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# CRS Report for Congress



# Health Insurance and Medical Care: Physician Services under Managed Care

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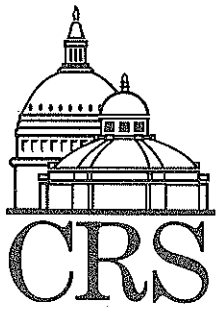

## ABSTRACT

Based on data from a 1995 national survey of physicians, this CRS Report compares the frequency of diagnostic services and therapeutic services during office visits to physicians who participated in health maintenance organizations (HMOs) and those who did not. The report also describes the methods employed by managed care organizations (MCOs) to reduce unnecessary use of health care services, and summarizes the findings of previous research on the effect of managed care on health care utilization and outcomes. Results of the analysis of physician office visits in 1995 are then displayed in a series of tables that show the percentage of visits during which specific classes of services were performed by physicians who participated in each of four kinds of health insurance arrangements. Statistical analysis of the results indicates that while physician participation in an HMO had a significant positive effect on the proportion of visits during which these services were performed, the patient's health status had the largest impact among all variables studied on the likelihood of receiving a diagnostic or therapeutic service during an office visit.

Updates: No updates are planned for this report.

# Health Insurance and Medical Care: Physician Services under Managed Care

## Summary

The financing and delivery of health care services in the U.S. have undergone significant changes in recent years. In response to rapidly rising health care costs, insurers, physicians, and employers have formed a variety of managed care organizations (MCOs) in an effort to achieve greater efficiency. Much has been written about the potential savings in national health expenditures that may be realized from the transition to managed care, but less is known about how this transition may affect the specific medical services that patients receive. Studies that focus on the *patient's* insurance would be likely to find differences in treatments between patients of comparable health status in prepaid and fee-for-service (FFS) plans only if physicians differentiated their treatment decisions based on the kind of health insurance by which the patient was covered. This Congressional Research Service (CRS) Report adds to the literature on medical services under managed care by analyzing data from a recent national survey of physicians. It compares the frequency with which several classes of medical services were performed during physician office visits classified according to the kind of insurance plans that the physician accepted.

This CRS Report makes several findings:

- In 1995, 84% of all office visits to primary care physicians by people under age 65 with employer-group or other private health insurance were made to physicians who participated in both managed and non-managed health insurance plans.

- Diagnostic and screening services were performed more frequently during visits both to pure FFS and pure HMO physician offices than during visits to physicians who accepted multiple kinds of insurance.

- Both male and female patients were more likely to receive diagnostic or screening services in a visit to an HMO-only physician office than during a visit to a physician office that participated in a PPO, but the difference from the overall average was greater for men than for women

- Therapeutic and preventive services were performed more frequently during office visits to HMO-only physicians than during visits to physicians who accepted multiple kinds of insurance. For people who had no chronic medical conditions, the likelihood of receiving therapeutic or preventive services did not vary significantly according to the type of insurance accepted by the physician.

- Men were much more likely to receive therapeutic or preventive services in an HMO-only office setting than in physician offices that accepted other kinds of insurance. Women were equally likely to receive these services in HMO-only or fee-for-service-only office settings.

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Managed care comes in many forms, but all managed care organizations (MCOs) share two basic goals. The most fundamental reasons for managing the delivery of health care are to *control costs* while providing *necessary and appropriate medical services*. The number and variety of MCOs reflect the multitude of approaches to achieving these objectives.[1] Although much has been written about the potential savings in national health expenditures that may be realized from the transition to managed care, less is known about how this transition may affect the specific medical services that patients receive. If medical care services differ between managed care and non-managed care or among the different kinds of MCOs, the reasons could be related to the physicians' treatment practices, characteristics of the patients being treated, or both. This information can be useful both to users of health care services and to policy-makers who must decide priorities in selecting and managing the methods of financing and delivering health care for millions of beneficiaries in public programs such as Medicare and Medicaid.

This CRS Report uses data from a national survey of physicians to compare the frequency with which several kinds of medical services were performed during office visits in 1995 to physicians who participated in various kinds of MCOs and visits to physicians who did not participate in managed care. The results presented here are based on physician office visits by people under age 65 who were covered by employer-group or other private health insurance.[2] We have focused on privately insured, non-elderly patients because it is among this segment of the population that the transition to managed care has been occurring for the longest period of time, and because the analysis is not complicated by issues of eligibility, enrollment, financing and regulation that pertain specifically to the Medicare and Medicaid programs. Nevertheless, the experience of patients and physicians in the delivery of office-based medical care under privately-financed MCOs may hold important lessons that can be used to make the transition to managed care in the Medicare and Medicaid programs more efficient and equitable for all interested parties.

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[1] For a description of the ways in which health care providers and insurers have formed MCOs see CRS Report 97-913, *Managed Health Care: A Primer*, by Jason S. Lee.

[2] Some of these individuals also may have been covered by Medicare or Medicaid, but the office visits included in this report all were covered by a private health insurance plan.

## Managing Health Care Use and Costs

Arrangements for managing the financing and delivery of health care have become more common in recent years, in part because the cost of health care rose faster than the prices of most other goods and services from the 1960s through the mid-1990s. Managed care seeks to make the provision of health care services more efficient by using no more than the resources necessary to deliver care, while meeting the community's prevailing standards of quality. The challenge faced by any MCO, therefore, is one of controlling the *cost* of health care while maintaining the *quality* of care. MCOs attempt to control costs by eliminating unnecessary or inappropriate services. To do this they can:

- create a *financial relationship* with the health care provider that encourages efficient use of resources,[3]
- substitute *less expensive care* (for instance, office-based care) for more expensive care (such as inpatient hospital care), and
- *reduce the demand for health care services* by promoting good health practices among those who are enrolled in the managed care plan.

**The Financial Relationship with the Health Care Provider.** The two most common types of payment for medical care are "fee-for-service" (FFS) and prepayment, which is also called "capitation." As its name implies, in a FFS reimbursement arrangement the health care provider bills the patient for each individual service provided. If the patient is insured, the insurer will usually pay some or all of the bill, generally after the patient has paid the first few hundred dollars of medical bills incurred during a calendar year, which is called a *deductible amount*. Insurance that pays expenses as they are incurred for each office visit, hospital stay, or other episode of care is called *indemnity insurance*.

Some indemnity insurers have negotiated special low reimbursement rates with providers of health care. In exchange for these lower rates, the insurer designates the health care professional as a "preferred provider." Patients who visit an insurer's preferred providers are usually rewarded with a lower copayment (the share of the total bill that is the patient's responsibility) than if they visit providers who are not members of this network. Preferred provider organizations, or "PPOs," are considered to be MCOs because they use financial incentives to induce health care providers to deliver services efficiently. The financial incentives used by PPOs can include amounts added to or withheld from the FFS reimbursement paid to the provider. Inefficient providers may be dropped from the PPO, creating another incentive for the provider to eliminate unnecessary services.

Under the FFS method of reimbursing health care providers, each additional test, procedure, or office visit increases the provider's revenue, creating a financial incentive for health care professionals to provide more services. This incentive exists

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[3] See also CRS Report 97-482, *Managed Health Care: The Use of Financial Incentives* by Jason S. Lee and Beth C. Fuchs.

even in a PPO, although it may be tempered by the possibility that the provider could be dropped from the PPO. Another type of MCO, the health maintenance organization, or HMO, reduces the financial incentive to provide additional care either by employing the physician directly on a salary basis or by "prepaying" the physician a fixed amount per month for each of the HMO's members in exchange for providing all (or most) of the health care services that they require. In the so-called "staff-model" HMO, the physicians are employed directly, and their medical practice patterns can by monitored and rewarded or sanctioned, just like the performance of an employee in any other kind of firm. In "group-model" HMOs and in another kind of HMO called an "independent practice association" (IPA), the HMO contracts with physician groups or independent physician practices to provide health care services to the HMO's members, usually in exchange for a monthly "capitation payment."[4] If the total cost of care provided to the members of the HMO is less than the sum of these capitation payments, the physician group keeps the difference as profit. If costs exceed the sum of the capitation payments, the physicians suffer a financial loss.[5]

**Substituting Less Expensive Care for More Expensive Care.** MCOs also are able to reduce costs by employing primary care physicians as "gatekeepers" to regulate patients' access to more expensive specialists, and by providing as much care as possible in physician offices, clinics, and hospital outpatient departments rather than in an inpatient hospital setting. Lower rates of hospitalization and shorter stays in hospitals associated with MCOs — specifically with HMOs — have been shown to be an important source of savings in MCOs compared with traditional indemnity insurers.[6]

**Reducing the Demand for Care.** By promoting good health practices that emphasize early intervention and preventive medicine, such as immunizations, screening for specific conditions, and regular check-ups, MCOs may lower the total cost of health care by catching incipient illnesses when they can be treated with the greatest effectiveness and at the least expense. In such cases, more frequent use of health care services in the near-term may result in reduced need for medical services in the long-term.[7]

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[4] Even HMOs that pay most primary-care physicians on a capitation basis will often reimburse specialists FFS. Members of an HMO may sometimes see non-participating physicians who are reimbursed on a FFS basis if the HMO offers a "point-of-service" (POS) option.

[5] In 1996, 74% of HMO contracts with primary-care physicians provided for prepaid, capitated reimbursement, according to Hoechst-Marion-Roussel's *HMO-PPO Digest.*

[6] To date, reductions in health care costs resulting from managed care have been attributed mainly to reductions in the number and length of inpatient hospital stays. See, for example, KPMG Peat Marwick. *The Impact of Managed Care on U.S. Markets*. Washington DC, 1996 and; Richardson, James C. Decline in Hospital Utilization and Cost Inflation Under Managed Care in California. *Journal of the American Medical Association*, v. 276, no. 13, October 2, 1996.

[7] Early diagnosis and treatment of illnesses may be desirable for their public health benefits, but they may not result in savings to national health expenditures. A person who detects a medical condition at age 70, for example, and has it treated successfully, possibly preventing

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## Previous Research on Ambulatory Services under Managed Care

**Access to Care.** Numerous studies published in recent years have examined issues of access to care, intensity of service utilization, and quality of care in managed and non-managed health insurance plans. A review of the literature evaluating managed care plan performance between 1980 and 1993 found that, compared to indemnity insurance plans, HMOs had "the same or more physician office visits per enrollee, less use of expensive procedures and tests, greater use of preventive services, [and] mixed results on outcomes."[8] A more recent literature review by the same authors found that "there was no overall pattern to physician use or expenditure results" in 10 studies published between 1993 and 1997.[9] Another recent study found that as the average number of inpatient hospital days among patients in HMOs has been declining, the frequency of physician office visits has been rising.[10] Data from the 1994 Health Interview Survey analyzed by CRS show that the frequency at which people in HMOs visited physician offices did not differ substantively from the rate for people in traditional indemnity insurance plans. These data show that 15.0% of privately insured people under age 65 in HMOs had made at least one office visit in any given 2-week period in 1994, compared to 14.1% of people covered by indemnity insurance plans that paid providers on a FFS basis.[11]

One reason that the frequency of physician visits differs only slightly between people enrolled in HMOs and those with FFS insurance is that average health status, as measured by the percentage of people who have chronic health problems differs very little between these two groups. In the 1994 National Health Interview Survey, 37% of people enrolled in indemnity insurance plans and 37% of those in HMOs reported that they had a medical condition of any kind. Among those covered by indemnity plans, 30.7% reported one or more *chronic* medical conditions, versus 29.9% of those in HMOs.[12] The frequency of office visits was similar between the

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[7] (...continued)
premature death, may eventually suffer another illness or series of illnesses requiring medical treatment and additional expenditures.

[8] Miller, R.H. and H.S. Luft. "Managed Care Plan Performance Since 1980. *Journal of the American Medical Association*, v. 271, no. 19, May 18, 1994.

[9] Miller, R.H. and H.S. Luft. "Does Managed Care Lead to Better or Worse Quality of Care?" *Health Affairs*, v. 16, no. 5, September/October 1997.

[10] Wholey, D., et al. HMO Market Structure and Performance: 1985-1995. *Health Affairs*, v. 16, no. 6, November/December 1997.

[11] Although small, this difference is statistically significant at the 95% confidence level, based on a two-tailed t-test.

[12] The extent, if any, to which HMOs experience favorable selection in terms of the health status of their enrollees remains an open question. Data from the 1994 National Health Interview Survey indicate little difference in the health status of people enrolled in HMOs compared to those in indemnity insurance plans. Taylor and colleagues (1995), reporting on an analysis of data from the 1987 National Medical Expenditure Survey, also found "very little evidence that individuals enrolled in HMOs were healthier than those in FFS plans." Likewise, Fama and colleagues (1995) found little observable difference in the health status
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HMO and FFS enrollees even among those who reported having a medical condition.[13] Of the people who reported having an acute or chronic medical condition, 34.8% of HMO enrollees had seen a doctor in a given 2-week period, compared with 33.2% of those enrolled in indemnity insurance plans.[14]

**Health Outcomes.** Studies of outcomes between managed and non-managed health care plans also have found mixed results. Clement and others (1994) found that Medicare beneficiaries in HMOs who reported either joint pain or chest pain were less likely to have seen a specialist for care, to have a follow-up recommended, or to have their progress monitored. Less improvement in symptoms was found among the HMO enrollees in one of four outcomes studied. In a 4-year study of chronically ill patients, Ware and others (1996) found that physical and mental health outcomes did not differ between FFS and HMO plans for the average patient, but they did for certain sub-groups of patients. Among elderly patients, declines in physical health were more common among those in HMOs than in FFS plans. Outcomes tended to be better in FFS plans among poor patients, but better outcomes were found in HMOs for non-poor patients. Yelin, Criswell, and Feigenbaum (1996) examined data on health outcomes over periods of up to 11 years for patients with rheumatoid arthritis in FFS insurance plans and prepaid group practices. They found that the "two groups did not differ on any outcome measure on either an annual or long-term basis."

## Data and Methods

Access to ambulatory medical care services often is measured in terms of the frequency of contacts with a physician or other health care professional. Another measure of access is the likelihood that a physician office visit will result in a specific service being provided. If the likelihood that a specific service will be performed during an office visit appears to differ according to the kinds of insurance accepted by the physician, we would like to know the extent to which this variation reflects differences in the patients being treated, the physicians' practice patterns (including the influence of managed care), or a combination of these factors. This CRS Report uses data from a nationally representative survey of physicians to examine the frequency with which particular classes of medical services were performed during office visits to physicians who participated in different kinds of insurance arrangements. The report focuses on two broad classifications of services identified

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[12] (...continued)
of people in HMOs and those in other insurance plans. Hellinger (1995), however, in a review of the literature on the subject reported that a majority of studies found that HMOs and other plans with closed provider networks experienced favorable selection bias among their enrollees when compared to people enrolled in non-HMO plans.

[13] Among people who reported no medical conditions, 3.6% of those who were enrolled in an HMO saw a physician in a 2-week period, compared with 3.0% of those covered by indemnity insurance, not a statistically significant difference.

[14] Although the differences in chronic conditions and 2-week office visits are not large enough to suggest dramatic behavioral differences either by patients or physicians in HMOs compared to indemnity plans, both are statistically significant at the 95% confidence level based on a two-tailed t-test.

in the National Ambulatory Medical Care Survey: *diagnostic and screening services* and *therapeutic and preventive services*.

For this report, we analyzed the frequency with which specific services were performed during physician office visits *according to the kind of health insurance plans accepted by the physician*. Most prior studies have looked at the kind of insurance that covered the individual patient; however, in 1995 more than four-fifths of all office visits to primary care physicians by privately insured individuals under age 65 were made to physicians who saw some patients in managed health plans *and* some with non-managed insurance. Studies that focus on the kind of insurance that covered the patient would be likely to find differences in treatments or outcomes between patients in prepaid and FFS plans only if a significant proportion of physicians differentiated their treatment decisions based on the kind of health insurance by which the patient was covered. This hypothesis is not generally supported by empirical findings.[15] The methodology employed for this analysis permitted us to see whether the frequency of services differed between physicians who accepted only prepaid insurance such as HMOs or *only* FFS insurance. This classification scheme also allowed us to see whether the frequency with which certain categories of medical services were performed differed between physicians in pure-HMO or pure-FFS practices and physicians who see patients in both prepaid and FFS plans.

The analysis presented here focuses on office visits to physicians who are *primary-care providers* because it is these physician offices in which managed care principles have been most widely adopted. Likewise, in some of the tables that follow, the sample has been restricted to office visits made by patients who were reported by the physician to have no chronic medical conditions. This restriction can help to make clear whether a difference in the frequency with which specific services were provided was the result of differences in physician practice patterns between managed care and non-managed care; differences in the proportion of people enrolled in each kind of plan who were in poor health; or a combination of these two factors.

Data on health care services provided during visits to office-based physicians were collected as part of the 1995 National Ambulatory Medical Care Survey (NAMCS) conducted by the National Center for Health Statistics, a division of the U.S. Department of Health and Human Services. All non-federally employed office-based physicians who were primarily engaged in patient-care activities were eligible to be included in the Ambulatory Medical Care Survey with the exception of physicians whose specialties were anesthesiology, pathology, or radiology. Contacts with patients by telephone, outside the physician's office, in hospital settings (inpatient or outpatient), in institutional settings such as nursing homes, or office visits for administrative purposes (such as paying a bill, filling out insurance forms, or dropping

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[15] For example, many physicians are unaware even whether a patient is covered by private insurance or by a publicly financed program such as Medicaid. Research into state compliance with the early, periodic, screening, diagnosis and testing (EPSDT) requirements for children covered by Medicaid indicates that most physicians performing a physical exam or well-child checkup are unaware of the child's source of health insurance coverage. (Elicia Herz, Ph.D., MEDSTAT Group, Washington DC, personal communication with author.)

off a specimen) were not included in the survey. Of the 2,587 physicians contacted in 1995, 73% participated in the survey.

The 1995 survey data consist of 36,875 patient record forms collected from 1,883 physicians who participated in the NAMCS. Each record represents one visit by a patient to an office-based physician, and each has been assigned a patient visit weight, which when aggregated across all visits, represent the estimated total of 697 million physician office visits in the U.S. in 1995. For this report CRS limited its analysis to physician visits by people under age 65 with employer-group or other private health insurance. This sub-sample comprised 27,067 patient record forms (73.4% of the total), and represented 254.5 million physician office visits.

Of the 254.5 million office visits by people under age 65 with employer-group or other private health insurance, 168.3 million visits (66.1%) were made to primary-care physicians, including general and family practitioners, internists, pediatricians, and obstetricians/gynecologists. Just 10% of these visits were made to physicians who accepted only insurance that reimbursed the physician on a FFS basis and who did not participate in either a PPO or HMO. Only 6% of these office visits were made to physicians who only saw patients who were enrolled in an HMO. Thus, relatively small proportions of physician office visits in 1995 were made to physicians who had *no* patients in managed care or to physicians who saw *only* patients who were enrolled in the most strictly managed form of managed care. The vast majority of physician office visits in 1995 — 84% of the total — were made to physicians who treated some patients who were enrolled in a managed care plan, and some who were not

Patient records on the NAMCS include both the expected source of insurance and the expected source of payment. The categories for expected source of insurance are Blue Cross/Blue Shield, other private insurance, Medicare, Medicaid, worker's compensation, other insurance, and unknown. There are eight source-of-payment categories on the survey instrument:

- blank with no source of insurance reported,
- preferred provider option,
- insured FFS,
- HMO or other prepaid,
- self-pay,
- no charge,
- other source of payment, and
- type of payment was not specified but source of insurance was reported.

In this report, physician office visits have been grouped according to the sources of payment reported on patient records during the week that each physician participated in the NAMCS. We used the unique physician identifiers to classify

physicians into four groups, based on the kinds of insurance that covered patients seen by the physician. The four groups of physicians were:

- those who saw *only* patients whose insurance reimbursed the physician on a FFS basis with no PPO discounts,
- those who saw patients in both regular FFS plans and in PPO plans, but who saw no patients who were enrolled in an HMO,
- those who saw patients enrolled in HMOs, in PPOs, and in non-PPO plans,
- those who saw *only* patients who were enrolled in an HMO.[16]

This classification allows us to discern not only whether services differed between managed care and non-managed care, but also whether the frequency of services provided during visits to "mixed insurance" physician offices was more like the frequency seen in visits to HMO-only physician offices or like that which occurred during visits to physicians who accepted only pure FFS payments.

## Results: Services Provided During Physician Office Visits

**Physician Office Visits: Patient Demographic Characteristics (Table 1).** Patient demographic and health characteristics, geographic variations in physician practice patterns, and whether the physician has seen the patient before all may influence diagnostic and treatment procedures. These characteristics are arrayed in **Table 1** according to the proportion of office visits made by people in each category to physicians who accepted each of four kinds or combinations of health insurance plans.

*Age.* Children and young adults were less likely than adults 35 or older to have made an office visit to a physician who accepted only FFS insurance arrangements, and were more likely than people in other age groups to have visited a physician office that accepted both HMO and PPO insurance plans. People between the ages of 55 and 64 made up 18.1% of visits to physicians who accepted only FFS insurance arrangements, significantly higher than the overall average of 10.0%; however, they also comprised a higher-than-average share of visits to physicians who treated only patients enrolled in HMOs.

*Sex.* In 1995, 107 million out of 168 million office visits (63.5%) to primary care physicians by privately insured people under age 65 were made by female patients. Male and female patients had very similar probabilities of visiting a physician

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[16] The data collected on the Ambulatory Medical Care Survey do not differentiate between group/staff model HMOs and IPA-model HMOs, a distinction that could increase the explanatory power of these data with respect to differences *among* HMOs in the frequency with which specific services were provided during office visits. Nevertheless, because neither kind of HMO typically uses FFS reimbursement, the NAMCS data allow us to distinguish between kinds of insurance payment that respond to increases in the number of patient visits or volume of services and those that do not.

who treated only HMO patients, but males made up an above-average share of all visits to physicians who accepted only FFS insurance plans.

***Race.*** Both white and non-white patients had similar likelihoods of visiting a primary care physician who saw only HMO enrollees, but non-white patients had an above-average probability of visiting a physician who accepted only FFS insurance reimbursement.

***Health Status: Chronic Medical Conditions.*** Office visits to physicians who accepted *only* FFS reimbursement included a higher-than-average proportion of visits made by patients with chronic medical conditions, while visits to physician offices that accepted both FFS and PPO plans included a lower-than-average proportion of visits made by chronically ill patients.[17] Visits to FFS-only physician offices made up 10% of all visits by privately insured patients under age 65, but they comprised 14.8% of all visits made by patients with one or more chronic medical conditions. Visits to physician offices that participated in both FFS and PPO plans made up 16.1% of all visits by privately insured patients under age 65, but they comprised 14.2% of all visits made by patients with one or more chronic medical conditions.

***Region.*** There were significant regional differences in the proportion of office visits that were made to physicians who participated in an HMO. In the West, 11.1% of all visits were made to physicians who treated *only* patients enrolled in an HMO, while in no other region were more than 4.2% of visits made to HMO-only physician offices. In both the Northeast and the West, more than 80% of all office visits were made to physicians who saw some HMO patients, usually along with PPO patients. In the Midwest and South, fewer than 70% of all office visits were made to primary care physicians who participated in at least one HMO.

***Urban/Rural Location.*** In 1995, 78.7% of office visits in urban areas were made to physicians who treated at least some patients who were enrolled in an HMO. Only 7.1% of office visits to physicians in urban areas were to offices that accepted only FFS reimbursement. In contrast, just 48.1% of office visits in rural areas were made to physicians who treated at least some patients who were in an HMO. More than a quarter of all office visits in rural areas were made to physicians who accepted only insurance plans that reimbursed the provider on a FFS basis.

***New or Previously Established Physician-Patient Relationship.*** Among office visits to primary care physicians by privately insured people under age 65, 90.2% were made to a physician who had seen the patient before (151,818 out of 168,289). Office visits by patients that the physician had never seen before were most likely to have occurred in among physicians who participated in both HMO and PPO insurance plans. While two-thirds of all office visits by privately insured people under age 65 were made to physicians who saw patients in both HMO and PPO plans, visits to

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[17] In the National Ambulatory Care Survey, chronic conditions are defined to include arthritis, arteriosclerosis, chronic obstructive pulmonary disorder, renal disease, clinical depression, diabetes, human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), hyperactivity, hypertension, and obesity.

HMO and PPO offices comprised three-fourths of all visits in which the physician had not seen the patient before.

**Table 1. Office Visits to Primary Care Physicians by Privately Insured People Under Age 65**

| | | *Percentage of visits that were to physicians who accepted:* | | | | |
|---|---|---|---|---|---|---|
| | Visits (000s) | FFS only | FFS and PPO | HMO and PPO | HMO only | Total |
| *Patient demographics:* | | | | | | |
| **Under age 18** | 59,144 | ***7.9%*** | ***18.4%*** | ***71.5%*** | ***2.3%*** | *100%* |
| **Ages 18 to 34** | 36,224 | ***8.4%*** | ***11.8%*** | ***72.6%*** | *7.3%* | *100%* |
| **Ages 35 to 54** | 53,413 | *10.5%* | *16.4%* | ***65.6%*** | ***7.4%*** | *100%* |
| **Ages 55 to 64** | 19,508 | ***18.1%*** | *16.3%* | ***56.8%*** | ***8.8%*** | *100%* |
| **Female** | 106,942 | ***8.8%*** | *15.7%* | *69.8%* | *5.8%* | *100%* |
| **Male** | 61,347 | ***12.1%*** | *16.9%* | ***65.4%*** | *5.7%* | *100%* |
| **White** | 147,423 | *9.5%* | *16.9%* | *67.9%* | *5.7%* | *100%* |
| **Black or other** | 20,865 | ***13.8%*** | ***10.2%*** | *70.1%* | *6.0%* | *100%* |
| **Has Chronic Condition(s)** | 36,434 | ***14.8%*** | ***14.2%*** | *64.0%* | *7.0%* | *100%* |
| **No Chronic Conditions** | 131,853 | ***8.7%*** | *16.6%* | *69.3%* | *5.4%* | *100%* |
| *Physician Location:* | | | | | | |
| **Northeast** | 29,070 | *10.9%* | ***4.5%*** | ***81.5%*** | ***3.2%*** | *100%* |
| **Midwest** | 40,991 | *10.3%* | ***19.9%*** | ***65.6%*** | *4.2%* | *100%* |
| **South** | 52,684 | *9.3%* | ***25.6%*** | ***61.4%*** | ***3.8%*** | *100%* |
| **West** | 45,544 | *10.1%* | ***9.1%*** | *69.8%* | ***11.1%*** | *100%* |
| **Urban** | 141,671 | ***7.1%*** | ***14.2%*** | ***72.1%*** | ***6.6%*** | *100%* |
| **Rural** | 26,616 | ***25.5%*** | ***26.4%*** | ***46.9%*** | *1.2%* | *100%* |
| **Patient Seen Previously** | 151,818 | *10.3%* | *16.7%* | ***67.4%*** | *5.6%* | *100%* |
| **Not Seen Previously** | 16,470 | ***7.5%*** | ***10.7%*** | ***75.2%*** | *6.6%* | *100%* |
| **Total** | 168,289 | *10.0%* | *16.1%* | *68.2%* | *5.7%* | *100%* |

**Source:** CRS analysis of data from the 1995 NAMCS.

**Note:** Percentages that are significantly different from the column average at 95% or greater confidence are shown in boldface type.

**Performance of Diagnostic or Screening Services (Table 2).** Diagnostic or screening services were performed during 74.3% of all office visits to primary care physicians in 1995, but the frequency varied according to the type of insurance accepted by the provider. (Diagnostic and screening services are defined in Appendix II). Visits to HMO-only physicians had the highest probability of a diagnostic or screening service, at 85% of visits. Office visits to FFS-only physicians had the second highest probability of a diagnostic or screening service (78%). Office visits to physician practices that accepted both FFS and PPO plans had lower-than-average rates of screening and diagnostic services. The pattern was similar among patients with no chronic conditions, except that among this group the proportion visits to FFS-only physicians during which diagnostic and screening services were performed was not statistically different from the average for all office visits by patients with a chronic condition.

**Table 2. Diagnostic and Screening Services, Privately Insured Patients Under Age 65**

| | | *Were diagnostic/screening services performed?* | | |
|---|---|---|---|---|
| Type of insurance accepted by physician | Visits (000s) | Yes | No | Total |
| **FFS only** | 16,848 | ***77.9%*** | ***22.1%*** | *100%* |
| **FFS or PPO** | 27,075 | ***70.5%*** | ***29.5%*** | *100%* |
| **HMO or PPO** | 114,703 | *73.8%* | *26.2%* | *100%* |
| **HMO only** | 9,662 | ***84.8%*** | ***15.2%*** | *100%* |
| **Total** | 168,288 | *74.3%* | *25.7%* | *100%* |

**Privately Insured Patients Under Age 65 Who Had No Chronic Medical Conditions**

| | | *Were diagnostic/screening services performed?* | | |
|---|---|---|---|---|
| | Visits (000s) | Yes | No | Total |
| **FFS only** | 11,459 | *71.3%* | *28.7%* | *100%* |
| **FFS or PPO** | 21,915 | ***65.3%*** | ***34.7%*** | *100%* |
| **HMO or PPO** | 91,365 | *69.8%* | *30.2%* | *100%* |
| **HMO only** | 7,115 | ***81.4%*** | ***18.6%*** | *100%* |
| **Total** | 131,854 | *69.8%* | *30.2%* | *100%* |

**Source**: CRS analysis of data from the 1995 NAMCS.

**Note:** Percentages that are significantly different from the column average at 95% or greater confidence are shown in boldface type.

**Diagnostic and Screening Services: Differences by Sex (Table 3).** Overall, diagnostic or screening services were more likely to be performed during office visits

made by female rather than male patients, (78% vs. 68%). Both female and male patients were most likely to have received diagnostic or screening services during a visit to an HMO-only physician, but the difference was about twice as large for males (83% in pure-HMO offices vs. 67% in other offices ) as for females (86% in pure-HMO offices vs.77% in other offices). Male and female patients were equally likely to receive diagnostic or screening services in physician offices that accepted only traditional FFS insurance (78% for both sexes). Among female patients, the likelihood of receiving these services was significantly different from the overall average only for visits to pure-HMO physician offices. Among male patients, the likelihood of having a diagnostic or screening service performed was significantly higher than average in both pure-HMO and pure-FFS physician offices, and it was significantly below average in offices that accepted both FFS and PPO plans.

## Table 3. Diagnostic and Screening Services by Sex of Patient

**Female patients**

| Type of insurance accepted by physician | Total visits (000s) | *Were diagnostic/screening services performed?* Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 9,408 | *77.6%* | *22.4%* | *100%* |
| **FFS and PPO** | 16,738 | *75.7%* | *24.3%* | *100%* |
| **HMO and PPO** | 74,602 | *77.8%* | *22.2%* | *100%* |
| **HMO only** | 6,194 | ***85.6%*** | ***14.4%*** | *100%* |
| **Total** | 106,942 | *77.9%* | *22.1%* | *100%* |

**Male patients**

| Type of insurance accepted by physician | Total visits (000s) | *Were diagnostic/screening services performed?* Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 7,440 | ***78.3%*** | ***21.7%*** | *100%* |
| **FFS and PPO** | 10,337 | ***62.0%*** | ***38.0%*** | *100%* |
| **HMO and PPO** | 40,101 | *66.3%* | *33.7%* | *100%* |
| **HMO only** | 3,469 | ***83.3%*** | ***16.7%*** | *100%* |
| **Total** | 61,347 | *68.0%* | *32.0%* | *100%* |

**Source:** CRS analysis of data from the 1995 NAMCS.

**Note:** Percentages that are significantly different from the column average at 95% or greater confidence are shown in boldface type.

**Performance of Therapeutic or Preventive Services (Table 4).** Only 36.5% of office visits to primary care physicians in 1995 included performance of at least one therapeutic or preventive service. (Therapeutic and preventive services are defined in Appendix II.) As was also the case with diagnostic and screening services, office visits to physicians who treated only patients enrolled in an HMO had the highest

frequency of therapeutic and preventive services (43.4%), and visits to physicians who accepted both FFS and PPO insurance plans included performance of these services at a rate that was significantly below the overall average.

One possible explanation for differences in the proportion of visits during which therapeutic or preventive services were administered would be differences in the health status of patients seen by physicians in each of the four insurance categories. The bottom panel of **Table 4** shows office visits by people who were reported by the physician to have no chronic medical conditions. Among patients with no chronic medical conditions, the rate of therapeutic and preventive services did not differ significantly from the overall average for any of the four insurance classifications.

**Table 4. Therapeutic and Preventive Services, Privately Insured Patients Under Age 65**

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | Visits (000s) | Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 16,848 | *38.6%* | *61.4%* | *100%* |
| **FFS or PPO** | 27,075 | ***32.2%*** | ***67.8%*** | *100%* |
| **HMO or PPO** | 114,703 | *36.7%* | *63.3%* | *100%* |
| **HMO only** | 9,662 | ***43.4%*** | ***56.6%*** | *100%* |
| **Total** | 168,288 | *36.5%* | *63.5%* | *100%* |

**Privately Insured Patients Under Age 65 Who Had No Chronic Medical Conditions**

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | Visits (000s) | Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 11,459 | *30.2%* | *69.8%* | *100%* |
| **FFS or PPO** | 21,915 | *28.7%* | *71.3%* | *100%* |
| **HMO or PPO** | 91,365 | *32.2%* | *67.8%* | *100%* |
| **HMO only** | 7,115 | *35.7%* | *64.3%* | *100%* |
| **Total** | 131,854 | *31.6%* | *68.4%* | *100%* |

**Source**: CRS analysis of data from the 1995 National Ambulatory Medical Care Survey.

**Note:** Percentages that are significantly different from the column average at 95% or greater confidence are shown in boldface type.

**Therapeutic or Preventive Services: Differences by Sex (Table 5).** There was little difference in the proportion of office visits by male and female patients during which therapeutic or preventive services were performed. These services were performed during 37.5% of physician office visits by men and 36% of visits by

women. Among female patients, therapeutic or preventive services were equally likely to be administered during a visit to an HMO-only or FFS-only physician practice (41%), while visits to physician offices that participated in both FFS and PPO plans included therapeutic and preventive services at a rate significantly lower than the overall average — (30.7% versus 36.0%). Among men, visits to HMO-only physicians had a higher-than-average frequency of therapeutic and preventive services (48%), while visits to all other physician offices included these services at rates near the overall average of 37.5%.

**Table 5. Performance of Therapeutic or Preventive Services by Sex of Patient**

**Female patients**

| Type of insurance accepted by physician | Visits (000s) | *Were therapeutic or preventive services performed?* Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 9,408 | *40.9%* | *59.1%* | *100%* |
| **FFS and PPO** | 16,738 | ***30.7%*** | ***69.3%*** | *100%* |
| **HMO and PPO** | 74,602 | *36.2%* | *63.8%* | *100%* |
| **HMO only** | 6,194 | *40.8%* | *59.2%* | *100%* |
| **Total** | 106,942 | *36.0%* | *64.0%* | *100%* |

**Male patients**

| Type of insurance accepted by physician | Visits (000s) | *Were therapeutic or preventive services performed?* Yes | No | Total |
|---|---|---|---|---|
| **FFS only** | 7,440 | *35.7%* | *64.3%* | *100%* |
| **FFS and PPO** | 10,337 | *34.5%* | *65.5%* | *100%* |
| **HMO and PPO** | 40,101 | *37.7%* | *62.3%* | *100%* |
| **HMO only** | 3,469 | ***47.9%*** | ***52.1%*** | *100%* |
| **Total** | 61,347 | *37.5%* | *62.5%* | *100%* |

**Source**: CRS analysis of data from the 1995 National Ambulatory Medical Care Survey.

**Note:** Percentages that are significantly different from the column average at 95% or greater confidence are shown in boldface type.

**Multi-variate Analysis: Diagnostic and Screening Services.** To evaluate the relationship of each the variables described in **Table 1** through **Table 5** to the probability that a physician office visit included a diagnostic/screening or

therapeutic/preventive service, we processed the data though a regression model[18]. This form of analysis shows the relative impact of each specified characteristic of the patient or physician while all of the other factors are held constant.

***Age, Sex, and Race.*** Other things being equal, the probability that a privately insured individual under age 65 had a diagnostic or screening service performed during a physician office visit increases by about 4.6% for each additional year of age, and a female patient was about 33% more likely to have a diagnostic or screening service performed during an office visit than was a male patient. (See the column labeled "Odds Ratio.") A patient's race (defined here as white or nonwhite) was unrelated to the likelihood that he or she had a diagnostic or screening service performed, once other patient and physician characteristics were taken into account.

***Region and Urban/Rural Location.*** Both the region and urban or rural location of a physician office had a statistically significant relationship to the probability that a diagnostic or screening service was performed during a physician office visit. Relative to physician office visits in the Midwest, office visits in the Northeast, South, and West all had a greater likelihood of including a diagnostic or screening service, with the probability ranging from 33% higher in the South to 47% higher in the Northeast. Likewise, visits to physician offices in urban areas were about one-third more likely than those in rural areas to include a diagnostic or screening service, other factors being equal.

***Health Status; New or Established Physician-Patient Relationship.*** Patients who had one or more chronic conditions according to the patient records maintained by the physician were much more likely to have undergone a diagnostic or screening service during an office visit than patients who had no chronic conditions. The rate at which these services were performed was almost 80% higher for a patient with a chronic condition when other characteristics were held constant. Having seen a patient during a previous visit was associated with a lower probability of receiving diagnostic or screening services. Patients who had been seen by the health care provider previously were about 26% less likely to have had a diagnostic or screening service performed than those who were being seen for the first time. Office visits also were more likely to include diagnostic and screening services if the provider was a physician rather than a nurse practitioner, registered nurse, or other provider; however, visits to these other providers accounted for only 4% of all office visits.

***Insurance Plans Accepted by Physician.*** For the regression analysis, we used office visits to physicians who accepted only non-PPO FFS insurance plans as the reference group for estimating the probability of a diagnostic or screening service being performed during an office visit. Compared to the reference group, there was no significant difference in the likelihood of a diagnostic or screening service being performed during visits to physicians who accepted both FFS and PPO insurance plans. Visits to HMO-only and HMO/PPO physician offices, however, were both associated with higher rates of diagnostic and screening services, than office visits to pure-FFS offices, other things being equal. An office visit to a physician who

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[18] The results presented in this section are from a logistic regression model. We also processed the data through a probit model and found substantively the same results.

participated in both PPO and HMO plans was about 20% more likely to include a diagnostic or screening service than a visit to a FFS-only office, while the likelihood of having these services performed during a visit to an HMO-only physician office was about 40% higher than in a pure-FFS office, other things being equal.

**Table 6. Diagnostic and Screening Services, Privately Insured Patients Under Age 65: Logistic Regression Results**

**Response Variable:** Were diagnostic or screening services performed?

| Analysis Variable | Weighted Mean | Parameter Estimate | Standard Error | Odds Ratio |
|---|---|---|---|---|
| Intercept | | -2.3615 *** | 0.2572 | . |
| Age | 29.1 | 0.0449 *** | 0.00202 | 1.046 |
| Sex (1 = female) | 0.6345 | 0.2843 *** | 0.0670 | 1.329 |
| Race (1 = white) | 0.8778 | -0.0551 | 0.1060 | 0.946 |
| Northeast | 0.1736 | 0.3835 *** | 0.1043 | 1.467 |
| South | 0.3241 | 0.2874 *** | 0.0866 | 1.333 |
| West | 0.2640 | 0.3262 *** | 0.0931 | 1.386 |
| Urban Area | 0.8336 | 0.2876 *** | 0.0916 | 1.333 |
| Has Chronic Condition(s) | 0.2189 | 0.5840 *** | 0.1099 | 1.793 |
| Patient Seen Previously | 0.9035 | -0.3066 *** | 0.1146 | 0.736 |
| Provider is an M.D. | 0.9583 | 1.8145 *** | 0.1499 | 6.138 |
| Reg. FFS or PPO accepted | 0.1569 | 0.1600 | 0.1265 | 1.174 |
| HMO or PPO accepted | 0.6645 | 0.1828 * | 0.1083 | 1.201 |
| Only HMO accepted | 0.0560 | 0.3341 * | 0.1921 | 1.397 |

**Source:** CRS analysis of data from the 1995 NAMCS.

n = 6,028 observations
* significant at >= .10
*** significant at >= .01

**Multi-variate Analysis: Therapeutic and Preventive Services.**

***Age, Sex, and Race.*** When the response variable of the regression model was changed to indicate whether therapeutic or preventive services were performed during an office visit, the relationship of the patient's age was significant, but negative. Each additional year of age reduced by about 1% the likelihood of a therapeutic or preventive service being performed during an office visit. The signs of the variables indicating the patient's sex (female = 1) and race ( white = 1) also were negative, but neither of these variables was statistically significant.

***Region and Urban/Rural Location.*** Relative to being located in the Midwest, an office visit in the Northeast was more likely to include a therapeutic or preventive service, and an office visit in the South was less likely to include these services. Physician office visits in the West had effectively the same likelihood of including therapeutic and preventive services as office visits in the Midwest. As was the case

with diagnostic and screening services, therapeutic and preventive services were more likely to be administered during a physician office visit in an urban area than in a rural area, with the probability being about 23% greater in urban settings.

***Health Status; New or Established Physician-Patient Relationship.*** The presence of one or more chronic medical conditions had a positive and statistically significant relationship to the probability that therapeutic and preventive services were performed during a physician office visit. Other things being equal, patients with chronic conditions were almost three times as likely to have these kinds of services performed as were patients with no chronic conditions. Office visits to a health care provider who had seen the patient previously were less likely to include therapeutic and preventive services than visits to a provider who had never before seen the patient. An office visit with an M.D. was much more likely to include therapeutic and preventive services than a visit with a primary-care provider who was not a physician.

***Insurance Plans Accepted by the Physician.*** Relative to visits to physicians who accepted only regular fee-for-service (FFS) insurance plans, neither visits to providers that accepted both FFS and PPO or both HMO and PPO plans had a significantly different likelihood of including a therapeutic or preventive service, other things being equal. As was also the case with diagnostic and screening services, however, office visits to primary-care providers who accepted only HMO insurance plans were significantly more likely than visits to a pure-FFS provider to include a therapeutic or preventive service, once other factors were taken into account. Relative to an office visit to a provider who accepted only FFS insurance plans, a visit to an office that accepted only HMO plans was about 37% more likely to include delivery of therapeutic or preventive services.

## Table 7. Therapeutic and Preventive Services, Privately Insured Patients Under Age 65: Logistic Regression Results

**Response Variable:** Were therapeutic or preventive services performed?

| Analysis Variable | Weighted Mean | Parameter Estimate | Standard Error | Odds Ratio |
|---|---|---|---|---|
| Intercept | | -1.1327 *** | 0.2340 | . |
| Age | 29.1 | -0.00796 *** | 0.00162 | 0.992 |
| Sex (1 = female) | 0.6345 | -0.0417 | 0.0585 | 0.959 |
| Race (1 = white) | 0.8778 | -0.1265 | 0.0850 | 0.881 |
| Northeast | 0.1736 | 0.2931 *** | 0.0856 | 1.341 |
| South | 0.3241 | -0.5034 *** | 0.0768 | 0.605 |
| West | 0.2640 | 0.0588 | 0.0781 | 1.061 |
| Urban Area | 0.8336 | 0.2054 ** | 0.0812 | 1.228 |
| Has Chronic Condition(s) | 0.2189 | 1.0960 *** | 0.0738 | 2.992 |
| Patient Seen Previously | 0.9035 | -0.1733 * | 0.0936 | 0.841 |
| Provider is an M.D. | 0.9583 | 0.6921 *** | 0.1602 | 1.998 |
| Reg. FFS or PPO accepted | 0.1569 | 0.0866 | 0.1111 | 1.091 |
| HMO or PPO accepted | 0.6645 | 0.0598 | 0.0924 | 1.062 |
| Only HMO accepted | 0.0560 | 0.3176 ** | 0.1444 | 1.374 |

**Source:** CRS analysis of data from the 1995 NAMCS.

n = 6,028 observations
* significant at >= .10
*** significant at >= .05
*** significant at >= .01

**Discussion.** The data reported in **Table 1** show that patients with particular demographic and health characteristics are more likely to have visited the offices of primary-care physicians that accept certain kinds of insurance and less likely to have visited physician office that accept other kinds of insurance. Pure FFS physician offices had a smaller-than-average percentage of visits by children and young adults and a greater than average percentage of visits by adults aged 55 to 64. Pure HMO physician practices also had a lower-than-average proportion of visits by children, but a greater-than-average proportion of visits but adults aged 35 to 64. Male patients, non-white patients, patients with one or more chronic medical conditions, and patients in rural areas each made up a greater-than-average proportion of visits to pure-FFS physician offices. Visits to pure FFS offices had a lower-than-average percentage of visits by patients whom the physician had never seen before, while offices that accepted both HMO and PPO plans had a disproportionately large share of visits by patients who were seeing a particular provider for the first time.

The data presented in **Table 2** and **Table 3** show consistently higher rates of diagnostic and screening services being performed in pure-HMO physician offices and that the relative difference from the average was much greater for men than for

women. In contrast, while men also were more likely to have received a diagnostic or screening service in a visit to a FFS-only office and were less likely to have received these services in a mixed FFS/PPO office, no such differences were found for women. Overall, women were more likely than men to have received diagnostic or screening services during a typical office visit, but among all visits by women the likelihood of receiving diagnostic or screening services was significantly above average only during visits to pure-HMO physician offices. Patients with no chronic medical conditions were less likely to receive diagnostic or screening services than those who had a chronic condition. Patients without a chronic condition were most likely to receive diagnostic or screening services in an HMO-only office.

**Table 4** and **Table 5** show a different pattern with respect to therapeutic and preventive services than **Tables 1 and 2** showed for diagnostic and screening services. Overall, the likelihood of receiving therapeutic or preventive services was similar for male patients and female patients. Visits to pure-HMO offices had a greater likelihood of including a therapeutic or screening services, while visits to mixed FFS and PPO offices had a lower-than average likelihood of including these services. The higher rate in HMO offices was statistically significant only for men while the lower rate in FFS/PPO offices was significant only for female patients. Among patients with no chronic medical conditions, office visits to all four insurance categories of primary care providers had statistically similar probabilities of including a therapeutic or preventive service.

With respect to diagnostic and screening services, office visits to providers who accepted both HMO/PPO or pure HMO plans had a greater likelihood of including these services than did visits to physicians who accepted only FFS insurance plans, even when controlling for the patient's health status and demographic characteristics. In the case of therapeutic and preventive services, however, only visits to pure HMO offices had a significantly higher likelihood of receiving such a service than visits to pure FFS offices. For both diagnostic/screening services and therapeutic/preventive services, the presence of a chronic medical condition exerted a much stronger influence on the likelihood that a patient would receive either kind of service than did the types of insurance coverage accepted by the provider.

The finding that female patients were more likely than male patients to have received diagnostic or screening services regardless of the health care provider's insurance affiliation most likely reflects female patients' greater frequency of visits for exams and check-ups. More than 63% of all office visits in 1995 were made by female patients, and a subset of these visits — such as those for mammograms or pap smears — *always* involve a test or exam. The greater probability of receiving either diagnostic/screening services or therapeutic/preventive services in an HMO-only office compared to a physician office that accepts only FFS insurance plans could be the result of several characteristics of HMOs. Health maintenance organizations have historically emphasized preventive care as a way of promoting good health and potentially reducing health care expenses over the long term. HMOs also frequently screen patients with phone consultations before making an appointment for an office visit. If effective, this would result in a greater proportion of patients who ultimately see a physician in a pure HMO being in need of medical services compared with patients in purely FFS physician offices. Finally, an emphasis on primary care is among the fundamental principles of HMOs, and HMOs are staffed mainly by

primary-care physicians. Consequently, it may be that some services performed in the offices of primary care physicians in HMOs are referred to specialists in FFS office settings.

Differences in the frequency with which diagnostic or therapeutic services are performed by any given group of physicians on any given group of patients do not necessarily mean that the rates at which these services are performed in one case or the other is inappropriate. However, while this analysis showed that a patient's health status has a much stronger relationship to the likelihood of receiving services during an office visit than does the provider's insurance affiliations, these too appear to influence the likelihood of some kinds of services be administered. Differences in the rates at which diagnostic and therapeutic services are performed among male and female patients and among office visits to physicians who participate in HMOs or PPOs or do not participate in any kind of managed care naturally raise the question of *why* these differences occur.

Previous research has shown that patients enrolled in HMOs typically have a higher number of physician office visits and fewer inpatient admissions in a given period of time than non-HMO patients, but that they also have less access to specialists and use fewer complex tests and procedures. This analysis presents evidence that, even when controlling for the patient's health status, diagnostic and screening services are most likely to be provided during office visits to primary care physicians in HMO or HMO/PPO practices, and that therapeutic and preventive services are most likely to be performed during office visits to HMO-only physician practices.

# Appendix I: Standard Errors of Estimates

## Table A1. Standard Errors for Estimates Displayed in Table 1

| Patient age, sex, race; physician location | Visits (000s) | *Standard error (+/-)* FFS only | FFS or PPO | HMO or PPO | HMO only |
|---|---|---|---|---|---|
| **Under age 18** | **59,144** | *0.7%* | *1.0%* | *1.2%* | *0.4%* |
| **Ages 18 to 34** | **36,224** | *0.9%* | *1.1%* | *1.5%* | *0.9%* |
| **Ages 35 to 54** | **53,413** | *0.8%* | *1.0%* | *1.3%* | *0.7%* |
| **Ages 55 to 64** | **19,508** | *1.7%* | *1.7%* | *2.2%* | *1.3%* |
| **Female** | **106,942** | *0.5%* | *0.7%* | *0.9%* | *0.4%* |
| **Male** | **61,347** | *0.8%* | *0.9%* | *1.2%* | *0.6%* |
| **White** | **147,423** | *0.5%* | *0.6%* | *0.8%* | *0.4%* |
| **Black or other** | **20,865** | *1.5%* | *1.3%* | *2.0%* | *1.0%* |
| **Has chronic condition(s)** | **36,434** | *1.2%* | *1.1%* | *2.5%* | *0.8%* |
| **No chronic conditions** | **131,853** | *0.5%* | *0.6%* | *0.8%* | *0.4%* |
| **Northeast** | **29,070** | *1.1%* | *0.8%* | *1.7%* | *0.6%* |
| **Midwest** | **40,991** | *0.9%* | *1.2%* | *1.5%* | *0.6%* |
| **South** | **52,684** | *0.8%* | *1.2%* | *1.3%* | *0.5%* |
| **West** | **45,544** | *0.9%* | *0.8%* | *1.3%* | *0.9%* |
| **Urban** | **141,671** | *0.4%* | *0.6%* | *0.7%* | *0.4%* |
| **Rural** | **26,616** | *1.7%* | *1.7%* | *1.9%* | *0.4%* |
| *Physician:* | | | | | |
| **Has seen patient before** | **151,818** | *0.5%* | *0.6%* | *0.8%* | *0.4%* |
| **Has not seen patient before** | **16,470** | *1.3%* | *1.5%* | *2.1%* | *1.2%* |
| **Total** | **168,289** | *0.5%* | *0.6%* | *0.7%* | *0.4%* |

## Table A2. Standard Errors for Estimates Displayed in Table 2

*Were diagnostic services performed?*

| Type of insurance accepted by physician | Total visits (000s) | Yes/No *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **16,848** | *2.0%* |
| **HMO only** | **9,662** | *2.3%* |
| **FFS or PPO** | **27,075** | *1.7%* |
| **HMO or PPO** | **114,703** | *0.8%* |
| **Total** | **168,288** | *0.7%* |

People Who Had No Chronic Medical Conditions

*Were diagnostic services performed?*

| Type of insurance accepted by physician | Total visits (000s) | Yes/No *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **11,459** | *2.6%* |
| **HMO only** | **7,115** | *2.9%* |
| **FFS or PPO** | **21,915** | *2.0%* |
| **HMO or PPO** | **91,365** | *1.0%* |
| **Total** | **131,854** | *0.8%* |

## Table A3. Standard Errors for Estimates Displayed in Table 3

**Female Patients**

*Were diagnostic or screening services performed?*

| Type of insurance accepted by physician | Total visits (000s) | Yes /No *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **9,408** | *2.7%* |
| **HMO only** | **6,194** | *2.8%* |
| **FFS or PPO** | **16,738** | *2.1%* |
| **HMO or PPO** | **74,602** | *1.0%* |
| **Total** | **106,942** | *0.8%* |

**Male Patients**

*Were diagnostic or screening services performed?*

| Type of insurance accepted by physician | Total visits (000s) | Yes /No *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **7,440** | *3.0%* |
| **HMO only** | **3,469** | *4.0%* |
| **FFS or PPO** | **10,337** | *3.0%* |
| **HMO or PPO** | **40,101** | *1.5%* |
| **Total** | **61,347** | *1.2%* |

## Table A4. Standard Errors for Estimates Displayed in Table 4

All Privately Insured People Under Age 65

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | **Total visits (000s)** | **Yes/No** *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **16,848** | *2.3%* |
| **HMO only** | **9,662** | *3.2%* |
| **FFS or PPO** | **27,075** | *1.8%* |
| **HMO or PPO** | **114,703** | *0.9%* |
| **Total** | **168,288** | *0.7%* |

People with No Chronic Medical Conditions

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | **Total visits (000s)** | **Yes/No** *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **11,459** | *2.7%* |
| **HMO only** | **7,115** | *3.6%* |
| **FFS or PPO** | **21,915** | *1.9%* |
| **HMO or PPO** | **91,365** | *1.0%* |
| **Total** | **131,854** | *0.8%* |

## Table A5. Standard Errors for Estimates Displayed in Table 5

**Female Patients**

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | **Total visits (000s)** | **Yes/No** *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **9,408** | *3.2%* |
| **HMO only** | **6,194** | *3.9%* |
| **FFS or PPO** | **16,738** | *2.2%* |
| **HMO or PPO** | **74,602** | *1.1%* |
| **Total** | **106,942** | *0.9%* |

**Male Patients**

*Were therapeutic or preventive services performed?*

| Type of insurance accepted by physician | **Total visits (000s)** | **Yes/No** *Standard error (+/-)* |
|---|---|---|
| **FFS only** | **7,440** | *3.5%* |
| **HMO only** | **3,469** | *5.3%* |
| **FFS or PPO** | **10,337** | *2.9%* |
| **HMO or PPO** | **40,101** | *1.5%* |
| **Total** | **61,347** | *1.2%* |

# Appendix II: Medical Services and Medical Conditions

The National Ambulatory Medical Care Survey (NAMCS) defines three categories of diagnostic and screening services: exams, tests, and imaging.

**Exams, Tests, and Imaging**

Breast exam
Pelvic exam
Rectal exam
Visual acuity exam
Mental status exam
Other exam

Blood pressure test
Urinalysis
TB skin test
Blood lead level test
Cholesterol measure
Prostate screening antigen (PSA) test
HIV serology
Other blood test
Other test

X-ray
Computerized axial tomography (CAT scan)
Magnetic resonance imaging (MRI)
Ultrasound
Other imaging
Other diagnostic or screening service

The NAMCS defines two categories of therapeutic and preventive services: counseling/education and other therapy.

**Counseling/Education**

Diet
Exercise
Weight reduction
Cholesterol reduction
HIV transmission
Tobacco use/exposure
Growth/development
Mental health
Other counseling

**Other Therapy**

Psychotherapy
Corrective lenses
Physiotherapy
Other counseling

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