MARKET WATCH

Medigap Coverage And Medicare Spending: A Second Look

This latest analysis finds that Medigap coverage may have a much smaller impact on Medicare spending than previously estimated.

by Jeff Lemieux, Teresa Chovan, and Karen Heath

ABSTRACT: Medicare supplemental insurance (Medigap) provides important financial protections for many low- and moderate-income beneficiaries in Medicare's traditional fee-for-service program. However, conventional wisdom among policymakers holds that Medigap coverage substantially raises Medicare claims costs. This report uses detailed diagnosis data provided by three large Medigap insurers, information from the Medicare Current Beneficiary Survey, and the Medicare 5 percent sample file to reexamine the impact of Medigap coverage on Medicare spending. We conclude that previous studies might have overestimated the impact of Medigap coverage on Medicare costs and that past projections of potential Medicare cost savings from restrictions on Medigap coverage probably are overstated. [*Health Affairs* 27, no. 2 (2008): 469–477; 10.1377/hlthaff.27.2.469]

THE VAST MAJORITY of Medicare beneficiaries in the traditional fee-for-service (FFS) program have some form of supplemental coverage. According to the 2003 Medicare Current Beneficiary survey (MCBS) Cost and Use data set, 39 percent of FFS beneficiaries had employer-sponsored supplemental coverage, 27 percent had Medigap policies, 17 percent had Medicaid coverage, and 7 percent had other non-Medicare coverage that year. Only 9 percent of FFS enrollees had no supplemental coverage.[1]

Medicare beneficiaries purchase Medigap policies for two reasons: to protect themselves from potentially high out-of-pocket costs, and to eliminate the confusion and hassle of handling complex medical bills from providers. (Under most Medigap policies, beneficiaries can assign their benefits directly to providers and thereby be spared the task of deciphering bills and filing claims.)

Medigap policyholders tend to have low or moderate incomes, are more likely than average Medicare beneficiaries to be female, are older than average Medicare beneficiaries, and are more likely than average to live in rural areas. According to the 2003 MCBS, 20 percent of FFS Medicare beneficiaries with incomes below $10,000 had Medigap coverage. Almost 40 percent of FFS Medicare beneficiaries with incomes between $10,000 and $20,000 were Medigap policyholders (Exhibit 1).

Economists have long understood that beneficiaries with Medigap coverage demand more health care services because they are insulated from Medicare's cost-sharing provisions, such as its $1,024 per episode hospital deductible (for 2008) and 20 percent coinsur-

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EXHIBIT 1
Supplemental Coverage Of Medicare Fee-For-Service Beneficiaries, By Income Range, 2003

	Annual income			
Coverage type	$10,000 or less	$10,001 to $20,000	$20,001 to $40,000	More than $40,000
Medigap	20%	38%	33%	27%
Medicaid	50	11	1	1
Employer-based	13	31	54	65
Other	5	8	7	6
Fee-for-service only	12	12	5	2

SOURCE: Authors' tabulation of data from the Medicare Current Beneficiary Survey (MCBS) Cost and Use file, 2003.
NOTE: Percentages might not add to 100 because of rounding.

ance for outpatient services and physician visits. A common assumption of the magnitude of this effect, cited by the Congressional Budget Office (CBO) for official budget estimates, is that "[M]edigap policyholders use at least 25 percent more services than Medicare enrollees who have no supplemental coverage and about 10 percent more services than enrollees who have supplemental coverage from a former employer (which tends to reduce but not eliminate their cost-sharing liabilities)."[2]

This general result was based on econometric studies comparing the Medicare costs of Medigap policyholders with those of beneficiaries with no supplemental coverage. Because the estimates from these "comparison" studies on the impact of the supplemental coverage for the elderly were in the same general range as the conclusions of the RAND Health Insurance Experiment (HIE) on the impact of cost sharing in the nonelderly population, this issue has been considered settled among cost estimators. Using this consensus approximation, the CBO periodically estimates that restrictions on Medigap's first-dollar coverage would greatly reduce Medicare outlays.

However, a closer analysis raises doubts about the assumption that Medigap coverage increases policyholders' Medicare claims by nearly as much as 25 percent. In this paper we use data from three large Medigap insurers, information from the MCBS, and the Medicare 5 percent sample file to reexamine the impact of Medigap coverage on Medicare spending. Although the new data and arguments in this paper are not conclusive, they point in the same direction: that restrictions on Medigap coverage would not reduce Medicare costs by nearly as much as previously estimated.

Earlier Comparison Studies

In the 1990s the Physician Payment Review Commission (now the Medicare Payment Advisory Commission, or MedPAC) and CBO analysts Sandra Christensen and Judy Shinogle published separate econometric studies comparing the Medicare claims of Medigap purchasers with those of beneficiaries with no supplemental coverage (FFS-only).[3]

■ **Limitations.** The MedPAC and CBO comparison studies could not distinguish between "moral hazard" or the "insurance effect"—the tendency of people with more extensive insurance to purchase more health care services because their out-of-pocket costs are reduced—and "self-selection"—the tendency of people who will need or desire more extensive health services to purchase more extensive insurance in the first place.[4]

Compounding this fundamental limitation, we suggest that these two comparison studies have two important technical shortcomings: (1) the absence of a control for health care services received through the Department of Veterans Affairs (VA) or from military facilities, and (2) the dependence on self-reported

health status measures as a proxy for underlying health care needs or risk.

Controlling For VA And Military Services Received

The comparison studies performed by the CBO and MedPAC controlled for age, sex, geographic location, and other factors that could otherwise distort the results. However, they did not control for care received via the VA system or in military health care facilities. Services provided at VA and military facilities generally incur no claims or costs to Medicare. Thus, FFS-only Medicare beneficiaries using VA and military facilities appear on surveys and claims records as using relatively few Medicare-covered services. Without a control for VA or military health care services, the comparison technique would infer that these beneficiaries' higher out-of-pocket exposure reduced their Medicare claims. However, what really happened was that they simply received health care services off the Medicare grid. According to the 2003 MCBS, 13 percent of FFS-only beneficiaries identified a VA facility as their primary source of care. By contrast, only 1 percent of Medigap purchasers used the VA as their primary health care provider.

Medicare beneficiaries' spending at military facilities must be inferred. The MCBS does not separately identify care at military facilities, including well-known hospitals such as Bethesda Naval Hospital, Walter Reed Army Medical Center, and other hospitals at military bases throughout the country. MCBS officials have noted instances in their surveying when a respondent reported an extended inpatient hospital stay, but Medicare did not have any claims. When survey analysts examined the hospitalization more carefully, they often found that the care had been delivered at a military facility.[5] For example, we found that 8 percent of FFS-only beneficiaries had total health spending above $20,000, with Medicare claims accounting for less than 10 percent of the total. Only 1 percent of Medigap beneficiaries were in the same circumstance. Likewise, of FFS-only beneficiaries who reported spending at least three days in the hospital for inpatient (overnight) care, 9 percent reported no Medicare spending. By contrast, only 1 percent of Medigap purchasers with three or more inpatient days reported no Medicare spending.

Eliminating the impact of VA services from the comparisons is straightforward in the following calculations: all Medigap purchasers or FFS-only beneficiaries with VA utilization reported in the MCBS were simply excluded. Controlling for possible use of military facilities was indirect: we excluded from the comparisons all Medigap purchasers or FFS-only beneficiaries with three or more hospital days but with average Medicare hospital claims of less than $200 per day.

Exhibit 2 illustrates how excluding these survey respondents with VA and (possible) use of military facilities dramatically shrinks the apparent gap between the Medicare claims of Medigap policyholders and those of FFS-only beneficiaries in this type of comparison. Based on the 2003 MCBS, the raw difference between the average Medicare claims of Medigap policyholders and that of FFS-only beneficiaries was about 25 percent on a weighted average basis by five-year age cohorts (without controlling for anything else that could affect the comparison). We calculated that excluding respondents using VA and military facilities from the comparison reduces that apparent gap by eleven percentage points, or roughly 45 percent. We repeated this calculation using 2002 MCBS data; the weighted average percentage reduction from the 2002 data was 40 percent.

Most of the estimated reduction can be attributed to the VA control. Our attempt to control separately for possible "military" hospitalizations turned out to be unnecessary, at least based on these 2002 and 2003 MCBS data. Virtually all of the MCBS records in those years that met our criterion for a possible military hospitalization (three or more days in the hospital with very small Medicare claims) also showed at least some VA services received. Thus, these records would have been excluded under either the VA or the "military" test. Ultimately, although we believe that testing for possible non-VA military hospitaliza-

EXHIBIT 2
An Illustration Of The Impact Of Controlling For Use Of VA And Military Health Care In Comparisons Of The Medicare Claims Of Medigap Policyholders And FFS-Only Beneficiaries, 2003

Age group (years)	Weighted N	Apparent percentage "gap"	Apparent dollar "gap"	Percentage-point "gap" reduction	"Gap" reduction in dollars
65–69	6,873,133	39%	$1,533	10	$426
70–74	5,901,474	16	812	14	681
75–79	5,111,322	4	226	15	894
80–84	3,619,156	28	2,188	8	628
85+	2,836,163	48	3,243	9	757
Total	24,341,248				
Weighted average		25		11	

SOURCE: Authors' tabulation of data from the Medicare Current Beneficiary Survey (MCBS) Cost and Use file, 2003.
NOTES: The "gap" is the raw or unadjusted difference between the average Medicare claims of Medigap policyholders and Medicare beneficiaries with no supplemental coverage. VA is Department of Veterans Affairs. FFS is fee-for-service.

tions is appropriate conceptually, the VA control alone was sufficient to show the 40–45 percent reduction in the apparent gap in Medicare claims between Medigap purchasers and FFS-only beneficiaries.[6]

After excluding data from people receiving care through the VA and (to a slight extent) the military, the remaining gap in Medicare claims of Medigap policyholders and FFS-only beneficiaries in 2003 is most noticeable in the youngest age group (30 percent among beneficiaries ages 65–69) and the oldest (39 percent among beneficiaries age 85 and older). Moreover, the remaining gap (controlling for nothing other than age and VA/military) disappears completely in the 75–79 age group. These patterns were also evident using data from 2002.

We do not have an explanation for these patterns. However, the proposition that any "overuse" of Medicare services resulting from Medigap coverage would systematically be minimal (or negative) among some age groups but would be large among the very old and newly Medicare-eligible is not easily understood.

Likewise, it is important to remember that both the current MCBS and the National Health Interview Survey (NHIS) from 1994, which was used for the Christensen and Shinogle comparison study, have quite small sample sizes, especially when breaking out groups—such as FFS-only beneficiaries using the VA—by age.[7] Overall, for the populations examined or compared here, the MCBS had 7,726 (unweighted) respondents in 2003, and the NHIS had 2,363 respondents in 1994.

Improving Measures Of Health Status And Risk

The second technical shortcoming we identified was that the prior comparison studies mostly used "self-reported health status" and a short list of self-reported chronic conditions as proxy variables for underlying health risk or tendency to need or demand services. Christensen and Shinogle reported that the self-reported health status of Medigap policyholders was somewhat better than that of Medicare beneficiaries overall and noticeably better than that of FFS-only beneficiaries.[8] However, according to the 2003 MCBS, the self-reported health status of FFS-only beneficiaries is now much closer to average (Exhibit 3). Likewise, the Chistensen and Shinogle report (which was based on 1994 data) indicated that Medigap policyholders had a slightly lower likelihood of having a chronic illness, based on self-reported answers to questions about cancer, heart disease or stroke, diabetes, asthma, and emphysema. However, more recent data collected on a much richer set of diagnosis codes derived from claims data for

EXHIBIT 3
Self-Reported Health Status Of Medicare Beneficiaries Over Age Sixty-Five, By Coverage Type, 2003

Status	Medigap	FFS-only	All
Excellent	16%	20%	16%
Very good	30	26	29
Good	35	30	32
Fair	15	17	17
Poor	4	7	6

SOURCE: Authors' tabulation of data from the Medicare Current Beneficiary Survey (MCBS) Cost and Use file, 2003.
NOTE: FFS is fee-for-service.

Medigap policyholders in three states shows that Medigap policyholders are sicker than Medicare beneficiaries overall.

We obtained detailed data from three large Medigap insurers on the diagnoses of their Medigap enrollees based on Hierarchical Condition Code (HCC) classifications. Each company's primary market is a single state—two large states and a medium-size state. The data were provided on the condition that the companies and states would not be identified and that the data would be aggregated and used only for the purposes of this report. Each company provided deidentified, person-level data for its Medigap enrollees—including age, sex, and type of plan—for three years, 2002 through 2004. The data also included utilization for major health events, Medigap benefits paid, and detailed HCC information on enrollees' diagnoses.

For comparison, we used the 5 percent sample file of Medicare FFS claims costs and utilization in 2001, which contains detailed HCC codes for all Medicare beneficiaries in the FFS program. The 5 percent sample file does not include observed information on beneficiaries' supplemental coverage status—for example, Medigap or employer-based supplemental coverage—and instead imputes that information from other sources. Moreover, the file does not have information necessary to control for VA or military expenditures. Therefore, these comparisons do not attempt to differentiate between Medicare beneficiaries by type of supplemental coverage. This means that Medicaid enrollees (who often have high costs) and Medigap enrollees are embedded in the comparison group. This, of course, is not an ideal comparison group for the Medigap information provided by America's Health Insurance Plans (AHIP) member companies, but it provides helpful information nonetheless.

Our comparisons did not include Medicare beneficiaries under age sixty-five. Data for the comparisons from the 5 percent sample file were limited to beneficiaries living in the same three states as those in which the three AHIP member companies (and the vast majority of their enrollees) were located. There were 246,000 beneficiary records in the Medicare sample file and 445,000 Medigap policyholder records supplied by the Medigap insurers.

■ **Health status comparisons.** Exhibit 4 compares the likelihood of Medigap policyholders' and all Medicare beneficiaries' having one or more HCC diagnoses, by sex and age group. We also compared the likelihood of beneficiaries' having two or more diagnoses and of beneficiaries' having each individual HCC diagnosis, grouped by most (in terms of Medicare claims) to least costly. In general, Medigap policyholders are more likely than average to have one HCC condition, two or more HCC conditions, or any of the ten most expensive HCC diagnosis codes, within virtually every sex and age grouping.[9] Beneficiaries with these ten diagnoses accounted for 55 percent of Medicare FFS spending. On average, male Medigap purchasers in every age category were more likely than male beneficiaries overall to have each of the ten most expensive

EXHIBIT 4
Percentage Of Medicare Beneficiaries With One Or More Health Conditions (HCC Codes), By Sex And Age Cohort, 2001, 2002, And 2004

Age group (years)	Female (%)	Male (%)
65–69		
All coverage types	32.4	35.3
Medigap policyholders	42.7	50.6
70–74		
All coverage types	42.0	45.1
Medigap policyholders	52.5	62.4
75–79		
All coverage types	49.5	52.4
Medigap policyholders	60.1	70.7
80–84		
All coverage types	55.7	58.8
Medigap policyholders	66.5	76.2
85+		
All coverage types	62.8	63.5
Medigap policyholders	73.4	80.8

SOURCES: For data on beneficiaries with Medigap coverage: three America's Health Insurance Plan (AHIP) member companies, years 2002 and 2004, operating in three states (N = 445,472). For data on all Medicare beneficiaries: 5 percent sample of all fee-for-service Medicare beneficiaries enrolled in Parts A and B in 2001 in the same three states (N = 246,220).
NOTE: HCC is Hierarchical Condition Code.

diagnosis codes. Female Medigap purchasers were more likely than average to have an expensive diagnosis in forty-five of fifty possible diagnosis and age combinations.

Moreover, Medigap purchasers are more likely than Medicare beneficiaries overall to be diagnosed with long-term chronic conditions such as diabetes and cancer. For example, the average likelihood of having a diagnosis of diabetes without complications (HCC 19) is more than 50 percent higher among female Medigap purchasers than among female beneficiaries overall, in all age groups. Men who purchased Medigap were at least 65 percent more likely to have this diagnosis than were male beneficiaries overall, across the age cohorts.

Medigap purchasers in the youngest age cohorts were notably more likely than Medicare beneficiaries overall to have a chronic disease. For example, in the 65–69 age group, female Medigap purchasers were almost twice as likely as female beneficiaries overall to have breast, colorectal, or other cancers (HCC 10). Male Medigap purchasers in this age range were almost 80 percent more likely than male Medicare beneficiaries overall to have a cancer diagnosis.

Although Medigap purchasers are more likely than Medicare beneficiaries overall to have expensive and chronic health conditions, they do not necessarily incur higher-than-average claims costs per condition.

■ **Medicare claims cost comparisons.** One Medigap insurer was able to include actual Medicare reimbursements from Parts A and B as part of its data set for 2002. Exhibit 5 shows average Medicare reimbursements for the ten most expensive health conditions for Medigap purchasers and all Medicare beneficiaries in a single state, using Parts A and B reimbursements from the 5 percent sample file for residents in that same state as a comparison.

On a per diagnosis basis, Medigap purchasers had slightly lower-than-average Medicare claims for five of the ten most expensive (to Medicare) conditions. Medigap purchasers had higher-than-average claims for some diag-

EXHIBIT 5
Average Medicare Reimbursement For The Ten Most Costly Health Condition Groups, For Medicare Beneficiaries Age Sixty-Five Or Older, Residing In A Single State, 2001 And 2002

		Average Medicare reimbursement (Parts A and B)		
Condition group	HCC code	All beneficiaries, 2002 ($)	Medigap policyholders, 2002 ($)	Percentage difference
Chronic obstructive pulmonary disease	108	12,506	12,329	−1
Congestive heart failure	80	14,912	14,506	−3
Specified heart arrhythmias	92	12,195	12,251	0
Vascular disease	105	12,633	13,226	5
Diabetes without complication	19	9,277	9,184	−1
Breast, prostate, colorectal, and other cancers/tumors	10	9,004	12,766	42
Angina pectoris/old myocardial infarction	83	11,011	12,881	17
Ischemic or unspecified stroke	96	14,072	13,666	−3
Unstable angina/other acute ischemic heart disease	82	12,994	16,706	29
Rheumatoid arthritis and inflammatory connective tissue disease	38	10,659	10,525	−1

SOURCES: For data on beneficiaries with all coverage types: 5 percent sample claims file for all Medicare beneficiaries enrolled in Parts A and B in January 2001 (N = 121,604), one state. For data on beneficiaries with Medigap coverage: one America's Health Insurance Plans (AHIP) member company operating in one state, 2002 (N = 200,810).

NOTES: Average Medicare reimbursements for all Medicare beneficiaries from the 5 percent claims sample file were inflated from 2001 to 2002 by 7 percent (the rate of growth in overall Medicare per person spending in that year) for comparison. The ten most costly Hierarchical Condition Code (HCC) groups in this single state were not exactly the same as the ten most costly HCC groups overall in Medicare, which were used for other comparisons.

noses, including cancer and certain forms of heart disease. On balance, however, these Medicare claims data did not appear to be uniformly inflated by the presence of Medigap coverage.

This implication is especially notable because Medigap purchasers are older than average and in many cases could be expected to have more difficult or complex manifestations of a given disease than average. For example, based on the 5 percent sample file of all FFS beneficiaries in this state, 50 percent were ages 65–74—only 37 percent of the Medigap policyholders were in that age range. Likewise, 50 percent of all Medicare beneficiaries in the state were age seventy-five or older; 63 percent of the Medigap policyholders were at least age seventy-five.

■ **Likelihood of having the most expensive diagnoses.** In addition, Medigap policyholders in this one-state sample were more likely than Medicare beneficiaries overall to have a highly expensive diagnosis. To illustrate, the ten most expensive diagnoses on a per person basis (based on the Medigap data file) are disorders of immunity (HCC 45); metastatic cancer and acute leukemia (HCC 7); protein-calorie malnutrition (HCC 21); septecemia/shock (HCC 2); lung, upper digestive tract, and other severe cancers (HCC 8); severe hematological disorders (HCC 44); major complications of medical care and trauma (HCC 164); aspiration and specified bacterial pneumonias (HCC 111); cardiorespiratory failure and shock (HCC 79); and lymphatic, head and neck, brain, and other major cancers (HCC 9).

Fourteen percent of the Medigap policyholders in the sample had at least one of these diagnoses; only 9 percent of Medicare beneficiaries overall had these diagnoses. (The results were similar using rankings based on the

overall Medicare file in the state.)

■ **Diagnosis-based versus self-reported health status measures.** Of course, diagnosis data are not perfect. Defenders of the conventional wisdom could argue that some of the extra diagnoses found among Medigap purchasers are attributable to their more comprehensive coverage. In other words, because they have Medigap, they can afford to see physicians, and, therefore, illnesses that might have remained hidden are instead diagnosed and treated. However, the magnitude of such a phenomenon most likely is small. Some beneficiaries' diagnoses may be delayed in the absence of Medigap coverage, but it is unlikely that many Medicare beneficiaries with serious illnesses such as those categorized under HCC codes remain undiagnosed.

We suspect that people with Medigap coverage might feel better about their health situation than those without supplemental coverage. This may be why their self- reported responses to questions about health status are about equal to the average, while their diagnosis codes show a greater likelihood of serious illness.

Because we do not have HCC information specifically for FFS-only beneficiaries, we cannot quantify the likely impact of including diagnosis-based health status measures instead of self-reported measures in comparisons of Medicare costs between Medigap policyholders and FFS-only beneficiaries. However, we believe that in theory at least, better control variables for health status or risk would further reduce any observed differences between the Medicare claims of Medigap policyholders and FFS-only beneficiaries.

Discussion

We have suggested that better control measures for care received at VA and military facilities, plus better measures of health status and risk, would shrink the estimated difference in Medicare claims between Medigap policyholders and FFS-only beneficiaries in simple comparison studies. However, no matter how well specified, "after the fact" comparison studies cannot adequately control for underlying preferences among potential purchasers. Unlike the RAND HIE, the comparison approach cannot directly control for the tendency of people who know that they will want extra health care services to purchase extra insurance benefits.

"The comparison approach cannot directly control for the tendency of people who know that they will want extra health care services to purchase extra insurance benefits."

However, the limitations of the HIE for analysis of the elderly are well known: the experiment did not include people over age sixty-five, and the experimental data are now almost thirty years old.[10] Moreover, since the late 1970s, the capabilities of the U.S. health system have soared, health insurance has grown more complex, and Americans' incomes and expectations for standards of care have risen accordingly.

A new study of the California Public Employees Retirement System (CalPERS) by Amitabh Chandra and colleagues represents a bold attempt to analyze the impact of cost sharing on the elderly in a modern setting.[11] These new findings for the elderly differ greatly from the HIE results for the nonelderly. First, the authors find that the elderly might be more sensitive to cost sharing for prescription drug and physician expenses than the HIE indicates for the under-sixty-five population. Second, they estimate that approximately half of the savings to Medicare from a reduction in supplemental coverage for physician and drug expenses for the elderly is offset by increases in subsequent Medicare hospital costs. This offset rate is even higher among elderly people with chronic or extensive health conditions.

Ultimately, all of these results suggest to us that policymakers should call into question prior assumptions about the magnitude of the impact of Medigap coverage on Medicare claims, at least absent a much more probing

examination of the past research and a careful look at the new CalPERS study. On balance, we believe that a fresh examination would imply lower savings to Medicare from restrictions on Medigap coverage.

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NOTES

1. The MCBS Cost and Use file is based on three separate contacts with each respondent in a year, and the resulting data are for a full year's worth of coverage under Medicare (and supplemental coverage, if applicable). Note that another MCBS file that is commonly used, the Access to Care file, is based on one contact with each respondent per year. The Access to Care file lends itself more to a point-in-time analysis and shows a higher percentage of Medicare beneficiaries without supplemental coverage. A detailed methodological discussion and extensive backup tables are available online at http://content.healthaffairs.org/cgi/content/full/27/2/469/DC1.
2. Congressional Budget Office, *Mandatory: Restrict Medigap Coverage of Medicare's Cost Sharing, Budget Options* (Washington: CBO, February 2007).
3. S. Christensen and J. Shinogle, "Effects of Supplemental Coverage on Use of Services by Medicare Enrollees—Innovations in Fee-for-Service Financing and Delivery," *Health Care Financing Review* 19, no. 1 (1997): 5–17; and Medicare Payment Advisory Commission, *Annual Report to the Congress, FY 1996* (Washington: MedPAC, 1996).
4. S.L. Ettner, "Adverse Selection and the Purchase of Medigap Insurance by the Elderly," *Journal of Health Economics* 16, no. 5 (1997): 543–562.
5. Frank Eppig, director, Medicare MCBS project, Centers for Medicare and Medicaid Services, personal communication, May 2006.
6. Taken independently, the "military" control alone (three or more days in the hospital with small Medicare claims) would have shrunk the apparent gap in Medicare claims between Medigap purchasers and FFS-only beneficiaries by 10 percent based on the 2003 MCBS data, or 13 percent based on the 2002 data. However, virtually all of the records excluded under the "military" control would also have been excluded under the VA control, in both the 2003 and 2002 data. Because of the overlap, excluding VA records alone would have accounted for more than 99 percent of the 45 percent reduction from excluding both VA and "military" records in 2003, and almost 99 percent of the 40 percent reduction estimated from the 2002 data. Additional details are available from the authors. Send e-mail to jlemieux@ahip.org.
7. Christensen and Shinogle, "Effects of Supplemental Coverage."
8. Ibid.
9. The ten most expensive diagnoses are congestive heart failure (HCC 80); chronic obstructive pulmonary disease (HCC 108); vascular disease (HCC 105); specified heart arrhythmias (HCC 92); diabetes without complication (HCC 19); breast, prostate, colorectal, and other cancers/tumors (HCC 10); ischemic or unspecified stroke (HCC 96); angina pectoris/old myocardial infarction (HCC 83); unstable angina/other acute ischemic heart disease (HCC 82); and cardiorespiratory failure and shock (HCC 79). Additional comparison tables are available online, as in Note 1.
10. "We cannot say much about cost-sharing among those over 65, because Medicare eligibles were excluded from our sample." J.P. Newhouse and the Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, Mass.: Harvard University Press, 1996), 345.
11. A. Chandra, J. Gruber, and R. McKnight, "Patient Cost-Sharing, Hospitalization Offsets, and the Design of Optimal Health Insurance for the Elderly," NBER Working Paper no. 12972 (Cambridge, Mass.: National Bureau of Economic Research, March 2007).