MARYLAND HEALTH CARE COMMISSION

2008–2009

PROFESSIONAL SERVICES UTILIZATION

Trends Among Privately Insured Patients

Released July 2011

Marilyn Moon, Ph.D., Chair
Ben Steffen, Acting Executive Director

MARYLAND HEALTH CARE COMMISSION

The Maryland Health Care Commission (MHCC) is a public, regulatory commission established in 1999 by the Maryland General Assembly through a merger of the Health Care Access and Cost Commission and the Maryland Health Resources Planning Commission. The MHCC mission is to plan for health system needs, promote informed decisionmaking, increase accountability, and improve access in a rapidly changing health care environment by providing timely and accurate information on availability, cost, and quality of services to policymakers, purchasers, providers, and the public. The Commission is administratively located within the Maryland Department of Health and Mental Hygiene, and is composed of 15 members appointed by the Governor, with advice and consent of the Senate, for a term of four years.

The MHCC is required under Health-General Article §19-133(g)(2-4) to issue a report describing the level of payments to physicians and other health care practitioners. Each year since 1996, the MHCC has published a professional health services report that provides a detailed analysis of payments to physicians and other health care professionals for the care of privately insured Maryland residents under age 65. The reports are based on health care claims and encounter data that most health insurance plans serving Maryland residents submit annually to the MHCC.

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Dr. Lan Zhao of SSS's Center for Health Research and Policy conducted the analyses described in this report. The programming effort at SSS was led by Mr. Adrien Ndikumwami with assistance from Ms. Sanee Maphungphong (SSS), Ms. Kasey Chen (Avar), Ms. Doreen Xu (DAS), and Ms. Ling Wu (DAS). They edited the payer data submissions, organized the MCDB, and completed the numerous data analyses in this report. Also at SSS, Ms. Joan Holleman and Ms. Bonnie Belkin edited the report, and Ms. Laura Spofford assisted in the graphic design and production of the report. The Commission thanks the SSS team.

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Report Highlights

This report describes the use of professional health care services by privately insured Maryland residents less than 65 years of age, during calendar year 2009, and the payments made to practitioners for these services by insurance companies and service users. Unless otherwise noted, the data source for all analyses in the report is the Maryland Medical Care Data Base (MCDB), which contains information on privately insured professional services used by Maryland residents.[1] As in the 2008 *Practitioner Utilization* report, the analysis includes capitated services; while these services lack payment information, improvements in data quality allowed imputation of payment amounts so that a fuller picture of all services and payments can be provided.[2]

Professional service use is characterized by three key measures: (a) the average annual expenditure per user; (b) the average number of professional services obtained during the year; and (c) the average complexity of these services, with complexity defined by the number of relative value units[3] (RVUs) per service. Payments to health care professionals are described using the average payment per RVU and the ratio of the actual expenditure per user to the payment that would have resulted if the Medicare fee schedule had been applied.

HIGHLIGHTS FROM THE REPORT

Growth in Per-User Spending

Between 2008 and 2009 the average expenditure per user for professional services among users insured for the entire year[4] grew by 2 percent, lower than the 5 percent increase in the prior year. Nationally, the average spending on office-based medical provider visits for a nonelderly, privately insured, full-year user increased by 3 percent from 2007 to 2008.[5] The main driver for the 2008–2009 growth was a 2 percent increase in the average payment rate for the mix of services obtained by users—as measured by the average payment per RVU. In contrast, the main driver for the 2007–2008 growth was a 3 percent increase in average volume, as measured by the number of professional services per user. The growth in per-user spending from 2008 to 2009 varied by coverage type and was especially large, at 8 percent, in the individual market. By network type, the growth was concentrated almost exclusively among users enrolled in HMO plans (4 percent), while users in non-HMO plans exhibited no increase in per-user spending in 2009.

Per-capita personal income in Maryland has continued to keep pace with the growth in spending for professional services, with the result that, since 2004, per-user spending continues to account for slightly more than 2 percent of per-capita personal income.

Level and Determinants of Per-User Spending

In 2009, the average expenditure on professional services for a full-year user in Maryland was $1,238. User risk status, as measured by an expenditure risk score, is an important determinant of the level of average spending on professional services. An expenditure risk score—which is a measure of a person's need for medical care—was calculated for each full-year user, and users were assigned to one of three categories: low-risk, medium-risk, or high-risk.[6] In 2009, the annual expenditure for a user with medium-risk was about twice that of a low-risk user, and the annual expenditure for a high-risk user was about five times that of a low-risk user. The average expenditure per user in different coverage types is strongly influenced by the risk mix of the users. Users in the Maryland Health Insurance Plan (MHIP), the

[1] A detailed description of the MCDB is included in Appendix A, and the list of insurers who submitted 2009 insurance claim data to the MCDB is located in Appendix C.
[2] These changes are described in detail in Chapter 1 under Methodological Changes: Imputation of Payments for Capitated Services.
[3] See Key Terms in Chapter 1 for the definition of relative value unit.
[4] See Chapter 1 for the definition of a full-year user.
[5] Data source: Medical Expenditure Panel Survey (MEPS), 2007 and 2008. The 2008 data are from the most recent MEPS available at the time this report was prepared.
[6] See Chapter 1 for a description of the expenditure risk score and category assignment.

state's high-risk pool, had the highest average risk score and the highest average expenditure per user of all coverage types.[7] At the other end of the risk-score distribution, users enrolled in plans in the individual market had the lowest risk scores and ranked at the bottom in average spending per user.

The overall patient cost-sharing burden, measured by the share of total spending paid out-of-pocket, for full-year users was 21 percent in 2009, but the patient's share of payment obligations varied significantly by network type. Users in consumer-directed health plans (CDHPs) that allow members to use personal Health Savings Accounts (HSAs), Health Reimbursement Arrangements (HRAs), or similar medical payment products to pay routine health care expenses on a pre-tax basis paid 36 percent of their expenditures out-of-pocket in 2009. In comparison, among non-CDHP users, the out-of-pocket cost was 21 percent and 14 percent, respectively, for non-HMO users and HMO users.

Payment Rate for Professional Services

The two largest payers in Maryland accounted for about 70 percent of the market, whether measured by number of services, total resources (RVUs), or total payments. In 2009, the overall average payment rate was $36.70, 2 percent higher than in 2008. As in previous years, payment per RVU across all professional services was lower among the largest payers than among the other payers, $35.30 versus $40.30. However, their difference in payment rates may be narrowing as the increase in the overall average payment rate from 2008 to 2009 was mainly due to a 2 percent increase among the largest payers, while the payment rate increase among the other payers was lower, at 1 percent. Among the largest payers, the average payment rate for services from participating providers grew by 2 percent, while the average rate for services from nonparticipating providers grew considerably more, by 9 percent. Services covered by the largest payers were more likely to be delivered by participating providers than services covered by the other payers. Among the other payers, the average rates for services from participating and nonparticipating providers both grew by 1 percent. Overall, the average rate for participating provider services grew by 2 percent, and the average rate for non-participating provider services grew by 7 percent.

Across Maryland regions, the largest payers had a lower payment rate for services delivered by participating providers than the other payers; both payer groups paid their highest rate to participating providers in the National Capital Area. The largest payers also paid a lower rate across all types of services provided by participating providers than the other payers; for both groups of payers, the lowest average payment per RVU was for evaluation and management (E/M) services delivered by mental health professionals. Mental-health-related E/M services were most likely to be provided by nonparticipating providers regardless of payer market share; about one-quarter of these E/M services covered by the largest payers was delivered by nonparticipating providers, and that ratio was almost one-third for the smaller payers.

[7] 2008 was the first year that data on full-year users in the Maryland Health Insurance Plan (MHIP) were included in the MCDB.

1. Introduction

As required by Maryland Health-General Article §19-133(g)(2-4), the Maryland Health Care Commission (MHCC) has published annually, since 1996, a report on the use of and spending on professional medical services by state residents with private health insurance. The main purpose of the professional services report series[8] is:

- To describe the use of—and trends in the use of—professional medical services covered by private health insurance by nonelderly Maryland residents;
- To analyze spending on these services by user, provider, and market characteristics;
- To examine the payments made by insurance companies for these services; and
- To provide timely analytic evidence on issues related to professional medical services for state policymakers and other interested parties when data permit.

As with all previous professional services reports, the Maryland Medical Care Data Base (MCDB) is the main data source for this 2009 *Professional Services Utilization* report. The MCDB includes information for individuals covered by private insurance who used insured professional services during each year. Private health insurance plans that serve Maryland residents, with the exception of a number of small payers, have been submitting data for inclusion in the MCDB annually since 1996.[9]

This introductory chapter explains key concepts used in the report and describes methodological changes and caveats in this year's data analyses. Chapter 2 examines professional services from the users' perspective. It analyzes the relationship between price, volume, service complexity, and total per-user spending. Chapter 3 analyzes professional services from the payers' perspective. It examines whether payment rates for professional services differ by payer market share. Payment rates are also compared for services provided by participating and nonparticipating providers between the largest payers and the other payers. Appendix A provides a technical background, including a summary of data and methods for this report. Appendix B contains supplemental data on per-user expenditures and the relative value units (RVUs) for privately insured professional services. It also includes tables that summarize the distribution of full-year users' expenditures for professional services in 2009 by user health status, as measured by expenditure risk scores, and coverage type; changes in RVUs per service and payment rate in expenditure risk categories by coverage type, network type, region, and payer market share; the decomposition of per-user expenditure by user, plan, and payer characteristics in 2008; the value of risk scores at various percentiles; and the distribution of expenditure risk scores by user characteristics. Appendix C lists the payers contributing data to this report.

KEY CONCEPTS
Study Populations: All Users Versus Full-Year Enrollees

Findings in this report pertain only to the nonelderly privately insured who used one or more professional services (i.e., *the users*) rather than the whole nonelderly, privately insured population. The MHCC's professional medical services reports are based on information from private insurers in Maryland for covered (insured) services used by nonelderly Maryland residents. If a privately insured nonelderly person did not use any covered professional services, and thus had no claim or encounter[10] in a particular year, this individual will not appear in the MCDB and, therefore, will not be part of the analyses for that year.

Among all users, some were enrolled in the same insurance plan for the entire year of 2009. These *full-year users*, identified using enrollment and disenrollment dates, are the study population in

[8] Between 1996 and 2008, the report was titled *Practitioner Utilization*. Beginning with this 2008–2009 report, the title has been changed to *Professional Services Utilization*.

[9] A detailed description of the MCDB is included in Appendix A, and the list of insurers who submitted 2009 insurance claims data to the MCDB is located in Appendix C.

[10] Claims are records of health care services paid on a service-by-service basis and include the associated payment information. Encounters are records of services paid on a capitation basis or through a global contract with an intermediary organization, and do not include payment information.

TABLE 1-1: Count of All and Full-Year Users and Distribution of Users by Coverage Type, 2009

	All Users	Full-Year Users	Proportion of Full-Year Users to All Users
ALL	2,713,856	1,942,491	72%
COVERAGE TYPE			
Non-CDHP	90%	92%	73%
1: Public Employer Plan	37	43	83
2: Private Employer Plan	37	36	70
3: CSHBP	8	6	49
4: Individual Plan	5	5	69
5: MHIP	1	1	62
CDHP	10	8	57

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan.
2. Full-year users are those enrolled in the same insurance plan for the entire year. Enrollees who have more than one coverage type are assigned the coverage type associated with the highest total RVUs, payment, number of services, or the most recent recorded coverage type if the coverage types are tied to total RVUs, payment, and number of services.
3. Detail may not add to total due to rounding.

Chapter 2 when professional services are examined from the users' perspective. Focusing on full-year users provides a more accurate estimation of annual service use and spending and better understanding of how price, volume, and service complexity contribute to changes in spending on privately insured professional services in Maryland.

In 2009, there were about 2.7 million users, 1 percent fewer than in 2008 (data not shown).[11] Non-consumer-directed health plan (non-CDHP) private employer plans and public employer plans continued to be the two major sources of private health insurance for users of professional services, accounting for more than one-third each and almost three-quarters combined, of all users in 2009 (Table 1-1). Consumer-directed health plans (CDHPs) of any coverage type and the non-CDHP Maryland Comprehensive Standard Health Benefit Plan (CSHBP) for small businesses covered 10 percent and 8 percent of users, respectively. Another 5 percent of users were covered through the individual market. The Maryland Health Insurance Plan (MHIP), the high-risk pool for individuals who are unable to obtain health insurance in the nongroup market due to medical underwriting, covered about 1 percent of all users, exclusively through non-CDHP plans. Among CDHPs, all coverage types except for the MHIP gained users in 2009 (data not shown). In contrast, all non-CDHPs except those provided through public employers and the MHIP lost users. As a result, the share of users covered by non-CDHP private employer plans and the non-CDHP CSHBP shrank slightly, by 1 and 2 percentage points, respectively, while the share of users in non-CDHP public employer plans and CDHPs each increased by 1 percentage point in 2009 (data not shown). Changes in the distribution of all users by coverage type possibly reflect the prolonged effect of the economic downturn on the job market and its ripple effect on the availability and affordability of health insurance, including the decision by some employers to limit coverage to employees only (no family members).

A little less than three-quarters of users in 2009 were enrolled in the same plan for the entire calendar year (Table 1-1). As seen in previous years, individuals insured through public employers are most likely to remain enrolled in the same plan. This is not surprising given that public-sector employment tends to be more stable than private-sector employment. The vast majority of users in public employer plans (83 percent in 2009) were full-year enrollees. As a result, users in public employer plans accounted for a higher share among full-year users than among all users: 43 percent versus 37 percent in 2009. In contrast, users in the non-CDHP CSHBP were much less likely to hold insurance with the same plan throughout the calendar year—in 2009, just under one-half of the non-CDHP CSHBP enrollees

[11] Changes in the number of users between years may reflect several factors, including the completeness of the data submitted by the payers, and changes in the number of individuals covered by private insurance and in the share of the privately insured who used professional medical services.

KEY TERMS

TOTAL PAYMENTS FOR PROFESSIONAL SERVICES Sum of payments from the insurer and patient, including the deductible, copayment or coinsurance, and balance billing amounts to be paid directly out-of-pocket by the patient, as reported on the claims data.

COUNT OF SERVICES A simple count of the number of services provided to patients (as listed on the bills), without regard to the cost or complexity of those services. The average number of services per user is used to capture the **volume** of professional services in this report.

RELATIVE VALUE UNITS (RVUs) OF CARE A measure of the quantity of care, in which more complex, resource-intensive (and typically more costly) services have a higher number of RVUs. A more sophisticated measure of the quantity of care than a simple count of services, RVUs measure the level of resources used to produce a particular service. RVUs are used to define both service complexity and payment rate in this report. The **complexity** of a group of services is defined by the average number of RVUs per service. The average unit price, or **payment rate**, is measured by the average payment per RVU. Medicare's physician payment system was used as the source of information on the number of RVUs for each service. For this report, RVUs from the 2009 Medicare fee schedule were applied to both 2008 and 2009 data.

COUNT OF SERVICE USERS A count of the encrypted patient identifiers reported by payers. Because payers may use different encryption systems for their different insurance products (plans), the count is made within each specific plan. Counts of users may overstate the actual number of users of practitioner services, because individuals who are insured under more than one product during a year will be counted separately under each.

PAYMENT AT MEDICARE PAYMENT LEVEL Medicare RVUs are added to each service in the MCDB by Current Procedural Terminology (CPT) code, and the Medicare conversion factor is applied to calculate payment for the service at the Medicare payment level.

were full-year users. This may be the result of two factors: job turnover and the stability of plan offerings. The turnover rate of employees in small business and the turnover rate of small businesses themselves tend to be higher than their larger counterparts. In addition, the contract year for small employers often does not coincide with the calendar year. When employers in the CSHBP change plans or initiate or drop health insurance coverage during the calendar year, their employees become part-year enrollees in one or more plans.

Users in the MHIP were about 10 percentage points less likely to be full-year users than the average of all users. The low ratio of full-year users to all users in the MHIP is in part due to the fact that MHIP enrollees can enroll at any time during a year. Many eligible individuals enroll in MHIP when they have a break in employment and have either exhausted or are not eligible for COBRA benefits. Once they find new employment with insurance coverage in which their employers pay 50 percent or more of the premiums, they are not eligible for MHIP.[12]

Users in CDHP plans were also less likely to be full-year users than average. In 2009, 57 percent of CDHP users were full-year users. As in the previous couple of years, the lower share of full-year users in CDHPs in 2009 reflects the continued growth in CDHP enrollment in 2009. Because this enrollment occurred throughout the year, it produced a relatively large share of users who were covered for less than a year. Among non-CDHP CSHBP users, compared with 2008, the share of full-year users dropped by 9 percentage points in 2009. This is due, in part, to a switch of CSHBP users from non-CDHPs to CDHPs

[12] Individuals may be eligible for subsidized premiums under MHIP, if the family income falls below thresholds established by the MHIP board.

during 2009,[13] which led to a lower share of full-year users in both the non-CDHP CSHBP group and the CDHP group.

User, Insurance Plan, Payer, and Provider Characteristics

Users, providers, and payers and the insurance plans they offer all play a role in determining the use and cost of professional services. In this report, we examine: (a) how the level of and the annual change in per-user expenditures and service utilization vary by user, plan, and payer characteristics, and (b) how payments per RVU vary by payer and provider characteristics.

USER CHARACTERISTICS: Health status and geographic location are two main user characteristics that affect the use of professional services. Health status determines the type and amount of professional services needed, while geographic location captures factors such as cost of living that affect expenditures on professional services.

- **Geographic region** divides the state into three areas: Baltimore Metropolitan Area (BMA), National Capital Area (NCA, including Montgomery and Prince George's counties), and Other Maryland Areas.
- **Expenditure risk score** measures the need for medical care. The healthier a person, the less medical care is needed, regardless of the person's demographic and socioeconomic characteristics. We report utilization and spending for full-year users grouped by a measure of their need for medical care, defined by the Chronic Illness and Disability Payment System (CDPS). The CDPS, developed by researchers at the University of California, San Diego, categorizes an individual's risk of having significant medical expenditures from the number and mix of diagnoses recorded on his or her insurance claims.

A risk score was calculated for each user enrolled for the entire year in the same data reporting plan using only professional service records. The resulting distribution of scores was divided into three groups of approximately the same size,[14] and individuals were assigned to one of three categories—"low-risk," "medium-risk," or "high-risk"—based on their position in the distribution.

PLAN AND PAYER CHARACTERISTICS: Throughout this report, insurance plans and payers are categorized along the following dimensions:

- **Coverage type** differentiates between CDHPs and non-CDHPs, and among non-CDHPs, whether the private insurance is purchased on an individual basis or through an employer. Among employer-sponsored plans, there are three groups—private employers, public employers, and the CSHBP for small businesses. There are two groups for plans purchased individually—those through the regular individual market and those through the MHIP. This is the second year since the creation of the MHIP by the Maryland legislature in 2002 in which data submission allows the reporting of MHIP as a separate coverage type.
- **Network type** distinguishes between health maintenance organizations (HMOs) and non-HMOs—typically preferred provider organizations (PPOs). HMOs and non-HMOs differ in the breadth of their provider networks, whether a referral from a primary care physician is required to see a specialist, and the extent to which the use of nonparticipating providers' services (out-of-network services) is reimbursed. PPOs have larger networks and offer more generous reimbursement for out-of-network services, while HMOs limit their reimbursement for out-of-network services to emergency care only.
- **Market share** separates the two largest payers from all other payers, because they may differ in their ability to lead rather than follow market trends.

PROVIDER CHARACTERISTICS: A provider's reimbursement for a service generally reflects the number of RVUs associated with the service—although other factors are involved—and differs by payer. Even for the same service within the same payer, the average price per unit of service—here measured as average payment per RVU—can vary

[13] Of all CDHP users, the share of CSHBP users increased from 26 percent in 2008 to 34 percent in 2009; meanwhile, the share of CSHBP users among all non-CDHP users dropped from 10 percent in 2008 to 8 percent in 2009.

[14] Users were not grouped evenly in thirds due to ties in risk scores around the cutoff points.

TABLE 1-2: Impact of Imputation of Capitated Services on the Number of Full-Year Users and Expenditure Per User, 2008 and 2009

	2008			2009		
	Without Imputation	With Imputation	Percentage Change After Imputation	Without Imputation	With Imputation	Percentage Change After Imputation
NUMBER OF FULL-YEAR USERS	1,907,827	2,060,039	8%	1,790,737	1,941,520	8%
PER-USER EXPENDITURE						
All Full-Year Users	$1,099	$1,209	10	$1,126	$1,237	10
Full-Year Users with Some Capitated Services	1,279	1,563	22	1,310	1,639	25
Full-Year Users with Only Capitated Services	n/a	414	n/a	n/a	487	n/a

NOTES: 1. Full-year users are those enrolled in the same insurance plan for the entire year.
2. Capitated services include both services paid on a capitation basis and services reimbursed through a global contract with an intermediary organization.

based on geographic location of the provider and whether the provider and payer have a payment agreement.[15]

- **Geographic region** divides the providers into four categories based on their geographic location, which may be outside of Maryland. Providers in locations with higher resource costs tend to receive higher average payment per RVU. The provider regions include the Baltimore Metropolitan Area (BMA); the NCA (Montgomery and Prince George's counties, and locations in Northern Virginia); other areas in Maryland or in adjacent states (excluding Virginia); and providers in more distant or unknown locations.
- **Participation status** indicates whether or not the provider who rendered a service had a payment agreement with the payer responsible for the reimbursement of the service. A service obtained from a nonparticipating provider is considered out-of-network.[16]

Methodological Changes: Imputation of Payments for Capitated Services

The MCDB's information on professional services includes both health care claims—with payment information—and encounter records, which do not have payment data.[17] Because they lack payment information and reliable procedure codes, encounter records were not included in the analyses in professional services reports prior to 2008. The exclusion of encounter records resulted in an underestimation of the utilization of and spending on professional services in users with one or more capitated services.

Starting with the 2008 MCDB, improvement in data quality, particularly in the procedure code field, allowed the imputation of payments for capitated services. In 2009, 14 percent of all services were capitated, the same as in 2008 (data not shown). These services accounted for 7 percent of total RVUs in both years, reflecting the relatively low resource intensity in capitated services. Capitated services were provided mainly by HMO plans, accounting for 40 percent of the number of all HMO services, or 21 percent of the total RVUs embodied in HMO services in 2009.

[15] A provider who has a payment agreement with a payer is a *participating provider*; a provider without a payment agreement is a *nonparticipating provider*.

[16] Another scenario in which a service is considered out-of-network is when the user was required to, but did not, obtain a referral for the service.

[17] Encounter records include both capitated services and services reimbursed through a global contract with an intermediary organization. For simplicity, this report refers to services recorded in encounter records as "capitated services."

Using payment information on noncapitated services within the same payer, we imputed payment for capitated services based on the Current Procedural Terminology (CPT) code associated with a service. The imputation affects two groups of users—those with only capitated services and those with certain services paid through capitation during a plan year. Without imputation, the first group of users would have been excluded from the analyses; the second group of users would have been included but would be associated with an underestimated utilization of services and per-user spending. In both 2008 and 2009, the number of full-year users who are included in the report analyses increased by 8 percent with imputation (Table 1-2). These full-year users spent on average $414 and $487 on professional services in 2008 and 2009, respectively. For full-year users with some but not all capitated services, per-user expenditure was 22 percent and 25 percent higher after imputation in 2008 and 2009, respectively. Overall, the inclusion of imputed payments for capitated services led to a 10 percent increase in reported per-user spending among all full-year users in both 2008 and 2009.

Caveats

In previous years, payment for a service was defined as the sum of reimbursed amount from the insurer and the amount paid out-of-pocket (OOP) by the patient. Our examination of the data shows that patient liability does not always capture balance billing for non-HMO out-of-network (OON) services.[18] In this report, we differentiate between non-HMO OON services and all other services when defining payment. For all other services, the definition of payment remains the same as in previous reports while for non-HMO OON services, payment is set to billed charge to reflect the full extent of balance billing. Patient OOP cost for non-HMO OON services is set to the difference between billed charge and the amount reimbursed by the payer; for all other services it is set to the patient liability reported on the claim, as in previous reports.

Measures related to RVUs for 2008 may differ slightly from what was reported in the 2008 *Practitioner Utilization* report. In the 2008 report, RVUs from the 2008 Medicare fee schedule were used for the 2008 services, while in this report, RVUs from the 2009 Medicare fee schedule were used. In each year's report, we apply the same set of RVUs to both the reporting year and comparison year's data in order to eliminate the reevaluation of resource use for different services from calculations of the annual changes in payment rates (payment per RVU) and service complexity (RVUs per service). In other words, holding the number of RVUs constant by CPT code allows us to more correctly determine the impact of annual changes in the use of services and changes in payment rates on spending for professional services.

The 2009 data provided by one of the major insurers in Maryland did not pass quality checks. There appeared to be errors in the user identification encryption algorithm used in its data.[19] As a result, the count of this insurer's users is not reliable. However, without this payer's data, the annual report on utilization and cost of professional health care services by privately insured, nonelderly residents in Maryland would present a skewed picture of utilization, especially with regard to distribution of patients and payments across the largest payers and the other carriers. Consequently, the 2009 MCDB was augmented with this payer's 2008 data, adjusted to approximate 2009 utilization and costs using parameters from the 2009 data submission that have been determined to be credible. The MCDB shows that the use of and payment for professional services by other payers was fairly stable from 2008 to 2009, and there is no anecdotal evidence that this particular payer was an anomaly. Therefore, our approach allows us to present a more accurate picture of the use of and payments for professional services by privately insured nonelderly Maryland residents while keeping the bias in the analyses to a minimum.

[18] Balance billing entails billing the patient for the difference between the provider's actual charge and the amount covered by insurance. In non-HMO plans, patients using OON services may be responsible for this amount.

[19] This insurer had successfully submitted data in prior years.

2. Decomposition of Spending on Professional Services: Volume, Complexity, and Price

This chapter provides an in-depth examination of the level of, and growth in, per-user expenditures on professional services. Spending is decomposed in order to understand the contributions of service volume, service complexity, and price in determining the level of spending as well as changes over time. This chapter also examines the variation in per-user expenditures by a number of user and market characteristics. The analyses are based on data for full-year users—users who were enrolled in the same plan for the entire calendar year. Following MHCC's convention for decomposing spending, service volume is captured through the number of services per user; complexity is measured by the average number of RVUs per service; and price is estimated through payment per RVU, with payment including both payer and user cost-sharing (out-of-pocket) amounts.

2.1 Overview

In 2009, the average expenditure on professional services for a full-year user in Maryland was $1,238, 2 percent higher than in 2008 (Table 2-1). Nationally, the average spending on office-based medical provider visits for a nonelderly, privately insured, full-year user increased by 3 percent from 2007 to 2008.[20] As a share of the average annual per-capita income for state residents, per-user spending has been stable for the past few years and remained so between 2008 and 2009. In both years, the average expenditure on professional services for a full-year user accounted for a little more than 2.5 percent of per-capita income (data not shown).

[20] Data source: Medical Expenditure Panel Survey (MEPS), 2007 and 2008. The 2008 data are from the most recent MEPS available at the time this report was prepared.

2.2 Summary of Main Findings

- User risk status, as measured by an expenditure risk score, is an important determinant of the level of average spending on professional services. The annual expenditure for a user with medium-risk is about twice that of a low-risk user, and the annual expenditure for a high-risk user is about five times that of a low-risk user.
- The growth in the average expenditure on professional services between 2008 and 2009 was lower than in the 2007 to 2008 period—2 percent versus 5 percent.
- The main driver for the 2008–2009 growth was a 2 percent increase in the average payment rate for the mix of services obtained by users—as measured by the average payment per relative value unit (RVU). In contrast, the main driver for the 2007–2008 growth was a 3 percent increase in average volume, as measured by the number of professional services per user.
- The growth in per-user spending was concentrated almost exclusively among users enrolled in HMO plans (4 percent), while users in non-HMO plans exhibited no increase in per-user spending in 2009.
- The growth in per-user spending from 2008 to 2009 varied by coverage type and was especially large, at 8 percent, in the individual market.

2.3 Level of Per-User Spending on Professional Services and Underlying Factors

2.3.1 USER RISK STATUS User risk status varies by plan, payer, and other user characteristics. Table 2-1 shows the distribution of users across expenditure risk categories for different coverage and network types. In the non-CDHP market, individuals who did not have employer-sponsored

TABLE 2-1: Distribution of Full-Year Users and Expenditure Per User in Expenditure Risk Categories by Coverage Type, Network Type, Region, and Payer Market Share, 2008–2009

	PERCENTAGE OF USERS, 2009				EXPENDITURE PER USER							
					All Users		Low-Risk Users		Medium-Risk Users		High-Risk Users	
		Low-Risk Users	Medium-Risk Users	High-Risk Users	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008
ALL	100%	35%	32%	33%	$1,238	2%	$456	3%	$923	1%	$2,375	0%
COVERAGE TYPE												
Non-CDHP	100	35	31	33	1,248	2	458	3	927	1	2,389	0
1: Public Employer Plan	100	34	32	35	1,238	3	441	4	897	2	2,327	0
2: Private Employer Plan	100	36	32	32	1,270	3	485	4	968	2	2,442	0
3: CSHBP	100	36	31	33	1,262	-3	445	-8	933	-5	2,445	0
4: Individual Plan	100	42	31	27	1,169	8	466	5	977	6	2,505	7
5: MHIP	100	15	26	59	2,208	-2	640	9	1,103	-2	3,101	-3
CDHP	100	37	32	31	1,128	2	435	3	873	2	2,209	-1
NETWORK TYPE												
Non-HMO	100	35	31	34	1,303	0	470	1	962	-1	2,462	-1
HMO	100	37	32	31	1,113	4	430	4	847	3	2,193	2
REGION												
Baltimore Metropolitan Area	100	34	31	34	1,233	2	452	1	908	1	2,316	0
National Capital Area	100	37	31	32	1,264	3	470	3	969	1	2,492	0
Other Maryland Areas	100	35	32	33	1,202	3	437	5	871	1	2,306	1
PAYER MARKET SHARE												
Largest Payers	100	34	31	34	1,236	1	439	1	904	0	2,339	0
Other Payers	100	38	32	31	1,243	4	488	5	961	3	2,461	0

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.
2. Detail may not add to total due to rounding.
3. 0% indicates <0.5%.

TABLE 2-2: Distribution of Full-Year Users, Mean, Median, and 90th Percentile of Expenditure Risk Score by Coverage Type, Network Type, Region, and Payer Market Share, 2008–2009

		MEAN		MEDIAN		90th PERCENTILE	
	All Full-Year Users	2009	Percentage Change From 2008	2009	Percentage Change From 2008	2009	Percentage Change From 2008
ALL	1,942,491	1.26	1%	0.78	1%	2.98	1%
COVERAGE TYPE							
Non-CDHP	92%	1.27	1%	0.78	0%	2.99	1%
1: Public Employer Plan	43	1.31	0	0.81	0	3.09	0
2: Private Employer Plan	36	1.23	2	0.76	3	2.91	3
3: CSHBP	6	1.27	-2	0.78	-3	3.00	-1
4: Individual Plan	5	1.05	1	0.58	0	2.43	1
5: MHIP	1	2.17	0	1.66	0	4.50	0
CDHP	8	1.20	1	0.71	-2	2.83	1
NETWORK TYPE							
Non-HMO	66	1.29	0	0.79	-2	3.05	0
HMO	34	1.20	1	0.69	1	2.82	2
REGION							
Baltimore Metropolitan Area	44	1.29	0	0.79	-2	3.05	1
National Capital Area	37	1.21	2	0.71	4	2.86	2
Other Maryland Areas	20	1.27	0	0.78	0	3.01	0
PAYER MARKET SHARE							
Largest Payers	68	1.29	0	0.81	0	3.06	0
Other Payers	32	1.19	2	0.64	0	2.79	3

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.
2. Detail may not add to total due to rounding.
3. 0% indicates <0.5%.

health insurance are sorted by the market into two groups—those who purchased insurance in the individual market and those who acquired insurance through the MHIP. These two groups of users are at opposite ends of the distribution of user expenditure risk. Users in the individual market are the healthiest among all users—42 percent of them were low risk and only 27 percent of them were high risk. The MHIP enrollees, on the other hand, are much more likely to have high expenditure risk scores—almost 60 percent of them were high risk in 2009, while only 15 percent of them were low risk. CDHP users had a slightly higher proportion in the low-risk category and a lower proportion in the high-risk category than the overall average. HMO users, users residing in the NCA, and users insured by payers other than the two largest payers also appear to be slightly healthier than their counterparts.

Table 2-2 shows the average, median, and 90th percentile expenditure risk scores[21] for full-year users in 2009 by plan, user, and payer characteristics and confirms the relative risks shown in Table 2-1. Variations in user risk status across different plan and payer characteristics reflect how the insurance market functions. Market selection and self-selection of healthier users into individual market plans and CDHPs underlie the lower-than-average average risk scores in these markets. Non-CDHP individual plan users in Maryland are subject to individual medical underwriting and preexisting condition restrictions,[22] while the benefit structure (e.g., high deductibles) of CDHPs tends to attract users who expect to incur lower

[21] See page 6 for a definition of expenditure risk score.
[22] A significant number of individuals are denied coverage in this market and purchase coverage through Maryland's high-risk pool, the MHIP.

TABLE 2-3: Number of Services Per User in Expenditure Risk Categories by Coverage Type, Network Type, Region, and Payer Market Share, 2008–2009

	NUMBER OF SERVICES PER USER							
	All Users		Low-Risk Users		Medium-Risk Users		High-Risk Users	
	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008
ALL	21.0	1%	9.3	2%	17.5	1%	36.8	-1%
COVERAGE TYPE								
Non-CDHP	21.1	1	9.3	2	17.6	1	36.9	-1
1: Public Employer Plan	21.5	2	9.2	3	17.6	2	37.1	-1
2: Private Employer Plan	20.6	2	9.4	2	17.5	1	36.2	0
3: CSHBP	22.0	-6	9.6	-7	18.4	-5	38.5	-4
4: Individual Plan	18.9	1	9.1	0	17.4	0	36.1	0
5: MHIP	33.9	-8	12.0	-8	19.3	-7	45.9	-9
CDHP	19.6	1	9.1	2	17.1	1	34.7	-1
NETWORK TYPE								
Non-HMO	21.7	0	9.4	1	17.9	0	37.6	-2
HMO	19.7	2	9.1	2	16.8	1	35.0	0
REGION								
Baltimore Metropolitan Area	21.6	1	9.4	1	17.9	0	37.1	-1
National Capital Area	20.8	1	9.5	2	17.7	1	37.4	-1
Other Maryland Areas	20.0	1	8.7	2	16.5	0	34.9	-1
PAYER MARKET SHARE								
Largest Payers	21.5	0	9.4	1	17.8	0	37.2	-1
Other Payers	19.8	4	9.1	3	17.0	3	35.8	0

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.
2. Detail may not add to total due to rounding.
3. 0% indicates <0.5%.

health expenses. The skewed distribution toward high-risk users for MHIP users reflects its role as a safety net for people who have been denied health insurance coverage in the private market or suffer from particular health conditions that make them automatically eligible (e.g., cancer). The fact that HMO users appear to be healthier than their non-HMO counterparts may reflect the need of less healthy users for a wider range of services, which are more easily accessible through non-HMO products. The higher average risk score for users covered by the largest payers than that for users covered by the other payers is likely the result of the mix of user risk scores in the markets where these payers operate—almost one-half of the full-year users covered by the other payers were from the NCA where users appeared to be healthier on average, while only about one-third of the users covered by the largest payers were from the NCA (Figure 2-1B).

User risk status is an important determinant of per-user expenditures, regardless of plan, payer, and other user characteristics. On average, the annual expenditure for a medium-risk user is twice that of a low-risk user, and the annual expenditure for a high-risk user is five times that of a low-risk user (Table 2-1). These ratios hold without exception within each coverage type, network type, user geographic region, and payer market share.

The markedly higher per-user expenditures for higher-risk users lead to two interesting findings. First, the mix of users by risk category can

change the overall ranking of per-user spending for a given group, even when a particular coverage type, network type, payer market share, or user geographic region is associated with higher per-user spending. For example, *within* each risk group, per-user spending in individual plans was 6 percent, 9 percent, and 8 percent higher than that for users in public employer plans for low-, medium-, and high-risk groups, respectively. However, the significantly healthier user mix in individual plans produced an average expenditure for individual plan users that was 6 percent lower than the average for those in public employer plans when looking at all risk groups combined. For the largest payers, their low-, medium-, and high-risk users on average had an expenditure that was 10 percent, 6 percent, and 5 percent lower than the expenditure for users in each respective risk category covered by the other payers, yet the overall per-user expenditure for the largest payers was less than 1 percent lower than that for the other payers as a result of their less healthy mix of users. A similar pattern can be observed by user region—the high proportion of full-year users in the low-risk group in the NCA relative to the BMA leads to a noticeably smaller difference in overall per-user spending between these two regions than the differences within each risk group.

Secondly, the share of spending on professional services generated by high-risk users exceeds their share of users by a considerable margin, while the low-risk users have lower expenditures than their patient share would predict; this pattern holds for both 2008 and 2009, and the respective shares changed little between the 2 years (Appendix B, Table B-1). In 2009, excluding users in individual plans and the MHIP, high-risk users comprised 31 percent to 35 percent of the users in each coverage type but were responsible for 61 percent to 65 percent of expenditures for professional services (Appendix B, Table B-1); in contrast, low-risk users were 34 percent to 37 percent of the users, but accounted for just 12 percent to 14 percent of the payments within each coverage type (again, excluding the individual market and the MHIP).

2.3.2 NETWORK TYPE, PAYER MARKET SHARE, AND USER GEOGRAPHIC LOCATION When user risk status is controlled for (i.e., within each risk group), plan and payer characteristics and user geographic location have their own effects on per-user expenditure. Within each risk group, per-user expenditure varied by plan and by payer characteristics and user geographic region (Table 2-1). Among all non-CDHPs, per-user spending was lowest for those enrolled in public employer plans across all three risk categories; in contrast, per-user spending for MHIP users was the highest and was substantially higher than that of users in public employer plans (by 45 percent, 23 percent, and 33 percent for low-, medium-, and high-risk users, respectively). These within-risk-category differences, together with the much skewed distribution of full-year users toward the high-risk end in the MHIP group, led to an average expenditure per user that was 78 percent higher than that for full-year users enrolled in public employer plans. The high per-user expenditure for MHIP users is primarily the result of higher service volume, but higher service complexity also contributed. In 2009, the average number of services used by MHIP users was 62 percent higher than that of all full-year users (Table 2-3), while their service complexity was 13 percent higher (Appendix B, Table B-2). The average payment rate of the MHIP users—as measured by payment per RVU—was 3 percent lower than the overall average (Appendix B, Table B-3). HMO users in the low-, medium-, and high-risk groups had an average annual spending on professional services that was from 8 percent to 12 percent lower than that of their non-HMO counterparts in 2009. Users insured by the largest payers had a lower average expenditure on professional services than those insured by the other payers, regardless of their risk status. Despite their healthier mix, users living in the NCA had a per-user expenditure that was 3 percent and 5 percent higher than those in BMA and Other Maryland Areas, respectively, in 2009. Low-, medium-, and high-risk users in the NCA on average had expenditures that were 4 percent, 7 percent, and 8 percent higher, respectively, more than their counterparts from the BMA, and 8 percent, 11 percent, and 8 percent higher, respectively, than their counterparts in Other Maryland Areas. The higher per-user spending for each risk category of NCA residents probably reflects the high proportion of NCA users enrolled in non-HMO products (data not shown).

2.4 Growth in Per-User Spending on Professional Services and Role of Service Volume, Service Complexity, and Payment Rate

Spending on professional services per user grew by 2 percent for full-year users from 2008 to 2009. This growth was principally due to a 2 percent increase in the average payment rate for the mix of services obtained by the users—as measured by the average payment per RVU. A 1 percent increase in the average number of professional services per user also contributed to the growth in average spending. Service complexity (number of RVUs per service) was unchanged from 2008. The growth in average expenditure per user from 2008 to 2009 differed from that from 2007 to 2008 in two notable ways. The increase in per-user spending from 2008 to 2009 is lower than in the 2007–2008 period (5 percent), and the primary driver of the 2007–2008 increase was an increase in the average volume of professional services per user, which grew by 3 percent. The average payment rate did not change in the 2007–2008 period, but service complexity increased by 1 percent, contributing to the increase in per-user expenditures in that time period.

2.4.1 GROWTH IN PER-USER SPENDING BY USER RISK STATUS The 2008-to-2009 growth in average expenditure per user varied by user risk status, as shown in Table 2-1. Overall, the low-risk users had the highest rate of growth in per-user spending, at close to 3 percent in 2009, followed by 1 percent for the medium-risk users and virtually no change for the high-risk users. The growth pattern in service volume by user risk status is similar to that in per-user spending (Table 2-3). The growth rate in service complexity and average payment per RVU, on the other hand, was similar across all three risk categories.

2.4.2 GROWTH IN PER-USER SPENDING BY COVERAGE TYPE The overall growth in expenditures per user varied noticeably by coverage type, and so did the growth in service volume, service complexity, and payment rate. From 2008 to 2009, changes in per-user spending ranged from a drop of 3 percent for non-CDHP CSHBP users to an increase of 8 percent for non-CDHP individual plans (Table 2-1). While most coverage types had similar growth rates across user risk categories, the non-CDHP CSHBPs and the MHIP had uneven growth in per-user spending in different risk groups. Low-risk users enrolled in non-CDHP CSHBPs experienced an 8 percent drop in average spending, while high-risk users saw little change in average spending. Low-risk users in the MHIP on average had a 9 percent increase in their spending on professional services, even though the medium- and high-risk users had a 3 percent and a 2 percent drop in their average spending, respectively.

The decomposition of per-user spending reveals a wide range of growth rates in service volume (Table 2-3), service complexity (Appendix B, Table B-2), and payment rate (as measured by payment per RVU, Appendix B, Table B-3) by coverage type. While service volume grew by 1 percent to 2 percent for all other coverage types, it fell by 6 percent and 8 percent, respectively, for the non-CDHP CSHBPs and the MHIP. The growth rate of service complexity fluctuated by coverage type also, ranging from -2 percent for the non-CDHP CSHBPs to 3 percent for the MHIP. The payment rate grew the fastest among full-year users insured in the non-CDHP individual market (6 percent) followed by the non-CDHP CSHBPs (5 percent) and the MHIP (4 percent).

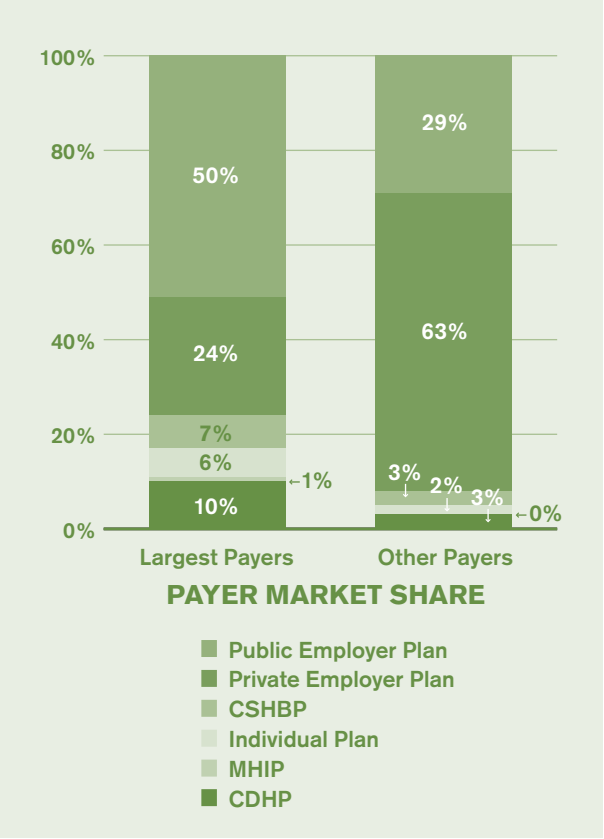
Different components made varied contributions to the changes in the growth of per-user spending by coverage type. For example, it appears that the fast growth in per-user spending among full-year users in non-CDHP individual plans is mainly attributable to a hike in payment per RVU (6 percent). In contrast, the significant drop of 6 percent and 8 percent in service volume for the non-CDHP CSHBPs and the MHIP, respectively, more than offset the increase in payment rate and led to a drop in the average per-user spending in those groups. Public employer plans and private employer plans both had modest growth of 2 percent in per-user spending. The growth rate in service volume was similar for the two different coverage types. However, public employer plans experienced almost no change in both service complexity and payment rate, while the growth in service complexity and payment rate went in opposite directions for the private employer plans. As observed in 2008, growth in per-user expenditure and its decomposition for CDHPs seem to be in line with non-CDHPs in 2009, suggesting that spending patterns among those covered by CDHP products more closely resemble the non-CDHP market as the number of CDHP enrollees continues to grow.

2.4.3 GROWTH IN PER-USER SPENDING BY NETWORK TYPE The growth in per-user spending was concentrated almost exclusively among users enrolled in HMO plans, while users in non-HMO plans exhibited no increase in per-user spending. In 2009, per-user spending grew by 4 percent for HMO plans (Table 2-1). The main driver was a 3 percent increase in the average payment rate (Appendix B, Table B-3) and a 2 percent increase in service volume (Table 2-3), which together more than offset the slight drop (a little less than 2 percent) in service complexity (Appendix B, Table B-2). Growth in the components of spending displayed a very different pattern for non-HMO products. There was almost no change in service volume; changes in service complexity and payment rate were both small (1 percent) and went in opposite directions.

2.4.4 GROWTH IN PER-USER SPENDING BY USER GEOGRAPHIC LOCATION The growth rate in per-user expenditure on professional services was almost identical in the NCA and Other Maryland Areas but slightly lower in the BMA. Users residing in the NCA and Other Maryland Areas on average had expenditures that were 3 percent higher in 2009 than in 2008, while expenditures for those in the BMA were 2 percent higher. The main contributor to the growth in per-user spending in Other Maryland Areas was a 3 percent increase in the payment rate, while in the other two regions, a small increase in both service volume and payment rate contributed to the growth in per-user spending. The payment rate grew faster in Other Maryland Areas than in the two metropolitan regions for users across all three risk categories.

2.4.5 GROWTH IN PER-USER SPENDING BY PAYER MARKET SHARE Per-user expenditures grew faster for users insured by payers other than the two largest payers. In 2009, per-user expenditures grew by 4 percent for users covered by the other payers, compared with just a 1 percent increase among those covered by the largest payers. As a result, the relative size of the per-user expenditure between the two groups is reversed from 2008, with that for the other payers slightly higher than that for the largest payers, though the difference is quite small. The difference in the growth rate in per-user expenditures mainly comes from the different growth rates in service volume—users covered by the two largest payers used about the same number of services on average between 2008 and 2009, while those covered by the other payers used 4 percent more services in 2009. The payment rate increased by 2 percent for services covered by the largest payers, 1 percentage point faster than the growth in the payment rate for services covered by the other payers. Service complexity dropped slightly (1 percent) for the largest payers while remaining the same for the other payers.

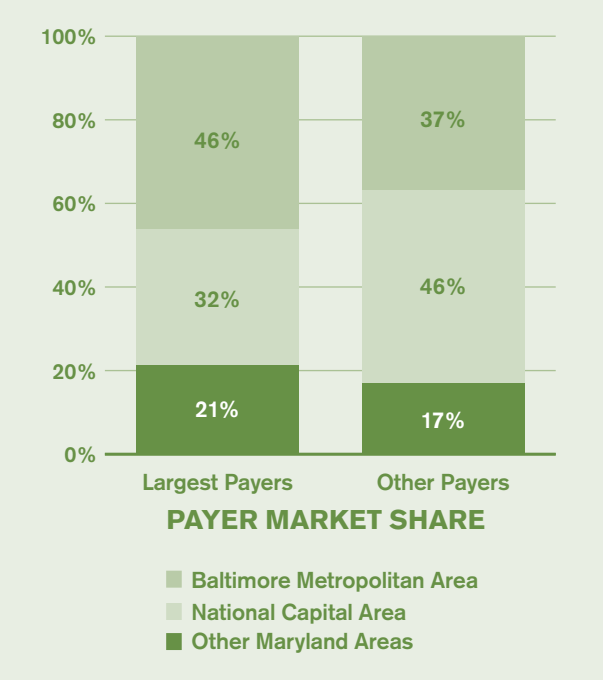
FIGURE 2-1A: Distribution of Coverage Type by Payer Market Share, 2009



2.5 Some Details About Per-User Spending

2.5.1 BEHIND PAYER MARKET SHARE The different levels of and growth rates in per-user spending by payer market share may reflect the different user mix in terms of coverage type, network type, risk category, and user geographic location. The distribution of full-year users by payer market share remained stable between 2008 and 2009—in both years slightly more than two-thirds of full-year users (68 percent) were covered by the largest

FIGURE 2-1B: Distribution of Region by Payer Market Share, 2009



payers (Table 2-2). As in previous years, full-year users insured by payers other than the two largest payers in the state were highly concentrated in non-CDHP private employer plans (63 percent) and public employer plans (29 percent) (Figure 2-1A). The distribution by coverage type is more dispersed for full-year users insured by the two largest payers in the state—about one-half were enrolled in non-CDHP public employer plans, followed by 24 percent in non-CDHP private employer plans, and 7 percent in non-CDHP CSHBPs. The largest payers also have a much higher share of full-year users in CDHPs compared with the other payers (10 percent versus 3 percent). Compared with 2008, the share of non-CDHP CSHBPs for the two largest payers dropped by 4 percentage points while the share of non-CDHP public employer plans and private employer plans increased by 2 percentage points and 1 percentage point, respectively.

Similar to 2008, almost one-half of full-year users (46 percent) covered by the largest payers in 2009 resided in the BMA, a little less than one-third in the NCA, and the rest in the Other Maryland Areas (Figure 2-1B). The other payers had a different composition of users by geographic location—almost one-half of their users (46 percent) resided in the NCA, followed by 37 percent in the BMA. The different distribution of users by region has implications for the two groups of payers, because user health risk and resource costs differ by region.

As in previous years, users covered by the other payers were somewhat healthier than those covered by the largest payers. The distribution changed slightly for both groups of payers—in 2009, 34 percent (up from 33 percent in 2008) of users covered by the largest payers were in the high-risk category, compared with 31 percent (up from 30 percent) of users covered by the other payers (Table 2-1).

Per-user expenditures for users covered by the largest payers and those covered by the other payers differed, with these differences varying for non-HMO and HMO users. Average expenditures on professional services were slightly lower for users covered by the largest payers, compared with those covered by the other payers—$1,236 versus $1,243 (Table 2-4). The slight difference in overall per-user spending masks more marked differences by network type between the two groups of payers. In 2009, users enrolled in the largest payers' non-HMO plans had an average expenditure of $1,279, 7 percent lower than the average expenditure for users enrolled in the other payers' non-HMO products. The difference was similar in 2008, at 8 percent. In contrast, HMO users covered by the largest payers had slightly higher spending for professional services than those covered by the other payers—$1,120 versus $1,104. The relative size of per-user expenditures for HMO users between the two groups of payers changed markedly from 2008 to 2009. In 2008, HMO users insured with the largest payers on average had 10 percent higher spending for professional services than those with the other payers.

Regardless of payer market share, per-user expenditures by non-HMO users were higher than those by HMO users, but the difference between non-HMO and HMO users was much smaller among those covered by the largest payers than among those covered by the other payers (14 percent versus 24 percent).

Service volume and complexity differed by HMO- versus non-HMO status as well as by payer market share. The average complexity (RVUs per service) of non-HMO services was the same for each payer group, but the average complexity of HMO services was significantly higher (9 percent) for the largest payers than for the other payers (Table 2-4).

TABLE 2-4: Decomposition of Expenditure Per User by Market Share and Network Type, 2009

CATEGORY	Non-HMO	HMO	All
LARGEST PAYERS			
Percentage of Users	73%	27%	100%
Expenditure Per User	$1,279	$1,120	$1,236
Number of Services Received Per User	22.1	20.1	21.5
RVU Per Service	1.6	1.6	1.6
Payment Per RVU	$35.60	$34.50	$35.30
Ratio of Expenditure Per User to Expenditure Per User at Medicare Payment Rate	0.95	0.91	0.94
OTHER PAYERS			
Percentage of Users	51%	49%	100%
Expenditure Per User	$1,374	$1,104	$1,243
Number of Services Received Per User	20.4	19.2	19.8
RVU Per Service	1.6	1.5	1.6
Payment Per RVU	$41.20	$39.00	$40.20
Ratio of Expenditure Per User to Expenditure Per User at Medicare Payment Rate	1.11	1.03	1.07

NOTE: Detail may not add to total due to rounding.

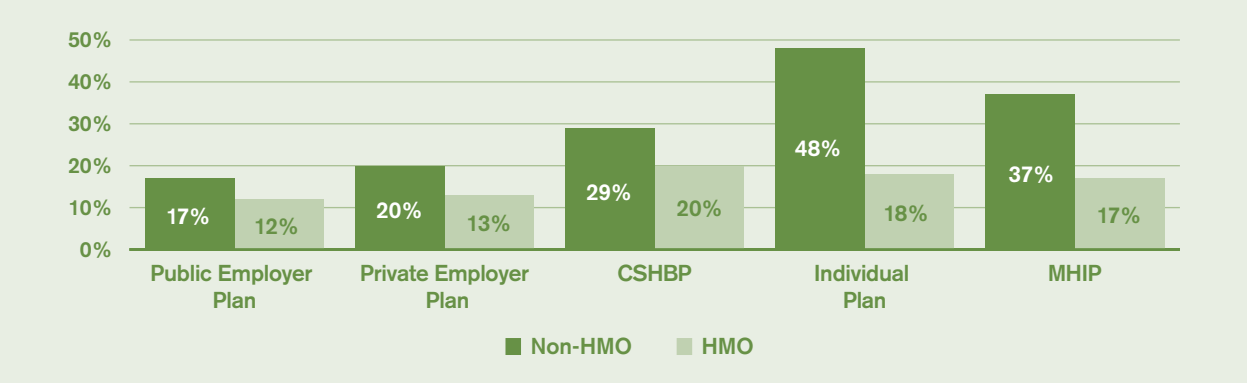
Non-HMO and HMO users covered by the largest payers averaged 8 percent and 5 percent more services during the year, respectively, than their counterparts covered by the other payers. Within payer groups, non-HMO users used more services than HMO users—a difference of 10 percent and 7 percent for the largest payers and the other payers, respectively. The payment rate differed significantly by payer market share. For non-HMO and HMO services, the payment rate (average payment per RVU) was 14 percent and 12 percent lower, respectively, in the largest payers compared with the other payers in 2009.

Relative to what the spending per user would have been if their professional services had been paid according to the 2009 Medicare payment schedule, payments for services covered by the largest payers have been consistently lower while payments for services covered by the other payers have been consistently higher over the years. In 2009, per-user payment for those covered by the largest payers was 5 percent lower overall than expenditures would have been under the Medicare payment schedule for non-HMO users and 9 percent lower for HMO users (Table 2-4). In contrast, the average payment per user for those covered by the other payers was 7 percent higher than it would have been under the 2009 Medicare payment schedule, with an 11 percent and 3 percent difference for non-HMO users and HMO users, respectively.

2.5.2 OUT-OF-POCKET COSTS The share of expenditures for professional services paid out-of-pocket varies by coverage type and network type.[23] Payments made directly to providers by users of care reflect the cost-sharing (including deductibles, copayments, and coinsurance) required under the terms of their policies. The overall patient cost-sharing burden for full-year users—measured by the share of total spending paid out-of-pocket—was 21 percent in 2009 (data not shown). Patient cost-sharing generally differs by network type, with HMO enrollees paying a lower proportion of total expenditures out-of-pocket, regardless of coverage type. Among non-CDHP coverage types, the difference in cost-sharing between non-HMO and HMO enrollees ranged from 5 percentage points for public employer plans to 30 percentage points for individual plans (Figure 2-2A). The higher cost-sharing burden for non-HMO users may reflect the fact that non-HMO

[23] Capitated services were excluded in this subsection, because there is insufficient information available in the MCDB to impute patient out-of-pocket cost for capitated services. The comparison of cost-sharing between different groups of users holds true to the extent that cost-sharing is the same for capitated and noncapitated services.

FIGURE 2-2A: Percentage Paid Out-of-Pocket by Non-CDHP Coverage Type and Network Type, 2009

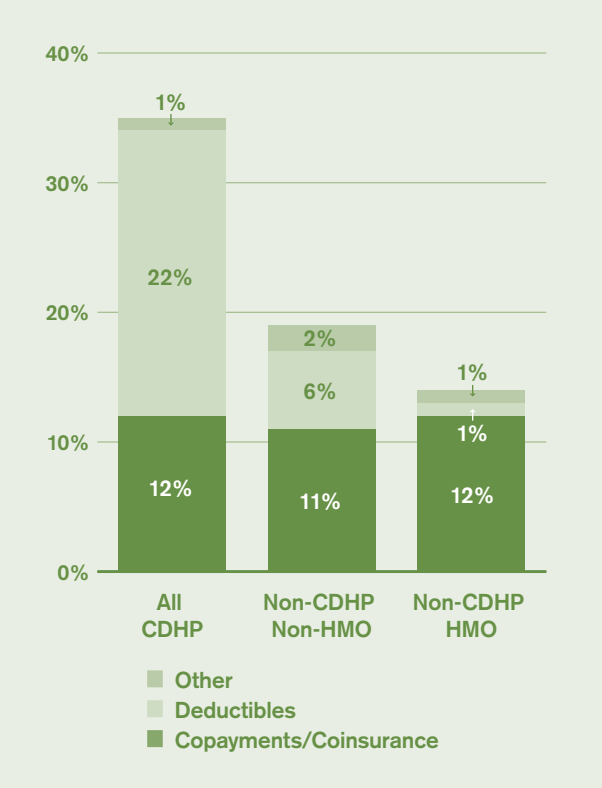


users—unlike those in HMOs—have coverage for out-of-network services, which require higher out-of-pocket payments (i.e., balance billing) compared with in-network services.

Across the coverage types, non-CDHP public employer plans were associated with the lowest cost-sharing percentages in either non-HMO (17 percent) or HMO (12 percent) plans (Figure 2-2A). As expected, due to the benefit structure of CDHPs, CDHP users paid a relatively high share of their expenditures out-of-pocket, 35 percent in 2009 (Figure 2-2B). However, the highest cost-sharing in 2009, at 48 percent, was still borne by full-year users in non-HMO, non-CDHPs purchased in the individual market (Figure 2-2A). The MHIP users also had relatively high cost-sharing: 37 percent was paid out-of-pocket by MHIP non-HMO users and 17 percent by MHIP HMO users.

Figure 2-2B shows that cost-sharing differed not only by level but also by composition between CDHP users and non-CDHP users. Overall, CDHP users' average out-of-pocket costs, measured as a share of the average expenditure per user, were 15 percentage points and 22 percentage points higher than those of non-CDHP non-HMO users and non-CDHP HMO users, respectively, in 2009. Most (63 percent) of the cost-sharing by CDHP users was due to deductibles, with copayments/coinsurance accounting for one-third of their out-of-pocket payments. For non-CDHP non-HMO users, the majority of their out-of-pocket costs (58 percent) were for copayments or coinsurance, with deductibles accounting for one-third of their cost-sharing. For non-CDHP HMO users, copayment/coinsurance payments accounted for 87 percent of their out-of-pocket

FIGURE 2-2B: Components of Out-of-Pocket Expenditures, 2009



costs. The differences in the distribution of cost-sharing among deductibles, copayments, and coinsurance payments between CDHP and non-CDHP users reflect the special benefit design of CDHPs. The relatively high deductibles of CDHPs are designed as a cost-control tool; when facing high deductibles, CDHP enrollees are expected to make more informed decisions with regard to their medical care.

3. Payment Rates for Professional Services

This chapter examines differences in payment rates by payer market share. Payment rates for professional services—defined as the payment per RVU at the service level—are primarily based on negotiations between insurers and health care providers. When market share is concentrated in a small number of payers, they may hold price-setting power that conveys leverage in those negotiations and thus in setting lower payment rates. Unlike in Chapter 2 where only services rendered to full-year users are included, the analyses in this chapter are based on all services, whether delivered to full-year or part-year users, in order to draw a full picture of payers' practices with regard to payment rates.

3.1 Overview

In the Maryland commercial market for insured health benefit plans, the distribution of market share is markedly skewed.[24] Overall, the two largest payers account for about 70 percent of the business, whether measured by number of services, total resources (RVUs), or total payments (Table 3-1). The remaining 30 percent of the market is shared by more than 20 payers. When examined by coverage type, the two largest payers appear to have an even more dominant presence in most markets, with the exception of the private employer market. Within the private employer market, payers other than the two largest covered a relatively higher share of services—more than one-half in 2009. As shown by their shares of services, total RVUs and total payments in Table 3-1, these other payers were also relatively more likely to serve residents of the National Capital Area (NCA) than residents in other parts of Maryland and to provide HMO products rather than non-HMO products.

The division of the market between the two largest and all other payers mostly remained stable between 2008 and 2009 and only changed slightly in some segments of the market. The two largest payers lost between 2 and 3 percentage points of share in the non-CDHP CSHBP market, depending on the measure of market share. This loss was accompanied by a gain of similar size in the CDHP market. As mentioned in the previous chapter, it appears that some non-CDHP CSHBP enrollees covered by the largest payers switched to CDHP products in 2009, accounting for the change in market share in corresponding markets. The share of the largest payers also shrank by 2 to 3 percentage points in the HMO market.

In 2009, the average payment rate was $36.70, 2 percent higher than in 2008. The increase in the average payment rate from 2008 to 2009 was mainly due to a 2 percent increase among the largest payers; the payment rate increase among the other payers was lower, at 1 percent. Among the largest payers, the average payment rate for services from participating providers grew by 2 percent, while the average rate for services from nonparticipating providers grew considerably more, by 9 percent. Among the other payers, the average rates for services from participating and nonparticipating providers both grew by 1 percent. Overall, the average rate for participating provider services grew by 2 percent, and the average rate for nonparticipating provider services grew by 7 percent.

3.2 Differences in Payment Rate by Payer Market Share

Payment per RVU across all professional services was lower among the largest payers than among the other payers: $35.30 versus $40.30, a difference of 14 percent (Table 3-2A). The difference in the payment rate between the two groups of payers shrank from 16 percent (data not shown) in 2008 as the rate paid by the largest payers increased faster than that paid by the other payers.

3.2.1 BY PROVIDER REGION By provider region, payment rates were lower for services covered by the largest payers than for those covered by the other payers in all Maryland regions and neighboring states. As shown in Table 3-2A, within each region, the average payment rate for services covered by the largest payers was below the average payment rate of the other payers, with the differences ranging from a low of 10 percent

[24] Most, if not all, states have a similarly skewed distribution of market share in the commercial market for insured health benefit plans.

TABLE 3-1: Distribution of Number of Services, Total RVUs, and Total Payment by Payer Market Share Within Coverage Type, Network Type, and User Region, 2009

	NUMBER OF SERVICES			TOTAL RVUs			TOTAL PAYMENT		
	All Payers	Largest Payers	Other Payers	All Payers	Largest Payers	Other Payers	All Payers	Largest Payers	Other Payers
ALL	100	71	29	100	72	28	100	70%	30%
COVERAGE TYPE									
Non-CDHP	100	69	31	100	70	30	100	68	32
1: Public Employer Plan	100	81	19	100	82	18	100	80	20
2: Private Employer Plan	100	49	51	100	50	50	100	47	53
3: CSHBP	100	87	13	100	89	11	100	88	12
4: Individual Plan	100	90	10	100	91	9	100	89	11
5: MHIP	100	100	0	100	100	0	100	100	0
CDHP	100	91	9	100	92	8	100	90	10
NETWORK TYPE									
Non-HMO	100	77	23	100	77	23	100	74	26
HMO	100	60	40	100	63	37	100	60	40
USER REGION									
Baltimore Metropolitan Area	100	76	24	100	76	24	100	74	26
National Capital Area	100	63	37	100	65	35	100	62	38
Other Maryland Areas	100	76	24	100	76	24	100	74	26

NOTE: CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.

in Other Maryland Areas to 16 percent in the BMA in 2009. The price gap between the two groups of payers remained the same in the BMA, shrank by 3 percentage points in the NCA, and widened by 3 percentage points for Other Maryland Areas between 2008 and 2009.

3.2.2 BY TYPE OF SERVICE Payers other than the largest payers as a group paid a higher average rate across all types of services than the largest payers in 2009 (Table 3-2A). The difference in average payment rates was small for evaluation and management services (E/M) delivered by mental health providers[25] and for other types of services (3 percent and 2 percent, respectively), moderate for procedures (9 percent), and significant for E/M services delivered by other providers, imaging, and lab tests (19 percent, 15 percent, and 21 percent, respectively). While the difference in payment rates changed little from 2008 to 2009 for most service types, the price gap between the payer groups shrank noticeably for imaging and lab tests—in 2008, the other payers paid 21 percent and 29 percent higher rates for these types of services, respectively, than the largest payers.

3.3 Contributors to the Differences in Payment Rate by Payer Market Share

Differences in payment rate by payer market share reflect differences in the share of clinicians who provide care under a participating provider contract, as well as other factors—such as the resource costs of providing professional services in different regions,[26] and the service mix.

[25] E/M services provided by mental health providers are Current Procedural Terminology (CPT) codes from 90801–90899 and M0064.

[26] Based on the extent of economic integration, we divided providers in the MCDB into four regions—Baltimore Metropolitan Area (BMA); National Capital Area (NCA), including Virginia; Other Maryland Areas, which includes neighboring Delaware, Pennsylvania, and West Virginia; and Other Service Areas.

TABLE 3-2A: Payment Rates and Service Complexity by Provider Region, Service Type, and Payer Market Share, 2008–2009

	Professional Services, ALL PAYERS				Professional Services, LARGEST PAYERS				Professional Services, OTHER PAYERS			
	Payment per RVU	Percentage change from 2008	RVUs per Service	Percentage change from 2008	Payment per RVU	Percentage change from 2008	RVUs per Service	Percentage change from 2008	Payment per RVU	Percentage change from 2008	RVUs per Service	Percentage change from 2008
ALL	$36.70	2%	1.6	0%	$35.30	2%	1.6	0%	$40.30	1%	1.6	-1%
PROVIDER REGION												
Baltimore Metropolitan Area	35.10	1	1.7	-2	33.90	1	1.7	-2	39.50	1	1.6	0
National Capital Area (including VA)	38.50	2	1.6	1	36.70	3	1.6	3	41.70	0	1.5	-1
Other Maryland Areas (Including DE, PA, WV)	36.30	3	1.5	-1	35.50	2	1.5	0	38.90	5	1.6	-3
Other Service Areas	41.00	3	2.2	5	43.40	11	2.2	6	37.90	-8	2.2	3
SERVICE TYPE												
E/M: Mental Health	35.90	0	2.5	0	35.60	-1	2.5	0	36.80	1	2.4	1
E/M: All Other	38.50	3	2.2	0	36.60	4	2.3	0	43.50	3	2.2	0
Procedures	39.20	2	2.0	-2	38.40	2	1.9	-1	41.80	2	2.2	-2
Imaging	36.10	-1	2.8	4	34.70	0	2.8	4	39.70	-5	2.7	4
Tests	35.20	1	0.6	1	33.20	3	0.6	2	40.10	-3	0.6	1
Other	31.50	4	1.1	-1	31.30	3	1.1	3	32.00	5	1.0	-10

NOTES: 1. Detail may not add to total due to rounding.
2. 0% indicates <0.5%.
3. E/M = Evaluation and management

3.3.1 PARTICIPATION PROVIDER CONTRACTS Overall, the largest payers paid lower average rates for participating providers' services than did their smaller counterparts. This was true in all regions and across all types of services except for E/M delivered by mental health providers, indicating the price-setting advantage that the largest payers have in the market for professional services (Table 3-2B). The average payment rates for services provided by participating providers reflect the amount of relative leverage a payer has in the market due to the payer's volume of enrollees. A provider is generally willing to accept a lower negotiated payment rate from a very large payer than from a smaller payer because participation with the larger payer gives the provider access to a larger volume of potential patients. The largest payers' 2009 average payment rate (measured by payment per RVU) for participating providers' services was 13 percent lower than the average rate paid by the other payers, $33.60 versus $38.50. This rate gap is smaller than the payer gap that existed in 2008 because the largest payers raised their average payment rates for participating provider services by 2 percent over those in 2008, while the other payers raised their average rates by just 1 percent.

The difference in 2009 payment rates for participating providers' services by payer market share varied slightly across provider regions, from 11 percent lower for the largest payers in Other Maryland Areas to 13 percent in both the BMA and the NCA. The payment rate gap by type of service exhibited greater variation. The largest payers' average rates ranged from 2 percent lower for other services to 22 percent lower for lab tests. For E/M services delivered by mental health providers, however, the largest payers paid a slightly higher average rate (1 percent) compared with the other payers.

3.3.2 RESOURCE COSTS Payment rates for participating providers' services varied among regions regardless of payer market share, in part because carriers recognize differences in resource costs associated with the provider's location. Participating providers in locations with higher resource costs tend to receive higher rates from payers. In keeping with their relatively higher resource costs, providers located in the NCA received a higher average payment rate compared with other providers located in Maryland or other states, regardless of payer market share (Table 3-2B). The average payment rate for participating providers' services rendered by providers in the BMA and Other Maryland Areas was similar, around 5 percent lower than the rate in the NCA for both groups of payers. The NCA rate was much higher than the average payment rate for services rendered in Other Service Areas—more than 10 percent for both the largest payers and all other payers.

The difference in the distribution of services by provider region for the largest payers versus the distribution for the other payers also contributed to the difference in their average payment rates. Among participating providers' services covered by the other payers, almost one-half (44 percent) was rendered by providers in the NCA, the region with the highest resource costs. In contrast, less than one-third of participating provider services covered by the largest payers was provided in the NCA.

3.3.3 TYPE OF SERVICE Payment rates for different types of services reflect many different factors such as the mix of providers, the range in skills and training, and the legacy of the payment policies of both private and public insurers. In 2009, procedures provided by participating providers received a higher average payment rate than other types of services. The premium paid ranged from 2 percent and 6 percent over the average rate for E/M delivered by non-mental-health providers and imaging, respectively, to 15 percent over the payment rate for lab tests, to 28 percent and 36 percent over the rate for other types of services and E/M from mental health providers, respectively (Table 3-2B). The overall ranking of average payment rate by type of service holds true for the two groups of payers with one exception—among payers other than the two largest ones, E/M from non-mental-health providers was paid slightly higher (3 percent) than procedures.

The mix of participating providers' services paid for by the two largest payers was very similar to that paid for by the other payers except for procedures. In 2009, the share of RVUs embedded in procedures paid for by the largest payers was 4 percentage points higher than the share of RVUs embedded in procedures paid for by their smaller counterparts. Since procedures are on average the most expensive type of service, this difference in service mix also contributed to the price gap between the two groups of payers.

TABLE 3-2B: Payment Rates and Distribution of RVUs for Participating Provider Services by Provider Region, Service Type, and Payer Market Share, 2008–2009

	Professional Services, ALL PAYERS				Professional Services, LARGEST PAYERS				Professional Services, OTHER PAYERS			
	Distribution of RVUs	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008	Distribution of RVUs	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008	Distribution of RVUs	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008
ALL	100%	0	$34.90	2%	100%	0	$33.60	2%	100%	0	$38.50	1%
PROVIDER REGION												
Baltimore Metropolitan Area	48	0	34.20	2	51	0	33.10	2	38	-1	38.00	2
National Capital Area (including VA)	34	0	36.50	2	30	0	34.70	2	44	1	39.70	0
Other Maryland Areas (Including DE, PA, WV)	15	0	34.30	2	16	0	33.40	1	13	-1	37.30	5
Other Service Areas	3	0	33.20	-2	2	0	31.20	0	6	1	35.30	-5
SERVICE TYPE												
E/M: Mental Health	3	0	27.60	1	3	0	27.70	0	3	0	27.40	3
E/M: All Other	38	0	36.90	3	38	1	35.10	3	39	-1	41.50	3
Procedures	23	0	37.50	1	24	0	36.70	1	20	-1	40.10	0
Imaging	15	0	35.20	0	15	0	33.80	0	15	2	38.90	-3
Tests	13	0	32.70	-1	13	0	30.30	0	14	0	38.80	-2
Other	4	0	29.40	4	4	0	29.30	3	5	0	29.70	7

NOTES: 1. Detail may not add to total due to rounding.
2. 0% indicates <0.5%.
3. Distribution of RVUs by service type does not add up to 100 due to records with missing service type.
3. E/M = Evaluation and management

3.3.4 SERVICES RENDERED BY NONPARTICIPATING PROVIDERS Services covered by the largest payers were more likely to be provided by participating providers. Table 3-2C shows the share of nonparticipating providers' services—measured as the proportion of RVUs accounted for by nonparticipating providers—covered by the largest versus the other payers. Nonparticipating providers' services comprised about 8 percent of the professional services covered by the other payers in 2009, compared with 5 percent of services reimbursed by the largest payers. This difference in the share of nonparticipating providers' services between the largest and the other payers is likely attributable to the smaller provider networks of the other payers.[27]

Across provider regions, both groups of payers had the lowest share of nonparticipating providers' services in the BMA and the highest in the Other Service Areas (Table 3-2C). However, nonparticipating providers' services rendered in the NCA tend to be less complex than services provided in most other areas, with the average RVU per service in the NCA lower than that in all other regions for the smaller payers and in all but the Other Service Areas for the largest payers (data not shown).

E/M services delivered by mental health providers are by far the most likely to be provided by nonparticipating providers among all types of services. One-quarter of mental health E/M, measured by total RVUs paid for by the two largest payers in 2009, was rendered by nonparticipating providers, and that share was even higher for smaller payers, at almost one-third. In contrast, none of the other types of services had more than 10 percent that was provided by nonparticipating providers, whether examined as a whole or by payer market share.

Nonparticipating providers' services were paid at a higher rate than participating providers' services. This is not surprising, as providers in general accept reduced payment rates in exchange for a steadier source of patients when they elect to participate in a payer's network. In 2009, the overall average payment rate paid to nonparticipating providers was $64.30 per RVU (Table 3-2C), 84 percent higher than the average payment rate for participating providers' services in the same year. The higher payment rates reflect payment rules for covered services rendered by nonparticipating providers, referred to as "balance billing." These rules generally require non-HMO enrollees to pay a nonparticipating provider the difference between the provider's billed amount and the amount a payer would reimburse participating providers for the same service. The balance billing of non-HMO users translates into significantly higher cost-sharing for users of nonparticipating providers' services and (potentially) higher average payment rates for the nonparticipating provider.

Nonparticipating providers' services were paid at a higher rate regardless of provider region, type of service, or payer market share. The difference in payment rates for participating providers' services and nonparticipating providers' services varied markedly by payer market share—payment rates for nonparticipating providers' services were 96 percent higher for the largest payers and 60 percent higher for the other payers (Table 3-2B and Table 3-2C). The difference among providers located in Maryland and neighboring states also varied greatly by region, with overall differences ranging from 76 percent higher in the BMA to 94 percent in Other Maryland Areas. The regional difference for Maryland-based providers is especially prominent for the largest payers—in the BMA, services provided by nonparticipating providers were on average paid about 81 higher than participating providers' services, while in Other Maryland Areas, the payment rate for nonparticipating providers' services was more than double that for participating providers' services. The difference in payment rates varied much less by provider region for services covered by the other payers—the regional difference ranged from 50 percent in Other Maryland Areas to 63 percent in the NCA. This partly reflects the fact that the largest payers had a greater share of non-HMO users—who can be affected by provider balance billing—than did the other payers (73 percent versus 51 percent, Table 2-4).

For E/M delivered by mental health providers, imaging, and lab tests, nonparticipating providers were on average paid more than double the rate at which participating providers were paid. The payment rate for non-mental-health E/M and

[27] A provider's decision to participate with a payer is influenced by the number of patients insured by any given payer; payers with more enrollees are likely to generate more patients for a provider than payers with fewer enrollees. Users in general incur higher out-of-pocket costs when using nonparticipating providers' services.

TABLE 3-2C: Payment Rates and Share of all RVUs for Nonparticipating Provider Services by Provider Region, Service Type, and Payer Market Share, 2008–2009

	Professional Services, ALL PAYERS				Professional Services, LARGEST PAYERS				Professional Services, OTHER PAYERS			
	Share of all RVUs*	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008	Share of all RVUs*	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008	Share of all RVUs*	Percentage-point change from 2008	Payment per RVU	Percentage change from 2008
ALL	6%	0	$64.30	7%	5%	0	$65.80	9%	8%	-1	$61.70	1%
PROVIDER REGION												
Baltimore Metropolitan Area	4	-1	60.10	5	3	-1	59.90	8	6	-1	60.40	1
National Capital Area (including VA)	7	0	64.60	4	7	0	64.60	4	8	-1	64.70	3
Other Maryland Areas (Including DE, PA, WV)	6	-1	66.30	15	6	-1	71.20	20	9	-2	56.00	4
Other Service Areas	22	6	69.50	-2	30	14	72.00	-2	10	-3	59.80	-8
SERVICE TYPE												
E/M: Mental Health	27	-3	57.40	2	25	-4	57.10	3	31	-2	57.90	1
E/M: All Other	5	-1	72.30	9	4	0	73.70	14	7	-1	70.40	3
Procedures	5	-1	71.40	13	4	-1	76.90	14	8	-2	62.50	12
Imaging	2	0	91.80	-2	1	0	96.70	-4	2	-2	82.80	-5
Tests	7	1	70.50	5	5	2	82.80	9	9	-1	53.20	-9
Other	9	0	52.50	2	9	1	51.30	2	9	-1	55.30	3

* All RVUs include RVUs provided by both participating and nonparticipating providers.

NOTES: 1. Detail may not add to total due to rounding.
2. 0% indicates <0.5%.
3. E/M = Evaluation and management

procedures provided by nonparticipating providers were nearly double the rate for the same type of service provided by participating providers. Within each type of service, especially for non-mental-health E/M, procedures, and lab tests, the price gap differed markedly between the two groups of payers. In 2009, nonparticipating providers received 110 percent more for non-mental-health E/M or procedures covered by the largest payers than did participating providers; the difference was only 70 percent and 56 percent, respectively, if the services were covered by the smaller payers. For lab tests covered by the largest payers, nonparticipating providers received 174 percent more than participating providers; the difference was only 37 percent if the tests were covered by the other payers.

APPENDIX A:

Technical Background: Summary of Data and Methods for This Report

Tables and figures in this report are based on services and payments captured in the MCDB. The MCDB contains extracts of insurance claims[28] for the services of physicians and other medical practitioners such as podiatrists, nurse practitioners, and therapists. Insurance companies and HMOs meeting certain criteria[29] are required to submit these data to MHCC under the Code of Maryland Regulations (COMAR) 10.25.06 on health care practitioner services provided to Maryland residents. For calendar year 2009, the Commission received usable data from 21 payers, including all major health insurance companies.[30] Data from Assurant Health (Time Insurance Company) were excluded this year for consistent comparison with 2008. A list of these 21 payers is included in Appendix C.

Each practitioner service generates a separate record in the MCDB. Patients are identified by concatenating the payer ID, plan-specific user ID (an encrypted number generated by each payer), the birth year and month of the user, and the user's gender. Insurers use a standard format for reporting the data. Each data record identifies the service provided; payments from the insurer and patient (for noncapitated care); practitioner specialty; user characteristics such as age, gender, and ZIP code of user residence; clinical diagnosis codes; and other attributes of care such as site of service and type of insurance coverage.

This report uses categories and definitions for region, coverage type, and market share comparable to those in previous reports. However, the distinction between HMO and non-HMO services, which was referred to as plan type in previous reports, is categorized as network type in this report.[31] The definition of network type (HMO versus non-HMO) remains the same as in the 2008 report. In reports prior to the 2008 *Practitioner Utilization* report, network type was assigned based on the network and coverage type associated with the user as reported by the payer. Starting in the 2008 report, network type is based on the type of business that provided the plan, regardless of the reported network type. In other words, all users enrolled in plans provided by licensed HMOs are defined as HMO users and those enrolled in plans provided by life and health insurers are defined as non-HMO users. Users who were enrolled in more than one plan in a year or who moved from one region to another are assigned to the region or network type that is associated with the majority of their total payments. If two regions or both network types tie in terms of total payment, we assign the user to the region or network type with the higher number of services. This methodological change mainly affects part-year users.

This report continues to employ two analytic tools that were introduced in the 2005 *Practitioner Utilization* report: risk status and enrollment period. Users have been grouped into low-risk, medium-risk, and high-risk groups based on their scores from the Chronic Illness and Disability Payment System (CDPS). This algorithm, developed by researchers at the University of California, San Diego, creates person-level risk scores from the service utilization data of the MCDB. It has been applied only to users who were enrolled in reporting plans for the entire year, to avoid developing biased scores based on partial-year data. Resulting scores were used to categorize users as "low-risk," "medium-risk," or "high-risk," based on the scores of the top one-third and bottom one-third of the distribution.[32] Plans reported enrollment data for the first time in 2005, making it possible to analyze those users who were enrolled all year. As a result, the decomposition of spending

[28] The MCDB also includes information on capitated services, but some capitated primary care is not submitted to MHCC.

[29] The companies are licensed in the State of Maryland and collect more than $1 million in health insurance premiums.

[30] A number of small payers received waivers from contributing data, but these payers together account for less than 1 percent of total health insurance premiums reported in Maryland.

[31] "Plan" is used in a general sense in this report (e.g., plan characteristics include coverage type and network type).

[32] The resulting risk status groups do not each include exactly one-third of the population, since the cutoff score values applied to many users. Overall, about 35 percent of users were in the low-risk group, while about 32 percent and 33 percent fell in the medium- and high-risk groups, respectively.

into volume, complexity, and payment level reported in Chapter 2 is not distorted by the anomalies introduced by including part-year enrollees.

As in last year's report, prices for capitated services were imputed in this report. The imputation made it possible to include capitated services in the analyses. Previous *Practitioner Utilization* reports excluded capitated services due to their lack of payment information. The exclusion of capitated services resulted in an undercount of users of professional services—those who obtained only capitated services—and understated total per-user values in HMO plans. In this report, we imputed payment for capitated services based on the Current Procedure Terminology (CPT) code associated with a service, using payment information on noncapitated services within the same payer. As in 2008, the number of full-year users included in the report analyses increased by 8 percent with imputation in 2009 (Table 1-2). Full-year users with only capitated services spent on average $414 and $487 on professional services in 2008 and 2009, respectively. For full-year users with some but not all capitated services, the average per-user expenditure is 22 percent and 25 percent higher after imputation in 2008 and 2009, respectively. Overall, the inclusion of imputed payments for capitated services led to a 10 percent increase in per-user spending among all full-year users in both 2008 and 2009.

APPENDIX B:
Supplemental Tables

TABLE B-1: Distribution of Payments by Coverage Type and User Risk Status Within Coverage Type, 2008–2009

	All Users		Low-Risk Users		Medium-Risk Users		High-Risk Users	
	2008	2009	2008	2009	2008	2009	2008	2009
ALL	100%	100%	13%	13%	25%	23%	62%	63%
COVERAGE TYPE								
Non-CDHP	93	93	13	13	25	23	62	64
1: Public Employer Plan	42	43	12	12	24	23	64	65
2: Private Employer Plan	37	37	14	14	25	24	61	62
3: CSHBP	9	6	13	13	25	23	63	64
4: Individual Plan	5	5	17	17	28	26	55	57
5: MHIP	1	1	4	4	14	13	82	83
CDHP	7	7	14	14	25	24	60	61

NOTE: CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan.

TABLE B-2: RVUs Per Service in Expenditure Risk Categories by Coverage Type, Network Type, Region, and Payer Market Share, 2008–2009

	RVUs PER SERVICE							
	All Users		Low-Risk Users		Medium-Risk Users		High-Risk Users	
	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008	2009	Percentage Change from 2008
ALL	1.6	0%	1.3	-1%	1.4	-1%	1.8	-1%
COVERAGE TYPE								
Non-CDHP	1.6	0	1.3	-1	1.4	-1	1.8	0
1: Public Employer Plan	1.6	0	1.4	0	1.4	0	1.7	1
2: Private Employer Plan	1.6	-1	1.4	0	1.5	-1	1.8	-2
3: CSHBP	1.6	-2	1.3	-6	1.4	-3	1.8	-1
4: Individual Plan	1.6	1	1.4	1	1.5	1	1.8	0
5: MHIP	1.8	3	1.5	11	1.6	1	1.9	3
CDHP	1.6	-1	1.4	-1	1.5	-1	1.8	-1
NETWORK TYPE								
Non-HMO	1.6	0	1.4	-1	1.5	-1	1.8	0
HMO	1.6	-1	1.3	-2	1.4	-2	1.7	-1
REGION								
Baltimore Metropolitan Area	1.6	0	1.4	-1	1.4	-1	1.8	0
National Capital Area	1.6	0	1.3	0	1.4	-1	1.7	0
Other Maryland Areas	1.6	-1	1.4	-2	1.5	-2	1.8	-1
PAYER MARKET SHARE								
Largest Payers	1.6	-1	1.4	-2	1.5	-1	1.8	0
Other Payers	1.6	0	1.3	1	1.4	0	1.7	-1

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.
2. Detail may not add to total due to rounding.
3. 0% indicates <0.5%.
4. 2009 RVUs were applied to both 2008 and 2009 data when calculating RVUs per service.

TABLE B-3: Percentage Change in Payment Per RVU in Expenditure Risk Categories by User, Coverage Type, Network Type, Region, and Payer Market Share, 2008–2009

	PERCENTAGE CHANGE IN PAYMENT PER RVU FROM 2008			
	All Users	Low-Risk Users	Medium-Risk Users	High-Risk Users
ALL	2%	2%	2%	2%
COVERAGE TYPE				
Non-CDHP	2	2	2	2
1: Public Employer Plan	0	1	0	0
2: Private Employer Plan	2	2	2	2
3: CSHBP	5	4	3	5
4: Individual Plan	6	4	5	7
5: MHIP	4	7	3	4
CDHP	2	2	2	1
NETWORK TYPE				
Non-HMO	1	1	0	1
HMO	3	3	3	3
REGION				
Baltimore Metropolitan Area	1	1	1	2
National Capital Area	1	1	1	2
Other Maryland Areas	3	4	3	3
PAYER MARKET SHARE				
Largest Payers	2	2	2	2
Other Payers	1	1	0	1

NOTES: 1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.
2. Detail may not add to total due to rounding.
3. 0% indicates <0.5%.
4. 2009 RVUs were applied to both 2008 and 2009 data when calculating RVUs per service.

TABLE B-4: Expenditure Per User by Coverage Type, Network Type, Region, and Payer Market Share, 2008

	Percentage of Users	Number of Users	Expenditure per User	Number of Services per User	RVUs per Service
ALL	100%	2,061,075	$1,186	20.8	1.6
COVERAGE TYPE					
Non-CDHP	92	1,905,537	1,193	20.9	1.6
1: Public Employer Plan	42	858,632	1,176	21.2	1.6
2: Private Employer Plan	36	743,503	1,205	20.1	1.6
3: CSHBP	8	173,635	1,293	23.3	1.6
4: Individual Plan	5	105,478	1,049	18.6	1.6
5: MHIP	0	8,064	2,205	36.8	1.8
CDHP	8	155,538	1,103	19.5	1.6
NETWORK TYPE					
Non-HMO	61	1,258,182	1,262	21.7	1.6
HMO	39	802,893	1,067	19.3	1.6
REGION					
Baltimore Metropolitan Area	44	901,958	1,188	21.4	1.6
National Capital Area	36	736,281	1,210	20.5	1.6
Other Maryland Areas	21	422,836	1,140	19.8	1.6
PAYER MARKET SHARE					
Largest Payers	68	1,410,122	1,193	21.5	1.6
Other Payers	32	650,953	1,170	19.1	1.6

NOTE: CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; MHIP = Maryland Health Insurance Plan; HMO = health maintenance organization.

TABLE B-5: Distribution of Expenditure Risk Scores, 2009

RISK SCORE PERCENTILE	Risk Score
01	0.20
05	0.20
10	0.23
25	0.26
50	0.78
75	1.67
90	2.98
95	3.87
99	7.08

NOTE: Risk scores were generated using the Chronic Illness and Disability Payment System (CDPS), which takes into account the impact of both the number and the mix of diagnoses on health care expenditures.

TABLE B-6: Comparison of Median CDPS for Each Coverage Type with the Overall Median Score, 2009

CLASSIFICATION	Median CDPS	Ratio
ALL USERS	0.78	1.00
COVERAGE TYPE		
Non-CDHP	0.78	1.00
1: Public Employer Plan	0.80	1.03
2: Private Employer Plan	0.76	0.97
3: CSHBP	0.78	1.00
4: Individual Plan	0.58	0.74
5: MHIP	1.66	2.12
CDHP	0.71	0.91

NOTES:
1. CDHP = consumer-directed health plan; CSHBP = Comprehensive Standard Health Benefit Plan; CDPS = Chronic Illness and Disability Payment System; MHIP = Maryland Health Insurance Plan.
2. Risk scores were generated using the CDPS, which takes into account the impact of both the number and the mix of diagnoses on health care expenditures.

APPENDIX C:
Payers Contributing Data to This Report

TABLE C-1: Payers Contributing Data to This Report

PAYER	Payer Identification Number
Aetna Life and Health Insurance Company	P020
Aetna U.S. Healthcare	P030
American Republic Insurance Company	P070
CareFirst BlueChoice, Inc.	P130
CareFirst of MD, Inc.	P131
CIGNA Healthcare Mid-Atlantic Inc.	P160
Golden Rule Insurance Company	P320
Graphic Arts Benefit Corporation	P325
Guardian Life Insurance Company of America	P350
Unicare Life & Health Insurance Company	P471
Kaiser Foundation Health Plan of the Mid-Atlantic States, Inc.	P480
MAMSI Life and Health Insurance Co.	P500
MD-Individual Practice Association, Inc.	P520
The MEGA Life & Health Insurance Company	P530
Optimum Choice Inc.	P620
Coventry Healthcare of Delaware, Inc.	P680
State Farm Mutual Automobile Insurance Company	P760
United Healthcare Corporation	P820
Trustmark Insurance Company	P830
Union Labor Life Insurance Company	P850
United Healthcare of the Mid-Atlantic, Inc.	P870

MARYLAND
HEALTH CARE
COMMISSION

4160 Patterson Avenue
Baltimore, Maryland 21215

Telephone: 410-764-3570
Fax: 410-358-1236
mhcc.maryland.gov