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# What Do We Know About Health Care Access and Quality in Medicare Advantage Versus the Traditional Medicare Program?


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# Table of Contents

# Executive Summary

While the majority of Medicare beneficiaries still receive their benefits through the traditional Medicare program, 30 percent now obtain them through private health plans participating in Medicare Advantage. As the number of Medicare Advantage enrollees continues to climb, there is growing interest in understanding how the care provided to Medicare beneficiaries in Medicare Advantage plans differs from the care received by beneficiaries in traditional Medicare.

Despite the interest, the last comprehensive review of research evidence on health care access and quality in Medicare Advantage and traditional Medicare is more than 10 years old and did not focus exclusively on Medicare (Miller and Luft 2002). That study found that health maintenance organizations (HMOs) provide care that is roughly comparable in quality to the care provided by non-HMOs (mainly traditional indemnity insurance), and that quality varied across health plans. It also found that HMOs used somewhat fewer hospital and other expensive resources in delivering care, with enrollees rating them worse on many measures of access and satisfaction. However, the market has changed substantially over the last decade, making it important that policymakers have available more current analysis, particularly on Medicare health plans.

This literature review synthesizes the findings of studies that focus specifically on Medicare and have been published between the year 2000 and early 2014. Forty-five studies met the criteria for selection, including 40 that made direct comparisons between Medicare health plans and traditional Medicare. An additional five studies are included, even though they have no traditional Medicare comparison group, because they include a comparison of health care access and quality in different types of Medicare Advantage plans. A full list of the studies included in this analysis is found in the Works Cited.

## FINDINGS

### What the Literature Shows

The review of the literature comparing quality and access provided under traditional Medicare and Medicare Advantage plans suggests the following:

- **HEDIS Effectiveness Metrics on Preventive Care.** Medicare Advantage, on average, scores more highly than traditional Medicare on subsets of Medicare HEDIS indicators – primarily those pertaining to use of preventive care services. Two studies found Medicare preferred provider organizations (PPOs) outperformed traditional Medicare on some metrics (particularly mammography rates), though HMOs nevertheless performed better than PPOs. All of these studies were conducted prior to changes made by the Affordable Care Act (ACA) to improve coverage of preventive services under traditional Medicare.
- **Beneficiary Reports on Quality and Access (CAHPS).** Medicare beneficiaries generally rated Medicare Advantage lower than traditional Medicare on questions about health care access and quality, especially if beneficiaries had a chronic illness or were sick; however, the difference in ratings between traditional Medicare and Medicare Advantage narrowed on some metrics by 2009 (e.g., overall care ratings). Keenan et al. (2009) found that sick beneficiaries in Medicare Advantage rated their plans substantially lower than beneficiaries of similar health status in traditional Medicare, and Elliott et al. (2011) found significantly lower CAHPS ratings (and greater disparities between Medicare Advantage and traditional Medicare) among vulnerable subgroups of beneficiaries in Medicare Advantage. Little is known about how CAHPS scores vary

by type of Medicare Advantage plan since most studies are based on HMOs or periods in which HMOs were the main plan type.

- **Potentially Avoidable Hospital Admissions.** Based on six studies involving beneficiaries in a limited number of states and/or plans represented by the Alliance of Community Health Plans (ACHP), Medicare beneficiaries in HMOs are less likely to be hospitalized for a potentially avoidable admission than beneficiaries in traditional Medicare. Four of these studies rely on data prior to 2006, and reflect HMO experiences in mature markets.
- **Readmission Rates.** While a number of studies examine whether readmission rates differ among beneficiaries in Medicare Advantage and traditional Medicare, the evidence from these studies is inconclusive because findings differ across the studies and many studies lack adjustments for important potentially confounding factors.
- **Health Outcomes.** There is some evidence that good coverage, as defined by relatively low cost-sharing (whether through Medicare HMOs or through Medicare with supplemental coverage), may result in earlier diagnoses of some cancers compared to traditional Medicare alone. Treatment patterns for some cancers also may differ between Medicare HMOs and traditional Medicare, but studies do not show that this affects patient outcomes. However, the age of the studies, the gaps in controls for selection, and the evolving nature of guidelines for appropriate care limit the conclusions that can be drawn.
- **Resource Utilization.** Medicare HMOs appear to provide a less resource-intensive style of practice than traditional Medicare, as measured in studies examining end-of-life care, use of certain procedures, and overall utilization rate in HMOs, especially for hospital services. However, most of these studies provide little direct evidence of whether less intensive care is better or worse or how the appropriateness of care differs between Medicare Advantage and traditional Medicare.
- **Variation by Geography, by Plan Type, and by Plan Experience.** On a variety of metrics, performance among Medicare Advantage plans varies substantially across plans, even among plans of the same plan type. The variations by market in more established HMOs with integrated delivery systems tend to be more represented in existing research, and to perform better. Performance on quality and access metrics varies across geographic areas, and the variations in Medicare Advantage and traditional Medicare ratings are not necessarily the same.

## The Available Evidence has Substantial Limitations

To make a definitive comparison of both quality and access in traditional Medicare and Medicare Advantage plans, one would ideally draw from studies with relatively recent data that is nationally representative in terms of both the characteristics of health plans participating in Medicare Advantage and the characteristics of beneficiaries covered by the Medicare program. Performance measures would capture a broad range of metrics assessing both quality of care and access to care, and would include enrollees' assessments, process measures, and outcome measures. The comparisons would adjust for factors that might explain differences in performance between Medicare Advantage and traditional Medicare, such as variations in medical practice by geographical location and patient health status. In an ideal world, studies would provide information to help clarify if differences vary by plan type, and how quality and access indicators compare for the typical Medicare beneficiary, as well as beneficiaries who are in relatively poor health with significant medical needs.

Unfortunately, while available evidence provides some insights, it falls short on many desirable dimensions. The most serious shortfalls are in the lack of timely data, the primary focus on HMOs rather than the full range of Medicare Advantage plans, and study populations that exclude important subgroups of beneficiaries (such as the under-65 disabled) and lack information on the experience of vulnerable subgroups of beneficiaries, such as those in poor health or with significant needs. In addition, available metrics are limited in their ability to capture performance across the full continuum of care and care for the total patient, particularly on a national basis.

Our review of the literature comparing quality and access measures between traditional Medicare and Medicare Advantage finds:

- **Limited Insight into Experiences After Implementation of the Affordable Care Act (ACA).** With one limited exception involving hospice care, none of the 40 studies comparing Medicare Advantage to traditional Medicare rely on data from 2010 or later. Thus, it is not yet possible to assess the performance of Medicare Advantage relative to traditional Medicare that reflects plan performance after the implementation of the Medicare Advantage payment changes included in the ACA (payment reductions, coupled with quality bonus payments). Fourteen of the 40 studies report only on experience in the 1990s or earlier, and of the 27 others covering the 2000-2009 period, 16 provide estimates between 2006 and 2009, after the introduction of the Medicare prescription drug benefit.
- **Studies Reflect Mainly HMO Experience, Not Newer Plan Types.** Almost all of the literature applies to the experience of beneficiaries in HMOs, rather than in the full range of plans that are currently available. In 2014, for example, one-third of all Medicare Advantage enrollees are in plans other than HMOs, mainly PPOs. Only three of the 40 studies that compared traditional Medicare to Medicare Advantage (and two of the five that compared Medicare Advantage plans only) included findings that were specific to Medicare PPOs. Others either are limited to HMOs, apply to a period when HMOs were the overwhelming plan type, or do not analyze data by plan type. As a result, the results are not generalizable to the Medicare Advantage program as a whole as contrasted with the experience of its older HMO component.
- **Limited Insight into the Experience of Beneficiaries with More Complex Medical Needs.** Few of the existing studies provide insight on how Medicare Advantage and traditional Medicare perform on quality and access metrics for beneficiaries whose health characteristics suggest that they could have more complex needs. Only four studies, all based on beneficiary survey data, focused explicitly on subgroups of the Medicare population defined by the authors as high-need based on health or functional status (Keenan et al. 2009, Elliott et al. 2011, Pourat et al. 2001, and Beatty and Dhont 2001). One study (Elliott et al. 2011) also examined disparities in care for vulnerable subgroups defined by various socioeconomic indicators, along with health status. The inability to reflect the experiences of beneficiaries with significant health needs is a major limitation in the literature.
- **Data Constraints Limit National Studies.** While several studies are national in scope (plans and beneficiaries), the metrics they include are limited by available data. Of the 17 national studies comparing Medicare Advantage to traditional Medicare (of 40 in total), 10 rely exclusively on CAHPS or other national population surveys, and seven use HEDIS data compared to claims data for traditional Medicare. Vital statistics data dealing with mortality were used in two of the studies as well. Studies on many metrics relevant to quality either do not exist (like intermediate outcomes for beneficiaries with multiple chronic

conditions or the personal experience with care of these patients) or, like studies of potentially avoidable admissions and readmissions, depend on data from a limited set of states or locales.

## THE BOTTOM LINE

Despite great interest in comparisons between traditional Medicare and Medicare Advantage, studies comparing overall quality and access to care between Medicare Advantage plans and traditional Medicare tend to be based on relatively old data, and a limited set of measures.

On the one hand, the evidence indicates that Medicare HMOs tend to perform better than traditional Medicare in providing preventive services and using resources more conservatively, at least through 2009. These are metrics where HMOs have historically been strong. On the other hand, beneficiaries continue to rate traditional Medicare more favorably than Medicare Advantage plans in terms of quality and access, such as overall care and plan rating, though one study suggests that the difference may be narrowing between traditional Medicare and Medicare Advantage for the average beneficiary. Among beneficiaries who are sick, the differential between traditional Medicare and Medicare Advantage is particularly large (relative to those who are healthy), favoring traditional Medicare. Very few studies include evidence based on all types of Medicare Advantage plans, including analysis of performance for newer models, such as local and regional PPOs whose enrollment is growing.

As the beneficiary population ages, better evidence is needed on how Medicare Advantage plans perform relative to traditional Medicare for patients with significant medical needs that make them particularly vulnerable to poorer care. The ability to assess quality and access for such subgroups is limited because many data sources do not allow subgroups to be identified or have too small a sample size to support estimates. Also, in many cases, metrics employed may not be specific to the particular needs or the way a patient's overall health and functional status or other comorbid conditions influence the care they receive.

At a time when enrollment in Medicare Advantage is growing, it is disappointing that better information is not available to inform policymaking. Our findings highlight the gaps in available evidence and reinforce the potential value of strengthening available data and other support for tracking and monitoring performance across Medicare Advantage plans and traditional Medicare as each sector evolves.

# List of Figures and Tables

# INTRODUCTION

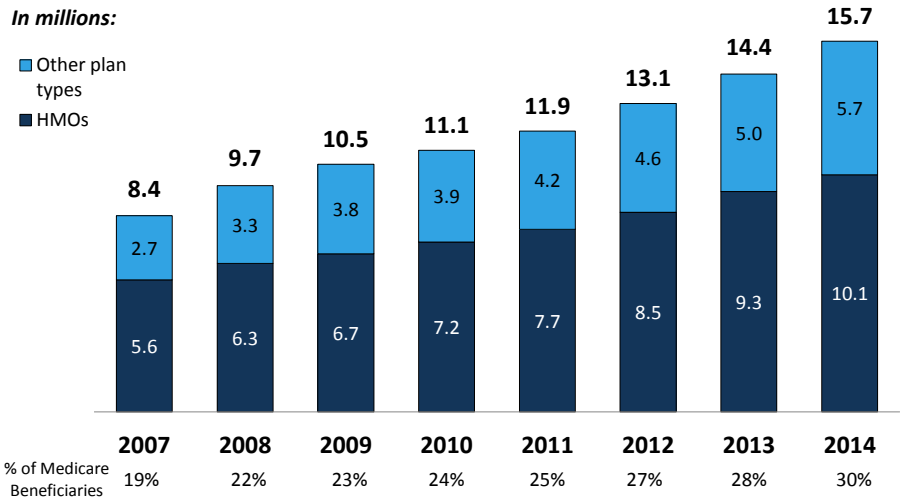
Medicare is critical to the well-being of the nation's seniors and people with disabilities, many of whom have low to moderate incomes, complex health care needs, and other characteristics that leave them disproportionately vulnerable.[1] While the majority of Medicare beneficiaries still receive their benefits through the traditional Medicare program, 30 percent now obtain their benefits through private health plans participating in Medicare Advantage.[2] As the number of enrollees in Medicare Advantage continues to climb, there is growing interest in understanding how care provided to Medicare beneficiaries in traditional Medicare and Medicare Advantage differs.

Despite the considerable interest in this topic, solid analysis summarizing existing research comparing Medicare Advantage to traditional Medicare on various quality and access metrics is relatively limited. Historical reviews of performance differences across health plans have generally focused on comparisons of organizational structures (like health maintenance organizations or HMOs) rather than focusing on particular payers, like Medicare. The most widely cited reviews available have been conducted over the years by Miller and Luft, with the most recent review covering work through mid-2001.[3] It concluded that the quality of care provided by HMOs was roughly comparable to traditional insurance, though it varied across health plans; HMOs used somewhat fewer hospital and other expensive resources to deliver care compared to traditional insurance, and had lower ratings by enrollees on many measures of access and satisfaction. An earlier study in the series (Miller and Luft 1997) noted that Medicare beneficiaries with chronic conditions had worse outcomes in HMOs.[4]

Since these reviews were published, the environment has changed considerably. The historical base of HMOs in nonprofit staff and group model plans has shifted considerably, with new growth in for-profit plans that use more decentralized provider networks that tend to be less integrated.[5] Further, since the mid-2000s, the number and share of Medicare beneficiaries enrolled in private plans, now called Medicare Advantage, has increased dramatically, and while most enrollees are in HMOs, a growing number are enrolled in other types of plans, such as local and regional PPOs (Figure 1).

**Figure 1.**

**Total Medicare Advantage Enrollment, by Plan Type, 2007-2014**




NOTE: Includes MSAs, cost plans and demonstrations. Includes Special Needs Plans as well as other Medicare Advantage plans.
SOURCE: Analysis by the Kaiser Family Foundation of publicly-available CMS Medicare Advantage enrollment files, 2007-2014.

The policy environment and incentives facing providers in the Medicare program also have changed in ways that put increasing emphasis on payments that take into account performance on quality and efficiency metrics. For Medicare Advantage, the Affordable Care Act of 2010 (federal health reform law) enacted changes in payments to plans that are now being phased in, slowing the increase in Medicare Advantage payments and

linking them more closely with performance on quality and other performance metrics.[6] Medicare Advantage plans that score four or more out of five stars are provided bonus payments and those that score the highest (so-called "five star plans") gain other advantages, particularly the ability to continuously enroll beneficiaries throughout the year.[7] Payment to hospitals, physicians, and other providers in the traditional Medicare program also are increasingly tied to quality metrics as a result of changes in the ACA and other legislation. The ACA also improved coverage of preventive services under traditional Medicare, which has been a metric in which managed care plans have historically performed better.

Such changes increase the interest within the policy community in current information comparing the quality of care provided to beneficiaries in Medicare Advantage plans and traditional Medicare. Proponents of the insurance industry argue that quality under Medicare Advantage has improved and is better than under the traditional program - an accomplishment, they argue, that could be undermined by ongoing reductions in payments as required under the federal health reform law.[8]

In a recent review, Newhouse and McGuire (2013) summarized three studies they coauthored that compared Medicare Advantage to traditional Medicare, and concluded that the findings from those studies favored Medicare Advantage.[9] The review has gotten considerable attention.[10] Lost in the discussion, however, is the fact that the main thrust of the article focused on efficiency and selection within Medicare Advantage, with the authors acknowledging that research comparing the quality of care in Medicare Advantage versus traditional Medicare is limited.

# METHODS

This study seeks to fill the gap in available information on current evidence comparing quality and access in Medicare Advantage plans and traditional Medicare. Unlike earlier literature reviews, the focus of this paper is on Medicare, and limited to studies that are relatively current; that is, published between 2000 and early 2014.

## Study Sources and Inclusion Criteria

We identified the initial list of studies using a Google Scholar search for articles on "Medicare Advantage/Medicare HMOs" published since 2000. We reviewed titles and abstracts to identify studies *focusing on access/quality metrics and including a design that had some comparison group*—typically traditional Medicare, or what some still refer to as Medicare fee-for-service (FFS). Because Google Scholar does not index the most recent year's publications and is a less established search source, we also contracted with a trained health research librarian to conduct a formal Medline search covering the period 2000–2014.[11] That search used the terms "Medicare health plans," "Medicare HMO," "Medicare Advantage," and "Medicare Advantage PPO" in comparison to "FFS Medicare," "Medicare," and "traditional Medicare," with the keywords "quality of care," "access," and "outcomes".[12] To ensure coverage of studies that may be relevant to the policy debate but are not found in the academic literature, we also reviewed the sources cited in industry briefs and the most recent Medicare Payment Advisory Commission (MedPAC) report to Congress on Medicare Advantage.[13] In addition, we checked citations in those studies identified for any other relevant studies not already identified.[14]

To be included in the review, studies had to include (1) a written description of methods and data sources, (2) a formal comparison group, and (3) outcome measures relevant to access or quality. Although we did not

otherwise exclude studies based on the quality of their methods, we reviewed articles for how they handled such potentially confounding factors as geographic location, enrollee mix, and health and risk factors associated with selection. Because our analysis focused on Medicare health plans available for general enrollment, we excluded studies focused on specialized plans—particularly social HMOs, PACE, and Special Needs Plans (SNPs).

## Relevant Metrics of Interest

Health care quality problems can arise though underuse, overuse, and misuse of services.[15] Some of these domains are better captured in existing quality metrics than others.[16] Because the review was focused on access and quality of *health care* received by beneficiaries in different types of insurance arrangements, rather than insurance per se, studies focused primarily on benefits or the factors that influence health plan selection were not considered. Five categories of metrics are considered in this paper.

**HEDIS Effectiveness of Care Metrics.** HEDIS measures, which Medicare health plans report to the Centers for Medicare and Medicaid Services (CMS), are central to oversight in Medicare Advantage. In 2014, Medicare Advantage plans were required to submit audited data consistent with National Committee for Quality Assurance (NCQA) specifications for 25 metrics on health care effectiveness and another three on access and availability of services, among other metrics.[17] HEDIS effectiveness indicators focus on the processes of care or intermediate outcomes rather than ultimate outcomes; metrics relevant to those with chronic illness are limited, though efforts are underway to broaden the measure set. Patient-level data used to support these metrics come from claims, encounter data, and for some metrics, medical records. A subset of these metrics is used to support calculation of Medicare Advantage plan star quality ratings, the basis for bonus payments to plans. Increasing efforts have been made to align reporting requirements across Medicare Advantage plans of different types, but data historically have been most available for HMOs and least available for private FFS plans and regional PPOs.[18] HEDIS metrics are not routinely calculated for traditional Medicare. MedPAC is considering better ways to align requirements and metrics across programs, taking into account the differences in data sources used in each sector.[19]

**CAHPS™ Quality Metrics.** CAHPS is a health plan member survey that provides patient reports of care experiences with their plan, including ratings of access to care and satisfaction with the plan and its providers.[20] To support its use, CMS conducted a related survey of beneficiaries in traditional Medicare residing in those same geographical areas (in 2011, it replaced this survey with a requirement that freestanding prescription drug plans collect CAHPS data). Using its contractors, CMS has developed a number of composite measures of reported care and use of preventive services, as well as global health ratings. Some of the same items are included in standard national surveys, such as the Medicare Current Beneficiary Survey (MCBS) and the National Health Interview Survey (NHIS). Because they provide insight into how beneficiaries view care, beneficiary surveys long have been a central component of most efforts to examine access and quality of care in Medicare.

**Quality Metrics around Hospitalizations.** From a quality and value perspective, metrics that provide information on the appropriateness and quality of hospital care are of growing interest. Key metrics in this area focus on the appropriateness of hospital admissions that potentially could be avoided by more timely and appropriate primary care, the appropriateness and quality of facilities and professional services used, and

the ability to structure discharges in ways that avoid personally and financially costly complications and hospital readmissions. CMS now captures data on case-mix adjusted Medicare rehospitalization rates as part of HEDIS reporting from health plans. In the absence of national data, most research on this topic has used data available through all-payer discharge data sets available in selected states and from the Agency for Healthcare Research and Quality's (AHRQ's) databases. Only some of these files have appropriate identifiers to distinguish enrollment in Medicare health plans, and the timeliness of information often lags. While adjusting for case mix and severity is important in all comparisons of quality, it is particularly important in studies of hospital appropriateness or outcomes, when poor outcomes may be small in number and highly sensitive to the mix of enrollees.

**Other Utilization Metrics.** Given the limitations in available data that directly measure access and quality of health services for beneficiaries in Medicare Advantage and traditional Medicare, researchers have included various other measures of utilization as a proxy for direct measures of these aspects of care. Like the hospital utilization measures, some of these metrics target specific kinds of utilization that have been used as markers for overuse, underuse, or misuse of services, including emergency department (ED) visits, patterns of care at the end of life, procedure use for urgent versus non-urgent conditions, or high-cost procedures versus others. Medicare Advantage plans report on some of these metrics in the Utilization and Relative Resource Use section of the HEDIS performance monitoring submission form. Utilization-based measures can be difficult to interpret as quality metrics when norms defining appropriateness are lacking or in dispute, and when it is unclear what constitutes overuse or underuse and whether overuse or underuse are markers for better or worse care. Such measures also require careful risk adjustment for selection. Studies that use aggregate measures of utilization probably are better interpreted as indications of resource use rather than quality of care.

**Health Care Outcomes and Mortality.** Ultimately, the goal of medical care is to improve patient outcomes and quality of life. Data sets available for studies of this type are limited and those that exist do not always include good information on health insurance type or adequate data to link with other sources containing such data. There are also methodological challenges in adjusting for patient selection and mix adequately. Cancer studies are supported by cancer registry data maintained by states and the National Cancer Institute's Surveillance and Epidemiology and End Results (SEER) data, among others.

# FINDINGS

## Overview of Published Studies

A total of 45 unique studies were identified using the methods and criteria discussed (Table 1), of which 40 involved comparisons between Medicare Advantage plans and traditional Medicare. The other five studies made comparisons among Medicare HMOs or between HMOs and PPOs, but did not compare Medicare Advantage plans to traditional Medicare. A complete list of all the studies that are included in our review is found at the end of this document. An additional six studies compared the care received in Medicare health plans to care in the Veterans Health Administration (VHA) system; since they involve a highly specialized comparison, they are not included in the core analysis and text but their findings are summarized in the Appendix.

| Table 1. Overview of Reviewed Studies | |
|---|---|
| (All studies involved a comparison to traditional Medicare unless noted) | |
| **Type of Quality/Access Metric** | **Number** |
| **HEDIS Effectiveness of Care Indicators (studies focused mainly on prevention metrics)** | |
| • Medicare Advantage vs. traditional Medicare program | 3 |
| • Variation across health plan types only (no TM comparison) | 4 |
| **Beneficiary Reports on Quality and Satisfaction** | |
| • CAHPS-based comparisons | 6 |
| • MCBS, NHIS, and other surveys | 4 |
| **Appropriateness of Hospital Use and Outcomes** | |
| • Avoidable Hospitalizations | 6 |
| • Quality of Admitting Hospital/Physician/Care | 5 |
| • Readmission Rates | 3 |
| **Other Utilization Measures (reported in the HEDIS dataset or elsewhere)** | |
| • Service Use at End-of-Life | 2 |
| • Procedure Use (1 study has no TM comparison, looks only at HMOs) | 2 |
| • Overall Utilization | 3 |
| **Health Care Outcome and Mortality** | |
| • Overall Mortality | 1 |
| • Stage of Cancer Diagnosis, Treatment, and Outcomes | 5 |
| • Functional Status | 1 |

**NOTE**: The table classifies studies based on their primary area of focus. One study (Ayanian et al. 2013) included selected CAHPS indicators along with the main analysis of HEDIS effectiveness indicators. To avoid double counting, it is not listed twice here.

**SOURCE:** Authors' analysis based on review of published papers.

## Characteristics and Relevance of Core Studies

Table 2 summarizes the 40 studies that make comparisons between Medicare Advantage (or predecessor program health plans) and traditional Medicare. Studies (the rows) are grouped by type of quality or access metric,[1] with columns providing detail on the main focus and characteristics of individual studies and the types of study controls and comparisons made. Table 3 provides the same information for the five studies involving comparisons solely within Medicare Advantage. Ideally, one would want studies with current data, across a wide variety of health plans nationally, using diverse outcome measures, with good controls for other factors that could explain differences in performance between Medicare Advantage and traditional Medicare. Unfortunately, the studies identified fall short in many of these areas.

[1] Almost all studies focused only on a single type of metric because of the data sources they employed. (Ayanian 2013a is an exception). Where more than one source is used, we classify the study based on its predominant method but discuss findings wherever they are relevant.

**TIMELINESS.** While this review aims to assess current Medicare Advantage practice, the studies available to support such an assessment are very limited. With one limited exception – an analysis of hospice use – none of the studies comparing Medicare Advantage to traditional Medicare include data from 2010 or later, which means none cover the experience of beneficiaries after the changes enacted in the ACA. Fourteen of the 40 studies use data from the 1990s or earlier. Of the 27 other studies covering the 2000-2009 period, 16 provide estimates for 2006 or later after the Medicare Advantage changes introduced in the Medicare Modernization Act of 2003 began to drive the market with the introduction of the Medicare prescription drug benefit in 2006.[21]

**SCOPE OF HEALTH PLANS STUDIED.** While Medicare health plans have become increasingly diverse, and more beneficiaries are enrolling in Medicare PPOs, the research to date comparing the traditional Medicare program to Medicare Advantage plans still mainly reflects the HMO experience. Only three of the 40 studies that compared traditional Medicare to Medicare Advantage (and two of the five that compared Medicare Advantage plans only) included findings that were specific to Medicare PPOs. Most studies use data for a time period in which HMOs were the main Medicare health plan option. Some of the more recent studies are limited to HMOs to address data constraints or create more homogeneous comparisons. Other studies are not limited to HMOs but do not provide evidence that distinguishes findings by plan type or other plan characteristics. For example, among studies that involved comparisons to traditional Medicare, only two studies analyzed Medicare Advantage plan performance by plan maturity (years of Medicare Advantage experience) and three (two without a traditional Medicare comparison) analyzed the relationship between performance and plan tax status (for profit/nonprofit).

**RESULTS TARGETING BENEFICIARIES WITH MORE COMPLEX MEDICAL NEEDS.** Few of the existing studies provide insight into how Medicare Advantage and traditional Medicare perform on quality and access metrics for beneficiaries whose health characteristics suggest that they could have more complex or specialized needs. Only four studies, all based on beneficiary survey data, focused explicitly on subgroups of the Medicare population defined by the authors as high need based on health, functional status, age, and/or income (Elliott et al. 2011, Keenan et al. 2009, Pourat et al. 2006, and Beatty and Dhont 2001). In the first two, using CAHPS data for 2003-2004 and 2009 respectively, Keenan et al. 2009 compared findings for beneficiaries based on self-reported health status, and Elliot et al. 2011 examined disparities for seven vulnerable subgroups (by socio-economic status and perceived health status). Using older data from the Medicare Current Beneficiary Survey (1996 and 1994 respectively), Pourat (2006) looked at chronically ill Medicare beneficiaries and Beatty and Dhont (2001) looked at under-65 disabled beneficiaries and elderly beneficiaries with one or more disabilities.

Several other studies included health status and health indicators as covariates in their analysis, but did not focus on these subgroups for comparisons of quality and access between traditional Medicare and Medicare Advantage. Almost all studies were either limited to beneficiaries 65 and older (versus younger beneficiaries qualifying by virtue of disability) or did not analyze the experience of under-65 disabled in Medicare Advantage versus traditional Medicare. While some of this reflects the exclusion in this review of studies on specialized health plans, such as Special Needs Plans, research shows that meaningful numbers of beneficiaries who are disabled and under-65 have long been enrolled in Medicare Advantage plans open for general enrollment.[22] The inability to target findings to subgroups with more extensive needs is a major limitation since the studies that exist tend to show that such individuals, at least in survey data, are more likely to report more negatively

on their care, regardless of the system they are in, and some studies show this more in Medicare Advantage than traditional Medicare (see Table 5).

**STUDIES OF NATIONAL SCOPE ARE LIMITED.** Available studies include some that are national in scope, comparing Medicare health plans to traditional Medicare; 17 of the 40 studies that have traditional Medicare comparisons fall in this category. Such studies are feasible because CMS has supported the development of data that better support such analysis. In particular, CAHPS data support such comparisons and HEDIS data collection associated with Medicare Advantage provide nationally-representative data that on some metrics can be compared to estimates from claims generated in traditional Medicare. However, the data available to support comparisons on other types of metrics are limited nationally, which means that many analyses are feasible only for subgroups of states or communities that participate in various data collection efforts. For example, diagnostic specific studies involving hospitalizations are only feasible in some states with all payer hospitalization data sets since encounter data that equal claims data have not been collected historically for Medicare Advantage. Further, studies that link care for particular patients across settings or conditions tend not to be feasible in the absence of clinical data that allow for stronger comparisons between Medicare Advantage and traditional Medicare. In general, the lack of clinical data that link patient care across different settings has created a major barrier to developing more robust and meaningful quality measures, as many have noted. For example, the National Quality Forum has identified care coordination, patient centered care and outcomes, and care for patients with Alzheimer's disease and related dementia as three of the top five priorities in terms of future development of measures that matter.[23]

**CONTROL FOR SELECTION AND CONFOUNDING VARIATION.** Because Medicare Advantage enrollment is voluntary, it is important to control for characteristics of Medicare beneficiaries that may influence their choice of health plan and also the outcomes of their medical care. Roughly speaking, such variables include socio-demographic characteristics (for example, age, sex, race, and ethnicity) and specific health metrics that relate both to overall health status and the severity of comorbidities associated with particular conditions under study. Because practice patterns and socio-demographic characteristics of beneficiaries enrolled in Medicare Advantage may vary geographically, MedPAC also has recommended that comparisons between Medicare Advantage and traditional Medicare be based on beneficiaries in the same geographical payment areas.[24] Such adjustments reflect both the considerable variation in Medicare Advantage enrollment rates across the country and also the differences in individual markets that are likely to influence care both in Medicare Advantage and in traditional Medicare. In Table 2, the 40 studies that compare traditional Medicare to Medicare Advantage are described in terms of their use of locality, socio-demographic, and health status/risk controls, though more detail in the actual techniques used in individual studies are covered in later tables. The aggregate analysis suggests that most studies make some effort to control for confounding sources of variation, such as geography, population and health status, but do so to varying degrees. In many cases, the data available to support such adjustments are limited.

| Table 2. Overview of Studies Comparing Medicare Advantage to Traditional Medicare by Category of Metric | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Study Focus and Characteristics | | | | | Analytic Controls | | | Comparisons | |
| Metric/Study | Geography | MA Plan Types (mainly HMOs pre 2006)[δ] | Beneficiary Age | Data Time Period | Geographic Variation | Socio-demographic Characteristics | Health Status/Risk | MA vs. TM[†] | MA Plan Type |
| **HEDIS Measures on Effectiveness of Care (n = 3)** | | | | | | | | | |
| Ayanian et al. 2013a | National | HMO | 65+ | 2003-2009 | √ | √ | √ (CAHPS variables only) | √ | √ (Not-for-profit, larger, older vs. For-profit, smaller, newer) |
| Ayanian et al. 2013b | National | HMO and PPO | 65-69 (women) | 2009 | √ | √ | | √ | √ |
| Brennan and Shephard 2010 | National | HMO, POS, PPO | All | 2006-2007 | √ (state) | | | √ | √ (All MA vs. PPO only) |
| **Beneficiary Reports on Quality and Access (n = 10)** | | | | | | | | | |
| Farley et al. 2011 | California vs. Nation | MA | All | 2008 | √ | √ | √ | √ | |
| Elliott et al. 2011 | National | MA | All | 2007 | √ | √ | √ | √ | |
| Keenan et al. 2009 | National | MA | 65+ | 2003-2004 | √ | √ | √ | √ | |
| Mittler et al. 2010 | National | MA | 65+, non-duals | 2003 | √ | √ | √ | √ | |
| Kennan et al. 2010 | National | MA | All | 2001-2004 | √ | √ | √ | √ | |
| Landon et al. 2004 | National | MA | 65+ | 2000-2001 | √ | √ | √ | √ | |
| Balsa et al. 2007 | National | MA | 65+, non-duals, non-ESRD | 1996-2001 | √ (MA counties only for TM) | √ | √ (descriptive statistics only) | √ | |
| Safran et al. 2002 | 13 mature state markets | HMO | 65+, continuously enrolled 1+ year, enrolled in Parts A+B | 1998 | √ | √ | √ | √ | √ (HMO IPA/Network vs. Staff/Group, For-profit vs. nonprofit) |

[†] Abbreviations refer to Medicare Advantage (MA) and traditional Medicare (TM).

[δ] Until 2004, MA was known as Medicare+Choice.

| Table 2 *(continued)*. Overview of Studies Comparing Medicare Advantage to Traditional Medicare by Category of Metric | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Study Focus and Characteristics** | | | | | **Analytic Controls** | | | **Comparisons** | |
| Metric/Study | Geography | MA Plan Types (mainly HMOs pre 2006) | Beneficiary Age | Data Time Period | Geographic Variation | Socio-demographic Characteristics | Health Status/Risk | MA vs. TM | MA Plan Type |
| Pourat et al. 2006 | National | HMO | 65+ | 1996 | √ (region) | √ | √ | √ | √ |
| Beatty and Dhont 2001 | National | HMO | Under 65 disabled or aged with 1 IADL | 1994 | | √ | √ | √ | |
| **Potentially Avoidable Hospitalizations (n = 6)** | | | | | | | | | |
| Friedman et al. 2009 | 13 states | MA | 65+ | 2006 | | | | √ | |
| Anderson 2009 | 13 ACHP plans | HMOs | All | 2007 | * | | | √ (Not-for-Profit ACHP HMO Plans vs. TM) | |
| Nicholas 2013 | 4 states | MA | All | 1999-2005 | √ | √ | √ | √ | |
| Basu 2011 | 3 states | MA | 65+ | 2004 | √ (state) | √ | √ | √ | |
| Basu and Mobley 2007 | 4 states | M+C | 65+ | 2001 | √ | √ | √ | √ | |
| Zeng et al. 2006 | California | HMOs | 65+ | 1996 | √ | √ | √ (pre-65 disabled) | √ | |
| **Quality of Admitting Hospital/Physician (n = 5)** | | | | | | | | | |
| Friedman and Jiang 2010 | 13 states | MA | 65+ | 2006 | | √ | √ | √ | |
| Huesch 2010 | Florida | M+C | 65+ | 2003-2006 | √ | √ | √ | √ | √ |
| Basu and Friedman 2013 | Florida | HMO | 65+ | 2002 | √ | √ | √ | √ | |
| Luft 2003 | California | HMO | 65+ | 1994-1995 | √ | √ | √ | √ | |
| Erickson et al. 2000 | New York | MA | 65+ | 1993-1996 | √ | √ | √ | √ | √ (also include comparison to private HMO, TM) |
| **Readmission Rate (n = 3)** | | | | | | | | | |
| Friedman et al. 2012 | 5 states | MA | All | 2006 | √ | √ | √ | √ | |

| Table 2 *(continued)*. Overview of Studies Comparing Medicare Advantage to Traditional Medicare by Category of Metric | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Study Focus and Characteristics | | | | | Analytic Controls | | | Comparisons | |
| Metric/Study | Geography | MA Plan Types (mainly HMOs pre 2006) | Beneficiary Age | Data Time Period | Geographic Variation | Socio-demographic Characteristics | Health Status/Risk | MA vs. TM | MA Plan Type |
| Lemieux et al. 2012 | MORE registry plans | MA | 65+ | 2006-2008 | | | √ | √ | |
| Smith et al. 2005 | Firm | HMO | 65+ | 1998-2000 | √ | √ | √ | √ | |
| **Other Utilization Studies using HEDIS Use and Relative Resource or Other Metrics (n = 6)** | | | | | | | | | |
| MedPAC 2014b | National | MA | All | 2012 | | | | √ | |
| Stevenson et al. 2013 | National | HMO | 65+, in year of death | 2003-2009 | √ | √ | | √ | |
| Matlock et al. 2013 | 12 states | MA patients served by CVRN | 65+ | 2003-2007 | √ | √ | √ (only MA) | √ | |
| Landon et al. 2012 | National | HMOs | 65+ | 2003-2009 | √ | √ | √ | √ | √ (Plans present before 2003 vs. new entrants) |
| Mello et al. 2002 | National | HMOs | 65+ | 1993-1996 | | √ | √ | √ | |
| Dhanani et al. 2004 | California | HMOs (including subgroups of those switching to/from HMO and TM) | 65+ | 1991-1995 | √ (state) | √ | √ | √ | √ (IPA or group staff model) |
| **Health Care Outcomes** | | | | | | | | | |
| **Mortality (n = 1)** | | | | | | | | | |
| Dowd et al. 2011 | National | HMOs | 65+ | 1996-2000 | √ | √ | √ | √ | |
| **Stage of Cancer Diagnosis and Outcomes (n = 5)** | | | | | | | | | |
| Ward et al. 2010 | NCDP registry hospitals | MA | 55-74 | 2005-2007 | √ | √ | | √ (including TM subgroups and private insurance subgroups) | |

| Table 2 *(continued)*. Overview of Studies Comparing Medicare Advantage to Traditional Medicare by Category of Metric | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Study Focus and Characteristics | | | | | Analytic Controls | | | Comparisons | |
| Metric/Study | Geography | MA Plan Types (mainly HMOs pre 2006) | Beneficiary Age | Data Time Period | Geographic Variation | Socio-demographic Characteristics | Health Status/Risk | MA vs. TM | MA Plan Type |
| Sadetsky et al. 2008 | CapSURE database practices | Medicare HMO, PPO | Men 65+ | 1995-2005 | | √ | √ | √ (TM comparison included subgroups of duals and Medicare alone (vs. supplement) as well as private MC, VA) | √ (HMO, PPO) |
| Riley et al. 2008 | SEER registry locales | M+C | 65-79 | 1998-2002 | √ (TM limited to counties with 3+ cases) | √ | √ (cancer diagnosis stage, type, grade) | √ | |
| Kirscher et al. 2005 | SEER registry locales | HMO | 65+ | 1985-1994 | √ | √ | √ (cancer stage) | √ | |
| Lee-Feldstein et al. 2002 | Cancer Surveillance Program Region 3 (Sacramento + urban and rural areas throughout N. California) | HMO | 65+ | 1987-1993 | | √ | | √ (TM comparison included subgroups of duals, Medicare alone, Medicare with supplement | √ (group vs. nongroup MA model) |
| **Functional Status (n = 1)** | | | | | | | | | |
| Porell and Miltiades 2001 | National | HMO | 65+ | 1991-1996 | | √ | √ | √ (TM comparison included subgroups by supplemental insurance | |

*This study (Anderson 2009) does not provide sufficient detail to assess whether geographical adjustments are made, noting that the MA comparison is made using claims from beneficiaries in the same counties, but not how this was done, weighted, or analyzed.

**SOURCE**: Authors' analysis based on review of published papers.

| Table 3. Overview of Studies of Medicare Advantage Plans (no comparison with traditional Medicare) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Study Sample | | | | | Analytic Controls | | | Comparisons | |
| Metric/Study | Geography | MA Plan Types (mainly HMOs pre 2006)[δ] | Beneficiary Age | Data Time Period | Geographic Variation | Socio-demographic Characteristics | Health Status/Risk | MA vs. TM[†] | Plan Type |
| MedPAC 2014a | National | HMO, Local PPO | All | 2012-2013 | | | | | √ HMO vs. PPO |
| Schneider et al. 2004 | National | HMOs | 65+ | 1997 | √ | √ | | | √ (tax status) |
| NCQA 2013 | National | HMOs and PPOs | All | 2001-2012 | | | | | √ |
| Trivedi et al. 2005 | National | HMOs | 65+ | 1997-2003 | √ | √ | | | |
| Schneider et al. 2005 | National | HMOs | 65+ | 1997 | √ | √ | | | √ (tax status) |

**NOTE**: Four of these five studies examined HEDIS effectiveness metrics and the fifth (Schneider et al 2004) examined procedure use (from HEDIS use and relative resources data) across types of HMOs.

**SOURCE**: Authors' analysis based on review of published papers.

† Abbreviations refer to Medicare Advantage (MA) and traditional Medicare (TM).

δ Until 2004, MA was known as Medicare+Choice.

## Study Findings by Type of Metric

This section reviews findings from studies organized by each of the five types of quality or access metrics: HEDIS effectiveness of care metrics, beneficiary-reported access and quality metrics, appropriateness and outcomes of Medicare hospitalizations, other utilization and resource use metrics, and health outcomes and mortality. In each subsection, a table summarizes all the studies of that type.

### HEDIS Quality Metrics for Effective Care.

**Studies Comparing Medicare Advantage to Traditional Medicare.** Three studies (by two groups of researchers) provide direct comparisons between Medicare Advantage (mainly HMOs) and traditional Medicare on subsets of HEDIS indicators for effective care (Table 4). The Ayanian studies (2013a and 2013b) used relatively recent data (2003 through 2009) and adjusted for geographical location and socio-demographic characteristics of Medicare Advantage enrollees. The Brennan and Shephard (2010) study used data for 2006-2007 and adjusted for geography only. All three, however, find that Medicare HMOs outperform traditional Medicare on the subset of HEDIS indicators examined. Ayanian et al. (2013a) used indicators that could be constructed from claims data, comparing Medicare HMOs to traditional Medicare, with beneficiaries matched by location and selected demographics. The results showed higher scores for HMOs than for traditional Medicare in all years, with the difference greatest for 21 large, nonprofit HMOs established before 2006. The HEDIS metrics included were heavily weighted to preventive care, which previous studies had shown to be a strength of HMOs.[25]

With respect to mammography, Ayanian et al. (2013b) also found more favorable patterns in Medicare HMOs compared to traditional Medicare, but the difference was less marked for Medicare PPOs relative to traditional Medicare. Brennan and Shephard's (2010) analysis also included findings for PPOs for 8 of the 11 prevention measures analyzed. The authors' findings, which largely reflect the HMO experience, showed substantially better performance by Medicare Advantage plans relative to traditional Medicare on eight measures, slightly better performance on one measure, and worse performance on two measures (monitoring of persistent medications and persistence of beta blockers), with Medicare Advantage performance particularly high on well-established metrics that Medicare Advantage plans had been required to report for many years (versus newer metrics). However, the findings from the comparison were limited because over this time period (2006-2007) PPO metrics used only administrative data whereas HMOs also could take advantage of medical records data.

| Table 4. Summary of Studies Comparing Medicare HEDIS Effectiveness of Care Metrics | | | | | | |
|---|---|---|---|---|---|---|
| Study | Study Population | Data Time Period | Data Source | Metrics and Analysis | Main Findings | Methodological Notes |
| Ayanian et al. 2013a | Medicare beneficiaries 65+ enrolled in MA HMOs vs. TM (excludes PPOs, PFFS plans, and HMOs with fewer than 100 enrollees, beneficiaries enrolled less than 1 year). | 2003–2009 | HEDIS submissions for HMOs, matched to 20% sample Medicare claims for TM beneficiaries; CAHPS data for both groups. | Five HEDIS measures and replicated claims data: mammography screening, diabetes (three measures), and cholesterol testing. HEDIS comparison matches HMO to TM beneficiaries in zip codes by age, sex, race, and ethnicity. Analysis also included four CAHPS measures: ratings of personal doctors and specialists, and influenza and pneumococcal vaccinations. | Beneficiaries enrolled in HMOs had higher ratings of clinical care than TM on all 5 HEDIS measures in all years. The size of this gap narrowed on two metrics over the study period – mammography screenings and HbA1c testing. On CAHPS metrics, HMOs performed better on the 2 immunization metrics throughout the study period. Ratings for personal doctors were higher for TM than HMOs at the beginning of the study period but worse for TM by 2009. Ratings of specialists were the only measure on which TM performed better than HMOs on all years. Twenty-one larger, not-for-profit HMOs established before 2006 had the highest measures of care compared to TM. | National study, which creates comparable HMO/TM metrics adjusted for geography and socio-demographic characteristics.<br><br>Scope of its findings are limited to metrics that mainly involve preventive services, which prior studies have shown to be an HMO strength. Findings limited to HMO plan type only. HEDIS clinical quality measures not adjusted for health status. |
| Ayanian et al. 2013b | Female Medicare beneficiaries ages 65–69 enrolled for a full year in Medicare HMOs, PPOs, or TM. Excludes MA plans with less than 500 enrollees. | 2009 | HEDIS submissions for HMOs and PPOs, matched to 20% sample of Medicare claims for TM beneficiaries. | HEDIS measure for mammography use among women ages 65–69. TM beneficiaries were matched by race/ethnicity, age, eligibility for Medicaid, and geography). | Mammography rates were highest for all women enrolled in HMOs compared to all women in PPOs or TM; minority women enrolled in HMOs and PPOs had higher rates of mammography than minority women in TM.<br><br>Compared to matched white women, minority women enrolled in MA had higher rates of mammography, except Asian/Pacific Islanders enrolled in PPOs, which had lower rates compared to matched white women in PPOs. In contrast, minority women enrolled in TM had lower rates of mammography than matched white women. Black women enrolled in TM did not have statistically significantly different rates of mammography than matched white women. | National study and one of the few to include PPOs, with comparable metric for TM created and adjusted for geography and sociodemographic characteristics. No adjustment for health status in HEDIS metrics. Study included only a single metric (mammography rates). Unclear how findings could be affected by changes in the standard Medicare benefits package in 2010 that reduce cost sharing for preventive care. (Before then, HMO and PPO coverage for mammography likely was better.) |

| Table 4 *(continued)*. Summary of Studies Comparing Medicare HEDIS Effectiveness of Care Metrics | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| Brennan and Shephard 2010 | Medicare beneficiaries enrolled in MA (HMO, POS, PPO) and TM. | 2006–2007 | Publicly reported and NCQA-audited Medicare HEDIS data; TM HEDIS estimates use claims-based metrics created by GEMS project. | Eleven process-based HEDIS measures, including 5 from administrative data and 6 using hybrid measures in HMOs, which allow use of medical record-generated information. MA/TM comparison matched TM sample to MA distribution by state. | MA scores significantly higher than TM on 8 measures of 11, including breast cancer screening, measures associated with diabetes, and beta-blocker use after heart attacks. Traditional Medicare performed better on two measures in both years: monitoring of persistent medications and persistence of beta-blockers, and slightly better on anti-rheumatic drug therapy in 2006. MA plans authorized to use hybrid measures (HMOs) scored higher than those using administrative data measures (PPOs and traditional Medicare). These findings were stable from 2006 to 2007. | National study. The TM comparison data are limited to those with Part D coverage. There is no separate adjustment for sociodemographic characteristics or health status across sectors. Findings for PPOs specifically reported only for 8 metrics of the 11 metrics due to insufficient data.<br><br>Because the data sources used by HMOs and PPOs to construct measures differed over this period, it is difficult to distinguish whether differences in performance by plan type reflect true performance differences vs. PPOs' use of administrative data that could result in lower scores on metrics. |
| MedPAC 2014a | HMOs (excluding cost contracts) and local PPOs participating in Medicare Advantage that had HEDIS data for each of the two years. Regional PPOs and private fee-for-service plans are excluded due to insufficient data. | HEDIS data covering care received in 2011 and 2012. | Plan-level HEDIS data reported in the 2012 and 2013 calendar years, | HEDIS measures involving clinical processes, intermediate outcomes, and hospital readmission rates. | In 2012, HMOs scored higher on HEDIS measures, on average, than local PPOs, though the gap between the HMOs and PPOs is narrowing. HMOs performed better on metrics that involve medical record abstraction. Of the 42 HEDIS measures, PPOs performed better than HMOs only in four measures.<br><br>Improvements in HEDIS indicators between 2012 and 2013 are uneven. More than one-third of the clinical process measures improved across the two years, but HEDIS outcome measures generally remained stable. Hospital readmission rates declined in HMOs, PPOs, and—per MedPAC—TM, over the period. | MedPAC's analysis has the most current data on MA performance on HEDIS indicators of all those reviewed and the main source of comparison between HMOs and local PPOs.<br><br>The study design is descriptive. There are no comparisons against TM or adjustments for enrollee health status or risk, other than those that are part of the HEDIS specifications.<br><br>MedPAC notes that there is considerable "noise" in data across years by plan, particularly for metrics relying on medical records. |

| Table 4 *(continued)*. Summary of Studies Comparing Medicare HEDIS Effectiveness of Care Metrics | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| NCQA 2013 | HMOs and PPOs that report HEDIS scores for Medicare, Medicaid, or commercial insurance. | 2010–2012 (prior years' data shown for some metrics) | Plan-level HEDIS data. | Publicly reported HEDIS measures. Appendices include extensive tabular data, with HMO and PPO national average scores (2012) and variation between the 90th and 10th percentile. | Measures that are part of the star rating system show improvement between 2010 and 2012. Over that period, Medicare HMOs improved the most on colorectal cancer screening, persistence of beta blockers after heart attack, and potentially harmful drug interactions. Substance abuse treatment metrics (not in the star ratings) declined, most notably for Medicare PPOs. | This report covers HEDIS performance in MA. Its focus is to provide a descriptive review of the state of quality in the US in 2013 across managed care payer markets (including commercial, Medicare, and Medicaid). Report does not test for statistical significance or test trends. |
| Trivedi et al. 2005 | Medicare beneficiaries 65+ enrolled in Medicare health plans (mainly HMOs), with comparison of white vs. black subgroups. | 1997–2003 | Beneficiary-level HEDIS data for 183 plans participating in all five years, matched with the Medicare enrollment file. | Nine HEDIS measures for breast cancer screening (1), diabetes care (5), and cardiovascular care (3).<br><br>Statistical analysis used to adjust white/black rates by year, race, age, sex, zip code of residence, and Medicaid coverage. | HEDIS rates for whites and blacks improved on all measures over the period. The disparity between whites and blacks improved on 7 of the 9 measures. Results were not explained by changes in sociodemographics. Authors note that rates still could be better and that disparities still were extensive. | This study's main conclusion is to suggest a link between improvements in quality in HMOs and reduced disparities in care, at least for whites vs. blacks.<br><br>A sensitivity test that included all health plans participating for at least one year (a less restrictive condition) generated similar results. |
| Schneider et al. 2005 | Medicare HMO beneficiaries enrolled in for-profit and nonprofit plans in 1997. | 1997 | 1998 HEDIS files | Four HEDIS measures: breast cancer screening, diabetic eye exam, beta blockers after myocardial infarction, and follow-up after mental health hospitalization.<br><br>Analysis is based on 231 plans reporting on at least one measure and having other matchable demographic data. | Nonprofit plans had higher scores on all 4 metrics that persisted after adjustments for geographic, selection, and other health plan differences. Findings show network/IPAs are more common in for-profit plans, suggesting that differences in managerial processes could explain some of the results. | While the data used in this study are from 1997, the study is nationally focused and includes controls for a number of potentially confounding variables. The comparison used zip code-based adjustment for demographic differences and socio-demographically-adjusted comparisons by plan type. Other differences were addressed by county-specific comparisons. |

**SOURCE:** Authors' analysis based on review of published papers.

Because Medicare health plans (at least HMOs) have been required to report on HEDIS metrics since 1997, their better performance on these indicators could be expected. However, there is not strong evidence linking public reporting per se to subsequent improvements in quality of care.[26] With many HEDIS metrics now tied to Medicare Advantage bonus payments, health plans should have strong financial incentives to improve HEDIS scores. However, performance on HEDIS's preventive indicators within traditional Medicare also could improve because of changes in Medicare benefits that remove cost sharing for many preventive services.

**Variation across Types of Medicare Advantage Plans.** Because comparisons involving traditional Medicare provided limited insight into newer types of Medicare Advantage plans, we expanded the review to include four studies that use HEDIS effectiveness scores to compare performance across different Medicare Advantage plan types (see Table 4). The most recent study (MedPAC 2014a) compared HMOs and local PPOs reporting for both 2011 and 2012 on a variety of HEDIS metrics, although with no adjustments for location, socio-demographic characteristics, or risk. The authors found differences in HEDIS scores by plan type narrowing over time as scores for Medicare Advantage plans improved, but HMOs still outscored local PPOs on most measures (PPOs only scored better on 4 of 42 measures), particularly on metrics that require extraction of medical records data. NCQA (2013) found improvements on some indicators, particularly those included in the star ratings used for bonus payments. There was a decline, however, in scores for substance abuse treatment metrics, particularly for Medicare PPOs.

Trivedi et al. (2005) found evidence that HEDIS quality improvements in HMOs were associated with reduced disparities in care for whites and blacks, though extensive differences across race remained. Studying HMOs in 1998, Schneider et al. (2005) found not-for-profit plans outperformed for-profit plans, but could not disentangle tax status from managerial processes in certain types of plans (e.g., network/independent practice association (IPA) versus group/staff). MedPAC (2014a) also has documented wide variation across Medicare Advantage plans, with newer plans performing worse than more established ones, even of the same type (i.e., HMOs).[27] Ayanian et al. (2013a) also found stronger performance by more mature and larger nonprofit plans.

Together, these studies suggest that the better performance of Medicare HMOs relative to traditional Medicare on HEDIS metrics will vary with HMO characteristics and may not be generalizable, at least to the same extent, to other types of Medicare Advantage plans.

## CAHPS and Similar Beneficiary-Reported Metrics

This review identified 10 studies comparing Medicare health plans to traditional Medicare using beneficiary survey data (Table 5), in addition to another study that primarily focused on HEDIS effectiveness but also include a few CAHPS metrics (see Ayanian et al. 2013a in Table 4). The most recent studies use CAHPS data, many of which appear to be undertaken by members of the CAHPS research team, with which CMS had contracted to work on Medicare CAHPS.

While designs varied across the CAHPS studies, the studies as a whole provide complementary insights and used similar measurement techniques and adjustments for case mix and geography. The earliest study (Landon et al. 2004), reporting on the 2000 and 2001 time frame, generally found that traditional Medicare was rated higher than Medicare health plans, which at that time were predominantly HMOs. Traditional Medicare was rated higher on global measures, personal physician ratings, and in absence of problems in getting needed care.

Medicare Advantage plans were better at prevention and paperwork, but performance on all metrics varied considerably across states and regions, which the authors attribute to differences in norms of care rather than characteristics specific to plans.

More recent studies suggest that traditional Medicare continues to perform better on most beneficiary-reported metrics, particularly by beneficiaries who are in relatively poor health (Keenan et al. 2009). Another recent study by Elliot et al. (2011) also found larger differences in ratings between traditional Medicare and Medicare Advantage for beneficiaries with certain vulnerabilities, including those with low incomes, no high school degree, poor or fair self-rated health, those older than 85 years, women, and Blacks (Elliott et al. 2011). Ayanian et al. (2013a) found the difference in ratings between Medicare HMOs and traditional Medicare for personal care physicians and specialists to be narrowing by 2009 but also showed that beneficiaries still rated larger, non-profit, and older HMOs more highly than newer HMOs (see Table 3). Keenan et al. (2010) also reports more variability among Medicare Advantage plans compared to traditional Medicare.

| Table 5. Summary of Studies Comparing Medicare Beneficiary-Reported Metrics | | | | | | |
|---|---|---|---|---|---|---|
| Study | Study Population | Data Time Period | Data Source | Metrics and Analysis | Main Findings | Methodological Notes |
| Farley et al. 2011 | California Medicare CAHPS MA and TM respondents vs. the nation. | 2008 | Medicare CAHPS | Composites of 14 case mix-adjusted CAHPS measures on overall ratings, 4 composites of reported care, and receipt of preventive services.<br><br>Comparisons with the nation were adjusted by urbanicity and socio-demographics. | CA's higher MA performance relative to the nation is highly dependent on one large plan (after case mix adjustment). | Adjusted national estimates to accommodate California's population diversity. Highlights variation in plan performance and how that can influence the conclusions drawn. |
| Elliott et al. 2011 | Medicare CAHPS MA and TM respondents, including analysis of disparities in 7 vulnerable subgroups (low income, low education, less healthy, older, black, Hispanic, and female). | 2007 | Medicare CAHPS | Eleven case mix-adjusted CAHPS metrics, including 5 global care ratings, 5 composites of patient experience, and one other.<br><br>Comparisons between HMO and TM included adjustments for socio-demographics, perceived health status using a difference in difference approach. They also adjusted for geography at the hospital referral region (HRR). | Overall MA-TM performance is higher on 5 metrics (including 3 prescription drug metrics and paperwork) and lower on 3. Difference-in-difference for vulnerable subgroups shows larger MA disparities relative to TM. | Highlights variation in performance depending on the metrics used. It also illustrates the effects of variation in plan performance on disparities.<br><br>Part D metrics are heavily represented in the metrics on which MA scores better. The data were collected soon after the Part D program was started and could reflect transition issues, particularly in free-standing drug plans. (Many MA plans already had some prescription drug benefits and were probably less-affected by start up concerns). |
| Keenan et al. 2009 | Medicare CAHPS respondents 65+ in MA and TM, grouped by healthy and sick. | 2003-2004 | Medicare CAHPS | Case mix-adjusted composite of items related to needing care, receiving care quickly, and physician interactions. Adjusters include age, education, and multiple self-reported health measures. Data supported county-level comparisons. | Beneficiaries rate MA lower than TM for all care experience measures except for office wait time. Those in MA report they are more likely to receive preventive services. TM-MA differences generally are greater for sick vs. healthy. | Used risk adjustment to account for subgroup differences. One of the few broad-based studies that compare sick to healthy individuals. |
| Mittler et al. 2010 | Medicare CAHPS respondents in TM and MA 65+ and not dual eligible in 199 of 306 hospital referral regions (HRRs) with sufficient MA members. | 2003 | Medicare CAHPS merged with Medicare TM data for HRRs to create end-of-life expenditure index in TM. | Case mix-adjusted HRR means for 10 metrics regarding getting needed care, getting care quickly, being seen in 15 minutes, doctor's communication, office staff, receipt of flu shot, receipt of pneumonia shot, and 3 overall ratings. Comparisons were within HRRs divided into quintiles on TM intensity. | CAHPS scores generally lower (7 measures) or no better (2 measures) than TM in high-intensity markets. High-intensity effect particularly strong in MA. | This study highlights variation in consumer reported quality across geographical areas, particularly among HMO enrollees. The reason for lower MA ratings in high TM intensity areas is not clear but Mittler suggests the findings may mean that consumer expectations in HMOs are shaped by the prevailing TM practices in high intensity markets. |

| Table 5 *(continued)*. Summary of Studies Comparing Medicare Beneficiary-Reported Metrics | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| Kennan et al. 2010 | Medicare CAHPS respondents in MA and TM in 196 of 306 HRRs with sufficient responses. | 2001-2004 | Medicare CAHPS | Pooled data by HRR on 14 metrics with similar interpretations for TM and MA (mainly care experiences and preventive care rather than insurance design). Metrics were adjusted for age, education, and various health status measures. Estimates account for sampling error and clustering; analysis by HHR, state, and plan. | MA and TM scores are highly correlated at the HRR level but MA scores within an HRR vary by plan and there is more geographical variation within the MA sector than in TM. While TM scores generally were higher than MA, the reverse was true on some metrics in some markets. | Study highlights variation in plan performance that its authors believe could reflect the influence of local market forces and organizational characteristics on plan performance. Analysis includes risk adjustment for differences in case mix. |
| Landon et al. 2004 | Medicare CAHPS respondents 65+ in MA and TM, with adjustments to reflect areas of the country where both options are available. | 2000 and 2001 | Medicare CAHPS | Four overall ratings, 5 composite measures on beneficiary care experiences, and 3 reports of preventive services. Analysis used "matching weights" at the county level to case mix adjust comparisons by age, self- reported health status, education, and proxy use. | TM better on each global measure, personal physician, and problems getting needed care. MA better at prevention and paperwork. State and regional variability exists. Results stable across years. | Study's main limitation is the study period (2000-2001). Also the findings provide insight mainly into HMO performance, not newer health plan types. |
| Balsa et al. 2007 | Medicare beneficiaries 65+, surveyed in the respective years, enrolled in Medicare A and B (excluding dual eligibles, ESRD eligibles), living in a county with a Medicare+Choice option, and alive for the entire year. | 1997-2001 | National Health Interview Survey 1997-2001; Medicare Current Beneficiary Survey 1996-2000 (Cost and Use Files and 2001Access to Care Files). | Both surveys: whether person had delayed care due to cost reasons.<br><br>NHIS: 4 items on access: usual source of care, 12-month responses on getting medical care, seen/talked to doctor, seen/talked to medical specialist; and 2-week items on saw or used services.<br><br>Probit analysis is used to control for selection on terms of socio-demographics and health status associated with plan selection, with geographic and year fixed effects. | In general, this study found relatively little relationship between M+C enrollment and access measures or disparities in care. Hispanics in M+C were more likely to have a usual source of care than those in TM. | Paper emphasizes beneficiary's choice of plan with an emphasis on whether there is evidence that managed care negatively affects care for minorities, taking into account choice, use, financial impact (self-reported out-of-pocket spending), and access. |

| Table 5 *(continued)*. Summary of Studies Comparing Medicare Beneficiary-Reported Metrics | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| Safran et al. 2002 | Medicare beneficiaries 65+, continuously enrolled for at least one year in HMOs and TM in mature plans in 13 states. Analysis based on those with a primary care physician. | 1998 | Data from Study of Choice and Quality in Senior Health Care; 9,625 respondents (8,118 long form) with 64% response rate. | Primary Care Assessment Survey (PCAS) with 11 summary scales to measure 7 defining characteristics: accessibility, continuity, integration, comprehensiveness, whole person orientation, clinical management, and sustained clinician-patient partnership. TM sample was matched to HMOs by age, sex, and zip code at baseline. Multivariate analysis controlled for socio-demographic variables, state, and selected chronic conditions. | Nine of 11 indicators favored TM, with financial access favoring HMOs and preventive counseling not varying by system. Network model HMOs generally performed better than staff/group models, with few differences by profit status. | This study includes some unique metrics on the characteristics of primary care relative to patient needs. The fact that HMOs performed more poorly than TM despite the explicit focus on mature markets and plans adds to the literature. However, the data are from 1998. |
| Pourat et al. 2006 | Medicare community-dwelling beneficiaries 65+, distinguishing HMO vs. TM (by type of supplement), with an emphasis on those with chronic illness. | 1996 | MCBS | Ten questions on satisfaction with overall care and 12 on patient experiences with regular physician. Overall satisfaction metrics grouped into summary metrics on overall quality and access. Analysis focused on highly dissatisfied vs. others. | HMO enrollees generally were less satisfied than those in TM, except that HMOs scored better on access. Same pattern generally held for subgroups by health status. Fewer differences for those with no conditions. | This is now a relatively old study (1996). While it includes some controls for selection, it does not control for location. |
| Beatty and Dhont 2001 | Medicare community-dwelling beneficiaries who are working-age disabled (18-64) or 65+, with 1+ instrumental activities of daily living limitation. | 1994 | MCBS (Access to Care File) | Measures of access to care (usual source of care, health problem, not seen doctor); affordability (delayed seeking care because of cost, trouble getting care); and perceived quality (satisfaction with doctor's concern and overall health care quality). Logistical regression used to assess performance, controlling for age, gender, health status, disability, severity, and Medicare qualification status. | MA scored better than TM on access and affordability measures but no difference in satisfaction. Regardless of coverage, the least healthy and most disabled scored worst. | The study sample only included 358 Medicare HMO beneficiaries vs. 5,758 in TM. No adjustment for geography. |

**NOTE**: See also the Ayanian et al. (2013a) in Table 4 for findings on a few CAHPS indicators.

**SOURCE**: Authors' summary of findings reported in articles.

For the most part, earlier studies using other beneficiary surveys have reported findings consistent with those from CAHPS. Two of the four studies using surveys other than CAHPS showed that beneficiaries rated care better in traditional Medicare than in Medicare HMOs (Safran et al. 2002; Pourat et al. 2006), one showed beneficiaries rated care as the same (Balsa et al. 2007) and the fourth had mixed findings (Beatty and Dhont 2001).

The Pourat et al. 2006 and Beatty and Dhont 2011 studies also are notable for including less healthy subgroups (chronically ill, those with functional disability). Pourat et al. 2006 (using 1996 data from the Medicare Current Beneficiary Survey) found that higher scores for traditional Medicare than Medicare Advantage held up when the analysis was conducted by chronic condition, disability, and health status, that the difference between Medicare Advantage and traditional Medicare was greater among those with chronic conditions than those without, and that traditional Medicare scores also were higher for beneficiaries with supplemental coverage than those without. Beatty and Dhont 2001 found that among their sample, Medicare Advantage scored better than traditional Medicare on access and affordability but not satisfaction, while those who were least healthy or most disabled rated systems more negatively regardless of plan type.

While Ayanian et al. (2013a) shows that differences may be narrowing over time on some metrics, these studies as a whole show that beneficiaries tend to rate Medicare Advantage plans lower than traditional Medicare on items related to health care access and quality, and this is especially true for beneficiaries in relatively poor health. While the direction of findings from studies involving CAHPS metrics are in the opposite direction from those using HEDIS effectiveness studies, both sets of studies show considerable variation in ratings across plans and geographic locales.

## Appropriateness and Outcomes of Medicare Hospitalizations

For purposes of this analysis, we have grouped the next set of studies by their outcome variables: potentially avoidable hospitalizations, quality of admitting hospital/physician, and readmission rates (Table 6).

**Potentially Avoidable Hospitalizations.** Six studies were identified in this area, four of which use data from subsets of states participating in AHRQ's Hospital Cost and Utilization Project (HCUP). Of the other two, one uses a single state's all payer discharge data, and the other uses data from a subset of HMOs that it then matches to traditional Medicare data. With the exception of one largely descriptive study with few controls for confounding factors (Friedman et al. 2009), each of the studies finds that potentially avoidable admissions are lower for Medicare Advantage enrollees than for traditional Medicare, though four studies rely on data before 2006, and reflect HMO experience in mature markets.

Two of six studies are less transparent than the others on methodological issues, and appear to use fewer statistical controls, though they use more recent data (Friedman et al. 2009, Anderson 2009). Friedman et al. (2009) had a broader scope than other studies (13 states) and used AHRQ Prevention Quality indicators.

| Table 6. Summary of Studies Comparing Appropriateness and Outcomes of Medicare Hospitalizations | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **a. Studies Examining Avoidable Hospitalizations** | | | | | | |
| Friedman et al. 2009 | Hospitalized MA and TM beneficiaries ages 65+ in 13 states that participate in AHRQ's HCUP project. | 2006 | Healthcare Cost and Utilization (HCUP) files for major urban areas with 2 or more hospitals in 13 states. | AHRQ's Prevention Quality Indicators, with 13 potentially preventable admission indicators. | No difference in the percentage of potentially avoidable hospitalizations of 13 types. | This is mainly a descriptive analysis that does not control for risk or selection. |
| Anderson 2009 | Hospitalized MA patients in 13 of the 18 ACHP member health plans compared to TM patients. | 2007 | Health plan provided metrics, 5% Medicare sample of claims matched to same counties but no detail given on method or way aggregate statistics were weighted or analyzed. | Preventable hospital admissions for ACSC, emergency room visits for ACSC, hospital readmissions within 30 days. | Participating health plans had lower rates of hospital admissions and emergency department visits for ambulatory care sensitive conditions than did TM beneficiaries in the same area. They also had lower average hospital readmission rates. | The study adjusts for geographic variations, but not for severity of illness or socio-demographics. The health plans participating are known to be mature, high performers. The study was produced under contract with America's Community Health Plans, which does not make a full report available on its web site. |
| Nicholas 2013 | Hospitalized MA (largely HMO) and TM beneficiaries in 4 states. | 1999 – 2005 | HCUP Data (AZ, FL, NY) State Inpatient Data (SID) (NJ, 2003-2005 only)<br>100% Medicare Annual Beneficiary Summary File | Hospitalization rates for 4 categories of admissions: Acute Ambulatory Care Sensitivity (ASC) admissions (4); chronic ASC (9); referral-sensitive conditions (RS) (4); and "marker" conditions (3). RS admissions are used to capture potential problems accessing specialty care.<br><br>Differences between "marker" MA and TM rates at the county level are used to benchmark differences between observed and expected rates, presumed to reflect unmeasured health status differentials in selection. Marker conditions are dehydration, pneumonia, ruptured appendix, and urinary tract infection. | After adjusting for selection, MA reduced rates of ACS admissions by 5.9 per 1000 beneficiaries (12%) and RS admissions by 4.02 per 1000 (21.6%) [Selection accounted for 26% of the difference in risk-adjusted rates of ACS and 35% for referral sensitive care.].<br><br>ACS reductions are driven primarily by admissions where inexpensive, short-term intervention and routine provision of maintenance medications can reduce risk of hospitalization. | This study is limited to four states. It uses econometric techniques to address gaps in data on health status differences that result from selection (beyond admission diagnosis and demographics) and takes into account geography. It also links to eligibility files to allow hospitalization rates to be developed.<br><br>Nicholas notes that the study took place when policies allowed monthly disenrollment and Part D benefits were not yet available (but partly covered in many MA plans). These lessened incentives for MA to manage care and for TM to intervene earlier.<br><br>Metrics relating to referral sensitive hospitalization are relatively new ones that have not been extensively tested. Their use as quality measures is contingent on the assumption that referrals are appropriate for that kind of care. |

| Table 6 *(continued)*. Summary of Studies Comparing Appropriateness and Outcomes of Medicare Hospitalizations | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **a. Studies Examining Avoidable Hospitalizations** | | | | | | |
| Basu 2012 | Hospitalized Medicare beneficiaries ages 65+ in MA (largely HMOs) by race/ethnicity, and in TM in 3 states: New York, California, and Florida. | 2004 | HCUP files for these 3 states. | Relative odds of an ambulatory care-sensitive admission (ACSC) in HMOs vs. TM (ACSC, based on Billings 1993 definitions). Comparison assesses odds of preventable vs. other (marker) admissions viewed as relatively urgent and less preventable.<br><br>Separate analysis by state, distinguishing four subgroups in each sector: white, African American, Hispanic, and other races. Analysis includes adjustments for patient demographics, enabling characteristics (such as area income and primary care supply), and health needs (illness severity). | HMOs had lower rates of preventable hospitalizations relative to marker conditions in all 3 states across all 4 racial groups. Reductions in preventable hospitalization rates in HMOs were higher among minorities than whites in 2 of the 3 states (California and Florida). | This study is limited to three states, though they are large. They also have a large managed care presence. The design is limited to hospitalized patients. The authors included several analyses testing whether results could be explained by selection, but found limited evidence for this hypothesis. |
| Basu and Mobley (2007) | Hospitalized Medicare beneficiaries ages 65+ in Medicare + Choice (largely HMOs) and TM in California, Florida, New York, and Pennsylvania. | 2001 | HCUP files for these 4 states. | Relative odds of an ACSC in HMOs vs. TM (ACSC based on Billings 1993 definitions). Comparison assesses odds of preventable vs. other (marker) admissions viewed as relatively urgent and less preventable.<br><br>Separate analyses by state with multivariate adjustment for severity of illness, county-level variables, and health resource and characteristics | In 3 of 4 states, HMO patients had lower odds of preventable vs. marker hospitalization than TM patients (the exception was Pennsylvania). The difference was largest in states with the most mature managed care. Analysis suggests the MA-TM difference may be greater in the 2 states with the most mature managed care (California and New York). | This study includes four states, though they have a large managed care presence. Design is limited to hospitalized patients. The inclusion of dual eligibles in the study may overstate the difference between MA and TM because beneficiaries who are dually eligible are more likely to be in TM (authors note that available data suggest their inclusion does not fully account for the study results). |
| Zeng et al. 2006 | Medicare-age beneficiaries in California covered by Parts A and B and continually enrolled in Medicare HMOs or TM for the year in four large Southern California counties. | 1996 | Medicare enrollment data linked to California OSHPD's all-payer hospital data. | Hospitalization rate for 15 ACSC (as measured by McCall et al. criteria for elderly), total ACSC days. (To aid in interpretation, researchers also examined rates for non-ACSC.) Analysis employed simultaneous equations to adjust for health plan selection. Admissions resulting in a death were not considered ACSC, regardless of diagnosis. | After controlling for selection, those in Medicare HMOs had lower rates of ACSC admissions and days, but not other hospitalizations. | The data from this study are now relatively old (1996) and limited to Southern California. Researchers look at the probability of admission and employ techniques to control for selection. |

| Table 6 *(continued)*. Summary of Studies Comparing Appropriateness and Outcomes of Medicare Hospitalizations | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **b. Studies of Quality of Hospital Care and Related Professional Services** | | | | | | |
| Friedman and Jiang 2010 | Hospitals used by MA and TM Medicare beneficiaries discharged with non-maternal diagnosis from 13 states involved in the AHRQ HCUP project. Analysis limited to discharges from urban areas with 2+ hospitals. | 2006 | HCUP files for 13 states. | Risk-adjusted mortality metrics developed for 15 separate categories drawn from AHRQ inpatient quality indicators (8 surgical and 7 medical). Adjustment based on APR-DRG, age, and gender. Weighted aggregate index created. A second metric focused on Patient Safety Indicators (PSI) developed by AHRQ, with 9 PSIs for adult cases, all relating to surgical care. | MA patients were admitted to hospitals with higher risk-adjusted mortality (and somewhat lower cost) compared to TM. Both HMO and TM admit patients with higher disease severity to lower-mortality hospitals. There is more variability in MA for where surgical patients are admitted than in TM, with MA using hospitals with higher and lower risk-adjusted mortality. However, MA patients also were more likely to be admitted to hospitals with fewer patient safety | The discrepancy in relative findings for MA and TM on mortality versus and patient safety events complicates interpretation. The authors say this pattern could reflect greater MA control over discretionary admissions (patient safety measures generally exclude these admissions). |
| Huesch 2010 | Florida Medicare managed care (mostly HMO) and TM patients with percutaneous coronary interventions discharged from state-regulated Florida hospitals. | 2003 - 2006 | Discharge data from Florida Department of Health's Agency for Health Care Administration, linked with licensure data. | Whether or not patient used a cardiologist with a particular risk-adjusted profile rank compared to peers (average mortality and discharge directly home) as measured by lowest/lowest quartile/below median among peers).<br><br>Analysis based on patients staying 2+ days without AMI. There were 67,476 patients treated by 486 Florida physicians performing 10 or more cases per quarter. Patient risk adjustment employed. | Cardiologists used by managed care patients had similar training to those used by TM but more stent experience (an asset). Risk-adjusted length of stay did not differ consistently between managed care and TM. However, Medicare managed care patients were significantly less likely to see a physician with a mortality profile below the median and also less likely to be discharged home than were TM patients. | This study is based on a single state (Florida) that is also known to have unique features.<br><br>While sensitivity analysis does not indicate that selection explains the use of cardiologists with worse outcomes, authors note that unobserved patient differences may explain them (sicker patients in managed care and concentration in certain providers). |

| Table 6 *(continued)*. Summary of Studies Comparing Appropriateness and Outcomes of Medicare Hospitalizations | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **b. Studies of Quality of Hospital Care and Related Professional Services** | | | | | | |
| Basu and Friedman 2013 | Medicare beneficiaries 65+ in Florida hospitals by HMO and TM. | 2002 | HCUP data for Florida | Likelihood of one of 9 Patient Safety Indicators (PSIs) related to pneumothorax, infections, hemorrhage, post-operative respiratory failure, embolism or sepsis, and accident puncture or laceration. Patients transferred from another hospital excluded. Multivariate methods used to adjust for patient characteristics, including severity and hospital characteristics (including overall | Medicare HMO patients had a higher risk of three adverse outcomes than TM patients, even though the overall quality of hospitals used by HMOs was higher. | This study focuses on one state and one year; Florida is known to have unique features.<br><br>The study distinguishes between overall hospital quality and the extent of adverse outcomes for patients in MA and TM within those hospitals. |
| Luft 2003 | Medicare beneficiaries in California with Parts A and B hospitalized for acute myocardial infarction (AMI). | 1994 - 1996 | California OSPHD data from the Hospital Outcomes Project, Medicare eligibility files, death certificate data. | Risk-adjusted 30-day mortality rates (observed vs. expected), length of stay, and revascularization within 30 days. To obscure health plan identities, larger plans were subdivided geographically with a resulting 17 plans. Risk adjustment for comorbidity performed two ways, one more conservative than the other. | Risk-adjusted death rates were slightly higher in TM but some plans had different practice patterns and performed better (lower LOS and revascularization rates) than others. | This study includes risk-adjusted outcome measures that take into account patient history; however, it focuses on a single state with a mature managed care market.<br><br>The researchers note that the findings are not fully explained by a "Kaiser effect;" that is, the findings also apply to plans other than Kaiser Permanente. |
| Erickson et al. 2000 | Patients ages 65+ in managed care or TM who were discharged from lower-mortality New York State hospitals after coronary artery bypass graft survey (CABG). Analysis compares TM, Medicare managed care, private FFS, and private managed care. | 1993 - 1996 | New York State hospital discharge databases. | Probability of a patient receiving CABG surgery at a lower-mortality hospital. (Cardiac centers in New York were divided into lower-(14) and higher-(17) mortality groups based on volume [weighted average-adjusted mortality rates]). Analysis adjusted for distance to the nearest lower- and higher-mortality centers. | Compared with private FFS, patients with private managed care and Medicare managed care were less likely to receive CABG at a lower-mortality hospital. Patients in TM used lower-mortality hospitals—more similar to private FFS patients. | This study focuses on a single state known for its strong regulatory climate. Only a small number of hospitals were proximate to many patients. |

| Table 6 *(continued)*. Summary of Studies Comparing Appropriateness and Outcomes of Medicare Hospitalizations | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **c. Studies of Readmission Rates** | | | | | | |
| Friedman et al. 2012 | TM and MA beneficiaries discharged from hospitals in 5 states: Arizona, California, Florida, Massachusetts, and Tennessee. Analysis limited to beneficiaries in core-based statistical areas (CBSA). | 2006 | HCUP files for 5 states. | Rate of first readmission (excluding pregnancy and trauma) within 30 days for patients discharged alive from the hospital in MA or TM sectors. Analysis adjusts for type of initial admission (medical diagnosis, minor diagnostic or therapeutic, or major procedure), severity of illness, and number of chronic conditions. | While unadjusted MA readmissions were lower than TM, TM readmission rates were lower after risk adjustment and control for selection into MA plans. | Based on only five states, this study used probit analysis and instrumental variables to control for endogeneity of choice of plan.<br><br>This study differs from many other readmission studies in that it focuses on initial readmission for the population vs. cumulative burden of subsequent readmissions, which may have different causal patterns. It also includes adjustment for risk and selection. |
| Lemieux et al. 2012 | Medicare beneficiaries hospitalized in 2006-2008 included in the MedAssurant MORE registry (MA) or 5% Medicare claims file (TM); core analysis includes only those ages 65+. | 2006 - 2008 | MedAssurant proprietary MORE Registry (MA) and 5% Medicare claims and administrative files (TM). Complementary analysis for 2007 from 5 state discharge abstracts (California, Nevada, Washington, Texas, and North Carolina). | Unadjusted all-cause rate of readmission (excluding rehabilitation readmissions) by patients in TM and MA. Sensitivity test involves adjustment for risk of readmission by diagnosis code. Alternative methods (Jencks, Anderson) used to calculate readmission rates. | 2006-2008 comparisons of MA and TM readmissions in quarter for index admission in prior 3 quarters for those 65+ was 18.4% in TM vs. 14.4% in MA. Pattern of results does not differ greatly when the Jencks method is used. Using a DRG-based risk-adjustment reduces readmissions but does not completely erase the differential. Similar results apply from analysis of 5 state hospital discharge systems. | The MORE registry may not be representative of MA generally. The authors indicate it is based on individuals in 11 de-identified health plans, including one quarter of MA enrollees in 2008. The distribution of registry data also differs from TM, with more ages 80+ enrollees and under-65 disabled beneficiaries. Geographic distribution also varies and these differences, along with differences in patient risk and selection, were not adjusted for in the analysis. Includes all readmissions (including multiple readmissions for the same patient). The research was supported by AHIP, the industry trade association, in which the lead author is based. |
| Smith et al. 2005 | Medicare beneficiaries ages 65+ discharged for acute ischemic stroke in a large managed care organization (HMO) or TM. | 1998 - 2000 | HMO data from a company with 11 Medicare + Choice plans, largely in the eastern U.S.; Medicare TM claims data for beneficiaries in the same counties. | Time in days from index hospital admission to death or re-hospitalization (excluding rehabilitation hospitalizations). Prior-year utilization (hospital and physician) used to adjust for 30 comorbid conditions. Cox regression methods used to assess hazard ratios for readmission or death. | 30-day readmission rates were higher for HMO than TM, though no difference in mortality. More rigorous adjustment for HMO membership showed increased mortality rates in HMO at 30 days, though no differences later. No differences in warfarin use (from outpatient claims) in HMOs or TM. Reasons for readmissions differed between sectors. | This analysis includes diagnostic criteria and controls for baseline health status, though not necessarily controls for other factors that could affect readmission rates differentially by sector.<br><br>Authors suggest that differences in patterns of post-acute care and TM reimbursement changes could influence results. |

**SOURCE**: Authors' analysis based on review of published papers.

The findings showed no difference between Medicare Advantage and traditional Medicare on potentially avoidable hospitalizations; however, the analysis was mainly descriptive and did not include controls for patient selection or risk. Anderson's study (2009), funded by America's Community Health Plans, an industry association for nonprofit health plans, is not well documented and its methods appear to include no adjustments aside from selecting traditional Medicare data for beneficiaries in the same counties as the Medicare Advantage plans. The HMO comparison in the Anderson study was limited to a subset of HMOs known for their more integrated health care systems, and found that such systems have considerably lower rates of hospitalizations for potential avoidable admissions.

The other four studies span a small number of states and are older but included more statistical controls. Nicholas's (2013) study linked discharge data to Medicare enrollment files in four states to estimate rates of potentially avoidable hospitalizations. Over the period studied (1999-2005), Medicare enrollees in health plans largely were in HMOs. After adjusting for differences in selection, the study found that ambulatory care sensitive admission rates were lower in Medicare Advantage plans than in traditional Medicare. It further found that the reductions were driven primarily by admissions where inexpensive, short term intervention and routine provision of maintenance medications can reduce risk of hospitalization. The conclusions noted that this is a positive sign that the difference could reflect care management in HMOs, which would make the findings more robust. Using 2004 data from four states, Basu (2012) compared potentially avoidable hospital admissions to "marker" admission rates (that is, admissions for conditions expected to be less discretionary) in Medicare Advantage (largely HMOs) in three states, finding that HMOs performed better than traditional Medicare in all three states and across four racial groups. The difference was particularly strong in the two states with the most mature managed care markets. An earlier study by Basu and Mobley (2007, using 2001 data), covering four states, also showed lower rates of preventable hospital admissions in three of the four states and an indication that effects were particularly strong in the two states with the most mature managed care. The final study (Zeng et al. 2006) is older and included only one state (California), and its findings are consistent with the others.

Though these stronger studies are not necessarily as current and nationally-representative as they might ideally be, they collectively point to lower rates of potentially avoidable hospitalizations in HMOs compared to traditional Medicare, at least in states with mature HMO markets.

**Quality of Admitting Hospital and Specialist Care.** Five studies compared the hospitals or specialists used by hospitalized patients in Medicare Advantage and traditional Medicare. As a whole, the findings of this body of work are inconclusive and four of the five studies are based on findings from single states.

Using HCUP data from 13 states, Friedman and Jiang (2010) compared risk-adjusted mortality rates and patient safety indicators for hospitals used by Medicare Advantage enrollees and traditional Medicare beneficiaries in urban areas with two or more hospitals. Findings were mixed. HMO patients were admitted to hospitals with higher-mortality rates but also to hospitals with lower rates of events threatening patient safety. Researchers also found greater variability across HMOs than in traditional Medicare in the use of high and low mortality hospitals for surgical care. Huesch (2010) found that Florida HMO patients were less likely to see cardiologists with a favorable outcome profile (lower morality profile), though physician characteristics such as specialty, year, and country of training were otherwise similar across settings. Basu and Friedman (2013) found hospitalized elderly Medicare beneficiaries in Florida HMOs in 2002 at higher risk for selected adverse

outcomes associated with iatrogenic pneumothorax, post-operative respiratory failure, and accidental puncture or laceration than hospitalized elderly beneficiaries in traditional Medicare. The final two studies (Luft 2003 and Erickson et al. 2000; see Table 6) each based on a single state in the mid-1990s, had conflicting results.

**Readmission rates.** Four studies (including the previously discussed Anderson 2009 study) focused on hospital readmission rates.

The first two involve work commissioned by industry associations. The methods used in these studies are not fully documented, making it challenging to assess them. With support from America's Health Insurance Plans (AHIP), Lemieux et al. (2012) found lower all-cause rates of readmission in Medicare Advantage compared to traditional Medicare from 2006–2008. Because the data are proprietary (the MORE Registry), it is not clear which plans submitted data and how generalizable the findings are to different types of health plans and markets. While some use is made of the Jencks method to adjust for DRGs and descriptive tables are provided on points of interest, it is unclear if the research controls for differences between Medicare Advantage and traditional Medicare on geographic location, socio-demographic characteristics and health status/risk.[28] Further, data on hospital readmissions do not distinguish between multiple readmissions of the same patient. The second study, Anderson (2009) as previously discussed, was supported by the America's Community Health Plans. Anderson (2009) also looked at hospital readmission rates, finding them to be considerably lower among beneficiaries in ACHP Medicare Advantage plan members than beneficiaries in traditional Medicare. This study also used the Jencks model to determine hospital readmissions within 30 days and hospitalizations and emergency department visits for "ambulatory care-sensitive conditions" (ACSCs), but it is unclear how else the data were adjusted. As noted above, this study included established integrated delivery systems and nonprofit plans whose experience may not necessarily generalize to other types of Medicare Advantage plans.

Friedman et al. (2012) also looked at readmissions, although it included data for only five states, limiting the study's generalizability. Friedman et al. (2012) focused specifically on initial readmissions and found that after controlling for beneficiaries' health status, beneficiaries in traditional Medicare were less likely than beneficiaries in Medicare Advantage to be readmitted to the hospital after discharge; the opposite conclusion was reached prior to controlling for beneficiaries' health status, indicating that studies not controlling for health status could be biased in favor of Medicare Advantage plans. The study by Smith et al. (2005) came to similar conclusions, although the research focused only on patients in a single health plan who had strokes and used older data from 1998-2000. These studies seem to provide weak evidence at best that Medicare Advantage plans have lower rates of potentially avoidable hospital readmissions than does traditional Medicare.

## Other Utilization Metrics (including HEDIS utilization metrics)

Table 7 reviews studies using three other sets of utilization metrics comparing Medicare Advantage to traditional Medicare on end-of-life care, use of selected procedures, and overall utilization of services. As noted previously, these metrics, some included in HEDIS performance reporting, measure Relative Resource Use (RRU), the quality implications of which are hard to determine absent information on appropriateness of care to distinguish overuse from underuse or misuse.

**Service use at end of life.** Many believe that care at the end of life could be better with more focus on the total patient and their preferences, and doing so may result in savings by avoiding costly hospital stays and

other care that offers limited benefits that patients and their families may not want.[29] Medicare pays for hospice benefits the same way in Medicare Advantage and traditional Medicare. Specifically, Medicare Advantage enrollees who use hospice stay enrolled in their plan but Medicare (rather than the plan) pays directly for hospice benefits, as is done for beneficiaries using hospice in traditional Medicare.[30]

Stevenson et al. (2013) examined end-of-life care during the last calendar year of life from 2003–2009, comparing service use for continuously enrolled elderly Medicare beneficiaries in Medicare HMOs versus the traditional Medicare program. Beneficiaries in Medicare HMOs were more likely to use the hospice benefit, although the difference in the use of the hospice benefit between Medicare HMOs and traditional Medicare narrowed between 2003 and 2009. Medicare HMO enrollees in their last year of life also used fewer inpatient and emergency room services, though researchers were limited in their ability to adjust for any differences in the medical conditions of beneficiaries in Medicare HMOs and traditional Medicare or for patient preferences that also could be reflected in choice of health plan or sector. Stevenson et al. (2013) suggest that their findings could mean that Medicare HMOs do a better job of managing end-of-life care. Thus, it is not clear from the research whether differences in end-of-life care reflect the characteristics of beneficiaries drawn to Medicare HMOs (such as those preferring a less intensive style of care), HMO care management practices (more emphasis on shared decision-making and two way communication), or potential incentives on Medicare HMOs because hospice benefits are "carved out," and paid directly by Medicare though the individual remains an HMO member. (HMO payments may encourage hospice use because it could potentially lower the costs incurred by the health plan.) Unfortunately, appropriate norms for end-of-life care are both lacking and controversial and very little information is available about the studied beneficiaries, making it hard to assess how to interpret these findings from a quality perspective.

| Table 7. Summary of Studies Comparing Utilization | | | | | | |
|---|---|---|---|---|---|---|
| Study | Study Population | Data Time Period | Data Source | Metrics and Analysis | Main Findings | Methodological Notes |
| **Studies Examining Service Use at End of Life** | | | | | | |
| MedPAC 2014b | Medicare beneficiaries using hospice benefits in 2012. | 2012 | Medicare denominator file, Medicare beneficiary database, and the 100% hospice claims standard analytic file. | Primary hospice diagnosis, percentage of decedents using hospice, average length of stay in hospice (over lifetime), and percentage discharged live from hospice (first used in 2010, followed to 2012). | HMO enrollees were more likely to use the Medicare hospice benefit than were those in TM. Primary hospice diagnoses were relatively similar, but cancer slightly more likely in HMOs, and dementia and other neurological diagnoses more likely in TM, perhaps explaining why long hospice stays are less likely in HMOs than TM. Rates of live discharges were similar for HMOs and TM. | This study provides the most recent national data on use of the Medicare hospice benefit across HMOs and TM, but its design is descriptive. There are no tests of statistical significance nor adjustment for locale or patient mix (other than the comparison of diagnoses). |
| Stevenson et al. 2013 | Medicare beneficiaries ages 65+ in HMOs or TM continuously enrolled in Medicare Parts A and B in the calendar year of their death. | 2003–2009 | Individual-level HEDIS data on service utilization submitted annually to CMS, Medicare beneficiary summary file on date of death and hospice use, CMS Medicare claims data for a 20% sample of TM beneficiaries. | Hospice utilization and payments.<br><br>Utilization of services in calendar year of death. This includes overall annual rates of use of medical and surgical hospitalizations and days, ambulatory visits, ambulatory surgery procedures, and emergency room visits. HEDIS specifications applied to TM claims data. TM sample excludes long-stay nursing home residents and those with end-stage renal disease. TM sample reweighted to match HMO distribution by age, sex, race, and geography. | HMO enrollees who died were more likely to use the hospice benefit at the end of life, though to a lesser extent in 2009 than 2003.<br><br>Relative to TM, HMO enrollees who died in 2009 used fewer inpatient and emergency room services but had higher rates of surgical admissions and somewhat higher rates of outpatient physician visits. | This is a national study that adjusts for beneficiary location and demographics, but not for health conditions and patient preferences that might jointly influence choice of health plan and end of life care.<br><br>While the researchers suggest that the findings indicate MA plans may do a better job managing care at the end of life, it could not assess the appropriateness of services used at the end of life or control for medical conditions and patient preferences.<br><br>The hospice benefit is carved out of the MA benefit package, with TM responsible for most Medicare costs. This changes HMO financial incentives. |
| **Studies Examining Procedure Use** | | | | | | |
| Matlock et al. 2013 | Medicare beneficiaries ages 65+ in MA and TM across 32 hospital referral regions in 12 states. | 2003–2007 | MA data are from the Virtual Data Warehouse maintained by participants in the Cardiovascular Research Network consortium (CVRN), a 15-member consortium with NIH support. Thirteen of 15 members participated. TM sample is from the Medicare enrollment database and associated inpatient, outpatient, and physician claims. | Rates of coronary angiography, percutaneous coronary intervention (PCI), and coronary artery bypass graft (CABG) surgery.<br><br>HMO/TM comparisons were age, sex, race, and income-adjusted procedure rates. | Rates of angiography and PCI are lower in MA than TM but rates are similar for CABG. The difference in the first two sets of rates is driven by differences in non-urgent vs. urgent care. Rates vary geographically within each sector, though area rates for MA and TM do not necessarily vary consistently. | The health plans participating in this study are older, established HMO plans that generally use integrated networks.<br><br>The fact that the study distinguishes urgent from non-urgent procedures and includes both inpatient and outpatient procedures enhances the ability to use its findings as a metric for quality. However, the study includes only limited adjustments for plan selection though it shows that adjusting MA rates for additional cardiac risk factors did not change the findings. |

| Table 7 *(continued)*. Summary of Studies Comparing Utilization | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **Studies Comparing Overall Utilization Rates** | | | | | | |
| Schneider et al. 2004 | Medicare beneficiaries enrolled in 254 health plans (HMOs), comparing for-profit and nonprofit plans. | 1997 | 1998 HEDIS files submitted by health plans; plan characteristics from InterStudy Competitive Edge 8.2 database. | Rates of 12 common high-cost procedures.<br><br>Comparisons adjusted for socio-demographic mix, other health plan characteristics, and location. | Nonprofit HMOs generally had lower rates of use of high-cost procedures than for profit HMOs that persisted after adjusting for socio-demographic mix and geography. Model type, region, and plan age were confounded with profit status so the key driver of the difference is not clear. | The data from this study are from 1997 and the study does not include controls for health status nor a TM comparison group.. Because the procedures examined include those with both high and low discretion and no assessment of appropriateness for individual patents, it is not clear how to interpret conclusions from the perspective of quality (versus resource use). |
| Landon et al. 2012 | Medicare beneficiaries ages 65+ in TM and HMOs. PPOs, PFFS, cost plans, and plans with less than 500 enrollees were excluded. TM beneficiaries in long-stay nursing home residents and those with end-stage renal disease excluded. | 2003-2009 | Individual-level HEDIS data from CMS for HMOs and 20% sample of Medicare TM beneficiaries, Medicare Beneficiary Summary File. | Includes annual rates of medical and surgical hospitalizations, outpatient visits, ambulatory surgery/procedures, emergency room visits, and use rates for 12 surgical procedures. Comparisons used rates matched for demographics and area, with further adjustment based on CAHPS health status data. | In 2009, beneficiaries in HMOs had fewer emergency room visits, inpatient days, and ambulatory procedures than TM (adjusted for health status) but similar outpatient visit rates. Those in HMOs had lower rates of hip and knee replacements but higher rates of femur reductions, a less discretionary procedure. HMO enrollees also had more coronary artery bypass surgeries than in TM but similar rates of PCTA. Results for plans with experience dating to 2003 compared to newer plans were mixed. In 2007, beneficiaries in older plans had lower rates of CABG and PCI than those in newer plans; however, by 2008, no difference existed. Beneficiaries in older plans had higher rates of knee replacements than newer plans (and both types of plans had lower rates compared to TM), while those in newer plans had higher rates of femur fractures than older ones (and both types of plans had higher rates than TM. | National study that adjusts for geography, demographic characteristics, and health status. As quality measures, these and other findings are limited by the absence of available diagnostic data to adjust more fully for patient mix or appropriateness of care. The findings include only HMOs. |

| Table 7 *(continued)*. Summary of Studies Comparing Utilization | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics and Analysis** | **Main Findings** | **Methodological Notes** |
| **Studies Comparing Overall Utilization Rates *(continued)*** | | | | | | |
| Mello et al. 2002 | Medicare beneficiaries ages 65+ continuously in HMOs and TM in counties with at least one Medicare HMO (ESRD beneficiaries excluded). | 1993–1996 | Medicare Current Beneficiary Survey (1993–95 Cost and Use File and 1996 Access to Care File), linked with county-level data from the Area Resource File, Medicare Market Penetration File, and Medicare Prepaid Health Plans Monthly Report. | Probability of hospitalization, number of inpatient days for those hospitalized, and use of physician services.<br><br>Focus of study was on utilization differences that persist after efforts to control for selection, using simultaneous equation modeling and other techniques. | Both rates of hospitalization and total days for those hospitalized were lower in HMOs than TM after adjusting for selection (total days was significant in one analysis but not another). Those in HMOs were more likely to see a physician at least once compared to TM beneficiaries. | The data are from the mid-1990s. The appropriateness of hospital use also was not directly assessed. |
| Dhanani et al. 2004 | Medicare beneficiaries ages 65+ in Parts A and B in California counties with HMOs, who were in HMOs, TM, or switched to HMOs over the time period. HMOs grouped by group/staff and IPAs. | 1991–1995 | Linked Medicare enrollment data for California beneficiaries with inpatient discharge data for short-stay hospitalizations, from the California Office of Statewide Health Planning and Development (OSHPD). | Total inpatient days per 1,000 person years, with analysis controlled for enrollment history group, health status, sociodemographics, and year. Enrollment history distinguished continually-enrolled HMO patients from two types of switchers (switch and stay, and switch and dis-enroll). | Inpatient rates lower in HMOs. Those switching into HMOs had lower inpatient use after the switch, with group/staff lower than IPAs. Hospital use was lower for continuous enrollees in both HMO types than TM. More than half of the difference was explained by selection, with selection particularly important in IPAs. Reductions in inpatient days were due entirely to reduced length of stay. | The data used by this study is now old (1992–1995). The study focuses on a single state (California, which has a long managed care history and low hospital utilization rates in both sectors). Appropriateness of hospital use also was not directly assessed. |

**SOURCE**: Authors' analysis based on review of published papers.

MedPAC (2014b) also found higher rates of hospice use and shorter hospice stays among Medicare Advantage enrollees than among beneficiaries in traditional Medicare (without controlling for case mix); differences in length of hospice stay, they noted, could be a function of differences in primary diagnoses. MedPAC (2014) expressed concern that that the hospice carve-out may result in more fragmented care because no one entity is responsible for the care of the beneficiary and recommended that hospice become part of the Medicare Advantage benefit package.

**Use of selected procedures.** Matlock et al. (2013) examined rates for three cardiac procedures for Medicare beneficiaries in Medicare Advantage plans participating in the Cardiovascular Research Network (CVRN) consortium (mainly older, established plans that use integrated networks), and compared them with demographically adjusted rates for the same procedures in traditional Medicare over the 2003-2007 period. Though coronary artery bypass graft (CABG) rates were similar in the two sectors, Medicare Advantage enrollees had on average lower rates of angiography and percutaneous coronary interventions (PCI). The differences were driven more by procedures that were non-urgent than urgent, and thus reflect potentially more discretionary care. However, considerable variation existed geographically in each sector, and Medicare Advantage and traditional Medicare rates in the same areas were not necessarily correlated, meaning that the differences probably reflect plan variation, not just area variation in practice patterns. Though the study included both inpatient and outpatient procedures, it did not adjust traditional Medicare data for beneficiary health conditions that could drive both plan choice and procedure use. While the findings suggest that care for some procedures is less intense in older, established HMOs than in traditional Medicare, the study's implications for quality are uncertain in the absence of data on appropriateness of care to determine whether care is better in one sector than another.

Looking at an earlier period (1997 and just at HMOs), Schneider et al. (2004) also found variability in rates of high-cost procedures for HMOs of different types (adjusted for location and demographics), with nonprofit plans generally having lower rates of procedure use than for-profit HMOs. However, tax status was confounded with differences in plan age and model type. The study included both high- and low-discretion procedures and the appropriateness of procedure use could not be assessed.

**Overall Utilization of Services.** Three studies examined overall utilization of health services. Using data from 2003-2009 and controlling for self-reported health status, location and socio-demographics, Landon et al. (2012) found that elderly Medicare beneficiaries in HMOs had fewer emergency room visits and inpatient days in a hospital. Medicare Advantage enrollees initially also made fewer ambulatory visits and had fewer surgical days than those in traditional Medicare but these rates converged by the end of the period. HMO enrollees also had lower rates for certain ambulatory procedures (such as hip and knee replacements) but not others (such as CABG surgery and femur fractures). While the authors conclude that patterns of use show less use of discretionary care in Medicare Advantage, suggesting more appropriate care patterns, the findings seem to provide stronger evidence for a difference in resource use than quality of care across the two sectors and could also reflect uncontrolled differences in patient mix. Two other, older studies also showed lower use of inpatient services (Mello et al. 2002; Dhanani et al. 2005) after adjustments for differences in health status.

While these studies speak to differences in use of services in HMOs compared to traditional Medicare, their ability to speak to differences in quality is limited by the lack of information with which to judge appropriateness of care; in other words, it is not clear if use of fewer services is a positive or negative outcome.

Because utilization data are available differently in Medicare HMOs (HEDIS use reports) and traditional Medicare (claims), reporting completeness and coding of service use also may differ.

## Health Care Outcomes and Mortality

Seven studies examined the relationship between enrollment in Medicare HMOs or traditional Medicare and patient outcomes of three types: mortality rates, stage of cancer diagnosis and outcomes, and functional status (Table 8).

**Mortality.** Using data from the late 1990s, Dowd et al. (2011) compared two-year mortality rates between Medicare HMOs and those in traditional Medicare between 1996–2000. While earlier studies seemed to show lower mortality rates in HMOs, Dowd's analysis found no such effect after using econometric controls to predict and compare HMO and traditional Medicare mortality rates, adjusting for socio-demographics, health and functional status, smoking, and 19 self-reported conditions. This study's findings lend support for the need to adjust for selection in assessing effects on health outcomes.

**Stage of cancer diagnosis and outcomes.** Five studies used public or private cancer registry data to assess how enrollment in Medicare health plans affects stage of diagnosis, treatment, and outcomes for various types of cancer. While one of these studies covers the 2005–2007 period, the others tend to be older or straddle a longer time frame. While the studies were not focused solely on Medicare, they included estimates for Medicare beneficiaries in Medicare Advantage and traditional Medicare and deal with important outcome variables and so were included in this review. The insurance variables used in these studies differ from some other studies (for example, some separate out traditional Medicare only and traditional Medicare with supplemental coverage) and the definitions of some metrics are not entirely clear (e.g., how employment based retiree coverage factors into the definitions).

| Table 8. Summary of Studies Comparing Health Care Outcomes and Mortality | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics** | **Main Findings** | **Methodological Notes** |
| **Studies Examining Effects on Overall Mortality** | | | | | | |
| Dowd et al. 2011 | Medicare beneficiaries ages 65+ eligible for Parts A and B, not institutionalized, not dually eligible for Medicare/Medicaid coverage, and who were in Medicare HMOs or TM. | 1996–2000 | 1996 and (unduplicated) 1998 Medicare Current Beneficiary Survey, linked to Medicare enrollment and benefits data. | Two-year mortality rates. Analysis used advanced econometric techniques to control for selection into health plans (socio-demographics, health and functional status, smoking history, and 19 self-reported conditions). Health plan choice and mortality are estimated simultaneously to predict TM and HMO mortality for each beneficiary, which was used to calculate a mean mortality differential. | Average predicted mortality does not differ statistically between sectors. Results are somewhat sensitive to geographical specifications used as a partial control for geographical differences in enrollment. | The data used in this study are from 1996–2000 but its focus is methodological, with an assessment of methods used in earlier studies showing favorable mortality in Medicare HMOs. Authors conclude that their findings indicate that adjustments for unobserved confounding are critical to comparing outcomes between HMOs and TM. |
| **Studies Examining Stage of Cancer Diagnosis and Outcomes** | | | | | | |
| Ward et al. 2010 | Patients ages 55–74, newly diagnosed with 8 common types of cancer. The main comparison is between those 55–64 and 65–74 by insurance status. | 2005–2007 | National Cancer Database, a hospital-based registry that includes about 70% of all malignant cancer patients in the U.S. who are treated at 1,400 U.S. facilities. | Likelihood of late stage diagnosis (III) for each cancer for Medicaid, privately-insured, and several options of Medicare coverage (alone, with Medicaid, Medicare Managed Care, and Medicare with supplement). | There was wide divergence in stage of diagnosis for all cancers by insurance type. Relative risks of late-stage cancer generally were higher for the uninsured and Medicaid than for any type of Medicare coverage. Late-stage diagnoses generally were lowest for Medicare+supplement and private insurance, however. Among Medicare beneficiaries, late-stage diagnoses for some cancers were more likely for those with Medicare alone or Medicare/Medicaid than for Medicare managed care or Medicare with a supplement. For most cancers, late diagnosis adversely affects survival rate. | Study was more focused on gaps in coverage (especially before age 65) than on differences within Medicare. Only about 5% of those 65+ had Medicare managed care and these may vary geographically.<br><br>Insurance type may not be that well measured. Authors note that Medicaid patients may have been uninsured for part of the year. |

| Table 8 *(continued)*. Summary of Studies Comparing Health Care Outcomes and Mortality | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics** | **Main Findings** | **Methodological Notes** |
| **Studies Examining Stage of Cancer Diagnosis and Outcomes *(continued)*** | | | | | | |
| Sadetsky et al. 2008 | Men ages 65+ having newly diagnosed prostate cancer with localized disease, divided into 8 insurance categories: HMO, PPO, VA, Medicare alone, Medicare+supplement, Medicare+FFS, Medicare+HMO, Medicare+PPO. | 1995–2005 | The CaPSURE database, a longitudinal database of 13,124 men with prostate cancer. Authors say the sample represents a broad geographic, practice, and insurance status spectrum. | Risk stage at diagnosis, type of treatment, and survival. Treatments include radical prostatectomy (RP), external beam radiation (EBRT), brachytherapy (BT), hormonal therapy, or expectant management (EM). | No effects of insurance type on survival and clinical risk at diagnosis after statistical controls. After adjusting for clinical risk status, socio-demographics, comorbidities, and year of diagnosis, insurance type remained statistically significantly associated with treatment type. Patients in HMOs, PPOs, and VA were more likely to receive brachytherapy and hormonal treatment than radical prostatectomy compared to those on Medicare alone. Patients in Medicare with supplements and Medicare PPOs were less likely to receive those treatments. | Insurance subgroups are self-reported, and may include spousal coverage. Primary insurance is not entirely clear.<br><br>Norms for assessing appropriate treatment in this area also are not clear and have been evolving over time. |
| Riley et al. 2008 | Medicare beneficiaries diagnosed with prostate (males), breast (female), and colorectal (all) cancer at ages 65–79 in Medicare Managed Care (mainly HMOs at this time), and TM beneficiaries eligible for Parts A and B in counties with at least 3 Medicare managed care cancer | 1998–2002 | The National Cancer Institute's Surveillance, Epidemiology and End-Results (SEER) registries, covering about 20% of the U.S. population, linked to Medicare enrollment and claims files. | SEER-coded metrics on stage of diagnosis (generally late vs. early) and use of selected treatments. | For prostate and colorectal cancers, there is no difference in stage of diagnosis, but HMOs used less intense treatment (less radical prostatectomy, fewer nodes resected for colon cancer). Breast cancer was diagnosed earlier in Medicare HMOs but not treated any differently across the two settings. Managed care plans were heterogeneous in treatment patterns, however. | The study focuses specifically on Medicare experience. Researchers did not have data on comorbidity to adjust for patient mix or (for TM) supplemental coverage. They also note that the completeness of reporting could differ between managed care and TM sectors. |
| Kirsner et al. 2005 | Medicare beneficiaries ages 65+ with Parts A and B in HMOs and TM who were diagnosed with primary melanoma. | 1985–1994 | Medicare enrollment files and NCI's SEER program database; covers about 14% of the U.S. population. | Stage of diagnosis and SEER mortality rate data.<br>Each HMO patient was matched with two TM patients by age, sex, year of diagnosis, stage at diagnosis, and geographical area of residence. | HMO patients were diagnosed at an earlier stage compared with matched TM patients. They also had improved survival rates; analysis indicates this appears to be due to earlier diagnosis. Outcomes were the same across systems for those with a cancer history before melanoma diagnosis. | Data are now old (1985–1994); authors note that participants in SEER generally are urban and concentrated in the western U.S., where several large established HMOs operate, thus potentially limiting generalizability. |

| Table 8 *(continued)*. Summary of Studies Comparing Health Care Outcomes and Mortality | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics** | **Main Findings** | **Methodological Notes** |
| **Studies Examining Stage of Cancer Diagnosis and Outcomes *(continued)*** | | | | | | |
| Lee-Feldstein et al. 2002 | Medicare patients 65+ in northern California diagnosed with colorectal cancer and included in a cancer registry. Comparison between group and non-group Medicare HMOs and three TM categories: with supplement, dual eligible, and Medicare alone. | 1987-1993 | The Cancer Surveillance Program Region 3 (Sacramento), one of 10 population-based cancer registries. It identifies 1,329 patients in 13 counties. | Two main outcomes: (1) stage of cancer diagnosis, holding constant age, ethnicity, tumor location, and education, with late stage defined as stages III and IV vs. I and II; and (2) survival (all-cause mortality and colorectal cancer mortality) as a function of insurance type, hospital type, and stage of diagnosis, as well as previous controls. | Likelihood of early stage colorectal cancer diagnoses was greater for Medicare patients in non-group model HMOs or TM having private supplements than for those in group model HMOs, Medicare/Medicaid, or traditional Medicare alone. Survival rates generally did not differ significantly across groups, though Medicare/Medicaid patients had significantly greater all-cause mortality than TM patients with a supplement. | Data are now old (1987-1993) and the study included only a single geographical area. There was only one group HMO, though nine non-group plans.<br><br>Researchers had no direct measure of socioeconomic status or comorbidity available as a control. Insurance data reflect point of hospitalization, not necessarily initial diagnosis. |
| **Effects on Functional Status** | | | | | | |
| Porell and Miltiades 2001 | Noninstitutional Medicare patients ages 65+ who are continuously eligible for Parts A and B Medicare during two successive years over the time frame. Compares Medicare HMO enrollees (enrolled 10+ months at baseline) and TM beneficiaries with and without a Medicare supplement. | 1991-1996 | Access to Care supplements to the Medicare Current Beneficiary Survey | Self-reported functional status changes in successive years. Five hierarchical categories: independent, functional limitations, IADL disability, moderate ADL disability, and severe ADL disability, with the last two categories combined. Analysis controls for socio-demographic characteristics, health behaviors, health status, and chronic disease. | Both independent Medicare HMO enrollees and TM beneficiaries with private supplemental insurance are less likely to become disabled than TM beneficiaries with no supplemental coverage. Among those with a disability, HMO enrollment had no effect on increased survival, but having Medicare+supplement did. | This study uses data that are now old (1991-1996) and has a small HMO sample. HMO members also were not matched geographically to others and the survival analyses included a limited number of people.<br><br>Data on health and functional status are self-reported. Statistics are not adjusted for the MCBS's complex sample design. |

**SOURCE**: Authors' analysis based on review of published papers.

The study by Ward et al. (2010) was the broadest (registry data for malignant cancer in 14,000 U.S. facilities) as well as the most recent (2005 – 2007). It focused on the probability of late-stage cancer diagnosis based on insurance plan type for those 55 – 74 years of age. Its main finding was that insurance matters, with the uninsured and those on Medicaid (some of whom, researchers note, probably were uninsured for part of the year) more likely to be diagnosed late, and late diagnosis was correlated with survival. Within the Medicare population, researchers found little if any difference between beneficiaries in Medicare HMOs and those in traditional Medicare with supplemental coverage (though only about 5 percent of those 65 and older were in Medicare managed care). Beneficiaries with both Medicare and Medicaid and those with traditional Medicare alone were more likely to be diagnosed late. However the study did not adjust for health status.

The other studies had mixed results. Looking at elderly men diagnosed with localized prostate cancer, Sadetsky et al. (2008) found differences in treatment style but not on survival and clinical risk at diagnosis after applying statistical controls. Looking at Medicare beneficiaries diagnosed at ages 65 – 79 with prostate, female breast, or colorectal cancer in counties with Medicare managed care, Riley et al. (2008) found breast cancer diagnosed earlier in Medicare HMOs but no difference in stage of diagnosis for the other two cancers. However, treatment patterns for two of the three cancers differed between Medicare HMOs and traditional Medicare, with beneficiaries in HMOs on average using a less resource intense style, but considerable diversity in services use across HMOs. Adjustments for patient mix were limited, however. Looking at elderly Medicare beneficiaries diagnosed with melanoma, Kirsner et al. (2005) found that those in Medicare HMOs were diagnosed earlier, leading to improved survival rates. However the data were from 1985-1994 and were highly concentrated in the West Coast, where several large HMOs operate. It is unclear whether the findings apply to current conditions or to locales where managed care is less mature. Looking at colorectal cancer in northern California, Lee-Feldstein et al. (2002) used data from 1987 to 1993 and found earlier diagnosis among beneficiaries in non-group (i.e., IPA) HMOs and traditional Medicare beneficiaries with supplemental coverage than for those with other coverage (single-group HMO, dual eligible, or Medicare with no supplement). Survival rates were similar across groups, however, meaning in this context that earlier diagnosis did not affect survival.

Taken as a whole, these studies suggest that more comprehensive insurance probably increases the chances of early cancer diagnosis, and that health plan type may influence treatment but not necessarily outcomes. However, the age of the studies, the gaps in controls for selection, and the evolving nature of guidelines for appropriate care limit the conclusions that can be drawn.

**Functional status.** Only one study looked at differences between Medicare Advantage plans and traditional Medicare using functional status as an outcome. Porell and Miltiades (2001), using data from 1991-1996, found that Medicare beneficiaries without a functional impairment who were in HMOs had the same probability of becoming disabled as beneficiaries in traditional Medicare; traditional Medicare beneficiaries with private supplemental insurance had a lower probability of becoming functionally impaired than those in traditional Medicare with no supplemental coverage. Once impaired, Medicare HMO enrollment status had no effect on beneficiaries' functional status. However, the HMO sample was relatively small, and the study did not adjust for geographic locale.

# SUMMARY OF FINDINGS AND CONCLUSIONS

This literature review included 45 studies published between 2001 and 2014 that examined how Medicare Advantage might affect health care quality and access to care, including 40 studies that made direct comparisons between Medicare health plans and traditional Medicare. As a body of work, these studies offer some insights, although the work is limited by shortfalls in the timeliness of data, the range of health plans studied and the comprehensiveness of the metrics available, particularly on a national basis. Recent studies still mainly capture the Medicare HMO experience rather than experience across the diversity of health plans now participating in Medicare Advantage, and none of them are current enough to provide insight on how Medicare Advantage compares to traditional Medicare after 2010. While many of the reviewed studies adjust for differences in location, patient mix, and health status between Medicare Advantage and traditional Medicare in some fashion, some studies do this better than others, and many studies are constrained by limitations in the available data. In addition, few studies (only four) examine in depth the particular experience of those who are less healthy, functionally impaired, or have other characteristics that make them relatively high users of medical care and potentially disproportionately vulnerable to poorer quality of care or access problems.

The review of the literature, 45 studies published between 2000 and 2014, comparing quality of care and access provided under traditional Medicare and Medicare Advantage plans, suggests the following:

- **HEDIS Effectiveness Metrics on Preventive Care.** Medicare Advantage, on average, scores more highly than traditional Medicare on subsets of Medicare HEDIS indicators – primarily those pertaining to use of preventive care services. Two studies found Medicare preferred provider organizations (PPOs) outperformed traditional Medicare on some metrics (particularly mammography rates), though HMOs nevertheless performed better than PPOs. All of these studies were conducted prior to changes made by the ACA to improve coverage of preventive services under traditional Medicare.
- **Beneficiary Reports on Quality and Access (CAHPS).** Medicare beneficiaries generally rated Medicare Advantage lower than traditional Medicare on questions about health care access and quality, especially if beneficiaries had a chronic illness or were sick; however, the difference in ratings between traditional Medicare and Medicare Advantage narrowed on some metrics by 2009 (e.g., overall care ratings). Keenan et al. 2009 found that sick beneficiaries in Medicare Advantage rated their plans substantially lower than beneficiaries of similar health status in traditional Medicare, and Elliott et al. 2011 found significantly lower CAHPS ratings (and greater disparities between Medicare Advantage and traditional Medicare) among vulnerable subgroups of beneficiaries in Medicare Advantage. Little is known about how CAHPS scores vary by type of Medicare Advantage plan since most studies are based on HMOs or periods in which HMOs were the main plan type.
- **Potentially Avoidable Hospital Admissions.** Based on six studies involving beneficiaries in a limited number of states and/or plans represented by the Alliance of Community Health Plans (ACHP), Medicare beneficiaries in HMOs are less likely to be hospitalized for a potentially avoidable admission than beneficiaries in traditional Medicare. Four of these studies rely on data prior to 2006, and reflect HMO experiences in mature markets.
- **Readmission Rates.** While a number of studies examine whether readmission rates differ among beneficiaries in Medicare Advantage and traditional Medicare, the evidence from these studies is

inconclusive because findings differ across the studies and many studies lack adjustments for important potentially confounding factors.

- **Health Outcomes.** There is some evidence that good coverage, as defined by relatively low cost-sharing (whether through Medicare HMOs or through Medicare with supplemental coverage), may result in earlier diagnoses of some cancers compared to traditional Medicare alone. Treatment patterns for some cancers also may differ between Medicare HMOs and traditional Medicare, but studies do not show that this affects patient outcomes. However, the age of the studies, the gaps in controls for selection, and the evolving nature of guidelines for appropriate care limit the conclusions that can be drawn.
- **Resource Utilization.** Medicare HMOs appear to provide a less resource-intensive style of practice than traditional Medicare, as measured in studies examining end-of-life care, use of certain procedures, and overall utilization rate in HMOs, especially for hospital services. However, most of these studies provide little direct evidence of whether less intensive care is better or worse or how the appropriateness of care differs between Medicare Advantage and traditional Medicare.
- **Variation by Geography, by Plan Type, and by Plan Experience.** On a variety of metrics, performance among Medicare Advantage plans varies substantially across plans, even among plans of the same plan type. The variations by market in more established HMOs with integrated delivery systems tend to be more represented in existing research, and to perform better. Performance on quality and access metrics varies across geographic areas, and the variations in Medicare Advantage and traditional Medicare ratings are not necessarily the same.

In summary, despite great interest in comparisons between traditional Medicare and Medicare Advantage, studies comparing overall quality and access to care between Medicare Advantage plans and traditional Medicare tend to be limited.

On the one hand, the evidence indicates that Medicare HMOs tend to perform better than traditional Medicare in providing preventive services and using resources more conservatively, at least through 2009. These are metrics where HMOs have historically been strong. On the other hand, beneficiaries continue to rate traditional Medicare more favorably than Medicare Advantage plans in terms of quality and access, such as overall care and plan rating, though one study suggests that the difference may be narrowing between traditional Medicare and Medicare Advantage for the average beneficiary. Among beneficiaries who are sick, the differential between traditional Medicare and Medicare Advantage is particularly large (relative to those who are healthy). Very few studies include evidence based on all types of Medicare Advantage plans, including analysis of performance for newer models, such as local and regional PPOs whose enrollment is growing.

As the beneficiary population ages, better evidence is needed on how Medicare Advantage plans perform relative to traditional Medicare for patients with significant medical needs that make them particularly vulnerable to poorer outcomes. The ability to assess quality and access for such subgroups is limited because many data sources do not allow subgroups to be identified or have too small a sample size to support estimates. Also, in many cases, metrics employed may not be specific to the particular needs or the way a patient's overall health and functional status or other comorbid conditions influence the care they receive for particular services.

At a time when enrollment in Medicare Advantage is growing, it is disappointing that better information is not available to support policymaking on this program. Our findings highlight the gaps in available evidence and reinforce the potential value of strengthening available data and other support for tracking and monitoring performance across Medicare Advantage plans and traditional Medicare as each sector evolves.

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[1] This is a working paper whose findings are summarized later in a peer-reviewed publication which we use as the basis for our review (Lemieux et al. 2012).

[2] This is a working paper whose findings are summarized later in a peer-reviewed publication which we use as the basis for our review (Lemieux et al. 2012).

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# Appendix. Care for Seniors in Medicare Advantage Versus the Veterans Health Administration

This set of studies differs less on their outcome measures than on their comparison groups. Six studies focus specifically on care in Medicare health plans versus the VHA system, an organized delivery system that in the 1990s – 2000s put special emphasis on measuring and improving quality of care (Appendix Table A.1).[1] Of the six, two studies focus on HEDIS-type quality indicators, two studies focus on functional status, one study focused on mortality, and one study focused on the use of potentially appropriate drugs. Over the time period studied, almost all Medicare Advantage plans were HMOs. In all of the studies, the VHA system scored better after adjustments for health status. Though the studies as a whole are reasonably strong methodologically, they were limited by inconsistencies in the data available across the VHA and Medicare programs. Veterans also are a unique and diverse population and it is not clear how those veterans drawn to the VHA might differ from seniors served in Medicare Advantage. Because selection is always an issue in these studies, the studies could understate the VHA's relative performance if Medicare covered veterans drawn to the VHA are sicker than those in Medicare Advantage. However, studies focused on the VHA, like those looking more generally at Medicare Advantage, lend support to the view that mature, organized health systems perform better on HEDIS-type measures, and the importance of recognizing variation in performance across the managed care sector.

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| Appendix Table A.1. Summary of Studies Comparing Quality of Care for Seniors in Medicare Advantage versus the Veterans Health Administration | | | | | | |
|---|---|---|---|---|---|---|
| Study | Study Population | Data Time Period | Data Source | Metrics | Main Findings | Methodological Notes |
| Trivedi et al. 2011 | MA beneficiaries (largely HMOs) ages 65+ included in HEDIS measures for plans with 3+ years of participation, and VA enrollees included in External Peer Review Program (EPRP) metrics. | 2000-2007 | Medicare HEDIS data for 5.8 million enrollees in 305 MA plans, and VA EPRP metrics for 0.3 million in 142 VAMCs. | Adherence to quality metrics for diabetes (6 metrics), coronary artery disease (4 metrics), and cancer screening (breast, colon cancer).<br><br>2006 and 2007 data, adjusted for age, sex, year, geographic region, and zip code-level income and education. | VA scored more highly than MA on 10 of 11 metrics in year 1 and all 12 measures in the final year. VA had more limited socioeconomic disparities on 9 of 12 measures. VA care was less variable by site, region, and socioeconomic status (as assessed from inter-quartile range calculations). | This study controls for location and demographic variables, though not health status. If one assumes the VA has adverse selection, this would increase the strength of the findings. Eligibility characteristics and documentation differ across the two systems. |
| Selim et al. 2010 | Men ages 65+ in MA plan (mainly HMOs) surveyed in one of three cohorts of the Medicare Health Outcomes Survey (HOS) or treated in the VA and included in VA surveys. | 1999-2003 (follow-up design) | Medicare HOS Survey 2-4 (1999-2001, 2000-2002, and 2001-2003)<br>VA large health survey of veteran enrollees (1999) and follow-up ambulatory survey of health care experiences of patients. | Medicare metrics were based on the SF-36. VA metrics used the RAND 36-item Health Survey (VR-36) (for baseline) and the 12-item health survey (VR-12). Two summary scores were created: a physical (PCS) and a mental (MCS) component.<br><br>Three outcome metrics: (1) the probability of being alive with the same or better PCS at 2 years; (2) the probability of being alive with the same or better MCS at 2 years; and (3) 2-year mortality. Outcomes factor in socio-demographics, comorbid conditions, and PCS and MCS baseline scores. | After adjusting for higher prevalence of chronic disease and worse self-reported baseline status, VHA patients scored better than MA on outcome metrics overall. Similar differences existed for vulnerable subgroups. | This study is one of the few longitudinal designs studied, though it had some data limitations. The surveys were not identical, and there were differences in the sampling strategies and time frames.<br><br>Because MA scores were higher at baseline, there could be regression to the mean. However, authors say results are maintained with adjustments. |
| Selim et al. 2007 | Men ages 65+ (1) who completed a Health of Seniors survey in June/July 1998 and whose MA plan (mainly HMOs) remained in the program through 2000; or (2) were surveyed from Veteran Administration's integrated service networks and had one outpatient visit in 1997. | Two-year period, beginning 1998 | Medicare Health of Seniors Survey (1998), VA National Survey of Ambulatory Patients (1998), and<br>Death Master File. | Medical Outcomes Study SF-36 (Medicare) and Veterans Rand 36 item VR-36. Two summary scores were created: a PCS and an MCS component.<br><br>Three outcome metrics: (1) the probability of being alive with the same or better PCS at 2 years; (2) the probability of being alive with the same or better MCS at 2 years; and (3) 2-year mortality. Outcomes factor in socio-demographics, comorbid conditions, and PCS and MCS baseline scores. | After adjusting for higher prevalence of chronic disease and worse self-reported health in the VHA, VA had somewhat better 2-year health outcomes. | This study, like the previous one, has some challenges related to differences in data available from the VA and MA. |

| Appendix Table A.1 *(continued)*. Summary of Studies Comparing Quality of Care for Seniors in Medicare Advantage versus the Veterans Health Administration | | | | | | |
|---|---|---|---|---|---|---|
| **Study** | **Study Population** | **Data Time Period** | **Data Source** | **Metrics** | **Main Findings** | **Methodological Notes** |
| Selim et al. 2007 | Men and women ages 65+ sampled in the Medicare Health of Seniors Survey of health plan enrollees or the 1999 Large Health Survey of Veteran Enrollees (LHSVE) (with 1+ visits). | 1998-2000 | Medicare Health of Seniors Surveys from 1998, 1999, and 2000; the 1999 LHSVE; and the Death Master File. | Mortality rates from surveys through January 2004 with risk adjustment based on socio-demographics, comorbid conditions, and baseline health status using PCS and MCS scores. Cox proportional hazards regression model used. | While the VA mortality rate for males was higher after adjusting for socio-demographics only, MA mortality was higher after adjusting for comorbid conditions, and more so after adjusting for baseline health status. Among males, vulnerable subgroups also did better in the VA system (too few females participated for analysis on this dimension). | This study, like the previous one, has some challenges related to differences in data available from the VA and MA. The surveys were not identical, and there were differences in the sampling strategies and time frames.<br><br>Design used intention to treat, with no information on where care was received later. |
| Barnett et al. 2006 | Medicare HMO patients ages 65 and older in 10 HMOs in diverse regions, matched to VA patients continuously enrolled in the same locations. | 2000-2001 (Medicare HMO) and 2002-2003 (VA) | Claims data from administrative databases of HMOs and the VA's Decision Support System Outpatient Pharmacy Database. | Zahn criteria, with 33 potentially inappropriate drugs in three categories: always avoid, rarely appropriate, and some indications. | VA patients were less likely to receive any inappropriate medication overall, in each of the three classes. Rates were lower in the VA for males and for females, and consistent when stratified by age. | This study had some methodological limitations. The time frames for the cross-sectional analysis are not identical because VA data were not available for the earlier period.<br><br>VA data include only drugs dispensed by the VA and not other providers. Statistical analysis also was limited by the form in which HMO data were available. |
| Keyhani et al. 2007 | Community-dwelling Medicare male beneficiaries who are veterans ages 65+ surveyed in the Medicare Current Beneficiary Survey and who received care through the VHA, traditional Medicare (TM), or Medicare HMOs. | 2000-2003 | Cost and Use and Access to Care files from the MCBS (2000-2003) | Self-reported use of influenza vaccine, pneumococcal vaccine, serum cholesterol screening, and serum prostate specific antigen measurement.<br><br>Veterans' status was self- reported and the preventive care covered the last surveyed year, so each was represented once in the survey. Sources of care categories were: (1) VHA only, (2) VHA and Traditional Medicare, (3) VHA and Medicare HMO, (4) Traditional Medicare only, and (5) Medicare HMO only. Multivariate analysis used to adjust for socio-demographics, comorbidities (Charlson Index), and other variables. | While preventive care use was high across all sources of care, those with any exposure to VHA care scored higher on preventive care measures. Dual users of the VHA and Medicare HMOs had higher use of preventive care than did Medicare HMO plans on only 3 of the 5 measures. Medicare TM users scored lower on 4 of the 5 preventive care metrics. | MA plans may be more internally diverse than the VHA.<br><br>Over this period of time, the VHA instituted a comprehensive medical record system, including reminders that emphasized preventive care. |

**SOURCE**: Authors' analysis based on review of published papers.

# ENDNOTES

[1] Henry J. Kaiser Family Foundation. "Medicare at a Glance." September 2014.

[2] Gold M, Jacobson G, Damico A, Neuman T. Medicare Advantage enrollment spotlight: 2014 enrollment update. Washington, DC: Kaiser Family Foundation, May 2014.

[3] Miller RS, Luft HS. HMO plan performance update: an analysis of the literature, 1997-2001. Health Aff. 2002;21(4):63-86. Earlier reviews in this series came to similar conclusions, though authors note that studies specific to quality were even more limited then. (See Miller RH, Luft HS. Does managed care lead to better or worse quality? Health Aff. 1997;16(5):7-25; and Miller RH, Luft HS. Managed care plan performance since 1980: a literature analysis. JAMA. 1997;2271(19): 1512-29.)

[4] Miller RH, Luft HS. Does managed care lead to better or worse quality? Health Aff. 1997;16(5):7-25.

[5] Gold, M. "The Changing U.S. Health Care System: Challenges for Responsible Public Policy." *Milbank Quarterly,* vol. 77, no. 1, 1999, pp. 3-37.

[6] Medicare Payment Advisory Commission. Report to Congress: Medicare Payment policy. March 2014a; Chapter 13, The Medicare Advantage Program: a status report.

[7] Jacobson G, Neuman T, Damico A, Huang J. "Medicare Advantage Plan Star Ratings and Bonus Payments in 2012" Washington DC: Kaiser Family Foundation, November 2011.

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[9] Newhouse JP, McGuire TB. Review article: how successful is Medicare Advantage? Milbank Q. 2014;92(2):351-394. The three studies cited (Ayanian et al. 2013a, Ayanian et al. 2013b, and Landon et al. 2012) are included in the review in this paper. Citations are in the reference list.

[10] Frakt A. "The UpShot: Medicare Advantage is More Expensive but It May Be Worth It" New York Times, August 18, 2014; and John Graham, "Are Medicare Advantage Plans Overpaid and Corrupt?" National Center for Policy Analysis, August 27, 2014, Available at http://healthblog.ncpa.org., Accessed August 27, 2014.

[11] The search was conducted in spring 2014 by Stephanie Albier at Pinpoint Search Strategies LLC in Silver Spring, MD.

[12] Our review techniques aimed to provide an objective analysis comparing access and quality in Medicare Advantage and traditional Medicare in policy-relevant terms within the constraints of available resources. These constraints limited our ability to incorporate all of the techniques recommended for systematic reviews (See for example, guidelines developed by the Institute of Medicine. Available from: http://www.iom.edu/~/media/Files/Report%20Files/2011/Finding-What-Works-in-Health-Care-Standards-for-Systematic-Reviews/Standards%20for%20Systematic%20Review%202010%20 Insert.pdf.) Despite this, we believe we have identified the major studies in this area, particularly on a national scope, and provided sufficient documentation of our analysis to allow users to judge the results.

[13] America's Health Insurance Plans. 2014. op. cit.

[14] While we looked online for relevant research syntheses on this topic by the Cochrane Collaborative or a similar Canadian group that emphasizes health system studies, we found none directly on the topic.

[15] McGlynn EA et al. The quality of health care delivered to adults in the United States. NJEM. 2003 June 26;348(26):2635-45.

[16] Medicare Payment Advisory Commission. Report to Congress: Medicare and the health care delivery system. Washington, DC. June 2014b. Chapter 3, Measuring quality of care in Medicare.

[17] See NCQA's Summary Table of Measures, Product Lines, and Changes in HEDIS 2014. Available from: http://www.ncqa.org/Portals/0/HEDISQM/HEDIS2014/List_of_HEDIS_ 2014_ Measures.pdf (Accessed 8/4/2014). Effectiveness metrics include the following: adult BMI assessment, breast cancer screening, colorectal cancer screening, glaucoma screening for older adults, spirometry testing for COPD, pharmacotherapy for COPD, cholesterol management for CVD, hypertension control, beta blocker after a heart attack, comprehensive diabetes care, disease-modifying anti-rheumatic drug therapy for rheumatoid arthritis, osteoporosis management, anti-depression medication management, follow-up care after hospitalization for mental illness, annual monitoring of patients on persistent medications, potentially harmful drug interactions, use of high-risk medications in the elderly, health outcomes survey, fall risk management, urinary incontinence management, osteoporosis testing in older women, physician activity in older adults, flu vaccinations for 65+, medical assistance with smoking and tobacco cessation, and pneumonia vaccination for 65+. Access/availability of care measures includes adult access to preventive ambulatory services, initial and engagement of alcohol and other drug dependence treatment, and call-answer timeliness.

[18] Medicare Payment Advisory Commission. Report to Congress: Medical Payment Policy. March 2010; Chapter 6, Report on comparing quality among Medicare Advantage plans and between the Medicare Advantage and fee-for-service Medicare; and Medicare Payment Advisory Commission. Report to Congress: Medicare Payment policy. March 2012; Chapter 12, The Medicare Advantage Program: a status report, p. 326.

[19] Medicare Payment Advisory Commission, June 2014b and March 2010, op. cit.

[20] Additional information on the survey is posted on these two web sites: http://www.ma-pdpcahps.org/content/homepage.aspx and https://cahps.ahrq.gov/surveys-guidance/hp/ about/ Medicares-CAHPS-HP-Survey.html, accessed August 4, 2014. Beginning in 2011, Medicare replaced its survey of traditional Medicare beneficiaries with a requirement that freestanding prescription drug plans (PDPs) collect CAHPS data.

[21] For additional information on the Medicare Modernization Act of 2003 and the evolution of the Medicare Advantage program over the first few years, see Gold, Marsha. "Medicare's Private Plans: A Report Card on Medicare Advantage." *Health Affairs* Web Exclusive, November 24, 2008.

[22] See, for example, Gold, Marsha R., Gretchen A. Jacobson, and Rachel L. Garfield. "There Is Little Experience and Limited Data to Support Policy Making on Integrated Care for Dual Eligibles." *Health Affairs,* vol. 312, no. 6, June 2012, pp. 1176-1187.

[23] See National Quality Forum "Prioritizing Measures. Available at http://www.qualityforum.org/prioritizing_measures/ (accessed 10/9/2014).

[24] MedPAC 2014a, op site.

[25] Miller and Luft, 2002, op. cit.

[26] Bundorf MK, Choudhry K, Baker L. Health plan performance measurement: does it affect quality of care for Medicare managed care enrollees? Inquiry. 2008;45:1658–183. This period was before payment was tied to such metrics.

[27] Medicare Payment Advisory Commission. Report to Congress: Medicare Payment policy, March 2011; Chapter 12, The Medicare Advantage program: a status update, p. 295.

[28] Jencks SF. "Rehospitalizations among Patients in the Medicare Fee-for-Service Program" New England J. of Medicine 360:1418-1428, April 2, 2009.

[29] Patrizi P, Thompson E, and Spector A. "Improving Care at the End of Life: How the Robert Wood Johnson Foundation and Its Grantees Built the Field," Retrospective evaluation prepared for the Robert Wood Johnson Foundation, March 2011.

[30] See the Medicare Payment Advisory Commission's March 2013 Report to Congress, including both Chapter 12 (Hospice Services) and Chapter 13 (Medicare Advantage). Washington DC.

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