15	0.08	0.14	0.09	0.14	0.07	0.14	0.14
Average (Per Risk Score* Value)	0.32	0.29	0.15	0.27	0.17	0.28	0.13	0.28	0.27
Max	143	25	13	23	10	16	11	20	35
Office or Clinic Visits									
Total	6,577,601	23,480	78,944	78,063	127,652	30,164	202,497	13,833	254,799
Average (Per Person)	10.29	8.62	8.86	9.91	9.67	9.23	14.58	8.86	10.21
Average (Per HCC)	2.81	2.66	2.97	2.50	2.75	2.42	4.41	2.44	3.30
Average (Per Risk Score* Value)	5.55	5.14	5.59	4.90	5.25	4.79	8.65	4.78	6.42
Max	215	60	54	101	64	75	204	57	89

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-D5. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	13,823	235	82	65	145	375	260	200	727
Average (Per Person)	0.022	0.033	0.010	0.011	0.008	0.030	0.011	0.029	0.008
Average (Per HCC)	0.006	0.008	0.003	0.003	0.002	0.007	0.003	0.007	0.002
Average (Per Risk Score* Value)	0.012	0.016	0.006	0.006	0.005	0.015	0.006	0.014	0.004
"Potentially Avoidable" Admissions=									
Total	74,608	991	709	451	1,149	1,627	1,792	1,034	10,913
Average (Per Person)	0.117	0.139	0.088	0.077	0.064	0.129	0.077	0.152	0.121
Average (Per HCC)	0.032	0.036	0.027	0.022	0.019	0.032	0.024	0.037	0.032
Average (Per Risk Score* Value)	0.063	0.070	0.052	0.043	0.038	0.063	0.044	0.073	0.064
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	25,398	328	255	125	336	572	582	387	4,062
Average (Per Person)	0.040	0.046	0.032	0.021	0.019	0.045	0.025	0.057	0.045
Average (Per HCC)	0.011	0.012	0.010	0.006	0.006	0.011	0.008	0.014	0.012
Average (Per Risk Score* Value)	0.021	0.023	0.019	0.012	0.011	0.022	0.014	0.027	0.024
Chronic Obstructive Pulmonary Disease (COPD)									
Total	7,763	120	36	53	94	189	235	123	1,173
Average (Per Person)	0.012	0.017	0.004	0.009	0.005	0.015	0.010	0.018	0.013
Average (Per HCC)	0.003	0.004	0.001	0.003	0.002	0.004	0.003	0.004	0.003
Average (Per Risk Score* Value)	0.007	0.008	0.003	0.005	0.003	0.007	0.006	0.009	0.007

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans in different parts of the country.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

Appendix Table M-D5 Continued. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Diabetes in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	13,823	54	134	228	195	60	120	26	230
Average (Per Person)	0.022	0.020	0.015	0.029	0.015	0.018	0.009	0.017	0.009
Average (Per HCC)	0.006	0.006	0.005	0.007	0.004	0.005	0.003	0.005	0.003
Average (Per Risk Score* Value)	0.012	0.012	0.009	0.014	0.008	0.010	0.005	0.009	0.006
"Potentially Avoidable" Admissions=									
Total	74,608	238	748	980	1,382	390	937	155	1,681
Average (Per Person)	0.117	0.087	0.084	0.124	0.105	0.119	0.067	0.099	0.067
Average (Per HCC)	0.032	0.027	0.028	0.031	0.030	0.031	0.020	0.027	0.022
Average (Per Risk Score* Value)	0.063	0.052	0.053	0.061	0.057	0.062	0.040	0.054	0.042
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	25,398	93	244	333	406	137	338	40	681
Average (Per Person)	0.040	0.034	0.027	0.042	0.031	0.042	0.024	0.026	0.027
Average (Per HCC)	0.011	0.011	0.009	0.011	0.009	0.011	0.007	0.007	0.009
Average (Per Risk Score* Value)	0.021	0.020	0.017	0.021	0.017	0.022	0.014	0.014	0.017
Chronic Obstructive Pulmonary Disease (COPD)									
Total	7,763	15	81	121	127	28	105	17	177
Average (Per Person)	0.012	0.006	0.009	0.015	0.010	0.009	0.008	0.010	0.007
Average (Per HCC)	0.003	0.002	0.003	0.004	0.003	0.002	0.002	0.003	0.002
Average (Per Risk Score* Value)	0.007	0.003	0.006	0.008	0.005	0.004	0.004	0.006	0.004

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans in different parts of the country.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

Appendix Table M-H1. Percentage Difference in Observed Utilization and Rates Among Patients with Heart Disease, Eight Regional Medicare Advantage HMOs Relative to Local FFS								
Data from 2005 and 2006 (Pooled)	Company 1 Area	Company 2 Area	Company 3 Area	Company 4 Area	Company 5 Area	Company 6 Area	Company 7 Area	Company 8 Area
MA Rate vs. FFS Rate (Per Person)								
Inpatient								
Hospital Days	-7%	-18%	-35%	-23%	-4%	-35%	-18%	-25%
Hospital Admissions	0%	-8%	-26%	-17%	-3%	-15%	-14%	-21%
Outpatient								
ER Visits	-36%	-40%	-19%	-32%	-49%	-35%	-48%	-20%
Outpatient Visits	+75%	-57%	-58%	+10%	-26%	-8%	+19%	-61%
Office Visits	+35%	-8%	-5%	+68%	+2%	+1%	+76%	+11%
Same-Quarter Re-Admissions for Same DRG	-69%	-15%	-55%	-68%	-18%	-42%	-26%	-36%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-25%	-4%	-29%	-14%	-1%	-8%	-27%	-33%
MA Rate vs. FFS Rate (Per HCC)								
Inpatient								
Hospital Days	+2%	-14%	-25%	-19%	+1%	-31%	-13%	-11%
Hospital Admissions	+9%	-3%	-14%	-12%	+2%	-10%	-8%	-7%
Outpatient								
ER Visits	-30%	-37%	-6%	-29%	-47%	-31%	-45%	-6%
Outpatient Visits	+91%	-55%	-51%	+15%	-22%	-2%	+26%	-54%
Office Visits	+47%	-3%	+10%	+76%	+7%	+7%	+86%	+30%
Same-Quarter Re-Admissions for Same DRG	-66%	-11%	-48%	-67%	-15%	-38%	-21%	-25%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-18%	+2%	-18%	-10%	+4%	-2%	-23%	-21%
MA Rate vs. FFS Rate (Per Risk Score* Unit)								
Inpatient								
Hospital Days	+2%	-15%	-28%	-19%	-3%	-33%	-14%	-13%
Hospital Admissions	+9%	-5%	-19%	-13%	-2%	-12%	-9%	-10%
Outpatient								
ER Visits	-30%	-38%	-11%	-29%	-49%	-33%	-45%	-9%
Outpatient Visits	+91%	-55%	-54%	+14%	-25%	-5%	+25%	-55%
Office Visits	+47%	-4%	+4%	+74%	+3%	+4%	+85%	+27%
Same-Quarter Re-Admissions for Same DRG	-66%	-12%	-50%	-67%	-18%	-40%	-22%	-27%
13 "Potentially Avoidable" Admissions (AHRQ Definitions)	-19%	0%	-22%	-11%	0%	-5%	-23%	-23%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage plans.
Notes: FFS = enrollees with Medicare's traditional fee-for-service coverage; MA = Medicare Advantage enrollees; ER = Emergency Room; patients with heart disease defined as HCCs 79, 80, 81, 82, 83, 92, 104, or 105. FFS includes Medicaid enrollees (defined as those with 12 months of state assistance in the 5 percent sample claims data).

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-H2. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	859,916	9,404	8,491	8,422	23,783	18,258	29,499	10,330	126,527
Average Heart Disease HCCs (per MA enrollee)	0.577	0.571	0.461	0.479	0.402	0.616	0.541	0.723	0.716
Average Heart Disease HCCs (per patient with heart disease)	1.77	1.82	1.75	1.71	1.64	1.83	1.71	1.84	1.81
Average Age of Patients with Heart Disease	76.3	75.5	76.5	76.9	77.7	77.3	76.8	77.9	77.0
Age Distribution:									
Percent 85-89	13%	11%	10%	15%	17%	16%	12%	17%	14%
Percent 80-84	22%	20%	21%	23%	25%	24%	22%	27%	23%
Percent 75-79	24%	23%	29%	23%	25%	25%	27%	26%	27%
Percent 70-74	22%	23%	26%	20%	20%	19%	27%	16%	24%
Percent 65-69	20%	23%	13%	18%	13%	15%	12%	13%	13%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		7%	4%	2%	4%	8%	4%	34%	36%
		6%	6%	38%	41%	11%	8%	2%	3%
		63%	62%	7%	6%	14%	9%	4%	8%
		10%	22%	3%	1%	8%	12%	2%	1%
		10%	1%	2%	3%	22%	35%	5%	4%
		4%	5%	19%	10%	11%	14%	5%	5%
				4%	7%	8%	8%	5%	7%
				13%	11%	9%	2%	10%	5%
				6%	11%	8%	8%	4%	2%
				6%	6%			3%	2%
								3%	3%
								5%	2%
								2%	3%
								5%	7%
								11%	11%
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

Appendix Table M-H2 Continued. Characteristics of Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of Patients with Heart Disease (HCCs 79, 80, 81, 82, 83, 92, 104, or 105)	859,916	3,827	12,694	11,202	17,016	4,380	16,639	1,960	30,649
Average Heart Disease HCCs (per MA enrollee)	0.577	0.416	0.442	0.598	0.503	0.615	0.547	0.603	0.562
Average Heart Disease HCCs (per patient with heart disease)	1.77	1.68	1.67	1.83	1.78	1.79	1.74	1.78	1.70
Average Age of Patients with Heart Disease	76.3	76.3	78.2	77.3	77.7	77.1	76.5	77.5	76.3
Age Distribution:									
Percent 85-89	13%	13%	20%	16%	15%	15%	12%	17%	13%
Percent 80-84	22%	21%	26%	24%	24%	24%	21%	25%	21%
Percent 75-79	24%	25%	24%	25%	30%	24%	25%	24%	24%
Percent 70-74	22%	23%	17%	19%	23%	20%	26%	19%	23%
Percent 65-69	20%	18%	12%	15%	9%	16%	16%	16%	19%
	100%	100%	100%	100%	100%	100%	100%	100%	100%
County Distribution		8%	14%	22%	18%	5%	1%	8%	4%
		2%	1%	35%	47%	8%	4%	7%	5%
		3%	1%	18%	18%	12%	6%	60%	75%
		11%	6%	15%	13%	52%	63%	12%	7%
		42%	45%	9%	3%	3%	3%	4%	3%
		24%	27%			16%	21%	10%	6%
		2%	1%			2%	1%		
		3%	1%			2%	2%		
		5%	3%						
		100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

Appendix Table M-H3. HCCs, Risk Scores,* and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Heart Disease	3,342,530	39,045	32,322	31,360	83,927	74,096	103,792	42,543	495,751
Average	3.887	4.152	3.807	3.724	3.529	4.058	3.518	4.118	3.918
Total Risk Score* Values Among Patients with Heart Disease	1,765,622	20,806	17,235	16,830	45,793	39,252	57,884	22,605	266,365
Average	2.053	2.212	2.030	1.998	1.925	2.150	1.962	2.188	2.105
Selected Co-Morbidities Among Heart Disease Patients									
HCCs 15, 16, 17, 18, or 19 (Diabetes)									
Number of HCCs	478,374	5,607	5,276	4,067	11,793	10,458	15,872	5,993	69,034
Average (total diabetes HCCs per heart disease patient)	0.556	0.596	0.621	0.483	0.496	0.573	0.538	0.580	0.546
HCC 96 (Stroke)									
Number of HCCs	86,010	1,135	892	732	1,994	1,901	1,739	1,211	11,966
Average (total stroke HCC per heart disease patient)	0.100	0.121	0.105	0.087	0.084	0.104	0.059	0.117	0.095
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	28,973	368	193	339	703	788	617	348	4,049
Average (total pneumonia HCCs per heart disease patient)	0.034	0.039	0.023	0.040	0.030	0.043	0.021	0.034	0.032
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	120,060	1,513	1,394	1,211	3,210	2,751	3,986	1,583	20,532
Average (total kidney and renal disease HCCs per heart disease patient)	0.140	0.161	0.164	0.144	0.135	0.151	0.135	0.153	0.162

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-H3 Continued. HCCs, Risk Scores,* and Selected Co-Morbidities Among Heart Disease Patients in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Number of All HCCs Among Patients with Heart Disease	3,342,530	13,510	42,837	45,768	65,499	17,466	62,619	7,864	104,265
Average	3.887	3.530	3.375	4.086	3.849	3.988	3.763	4.012	3.402
Total Risk Score* Values Among Patients with Heart Disease	1,765,622	7,336	24,149	24,278	35,561	9,235	33,385	4,166	56,731
Average	2.053	1.917	1.902	2.167	2.090	2.108	2.006	2.126	1.851
Selected Co-Morbidities Among Heart Disease Patients									
HCCs 15, 16, 17, 18, or 19 (Diabetes)									
Number of HCCs	478,374	1,595	4,761	6,531	9,111	2,645	8,965	1,144	15,636
Average (total diabetes HCCs per heart disease patient)	0.556	0.417	0.375	0.583	0.535	0.604	0.539	0.584	0.510
HCC 96 (Stroke)									
Number of HCCs	86,010	315	980	1,135	1,534	417	1,399	235	3,470
Average (total stroke HCC per heart disease patient)	0.100	0.082	0.077	0.101	0.090	0.095	0.084	0.120	0.113
HCCs 111 or 112 (Pneumonia)									
Number of HCCs	28,973	108	335	490	763	141	391	64	605
Average (total pneumonia HCCs per heart disease patient)	0.034	0.028	0.026	0.044	0.045	0.032	0.023	0.033	0.020
HCCs 130, 131, or 132 (Kidney and Renal Disease)									
Number of HCCs	120,060	594	2,104	1,721	2,828	644	2,453	291	4,189
Average (total kidney and renal disease HCCs per heart disease patient)	0.140	0.155	0.166	0.154	0.166	0.147	0.147	0.148	0.137

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-H4. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	3,538,754	54,242	45,708	23,992	55,514	83,831	88,554	53,644	508,977
Average (Per Person)	4.12	5.77	5.38	2.85	2.33	4.59	3.00	5.19	4.02
Average (Per HCC)	1.06	1.39	1.41	0.77	0.66	1.13	0.85	1.26	1.03
Average (Per Risk Score* Value)	2.00	2.61	2.65	1.43	1.21	2.14	1.53	2.37	1.91
Max	359	305	247	163	337	240	186	247	303
Inpatient Admissions									
Total	626,418	7,661	6,925	5,081	13,192	13,836	16,598	8,640	88,109
Average (Per Person)	0.73	0.81	0.82	0.60	0.56	0.76	0.56	0.84	0.70
Average (Per HCC)	0.19	0.20	0.21	0.16	0.16	0.19	0.16	0.20	0.18
Average (Per Risk Score* Value)	0.35	0.37	0.40	0.30	0.29	0.35	0.29	0.38	0.33
Max	30	21	18	10	11	17	11	12	24
Outpatient Hospital Visits									
Total	5,439,974	36,000	57,012	58,471	71,010	169,521	115,209	87,233	1,173,129
Average (Per Person)	6.33	3.83	6.71	6.94	2.99	9.28	3.91	8.44	9.27
Average (Per HCC)	1.63	0.92	1.76	1.86	0.85	2.29	1.11	2.05	2.37
Average (Per Risk Score* Value)	3.08	1.73	3.31	3.47	1.55	4.32	1.99	3.86	4.40
Max	222	67	320	133	117	147	365	156	148
ER Visits									
Total	626,010	6,597	3,834	7,090	12,006	12,429	16,293	6,696	55,699
Average (Per Person)	0.73	0.70	0.45	0.84	0.50	0.68	0.55	0.65	0.44
Average (Per HCC)	0.19	0.17	0.12	0.23	0.14	0.17	0.16	0.16	0.11
Average (Per Risk Score* Value)	0.35	0.32	0.22	0.42	0.26	0.32	0.28	0.30	0.21
Max	324	35	78	20	17	143	20	18	42
Office or Clinic Visits									
Total	9,847,964	107,235	130,513	99,731	259,910	195,000	300,249	94,622	1,941,979
Average (Per Person)	11.45	11.40	15.37	11.84	10.93	10.68	10.18	9.16	15.35
Average (Per HCC)	2.95	2.75	4.04	3.18	3.10	2.63	2.89	2.22	3.92
Average (Per Risk Score* Value)	5.58	5.15	7.57	5.93	5.68	4.97	5.19	4.19	7.29
Max	296	137	169	78	124	143	97	68	219

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-H4 Continued. Utilization Measures for Patients with Heart Disease in FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Inpatient Days									
Total	3,538,754	13,618	43,478	52,583	51,988	17,700	55,004	8,236	97,190
Average (Per Person)	4.12	3.56	3.43	4.69	3.06	4.04	3.31	4.20	3.17
Average (Per HCC)	1.06	1.01	1.01	1.15	0.79	1.01	0.88	1.05	0.93
Average (Per Risk Score* Value)	2.00	1.86	1.80	2.17	1.46	1.92	1.65	1.98	1.71
Max	359	116	177	207	147	125	232	132	329
Inpatient Admissions									
Total	626,418	3,017	9,752	8,697	11,207	2,904	9,541	1,363	16,746
Average (Per Person)	0.73	0.79	0.77	0.78	0.66	0.66	0.57	0.70	0.55
Average (Per HCC)	0.19	0.22	0.23	0.19	0.17	0.17	0.15	0.17	0.16
Average (Per Risk Score* Value)	0.35	0.41	0.40	0.36	0.32	0.31	0.29	0.33	0.30
Max	30	16	14	15	15	13	15	8	14
Outpatient Hospital Visits									
Total	5,439,974	28,007	69,187	112,061	156,487	33,518	151,315	20,330	123,975
Average (Per Person)	6.33	7.32	5.45	10.00	9.20	7.65	9.10	10.37	4.05
Average (Per HCC)	1.63	2.07	1.62	2.45	2.39	1.92	2.42	2.59	1.19
Average (Per Risk Score* Value)	3.08	3.82	2.86	4.62	4.40	3.63	4.53	4.88	2.19
Max	222	69	358	147	315	109	194	81	380
ER Visits									
Total	626,010	2,470	4,176	7,662	7,524	2,632	5,235	1,375	17,113
Average (Per Person)	0.73	0.65	0.33	0.68	0.44	0.60	0.31	0.70	0.56
Average (Per HCC)	0.19	0.18	0.10	0.17	0.11	0.15	0.08	0.17	0.16
Average (Per Risk Score* Value)	0.35	0.34	0.17	0.32	0.21	0.28	0.16	0.33	0.30
Max	324	25	13	143	13	16	15	45	35
Office or Clinic Visits									
Total	9,847,964	39,408	133,209	119,107	181,852	41,962	279,982	19,673	340,107
Average (Per Person)	11.45	10.30	10.49	10.63	10.69	9.58	16.83	10.04	11.10
Average (Per HCC)	2.95	2.92	3.11	2.60	2.78	2.40	4.47	2.50	3.26
Average (Per Risk Score* Value)	5.58	5.37	5.52	4.91	5.11	4.54	8.39	4.72	6.00
Max	296	81	62	101	72	75	204	57	79

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

Appendix Table M-H5. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 1 Area		Company 2 Area		Company 3 Area		Company 4 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	23,535	389	109	131	313	667	488	349	1,350
Average (Per Person)	0.027	0.040	0.010	0.016	0.013	0.037	0.017	0.034	0.011
Average (Per HCC)	0.007	0.010	0.003	0.004	0.004	0.009	0.005	0.008	0.003
Average (Per Risk Score* Value)	0.013	0.019	0.006	0.008	0.007	0.017	0.008	0.015	0.005
"Potentially Avoidable" Admissions=									
Total	125,032	1,550	1,046	851	2,312	2,775	3,176	1,706	17,976
Average (Per Person)	0.145	0.165	0.120	0.101	0.097	0.152	0.108	0.165	0.142
Average (Per HCC)	0.037	0.040	0.032	0.027	0.028	0.037	0.031	0.040	0.036
Average (Per Risk Score* Value)	0.071	0.074	0.061	0.051	0.050	0.071	0.055	0.075	0.067
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	43,157	543	418	281	698	895	1,083	672	6,875
Average (Per Person)	0.050	0.060	0.050	0.033	0.029	0.049	0.037	0.065	0.054
Average (Per HCC)	0.013	0.014	0.013	0.009	0.008	0.012	0.010	0.016	0.014
Average (Per Risk Score* Value)	0.024	0.026	0.024	0.017	0.015	0.023	0.019	0.030	0.026
Chronic Obstructive Pulmonary Disease (COPD)									
Total	16,173	218	41	106	256	394	529	220	2,597
Average (Per Person)	0.019	0.020	0.005	0.013	0.011	0.022	0.018	0.021	0.021
Average (Per HCC)	0.005	0.006	0.001	0.003	0.003	0.005	0.005	0.005	0.005
Average (Per Risk Score* Value)	0.009	0.010	0.002	0.006	0.006	0.010	0.009	0.010	0.010

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans in different parts of the country.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 6 counties in the first comparison area, 10 counties in the second, 9 counties in the third, and 15 in the fourth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes.

Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

Appendix Table M-H5 Continued. Re-Admissions and "Potentially Avoidable" Admissions Among Patients with Heart Disease in Medicare FFS and Eight Medicare Advantage HMO Plans									
		Company 5 Area		Company 6 Area		Company 7 Area		Company 8 Area	
Data from 2005 and 2006 (Pooled)	National FFS (5%)	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan	Local FFS	MA Plan
Same Quarter Re-Admissions									
Total	23,535	102	276	410	362	82	232	38	380
Average (Per Person)	0.027	0.027	0.022	0.037	0.021	0.019	0.014	0.019	0.012
Average (Per HCC)	0.007	0.008	0.006	0.009	0.006	0.005	0.004	0.005	0.004
Average (Per Risk Score* Value)	0.013	0.014	0.011	0.017	0.010	0.009	0.007	0.009	0.007
"Potentially Avoidable" Admissions=									
Total	125,032	469	1,544	1,693	2,365	598	1,661	292	3,058
Average (Per Person)	0.145	0.123	0.122	0.151	0.139	0.137	0.100	0.149	0.100
Average (Per HCC)	0.037	0.035	0.036	0.037	0.036	0.034	0.027	0.037	0.029
Average (Per Risk Score* Value)	0.071	0.064	0.064	0.070	0.067	0.065	0.050	0.070	0.054
Selected Specific "Potentially Avoidable" Admissions									
Congestive Heart Failure (CHF)									
Total	43,157	176	543	548	731	227	573	90	1,178
Average (Per Person)	0.050	0.046	0.043	0.049	0.043	0.052	0.034	0.046	0.038
Average (Per HCC)	0.013	0.013	0.013	0.012	0.011	0.013	0.009	0.011	0.011
Average (Per Risk Score* Value)	0.024	0.024	0.022	0.023	0.021	0.025	0.017	0.022	0.021
Chronic Obstructive Pulmonary Disease (COPD)									
Total	16,173	51	212	236	298	61	250	38	403
Average (Per Person)	0.019	0.013	0.017	0.021	0.018	0.014	0.015	0.019	0.013
Average (Per HCC)	0.005	0.004	0.005	0.005	0.005	0.003	0.004	0.005	0.004
Average (Per Risk Score* Value)	0.009	0.007	0.009	0.010	0.008	0.007	0.007	0.009	0.007

Source: Authors' calculations, based on the Medicare 5 percent sample files for hospital and physician claims, and data from eight regional Medicare Advantage HMO plans in different parts of the country.
Notes: FFS = Medicare traditional fee-for-service program; MA = Medicare Advantage. There are 9 counties in the fifth comparison area, 5 in the sixth, 8 in the seventh, and 6 in the eighth. The comparison areas are in various parts of the country. Comparisons are for beneficiaries aged 65-89, enrolled in FFS or an MA plan 12 months of the calendar year. Includes Medicaid beneficiaries in FFS.

* Risk scores for FFS and MA enrollees based on age/sex and HCC relative cost values used in Medicare risk adjustment for beneficiaries living in the community, but do not include disease interactive factors, or factors related to disability or institutional status. Therefore, these computed risk scores may not be exactly the same as those used for risk-adjustment purposes. Factors were taken from: http://www.cms.hhs.gov/MedicareAdvtgSpecRateStats/. Accessed March 19, 2009.

= Potentially avoidable admissions criteria developed by AHRQ. Other potentially avoidable admissions not shown separately are defined for certain admissions for dehydration, bacterial pneumonia, urinary infection, angina, perforated appendix, and asthma.

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