Summary

Background

In 1990, after a decade of rapid cost growth, Congress made two major changes to the Medicare program in an attempt to control expenditures for physicians' services. It implemented a fee schedule and a payment update system for physicians' services. The goal of this fee schedule was to set relative payment rates that would reflect the time, effort, and expense of providing each listed service. The goal of the payment update system, called the Volume Performance System (VPS), was to limit increases in physician fees by linking them to historical rates of increase in the volume of physicians' services. This system led to high rates of growth in the early 1990s, and was criticized for distorting relative payment levels in its use of different updates for surgery versus primary care payments, for setting unrealistic expenditure targets (because of relying on historical trends and legislated reductions), and for relying on two-year-old data to set targets.

In 1997, Congress established a new system for determining the annual update for Medicare payment rates for physicians' services. This system, known as the Sustainable Growth Rate (SGR) system, seeks to constrain costs by tying increases in physician payments to real per capita growth in the gross domestic product (GDP). In implementing the SGR, Congress agreed, in principle, that a system that would allow expenditures for physicians' services to grow at the same rate as the economy as a whole was affordable and reasonable. However, the SGR system is now under criticism by health care providers, members of Congress, and the Medicare Payment Advisory Commission (MedPAC), who are calling for its revision. Intensifying the debate is the fact that for the year 2002, the fee paid per unit of physician service decreased by 5.4 percent.[1] This decrease is the result of a number of factors including the slowing economy and errors made in estimating expenditures in prior years.

The major problem with the SGR system, its critics maintain, is that, in setting fees, it does not directly consider changes in the actual costs of providing physician services to the Medicare population. Such changes are driven by a confluence of progress in medical technology, changes in provider productivity, and changes in the health of beneficiaries in the traditional Medicare fee for service (FFS) program. Other systems used by Medicare to update payment rates implicitly include allowances for such changes.

With Medicare physician payments currently exceeding $40 billion per year, the payment update factor has important implications for the Medicare budget, as well as other possible consequences. Too small an update might limit beneficiary access to care, "unfairly" penalize physicians, or create incentives to funnel treatment to other types of services having no expenditure target. In the longer term, inadequate payment updates might discourage the development and adoption of new technologies for treating Medicare patients.

In light of these concerns, Congress mandated a study of sources of changes in FFS Medicare expenditures for physicians' services.

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[1] The SGR system reduced payments to physicians by 4.8 percent in 2002. There was an additional reduction of 0.18 percent applied to the physician fee schedule conversion factor to account for an anticipated increase in the volume and intensity of services in response to the final year of implementation of resource-based practice expense RVUs. As required by law, an additional budget neutrality adjustment of 0.46 percent was also applied to the conversion factor to account for increases in physician work RVUs resulting from the 5-year review of physician work.

Approach

The tasks we undertook in response to the Congressional mandate were the following:

- Describe the processes used to update payment rates for Medicare physicians' services;
- Analyze national trends in expenditures for physicians' services; and
- Disaggregate the changes in Medicare expenditures for physicians' services into the components specified in the legislation, to the extent possible.

In order to describe the processes used to update payment rates for Medicare physicians' services we reviewed Federal Register Notices about the payment system, reports of the Medicare Actuary, and reports of the Physician Payment Review Commission and its successor, MedPAC. We also compiled information from these sources and from the National Health Accounts in order to analyze national trends in expenditures for physicians' services.

We assessed the changes in Medicare expenditures for the period between 1993 and 1998, a period for which we have both national estimates of expenditure trends and beneficiary-level data on the use of services.

Our overall approach was to estimate the effects of changes in demographics, case-mix, and sites of service delivery on the delivery of services over time, using survey and medical claims data about Medicare beneficiaries. We then drew on expert clinical opinion to help us account for the rest of the changes in service use, which might be due to changes in technology, productivity, and other factors.

The volume and intensity of physician services on the Medicare physician fee schedule are measured using a system called the Resource Based Relative Value Scale (RBRVS). Each service on the physician fee schedule is assigned a number of Relative Value Units (RVUs) that reflect the time, skill, expense, and other resources used in providing the service. We can thus quantify the volume and intensity of physicians' services consumed by counting the number of RVUs delivered to beneficiaries. In addition, a panel of physicians makes periodic recommendations to the Center for Medicare and Medicaid Services (CMS) about changes that are needed to update the fee schedule because of newly available services or services that have changed. Services that are added to the Medicare benefits package are also added to the fee schedule. We measured the changes in volume and intensity of physicians' services in the fee schedule updates and used them as an index of changes in medical practices, technology, and coverage.

Medicare phased the fee schedule into use over a five-year period beginning in 1992. Since most of the changes that resulted from the new payment system occurred in 1992, 1993 was the first year for which a baseline level of physicians' services volume could be established in terms of RVUs. The baseline was constructed using data from the 1993 Medicare Current Beneficiary Survey (MCBS) Cost and Use File and linked claims data for MCBS respondents in traditional FFS Medicare. The MCBS is an annual survey of a sample of Medicare beneficiaries conducted by CMS. It collects information about beneficiaries' health status and use of health care services. It also collects information about beneficiary spending on health care, health insurance

status, and other beneficiary characteristics. This information is linked to Medicare administrative data on respondents' use of services paid for by Medicare.

We modeled the volume of services (in RVUs) used by individual beneficiaries in our 1993 analysis sample as a function of beneficiary characteristics including age and health conditions. Our analysis was restricted to FFS enrollees who did not have end-stage renal disease (ESRD) and were not institutionalized, because both these groups had physician care patterns that differed from other Medicare beneficiaries and ESRD services were not added to the fee schedule until the middle of our study period.

We modeled the volume of services (in RVUs) used by individual beneficiaries in our 1993 analysis sample as a function of beneficiary characteristics including age and health conditions (case mix). Having fit our model to 1993 data, we then used the estimated coefficients from the 1993 model to predict service volume in terms of RVUs for future years. We compared the total predicted growth to the total volume of growth to see how much of the change in volume could be attributed to the demographic and case-mix factors in the model.

Results

Processes for Updating Payments for Physicians' Services in Medicare

Both the VPS and the SGR were designed to restrain growth in expenditures for physicians' services. The VPS expenditure target for growth in Medicare physicians' services spending consisted of four factors. These factors were the projected changes in the cost of providing physicians' services (measured using the Medicare Economic Index and the Consumer Price Index); projected changes in the number of Medicare beneficiaries; growth in volume and intensity of physicians' services over the previous five years; and changes in projected spending due to changes in law or regulation. In the SGR target formula, a factor tied to changes in real per capita growth in the GDP replaced the VPS factor based on the five-year historical trend in volume increases. This change was designed to ensure that physician expenditures would grow only as fast as the economy as a whole.

The expenditure targets are calculated and implemented by CMS. The targets set by the VPS and the SGR determine the year-to-year increases in the payment rates for physicians' services. The VPS targets for growth in physicians' services expenditures during our study period ranged from a high of 10 percent in 1993 to a low of –0.3 percent in 1997. Payment rate increases are then set by CMS so as to meet these targets: if actual expenditures are lower than the target, the payment rate increase is inflated to help meet the target and vice versa. The targets translated into physician payment updates that ranged from 0.6 percent to 7.7 percent over the 1993-1998 period. In turn, these updates dictate the increase (or decrease) in the dollar amount at which RVUs on the physician fee schedule are reimbursed.

Setting the physician expenditure targets also takes into account a number of ancillary ("Other") services included in the statutory definition of physicians' services (diagnostic laboratory tests and x-rays; physician-administered drugs, biologicals, and antigens; the services of particular non-physician health professionals; and services and supplies incidental to physicians' services). However, some of these services are not measured in RVUs, and the

prices paid for these services are not updated using the VPS or SGR. Instead, update methods span a range and include changes in charges and average wholesale prices.

Trends in Expenditures for Physicians' Services Across Payers

Expenditure changes during the mid-1990s for physicians' services showed broadly similar trends across payers. National Health Accounts estimates of per capita physician services expenditures show that expenditures grew at an inflation-adjusted average annual rate of 4.8 percent between 1993 and 1998. Per person expenditures from private insurance and out-of-pocket sources had an inflation-adjusted average annual rate of increase of 2.8 percent. Medicare per capita program expenditures for physician and supplier services grew 4.4 percent annualized; per capita physician fee schedule services grew 3.4 percent annualized.[2] Thus, the increases in expenditures allowed under the VPS system over this time period were not markedly different than those experienced by other payers.

Disaggregating Changes in Medicare Expenditures for Physicians' Services

To determine the causes of increased Medicare spending for physicians' services, we looked at changes in pricing and coverage policy and in the volume and intensity of physicians' services delivered. We also examined the use of and spending for other services that are included under the statutory definition of Medicare physicians' services.

Policy Changes in Prices and Coverage Rules

Policy changes that affect Medicare spending on physicians' services are of two types: changes that affect the price paid per service and changes in the services covered. The dollar conversion factor used to set prices for services on the physician fee schedule increased from $31.50 in 1993 to $36.70 in 1998, an increase of 16.6 percent in the amount paid per unit of service delivered. Over the period we examined, regulatory changes to the services covered by Medicare were projected to increase expenditures by approximately 5 percent.

Changes in the Volume and Intensity of Services Delivered

The other major determinant of increases in expenditures is the increase in the volume and intensity of services delivered. Volume and intensity can increase or decrease because of changes in medical practice, technology, the case mix of the population being served, and the supply of and demand for physicians' services. The price paid per service can also influence the number of services provided.

We found that the per capita volume of physicians' services used by Medicare beneficiaries increased more than 30 percent between 1993 and 1998 (from 38.1 to 49.9 RVUs; see table below). Using our model to control for the changing demographics and observable health status of the Medicare population, we found that the 1998 Medicare FFS population would have been

[2] The National Health accounts and Medicare estimates cover somewhat different sets of services and beneficiaries (e.g. HMO expenditures are treated differently). Theses differences are described in detail in Chapter 2.

expected to use slightly fewer services per capita than the 1993 Medicare FFS population. Thus, the changing age/gender composition, place of residence, and observable aspects of health status of the 1998 Medicare population were not responsible for the volume increase.

We disaggregated the volume increase into increases in the use of physicians' service codes that existed in 1993 (our base year) and "new" codes. The new codes include codes for established services that were newly covered by Medicare, new codes for new health care services, and codes that had been updated since 1993.[3] Fifty-eight percent of the total difference between 1993 and 1998 RVU use (7.5 out of 12.9 RVUs) was due to the increased use of codes that existed in 1993. Forty-two percent of the total difference between actual 1998 RVU use and predicted use was due to the use of new or updated codes.

Table: RVU for physician services use 1993 and 1998

Year	Predicted RVU Use	RVUs Based on 1993 Fee Schedule	Actual RVU Use in 1998	Mean Unexplained Change	Increase in Use of Existing Codes	New and Updated Codes	Number of Observations
	(1)	(2)	(3)	(3) minus (1)	(2) minus (1)	(3) minus (2)	
1993	38.1	38.1	-	-	-	-	9,627
1998	37.0	44.5	49.9	12.9	7.5	5.4	8,986

Source: Authors' analyses of Medicare Current Beneficiary Survey.

We also assessed changes in the relative proportion of physicians' services delivered in inpatient and outpatient settings. The number of inpatient RVUs increased only slightly, but the use of physicians' services in outpatient settings increased significantly. The proportion of total per-beneficiary RVUs associated with inpatient care declined from 36.7 percent to 29.9 percent of total RVU use.

We then looked at the patterns of increase in use by groups of beneficiaries who reported a history of particular diseases on the MCBS survey. Most of these groups had very similar levels of increase in RVU use. Many disease groups that were expected to show large increases in service use owing to technological change did not show such increases (at least relative to disease groups not expected to show such increases). Of the self-reported medical conditions we considered, only strokes, osteoporosis, and unspecified heart conditions were associated with a significant unexplained increase in RVU use compared to the absence of those conditions. A large increase in RVU use was also observed in beneficiaries just prior to death. In contrast, the

[3] Only the amount by which the RVUs for updated services were increased (or decreased) is included in the "new" codes category. Thus, if the use of an existing code that had been updated increased, then the 1993 number of RVUs times the increase in use would be reflected in the existing codes category, and the amount of the update times the increase in use would be in the new codes category.

care of patients with hip fracture and those with no reported medical conditions was associated with the decrease in RVU use, and lung cancer was associated with the largest drop in the use of inpatient services (fifty-four percent).

Changes in Clinical Technology and Productivity

Clinical experts identified a number of potential reasons for the increases in the use of physicians' services by stroke patients and osteoporosis patients and the large decline in the use of inpatient services by lung cancer patients. These reasons included the extension of Medicare coverage for bone scans for persons at risk for osteoporosis, new pharmaceutical therapies that may require additional office visits, a greater appreciation for aggressive rehabilitation of stroke patients and aggressive treatment of risk factors for stroke, and improvements in medical imaging. The reductions in RVUs for lung cancer treatment were postulated to be due to some combination of improved cancer staging, shifts in the site of chemotherapy, and the increased use of hospice care.

Effect of Medicare Managed Care Enrollment on Service Use

During the period 1993-1998, enrollment in Medicare managed care plans increased significantly. Numerous studies have shown that Medicare beneficiaries who choose to join managed care plans are healthier than average. The negative selection brought about by this exodus from traditional-fee-for service Medicare produces a concomitant rise in per-capita utilization (as measured by RVUs). However, our estimates suggest that this effect is small, ranging from negligible to 5.6 percent at most.

Use of Other Physicians' Services

In our sample, per beneficiary payments for all ancillary medical services not reimbursed through the fee schedule increased 5 percent, from $317 in 1993 to $333 in 1998 in our sample. The increase was largely due to the increase in the frequency of use of diagnostic laboratory and x-ray services.

Conclusions

In our sample of Medicare beneficiaries, per capita expenditures for physicians' services increased 19 percent in nominal dollars from $898 in 1993 to $1073 in 1998. Expenditures for physician fee schedule services increased 27 percent from $581 to $740, and other services included in the statutory definition of physicians' services increased 5 percent from $317 to $333. During that period, the physician fee schedule dollar conversion factor increased by 16.6 percent from $31.50 to $36.70.[4]

Changes in laws and regulations and increasing enrollment in managed care can account for at most one-half of the observed change in expenditures. According to CMS, changes in laws and regulations should have led to an increase of 5 percent in total expenditures for physicians'

[4] Note, however, that conversion factor increase does not translate into a commensurate increase in expenditures, owing to beneficiary cost sharing, the phase-in of the fee schedule, and other factors discussed in detail in the report.

services. We estimate that HMO enrollment can account for no more than a 5.6 percent increase in expenditures.

The per capita volume of physicians' services (in RVUs) delivered to non-ESRD, non-institutionalized fee-for-service Medicare beneficiaries increased 30 percent over the mid-1990s. Our analyses do not indicate that this increase is due to measurable changes in the demographic composition, the places of residence, the prevalence of health conditions, or other characteristics of the Medicare population. Indeed, our analysis indicates that, all else being equal, the 1998 FFS population should have used slightly fewer RVUs than the 1993 population. In addition, while we found that the use of services in outpatient settings increased substantially, the increase in expenditures could not be attributed directly to shifts in site of care from inpatient to outpatient settings.

Overall, the main driver of change in the volume and intensity of services was a general increase in the use of care by all categories of beneficiaries. Only a few medical conditions emerged as having unusual RVU growth. For these conditions, clinical experts were able to point to changes in medical knowledge and technology that could have contributed to the increase. Large increases in the use of physicians' services were also seen in patients just prior to death. Thus, changing medical technology appears to increase use of physicians' services in ways that are strong and pervasive. Furthermore, the increases in Medicare expenditures for physicians' services seem comparable to those of other payers. This finding indicates that the trends in Medicare beneficiaries' use of physicians' services are likely driven by the same set of factors as those driving the increase in overall health care spending.

This study has four main limitations. First, as with nearly all models of health care utilization and spending, our model can explain very little of the variation in service utilization across beneficiaries. Second, while we were able to attribute the unexplained increase in RVUs to both "new and updated" and "existing" service codes, this distinction does not isolate the effect of new technology, since existing services can undergo technological changes that are not captured in the fee schedule. Third, while we tried to control for patient characteristics, unobserved differences in severity of illness may have existed between the patients in our 1993 and 1998 samples. Finally, we cannot say whether or not the observed increases in service use are medically appropriate or whether they would have been different in magnitude if an alternative payment update system has been used.

Implications

Our analyses have several implications for the debate about the SGR payment update system:

1. Technical adjustments to the SGR targets are not a ready solution to the criticisms raised about the SGR. Such adjustments could be made to account for the changing composition of the FFS population, but they would be small adjustments relative to the overall increases in service use.
2. A payment update system that systematically attempted to measure "appropriate" increases in use due to changing technology would not be feasible. Such a system would have to consider changes across an extraordinarily broad set of dimensions and conditions to capture all of the possible ways in which technology can influence service provision.

3. Our analyses indicate that some of the largest increases in the use of physicians' services cannot be ascribed to discrete causes. These increases are surprisingly uniform across medical conditions, suggesting that a single update factor for physicians' services may be appropriate. However, what that factor should be remains an open policy question.