National Health Spending In 2007: Slower Drug Spending Contributes To Lowest Rate Of Overall Growth Since 1998

Health spending growth outpaced a slowing economy and increased as a share of gross domestic product.

by Micah Hartman, Anne Martin, Patricia McDonnell, Aaron Catlin, and the National Health Expenditure Accounts Team

ABSTRACT: In 2007, U.S. health care spending growth slowed to its lowest rate since 1998, increasing 6.1 percent to $2.2 trillion, or $7,421 per person. The health care portion of gross domestic product reached 16.2 percent, up from 16.0 percent in 2006. Slower growth in 2007 was largely attributed to retail prescription drug spending and government administration. With the exception of prescription drugs, most other health care services grew at about the same rate as or faster than in 2006. Spending growth from private sources accelerated in 2007 as public spending slowed; however, public spending growth has continued to outpace private sources since 2002. [Health Affairs 28, no. 1 (2009): 246–261; 10.1377/hlthaff.28.1.246]

Health care spending in the United States grew 6.1 percent to $2.2 trillion, or $7,421 per person, in 2007 (Exhibits 1 and 2). The health spending share of gross domestic product (GDP) reached 16.2 percent—an increase over the 16.0 percent share in 2006. This paper presents national health expenditure (NHE) estimates through 2007, with a focus on recent trends in the health care goods and services purchased, the sources of funds used to pay for those purchases, and the sponsors of U.S. health care spending. The NHE estimates measure the total annual spending for health care goods and services in the United States as well as spending for program administration; the net cost of private health insurance; government public health; and the amount invested in

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structures, equipment, and noncommercial research. These estimates are developed using data and information from a variety of sources such as Medicare and Medicaid program data, the Census Bureau’s quinquennial Economic Census and Service Annual Survey, provider-based surveys, private health insurance filings with state insurance commissioners, and other sources.¹

The 2007 rate of growth in NHE was the slowest since 1998, and 0.6 of a per-

¹


¹ Freestanding facilities only. Additional services of this type are provided in hospital-based facilities and counted as hospital care.

¹ Research and development expenditures of drug companies and other manufacturers and providers of medical equipment and supplies are excluded from “research expenditures” but are included in the expenditure class in which the product falls.

¹ Deflated using the implicit price deflator for GDP (2000 = 100.0).

¹ PCH implicit price deflator is constructed from the Producer Price Index for hospital care, Nursing Home Input Price Index for nursing home care, and Consumer Price Indices specific to each of the remaining PCH components.

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EXHIBIT 1
National Health Expenditures (NHE), Aggregate And Per Capita Amounts, And Share Of Gross Domestic Product (GDP), Selected Calendar Years 1970–2007

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<td>34.7</td>
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<td>83.0</td>
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<td>$2,814</td>
<td>$4,789</td>
<td>$6,319</td>
<td>$6,687</td>
<td>$7,062</td>
<td>$7,421</td>
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<td>$5,803</td>
<td>$9,817</td>
<td>$11,686</td>
<td>$12,422</td>
<td>$13,178</td>
<td>$13,808</td>
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<td>NHE as percent of GDP</td>
<td>7.2%</td>
<td>9.1%</td>
<td>12.3%</td>
<td>13.8%</td>
<td>15.9%</td>
<td>15.9%</td>
<td>16.0%</td>
<td>16.2%</td>
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<td>81.6</td>
<td>100.0</td>
<td>109.5</td>
<td>113.0</td>
<td>116.7</td>
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<tr>
<td>Real GDP, billions of chained dollars</td>
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<td>$5,162</td>
<td>$7,113</td>
<td>$9,817</td>
<td>$10,676</td>
<td>$10,990</td>
<td>$11,295</td>
<td>$11,524</td>
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<td>$469</td>
<td>$875</td>
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<td>$1,695</td>
<td>$1,752</td>
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<td>70.4</td>
<td>100.0</td>
<td>116.3</td>
<td>120.5</td>
<td>124.8</td>
<td>128.8</td>
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Sources: Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group; and U.S. Department of Commerce, Bureau of Economic Analysis and Bureau of the Census.

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³ Deflated using the implicit price deflator for GDP (2000 = 100.0).

⁴ PCH implicit price deflator is constructed from the Producer Price Index for hospital care, Nursing Home Input Price Index for nursing home care, and Consumer Price Indices specific to each of the remaining PCH components.
EXHIBIT 2
National Health Expenditures (NHE), Average Annual Growth From Prior Year Shown, Selected Calendar Years 1970–2007

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<td>6.8</td>
<td>8.2</td>
<td>6.8</td>
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<td>11.1</td>
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<td>8.2</td>
<td>6.8</td>
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<tr>
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<td>13.1</td>
<td>11.0</td>
<td>6.5</td>
<td>8.0</td>
<td>6.8</td>
<td>6.7</td>
<td>6.4</td>
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<tr>
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<td>13.9</td>
<td>9.6</td>
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<td>12.5</td>
<td>12.4</td>
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<td>6.9</td>
<td>6.4</td>
<td>6.2</td>
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<td>Phys., and clinical services</td>
<td>10.1</td>
<td>12.9</td>
<td>12.8</td>
<td>6.2</td>
<td>8.1</td>
<td>7.3</td>
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<td>16.4</td>
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<td>3.3</td>
<td>2.1</td>
<td>2.9</td>
<td>2.8</td>
<td>2.0</td>
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<td>5.6</td>
<td>6.4</td>
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<td>3.4</td>
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<td>8.0</td>
<td>7.4</td>
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<td>3.9</td>
<td>3.6</td>
<td>3.4</td>
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**SOURCES:** Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group; and U.S. Department of Commerce, Bureau of Economic Analysis and Bureau of the Census.

<sup>a</sup>Average annual growth, 1960–1970.

<sup>b</sup>Freestanding facilities only. Additional services of this type are provided in hospital-based facilities and counted as hospital care.

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<sup>d</sup>Deflated using the implicit price deflator for GDP (2000 = 100.0).

<sup>e</sup>PHC implicit price deflator is constructed from the Producer Price Index for hospital care, Nursing Home Input Price Index for nursing home care, and Consumer Price Indices specific to each of the remaining PHC components.

percentage point lower than the 6.7 percent growth in 2006 (Exhibit 2). The deceleration in 2007 was attributed mostly to slower growth in both retail prescription drug spending and Medicare spending associated with administering the Medicare benefit. Retail prescription drug spending grew 4.9 percent in 2007, the slowest rate of growth since 1963, accounting for more than half of the 2007 slowdown in overall NHE growth. For retail prescription drugs, the deceleration in 2007 resulted from several factors, including a further increase in the generic dispensing...
rate, slower growth in prescription drug prices, and growing consumer safety concerns. Growth in administrative spending for the Medicare program accounted for most of the remainder of the overall slowdown in 2007. Medicare administration spending growth slowed to 10.7 percent, from 62.5 percent in 2006 associated with the one-time impact of the implementation of Medicare Part D.

When viewed more broadly, slower growth in NHE between 2002 and 2007 can be divided into two periods for analysis. From 2002 to 2004, growth in NHE decelerated rapidly, from 9.0 percent to 6.9 percent, with slower growth in the net cost of private insurance and retail prescription drug spending as well as smaller slowdowns in several other categories such as hospital and government public health. From 2004 to 2007, NHE growth slowed much less rapidly, from 6.9 percent to 6.1 percent. While growth in prescription drug and physician and clinic spending contributed to the deceleration over the period, the relative stability of growth in hospital spending, which constituted just over 30 percent of total NHE, contributed to the moderation in the overall trend.

Between 2004 and 2007, public spending for health care grew at an average annual rate of 7.2 percent, compared with 5.9 percent for private spending. This recent spending trend is consistent with the longer-run experience, which shows an average annual growth of 10.5 percent for public spending and 9.5 percent for private spending between 1970 and 2004. As a result, the share of total NHE spending paid for by public sources increased from 37.6 percent in 1970 to 45.3 percent in 2004, and then to 46.2 percent in 2007.

Recent faster growth in public spending was attributable in part to health-related legislation, most notably the Medicare Prescription Drug, Improvement, and Modernization Act (MMA) of 2003. Under this legislation, Medicare beneficiaries gained access to Part D prescription drug coverage in 2006, adding $40.5 billion to Medicare expenditures (this increase in public spending was partially offset by lower Medicaid drug spending for Medicare beneficiaries; Exhibit 3). Additionally, MMA authorized higher payments to Medicare Advantage (MA) plans, which created incentives for those plans to expand enrollment by increasing their areas of coverage and expanding the benefits offered. Since the MA provisions of MMA were implemented in 2004, enrollment in MA plans has increased, on average, 17.0 percent annually. The main drivers of slower growth in private spending from 2004 to 2007 were slower growth in prescription drug spending and the net cost of private health insurance. Slower growth in retail prescription drug spending had a larger impact on private spending than on public spending, as private sources accounted for a majority (approximately two-thirds) of drug spending.

**Retail Prescription Drugs**

In 2007, retail prescription drug spending increased 4.9 percent to $227.5 billion; this was a deceleration from 8.6 percent growth in 2006. As mentioned ear-
lier, the factors that contributed to slower growth in 2007 included an increase in the generic dispensing rate, slower growth in prescription drug prices, and growing consumer safety concerns.

**Generic dispensing rate.** The generic dispensing rate increased to 67 percent in 2007, up from 63 percent in 2006 and 60 percent in 2005. Because generic drugs cost, on average, 30–80 percent less than brand-name drugs, increases in the generic dispensing rate contribute to slower spending growth. The loss of patent exclusivity for several major blockbuster medications in 2006, including Flonase, Pravachol, Zocor, and Zoloft, had a large impact on the 2007 prescription drug trend, as six-month generic exclusivities expired for some of these drugs and additional generic medications became available. Additionally, the impact of the loss of patent exclusivity for some major blockbusters in 2007, most notably Norvasc, Ambien, Lotrel, Coreg, and Toprol-XL, also contributed to increased use of generic drugs and slower

---

**EXHIBIT 3**

**Medicare Prescription Drug And Part D Expenditures, Calendar Years 2006 And 2007**

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th></th>
<th></th>
<th>2006</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>FFS/PDP</td>
<td>MA/MA-PD</td>
<td>Total</td>
<td>FFS/PDP</td>
<td>MA/MA-PD</td>
</tr>
<tr>
<td>Medicare Rx drugs ($ millions)</td>
<td>$47,019</td>
<td>$36,224</td>
<td>$10,795</td>
<td>$39,516</td>
<td>$31,075</td>
<td>$8,441</td>
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<td>Part B Rx drugs</td>
<td>4,787</td>
<td>1,747</td>
<td>3,040</td>
<td>3,773</td>
<td>1,575</td>
<td>2,197</td>
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<tr>
<td>Part D Rx drugs</td>
<td>42,233</td>
<td>34,477</td>
<td>7,755</td>
<td>35,743</td>
<td>29,500</td>
<td>6,244</td>
</tr>
<tr>
<td>Part D spending ($ millions)</td>
<td>47,612</td>
<td>38,584</td>
<td>9,028</td>
<td>40,511</td>
<td>32,766</td>
<td>7,745</td>
</tr>
<tr>
<td>Part D Rx drugs</td>
<td>42,233</td>
<td>34,477</td>
<td>7,755</td>
<td>35,743</td>
<td>29,500</td>
<td>6,244</td>
</tr>
<tr>
<td>Part D administration</td>
<td>5,379</td>
<td>4,107</td>
<td>1,272</td>
<td>4,767</td>
<td>3,266</td>
<td>1,501</td>
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<td>Part D enrollment (millions)</td>
<td>24.2</td>
<td>16.9</td>
<td>7.3</td>
<td>20.3</td>
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<td>Dual eligibles</td>
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<td>5.7</td>
<td>5.1</td>
<td>0.6</td>
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<td>Other low income</td>
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<td>0.6</td>
<td>2.6</td>
<td>2.1</td>
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<td></td>
</tr>
<tr>
<td>All other</td>
<td>12.0</td>
<td>9.0</td>
<td>6.0</td>
<td>12.1</td>
<td>7.1</td>
<td>5.0</td>
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<tr>
<td>Percent distribution of enrollment</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Dual eligibles</td>
<td>24.4</td>
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<td>28.0</td>
<td>35.8</td>
<td>9.4</td>
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<tr>
<td>Other low income</td>
<td>13.5</td>
<td>15.6</td>
<td>8.7</td>
<td>12.6</td>
<td>14.6</td>
<td>7.9</td>
</tr>
<tr>
<td>All other</td>
<td>62.1</td>
<td>53.3</td>
<td>82.3</td>
<td>59.4</td>
<td>49.6</td>
<td>82.7</td>
</tr>
</tbody>
</table>

**SOURCE:** Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group.

**NOTES:** Numbers presented are rounded; therefore, per enrollee calculations derived from rounded figures may not match data presented. FFS is fee-for-service. PDP is prescription drug plan. MA is Medicare Advantage. MA-PD is MA prescription drug plan.

1. Stand-alone prescription drug plans; pertains to Part D prescription drug spending only.
2. Pertains to Part D prescription drug spending only.
3. Includes federal administrative costs as well as the administrative costs, profits or losses, and other nonbenefit factors for private Part D drug insurance plans.
4. Enrollment totals exclude Medicare beneficiaries in employer-sponsored retiree health plans that qualify for the Part D employer subsidies.
5. Medicare beneficiaries who also qualify for full Medicaid coverage.
6. Includes plans for beneficiaries who are not qualified for the low-income subsidy.
7. Not applicable.
“The loss of patent exclusivity for several major blockbuster medications in 2006 had a large impact on the 2007 trend.”

- **Drug prices and growing safety concerns.** Prescription drug prices, as reflected in the National Health Expenditure Accounts (NHEA), grew 1.4 percent in 2007, much slower than the 3.5 percent growth in 2006. This lower price growth was driven in part by increased use of generics and the introduction of generic drug discount programs by large retail chain stores. Increased safety concerns for certain prescription drugs in 2007 also likely influenced the drug spending trend, as the Food and Drug Administration (FDA) issued sixty-eight “black box” warnings, compared to fifty-eight in 2006 and twenty-one in 2003.

- **Medicare prescription drug spending.** Not surprisingly, Medicare retail prescription drug benefit spending (including both Parts B and D) grew more slowly in 2007 than in 2006, which included the one-time growth effect of adding the new drug benefit. However, Medicare retail prescription drug spending still increased at a robust rate of 19.0 percent—faster than growth in any other source of funds that paid for prescription drugs in 2007. Total Medicare Part D spending in 2007 amounted to $47.6 billion, of which $42.2 billion was spent on benefits and $5.4 billion on administrative costs (including payments to private plans that administer the Part D benefit). This was an increase of 17.5 percent over the 2006 level of $40.5 billion, with benefits (which represent almost 90 percent of all Medicare Part D spending) growing 18.2 percent and administrative spending growing 12.8 percent.

  The increase in Part D spending was influenced primarily by increased enrollment in stand-alone prescription drug plans (PDPs) and MA prescription drug (MA-PD) plans. Total person-year-equivalent enrollment in Part D plans increased 19 percent in 2007 to 24.2 million, up from 20.3 million in 2006. When Part D was introduced, beneficiaries were given until 15 May 2006 to enroll in a prescription drug plan; as a result, some beneficiaries delayed enrollment and therefore were not included for the full year in 2006. For 2007, however, beneficiaries were required to enroll in a Medicare Part D plan by 31 December 2006. The significant increase in enrollment in 2007 reflects these different enrollment cutoff dates, which would not have occurred had both years included enrollees over the full twelve-month period.

  Although Part D spending and enrollment increased just under 20 percent in 2007, Part D benefit spending per enrollee actually declined 0.7 percent, from $1,758 in 2006 to $1,745 in 2007. This was largely the result of the initial open enrollment period ending 15 May 2006. Beneficiaries who were enrolled for the full year in 2006 tended to be more costly than average, while those enrolling toward the end of the open enrollment period tended to be less costly than average. This resulted in a somewhat inflated per enrollee cost in 2006. Additionally, other fac-
tors that may explain the slower per enrollee growth in Part D spending were (1) a reduction in plan bid levels, on average, as a result of the availability of later data on drug costs, as well as (2) plans’ efforts to control costs by negotiating discounts and rebates with drug companies and (3) by monitoring utilization management.13

**Trends In Major Services**

**Hospitals.** Hospital spending growth increased 7.3 percent in 2007, to $696.5 billion. This marks the third straight year of relatively stable growth in the range of 6.9–7.3 percent after an average annual rate of 8.0 percent from 2000 through 2004. By comparison, the average annual growth for hospital services was 5.2 percent between 1990 and 2000, a period greatly influenced by more tightly managed care.14 The slight up-tick in hospital spending in 2007 (from 6.9 percent in 2006) was influenced by strong growth in Medicaid hospital spending. In contrast, Medicare hospital spending growth remained relatively stable at 4.6 percent in 2007, reflecting slower growth in fee-for-service (FFS) inpatient and outpatient use together with strong growth in managed care hospital spending as additional beneficiaries enrolled in MA plans.15 Growth in total inpatient days, as reported by the American Hospital Association, was flat or declining from 2003 through 2006.16 Inpatient revenue accounted for $6 out of every $10 for the average community hospital in 2006.17

Hospital price growth, as measured by the Producer Price Index (PPI) for hospitals, slowed from 4.4 percent in 2006 to 3.5 percent in 2007.18 Price growth accounted for about half of the total growth in hospital spending, while utilization, service intensity, and population growth accounted for the remainder. Input price growth slowed slightly as well, from 4.0 percent in 2006 to 3.5 percent in 2007.19

**Physicians and clinics.** Spending for physician and clinical services grew 6.5 percent in 2007 to $478.8 billion, the same rate of growth as 2006. However, when viewed separately, rates of spending growth for physicians compared to clinics reveal disparate trends. Spending for physician services, which slowed from 6.4 percent in 2006 to 5.9 percent in 2007, accounts for around 80 percent of this category. Some of this slowdown can be explained by a legislated reduction in Medicare payments to physicians for imaging services that took effect in 2007.20

From 2004 through 2007, clinic spending outpaced physician spending, growing at an average annual rate of 8.5 percent versus 6.4 percent, respectively. Spending for outpatient services performed in stand-alone clinics and urgent care centers continued to increase, contributing to the trend between 2004 and 2007.21

Price growth for physician services, as measured by the Consumer Price Index (CPI) for physicians services, increased 3.9 percent in 2007, up from 1.8 percent in 2006.22 This acceleration in price, combined with relatively stable overall spending growth, indicates a sharp decrease in nonprice factors such as the use or intensity of services paid for in 2007. Recent survey data indicate that the number of physician office visits declined from the end of 2006 through 2007.23
Nursing homes and home health. Spending growth for freestanding nursing home care accelerated a bit in 2007, increasing 4.8 percent to $131.3 billion from 4.0 percent in 2006.\(^{24}\) A major factor underlying the trend in 2007 was faster growth in prices, 4.7 percent in 2007, following slower growth of 3.0 percent in 2006, as reported in the PPI for nursing care facilities.\(^{25}\) Private spending increased 6.8 percent in 2007 following 4.1 percent growth in 2006, while public spending growth remained roughly unchanged at 3.6 percent in 2007. Medicaid accounted for 42 percent of all nursing home spending in 2007; however, with a growth rate of only 0.4 percent in 2007, it did not contribute to the acceleration in overall nursing home spending. Medicare spending growth for nursing home services remained roughly the same at 10.2 percent in 2007, down from 10.5 percent in 2006.

Spending growth for freestanding home health care services increased 11.3 percent, reaching $59.0 billion in 2007. Home health care price growth, as measured by the PPI for home health care services, grew faster in 2007, increasing 1.8 percent compared to 0.6 percent in 2006.\(^{26}\) Much of the growth in home health spending continues to be influenced by nonprice factors, such as use and intensity.

Spending for freestanding hospice services, included in home health in the NHEA, increased on average 20 percent annually from 2000 to 2007, as the Balanced Budget Refinement Act (BBRA) of 1999 and the Benefits Improvement and Protection Act (BIPA) of 2000 increased payments to various providers, including hospice. In addition, use of the hospice benefit and the supply of hospice providers have increased, both contributing to strong growth in hospice spending.\(^{27}\) Medicaid spending for home health care increased rapidly between 2000 and 2007 (averaging 17.2 percent annually), in part as a result of states’ continued focus on providing care to Medicaid enrollees in their homes as an alternative to high-cost institutions.\(^{28}\)

Trends In Major Payers

Medicare. Medicare spending increased 7.2 percent in 2007, to $431.2 billion, more in line with the average annual growth of 6.3 percent observed from 1995 to 2005, following the 18.5 percent increase in 2006 that resulted from the one-time impact of the implementation of Medicare Part D (Exhibit 4). Spending growth for FFS Medicare, which accounted for about 80 percent of total Medicare spending in 2007, slowed significantly to 3.6 percent in 2007 (data not shown). As beneficiaries switched from traditional FFS to MA plans, FFS enrollment declined (~2.3 percent in 2006 and ~0.8 percent in 2007) while MA enrollment grew (28.8 percent in 2006 and 16.3 percent in 2007). In 2003, MA spending growth declined 0.3 percent; however, since then it has grown strongly, increasing 23.3 percent in 2007. This increase in MA spending accounted for almost 60 percent of the total change in Medicare spending in 2007, largely because of the shift in enrollment.

Spending growth for MA is heavily influenced by increases or decreases in enrollment, as payments are based on plan-specific per member per month capitated
rates. Beginning in 2006, as mandated by MMA, payments are based on amounts “bid” by private MA plans. In addition, under MMA, payment rates to these plans were increased, which led to higher enrollment because plans could offer expanded coverage and provide additional benefits. As such, per enrollee MA spending increased 15.5 percent in 2006 (including the introduction of Part D), followed by 6.0 percent in 2007.

The slowdown in total Medicare spending growth in 2007 was most dramatic for prescription drugs and administration. In addition, the slowdown was broadly
“Many states reported continued widespread use of pharmacy cost containment strategies in 2007.”

Based across many other services, including physician and clinical services as well as smaller contributions from durable medical equipment, home health care, nursing home care, and other nondurable medical products. Medicare spending for physician and clinic services decelerated, from 6.3 percent in 2006 to 4.6 percent in 2007, as growth in volume and intensity slowed and the Deficit Reduction Act (DRA) of 2005 reduced payments to physicians for imaging services.  

**Medicaid.** Medicaid spending grew 6.4 percent in 2007 to $329.4 billion, following the first decrease (–0.7 percent) in program history in 2006. The 2007 increase marks the return to a more “normal” growth trend following implementation of Medicare Part D, which shifted drug funding for dual eligibles from Medicaid to Medicare. Growth in Medicaid spending averaged 8.0 percent annually between 1995 and 2005.

When prescription drug spending is excluded, the year-to-year change between 2006 and 2007 in all other Medicaid spending is less dramatic: 5.8 percent in 2006 and 71 percent in 2007. Medicaid spending growth for hospital services contributed greatly to this increase. Spending for hospital care, which makes up more than one-third of all Medicaid spending, grew 8.9 percent in 2007, much faster than in 2006 (4.9 percent). This acceleration was largely attributable to increases in inpatient and outpatient payments as states provided additional supplemental payments to hospitals. Other personal health care and home health care also contributed to the increase in Medicaid spending in 2007, as states continued to use home and community-based services (HCBS) waivers and home health services as an alternative to institutional care. Medicaid spending for dental care (less than 2 percent of total Medicaid spending) increased 13.9 percent in 2007, a significant acceleration from growth of 2.7 percent in 2006. Recently, some states have taken steps to increase access to dental care by increasing provider payments and streamlining billing practices.

At the same time, Medicaid spending for prescription drugs and other professional services declined in 2007. Historically, drug spending has been one of the fastest-growing categories of Medicaid spending, doubling its share of Medicaid spending from 6.3 percent in 1993 to 12.5 percent in 2004. Following the most recent peak in Medicaid prescription drug spending growth—in 1999, when spending increased 20.8 percent—many states aggressively pursued policies that slowed the rate of spending growth for prescription drugs.

In 2007, Medicaid prescription drug spending decreased 1.8 percent, following a larger decline of 48.6 percent in 2006 (associated with the implementation of Medicare Part D). The decline in 2007 was widespread, with thirty-one states reporting spending less in 2007 than in 2006 (data not shown). Many states re-
ported continued widespread use of pharmacy cost containment strategies in 2007, including prior authorization, preferred drug lists, supplemental rebate programs, Maximum Allowable Cost programs, and multistate purchasing pools.\textsuperscript{34}

Medicaid spending for other professional services also declined, falling 1.2 percent in 2007 after a decline of 0.6 percent in 2006. These types of services, which include providers such as podiatrists and chiropractors, are not mandatory in Medicaid and continue to be subject to state cuts and increases in copayments.\textsuperscript{35}

- **Private health insurance spending.** Private health insurance premiums increased 6.0 percent to $775.0 billion in 2007—the same rate as in 2006 but much lower than the recent peak of 10.7 percent in 2002. Some factors that explain the slower growth trend are a reduction in small employers’ offer rates for insurance, a decline in the share of population covered by private insurance (from 68 percent in 2002 to 65 percent in 2007; data not shown), and the recent increased take-up rates of high-deductible plans (HDPs) and health savings accounts (HSAs).\textsuperscript{36} The net cost of private health insurance (the difference between premiums and benefits) grew just 1.4 percent in 2007. Since 2004, spending for private health insurance premiums has grown at the same rate as or slower than spending for benefits, reducing the share of premiums accounted for by the net cost of private insurance from 13.2 percent in 2004 to 12.2 percent in 2007. Although more muted than in past decades, this trend is typical of a downturn in the underwriting cycle.\textsuperscript{37}

Private health insurance benefit payments accounted for 87.8 percent of premiums in 2007, and benefit growth slowed from a rate of 9.4 percent in 2002 to 6.6 percent in 2007. As noted earlier, an important factor was the slower growth in private health insurance payments for prescription drugs.

In 2007, premiums for employment-based insurance continued to account for the vast majority (95 percent) of total private health insurance premiums. Employers’ proportions of these premiums fell very slightly, from 73.1 percent in 2006 to 72.9 percent in 2007. The lower share in employer spending was due in part to the Medicare Part D retiree drug subsidy ($3.8 billion in 2006 and $4.0 billion in 2007), which is provided to employers that offer qualifying drug coverage to retired Medicare-eligible employees. This subsidy can be used to help offset the cost increases faced by both private businesses and state and local governments.

- **Out-of-pocket spending.** In 2007, out-of-pocket health spending grew 5.3 percent to $268.6 billion, after increasing 3.3 percent in 2006. This acceleration was mainly due to increased out-of-pocket spending for retail prescription drugs, nursing home services, and nondurable medical supplies. Out-of-pocket drug spending rebounded to a growth rate of 1.8 percent following a –4.0 percent decline in 2006 that was a result of the implementation of Medicare Part D, which shifted some out-of-pocket spending for Medicare beneficiaries without drug coverage to Medicare Part D.
Analysis Of Spending By Sponsor

The relative shares of financing for the health services and supplies sponsored
by businesses, households, government entities, and other private sources re-
mained steady at both an aggregate and an underlying-detail level in 2007.38 This
stability is in contrast to the movements observed in 2006, when Medicare Part D
caused noticeable shifts in the shares of the underlying-sponsor categories.

**Business sector.** Business-sector financing reached $518.0 billion in 2007, in-
creasing 5.6 percent over 2006 (Exhibits 5 and 6). Business-sector health spending
remained at 25 percent of health services and supplies spending; this share has
been roughly unchanged since 1987. Private employers’ contributions to private health
insurance premiums constituted the majority of business financing (77 percent), and
in 2007 these costs rose 6.1 percent—faster than the 3.6 percent rate in 2006.

**Households.** Household spending growth slowed in 2007 to 5.9 percent after
growing 7.9 percent in 2006 (the largest rate of growth since 2002). The growth in
payments for the employee share of employer-based plan premiums, taxes for Medi-
care Hospital Insurance (Part A), and premiums paid for Medicare Supplementary

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**EXHIBIT 5**
Expenditures For Health Services And Supplies, By Type Of Service, Type Of Sponsor,
And Source Of Funds, Billions Of Dollars, Calendar Year 2007

<table>
<thead>
<tr>
<th>Spending category</th>
<th>Private funds</th>
<th>Public funds</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total ($)</td>
<td>Out of pocket</td>
</tr>
<tr>
<td>Health services and supplies</td>
<td>$2,098.1</td>
<td>$1,123.9</td>
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<tr>
<td>Type of service</td>
<td></td>
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</tr>
<tr>
<td>Personal health care (PHC)</td>
<td>$1,878.3</td>
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</tr>
<tr>
<td>Hospital care</td>
<td>696.5</td>
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<tr>
<td>Professional services</td>
<td>702.1</td>
<td>454.5</td>
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<tr>
<td>Phys. and clinical services</td>
<td>478.8</td>
<td>317.4</td>
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<tr>
<td>Other professional services</td>
<td>62.0</td>
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<tr>
<td>Dental services</td>
<td>95.2</td>
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<tr>
<td>Other PHC</td>
<td>66.2</td>
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<tr>
<td>Nursing home and home health</td>
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<tr>
<td>Home health care</td>
<td>190.4</td>
<td>62.4</td>
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<tr>
<td>Nursing home care</td>
<td>131.3</td>
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<tr>
<td>Retail outlet sales of medical products</td>
<td>289.3</td>
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<tr>
<td>Prescription drugs</td>
<td>227.5</td>
<td>146.6</td>
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<tr>
<td>Durable medical equipment</td>
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<td>Other nondurable medical products</td>
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<td>Program administration and net</td>
<td>155.7</td>
<td>96.2</td>
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<tr>
<td>cost of private health insurance</td>
<td>64.1</td>
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<tr>
<td>Government public health activities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES**

38 In 2007, Medicare Part D accounted for the majority of the shifts in the underlying-sponsor categories.

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**DATA SOURCES**

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Medical Insurance (Part B) slowed in 2007 as growth in out-of-pocket spending accelerated. Household income available to pay for health care services has not grown as quickly over the past few years, resulting in a slight increase in the share of income devoted to health care, to 6.0 percent, in 2007 from 5.4 percent in 2001 (data not shown).

**Federal and state and local government.** Federal government financing for health care slowed significantly in 2007, growing 7.0 percent, down from 10.1 percent in 2006 (reflecting the introduction of Part D). As a share of total revenue collected, federal health care financing remained stable in 2006 and 2007 at roughly 28 percent (not shown). Growth in state and local governments’ financing increased 6.3 percent in 2007. The Medicaid program, which accounted for 41 percent of all state and local government health spending, increased from growth of 1.0 percent in 2006 (again reflecting the impact of Part D) to 6.6 percent in 2007; it was the main driver of the increase in overall state and local financing. State and local governments spent approximately 24 percent of their revenues on health care in 2007.

### EXHIBIT 5
**Expenditures For Health Services And Supplies, By Type Of Service, Type Of Sponsor, And Source Of Funds, Billions Of Dollars, Calendar Year 2007 (cont.)**

<table>
<thead>
<tr>
<th>Sponsors of health care</th>
<th>Public funds</th>
<th>Federal and state</th>
<th>Private funds</th>
<th>Out of pocket</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Total ($)</td>
<td>Other public ($)</td>
<td>Total ($)</td>
<td>Out of pocket</td>
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<tr>
<td>Health services and supplies</td>
<td>$2,098.1</td>
<td>$417.9</td>
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<td>Private</td>
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<td>Private business</td>
<td>518.0</td>
<td>398.4</td>
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<tr>
<td>Household</td>
<td>660.3</td>
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<td>Other private revenues</td>
<td>74.1</td>
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<tr>
<td>Public</td>
<td>845.8</td>
<td>183.1</td>
<td>339.8</td>
<td>188.8</td>
</tr>
<tr>
<td>Federal government f</td>
<td>485.9</td>
<td>172.6</td>
<td>192.2</td>
<td>95.6</td>
</tr>
<tr>
<td>State and local government</td>
<td>359.9</td>
<td>105.8</td>
<td>147.6</td>
<td>93.2</td>
</tr>
</tbody>
</table>

**SOURCE:** Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group.

**NOTE:** Numbers might not add to totals because of rounding.

1 Includes other private funds.
2 Includes other private funds.
3 Includes State Children’s Health Insurance Program (SCHIP), maternal and child health, vocational rehabilitation, Substance Abuse and Mental Health Services Administration, Indian Health Service, federal workers’ compensation, public health activities, Department of Defense, Department of Veterans Affairs, public and general assistance, state/local hospital subsidies, and other miscellaneous general hospital and medical programs.
4 Freestanding facilities only. Additional services of this type are provided in hospital-based facilities and are counted as hospital care.
5 Not applicable.
6 Medicaid buy-ins for Medicare eligibles ($10.4 billion) are allocated to Medicaid. In the traditional National Health Expenditure Accounts (NHEA), they are included with Medicare. Differences in total private health insurance and total public funds are due to the reallocation of the retiree drug subsidy ($4.0 billion) from private health insurance to Medicare. The “other public” difference is due to the reallocation of the state phase-down payment ($6.9 billion) from Medicare to state and local governments.
7 The data for federal government Medicare equal Trust Fund interest income and federal general revenue contributions to Medicare less the net change in the Trust Fund balance.
Concluding Remarks

In 2007, health spending growth decelerated to 6.1 percent, the slowest rate since 1998, in part because of a forty-five-year low in the growth rate for prescription drug spending and slower growth in administrative spending associated with
the Medicare benefit. At the same time, overall nominal economic growth decelerated from 6.1 percent in 2006 to 4.8 percent in 2007. The most recent economic data indicate that the economy is growing at a slower rate through the third quarter of 2008 and likely into 2009. Recent history has shown that through the downturns, health spending has remained somewhat insulated from the effects of a slowing economy and has increased as a share of GDP. With the uncertain economic climate and recent shifting of payment responsibilities in the health care system, the interaction between the economy and the share of it devoted to health spending will continue to be closely watched.

The authors thank the other members of the National Health Expenditure Accounts Team: Mary Carol Barron, Cathy Cowan, Randy Matsunaga, Olivia Nuccio, Benjamin Washington, and Lekha Whittle. The opinions expressed here are the authors’ and not necessarily those of the Centers for Medicare and Medicaid Services. The authors also thank Richard Foster, Stephen Heffler, John Poisal, John Shatto, Mark Freeland, Sean Keehan, Cathy Curtis, and two anonymous peer reviewers for their helpful comments.

NOTES
4. IMS Health National Prescription Audit.
17. Ibid; calculation based on gross inpatient and gross total revenue.
22. BLS, Consumer Price Index (CPI) for physicians, http://www.bls.gov/cpi/#data (accessed 18 September 2008). For 2006, the authors estimated 1.8 percent price growth in the CPI for physician services. This reflects the authors’ estimate of the retroactive payments made under Medicare in January and February 2006 that were not captured by the CPI.
24. In the NHE, nursing home and home health services include services provided in freestanding facilities only. All hospital-based nursing home and home health services are included in the hospital estimate.
30. GAO, Medicare: Trends in Fees, Utilization, and Expenditures for Imaging Services.
34. Ibid.
35. Ibid., 33; and Smith et al., Low Medicaid Spending Growth, 33.
38. Estimates of spending by sponsor organize spending according to the underlying entity financing the health care bill payer, such as businesses, households, and governments.
Letters

We welcome your responses to papers that appear in Health Affairs. We ask you to keep your comments brief (250–300 words, including any endnotes) and sharply focused. Health Affairs reserves the right to edit all letters for clarity, length, and tone and to publish them in the bound copy or on our Web site. Letters can be submitted by e-mail, letters@healthaffairs.org, or the Health Affairs Web site, http://www.healthaffairs.org. It is our policy to invite every author to respond to letters submitted in response to their work. If a response letter does not appear, it is because the author(s) chose not to respond.

Test The Primary/Specialty Care Hypothesis

Editor's Note: This first group of letters are in response to the 4 December 2008 Web Exclusives. They first appeared online as comments and have been edited for print format.

To test Richard Cooper's hypothesis (Web Exclusive, 4 December 2008) that it is simply more doctors, not the mix of specialty/generalists, that makes a difference in access, quality, and cost, why not close down all generalist training programs (which are well on their way toward that goal anyway, with the choices made by U.S. medical students) and see what happens? Managing complex multiple comorbidities, managing urgent and unorganized health complaints, or providing primary and secondary preventive care to large populations of chronically ill patients would be done by an increasing cadre of subspecialty providers. This would prove interesting for Cooper's next analysis. (In his preface to these papers, deputy editor Philip Musgrove appears to be championing this hypothesis.)

The choice for the United States should either be developing a robust primary care base or allowing seemingly random professional movement of specialists to fill the gaps in care that would develop. Growing the physician supply in the current costly, market-driven, underperforming system seems a foolish way to resolve the debate.

John J. Frey
University of Wisconsin School of Medicine and Public Health
Madison, Wisconsin

Primary/Specialty Care: An Author Responds

The hypothesis regarding primary/specialty care mix (Web Exclusive, 4 December 2008) is Richard Cooper's alone. My preface to his article and to the Perspectives by Katherine Baicker and Amitabh Chandra and by Jonathan Skinner and colleagues was intended only to introduce the issues in contention. It does not take a stand for or against Cooper's reasoning. Cooper argues that more of both kinds of physicians per capita are good for health care quality, and the evidence supports that view. But this does not refute the original research by Baicker and Chandra, who showed that the existence of more specialists reduces quality if it comes at the expense of having fewer general practitioners (GPs). These are two distinct questions: Cooper looks at each type of physician separately, whereas Baicker and Chandra hold constant the total number of doctors and consider the effect of substituting one kind for the other. Cooper's analysis actually agrees with theirs, since his own results show that the presence of more specialists has a much smaller (about one-tenth as large) effect on quality than the presence of more GPs has.

Two further points are worth mentioning but were not in my preface. First, although Cooper's main finding concerned the relation between numbers of doctors and quality of care, he also found large differences among states that are independent of that relation and depend on socioeconomic or cultural factors that merit closer study. Second, both his analysis and that of Baicker and Chandra are...
conducted at a very high level of aggregation (averages over entire states), whereas much more finely grained research on these relations has been done; by using each state's ranking on quality, both authors discard the cardinal information contained in the original quality data. Perhaps it is time to get beyond such relatively simple analyses.

Philip Musgrove
Health Affairs
Bethesda, Maryland

Doctors And Quality Of Care
I found the discussion of physicians and quality of care in Richard Cooper's papers and the surrounding commentaries (Web Exclusive, 4 December 2008) fascinating but not conclusive. Given the wide disparity of views on this subject, it is very easy for policymakers to pick and choose which theory they would like to base their policies on. From a practicing physician's perspective, I assert that high-quality care can come only from high-quality doctors, whether generalists or specialists. And just like any other service, one only gets what one pays for. It is foolish to debate, as vigorously as the Harvard-Dartmouth group does, that one is better than the other.

Arvind R. Cavale
Feasterville, Pennsylvania

Geographic Analysis: Need For Better Data
The papers by Richard Cooper and others, including Jonathan Skinner and colleagues (Web Exclusive, 4 December 2008), that debate the relationship between physician supply, costs, and quality of care tend to ignore the need to look critically at these relationships and explore alternative ways to understand what is happening. These and related articles attempt to draw conclusions about the relationship between supply of physicians and rates of mortality and access indicators.

An overriding problem with any geographic analysis is that the aggregation of data into rates is usually done using some arbitrary geography based on political boundaries. These rates generate “error,” given that we do not restrict use. The creation of the Hospital Referral Regions (HRRs) in the Dartmouth Atlas approximated patterns of use and represented an estimate of what might be the underlying denominator. The use of state-level indicators is suggestive at best and ought to be viewed with skepticism.

By using analytical methods that loosen the constraints of boundaries, we have tried to replicate and advance the analysis of physician supply as it relates to outcomes. That analysis suggests that we might need to pay more attention to the variability and patterns of the associations to determine if there are alternative geographies. It appears that primary care physician supply is associated with lower mortality in some regions but with higher mortality in others. These regions do not overlay political or postal boundaries but tend to constitute subnational regions.

The authors of these papers need to continue to develop their analyses to account for these geographic issues. We certainly acknowledge that the preponderance of readily available data tends to be defined by political boundaries, often state-level, and that the lack of data useful for answering interesting questions is a real inhibitor in this line of inquiry.

Thomas C. Ricketts and G. Mark Holmes
University of North Carolina at Chapel Hill

NOTE

Geographic Analysis: An Author Responds
I agree with Tom Ricketts and Mark Holmes when they note the importance of defining the right geographical regions in studying the association between physician supply...
and health outcomes. However, even perfect geographic areas won’t solve the problem of untangling causality from simple correlations in cross-sectional aggregated analysis.

So why do cross-sectional analysis at all? My view is that it provides a reasonable check on our theories and models. Suppose one’s view of the world is that more specialists (or health care intensity) lead to better health outcomes. But if we find in the real world a zero association (or positive in some areas while negative in others), then it suggests going back to the drawing board and making an attempt to explain why we should observe the correlation. In other words, these associations can be used to test hypotheses but can never be used to make inferences about causal pathways.

By the same token, I don’t find the association between the proportion of specialists and health care quality to say anything about the causality of whether specialists are “better” than primary care physicians, and thus I am sympathetic to Arvind Cavale’s concerns about the interpretation of the results. If after this exchange we can agree that the empirical record indicates a positive association between generalists and process quality, and an essentially zero association between specialists and quality, then we can also agree that any theory of physician workforce should at least attempt to explain why this is so.

Jonathan S. Skinner
Dartmouth College
Hanover, New Hampshire

NOTE
1. Some studies using good statistical methods suggest that specialists are quicker to adopt some important innovations; for example, see A.M. Fendrick, R.A. Hirth, and M.E. Chernew, “Differences between Generalist and Specialist Physicians regarding Helicobacter pylori and Peptic Ulcer Disease,” American Journal of Gastroenterology 91, no. 8 (1996): 1544–1548.

Physicians And Quality: Answering The Wrong Question

Richard Cooper (Web Exclusive, 4 December 2009) has come up with an answer (“more is better”) to the wrong question. The issue is the impact of health services on health, not on the quality of care. On average, higher physician density is inconsistently related to better health outcomes. However, there is consistent evidence that what really matters in improving population health is not the number of physicians but, rather, what those physicians do. The availability of an adequate supply of primary care physicians has been consistently identified with better health; simply put, person-rather than disease-centered care matters.

Cooper’s work does little to challenge the existing evidence for the benefits of primary care on health, which relies on a strong methodological foundation of multivariate, time series, and quasi-experimental evidence and based not only on measures of primary care physician-to-population ratios. In fact, evidence from studies examining health outcomes of people whose regular source of care is a primary care physician, and from studies showing that the stronger the achievement of primary care functions, the better the outcomes, is even more persuasive than evidence regarding workforce numbers. That is why it is critical to take seriously the importance of essential primary care functions (including person-focused, not disease-focused, care over time; comprehensiveness of services; and coordination of care) and to use populationwide health outcomes rather than indirect disease-specific proximate ones as measures of the overall impact of health services resources. Suboptimal practice does harm, no matter the number of physicians. Too few true primary care physicians and a surfeit of specialists is bad for population health, bad for the economy, and even worse for health equity.

Barbara Starfield, Leiyu Shi, and James Macinko
Johns Hopkins Bloomberg School of Public Health
Baltimore, Maryland

NOTES
1. L. Chen et al., “Human Resources for Health: Overcoming the Crisis,” Lancet 364, no. 9449
Physicians And Quality: Cooper Responds

I agree with Tom Ricketts and Mark Holmes that units of analysis are critical. ZIP codes, hospitals, Hospital Referral Regions, counties, states, and multistate regions all provide different information, and each must be understood in the context of the others, as Philip Musgrove suggests. Moreover, as Jonathan Skinner cautions, the failure to observe differences where they actually exist should not be taken to indicate that they do not exist but, rather, that the methodology employed may not have been capable of discerning them.

I also agree with Barbara Starfield and colleagues and with John Frey that primary care has value, but I don’t need evidence of decreased mortality from cancer, heart disease, and stroke to prove it, nor would it. These statistics simply reflect the favorable sociodemographic characteristics of states in the upper Midwest that happen to have more family physicians and fewer internists and pediatricians. Patients already know the value of primary care.

As to Arvind Cavale’s question of how conclusive the arguments were, let me summarize two. First, Medicare is anomalous and cannot be taken to represent health care spending overall. Total health care spending correlates closely with the number of health care workers (a proxy for volume of service), but Medicare does not. More total spending correlates with better quality, but Medicare does not. Second, Katherine Baicker and Amitabh Chandra never examined the relationship between quality and the actual numbers of specialists, or even the actual percentage of specialists. Their notion about poor quality came from a theoretical statistical exchange of family physicians for specialists, which has no real-world equivalent. Their statement that “states with more specialists have lower quality,” which refers to what is, has no basis, and what might occur theoretically is unknowable. In actuality, states with more specialists have better quality.

Richard A. Cooper
School of Medicine, University of Pennsylvania
Philadelphia, Pennsylvania

Coordination Of Care In Medicare

In her paper on Medicare Advantage (MA), Marsha Gold (Web Exclusive, 24 November 2008) misses the mark considerably. Based on our experience, her assertions that little care coordination occurs in MA private fee-for-service plans (PFFS) are decidedly not true.

With more than 200,000 MA PFFS members, we provide essentially the same robust care management services for these members as we do for MA health maintenance organization (HMO) or preferred provider organization (PPO) members. For example, repeated calls are made to all new members each year to complete a health risk assessment, so that we can quickly offer members with high-risk conditions care management services to help improve outcomes. In 2008, 32,000 PFFS members, or 17 percent of our PFFS membership, received personal evaluations and case management services from a dedicated team of nurses, behavioral health specialists, and social workers helping them address their challenges and improve their personal care. Our result: program participants experienced 17 percent fewer acute hospital days than matched unmanaged Medicare beneficiaries.

Our coordinated disease management program provides nurse engagement and management through a single point of contact for members with multiple conditions, to an additional 5 percent of our PFFS members in 2008. That year, MedQuery, our program to identify actionable gaps in care, identified 100,000 member-specific opportunities to improve care and shared them with members or physicians, or both. The list of private program benefits is long, including personal health records, preventive care, and the Aetna Compassionate Care end-of-life care management program.
We take pride in offering our Medicare members access to programs that provide value and frequently better outcomes. More than 75 percent of our MA PFFS members in our most recent survey said that they were satisfied with their plan, and MA, overall, has grown swiftly. The additional services and benefits we provide are a key driver in such member satisfaction and membership growth.

Lonny Reisman and Randall S. Krakauer
Aetna
Hartford, Connecticut

Coordination Of Care: The Author Responds

Aetna is to be commended for using the same care management tools across all of its Medicare Advantage (MA) products. However, that does not mitigate my key point: that we’ve spent a lot of money expanding choice through MA with little evidence of gains in quality and efficiency, particularly outside of the most tightly managed plans (Web Exclusive, 4 November 2008).

Although sponsors often believe otherwise, the sad fact is that effectively managing care to improve quality and promote efficiency has been a challenge in both MA and traditional Medicare. There is limited evidence that third party–administered disease management programs have reduced costs, and there are many flaws in existing studies that suggest that they do. Targeted approaches at care management focused on high-risk patients have been difficult to translate to typical settings of community practice. Medicare’s coordinated care demonstration involving fifteen chronic care programs serving beneficiaries in traditional fee-for-service (FFS) Medicare found few costs savings and only limited and scattered impacts on quality. Better outcomes typically involved many in-person contacts, proximity to patients’ physicians, using the same care coordinator for all of a physician’s patients, timely notification of hospital admission, and other features often absent in vendor-supplied programs. Indeed, a recent Government Accountability Office (GAO) report questioned whether prior notification programs are even authorized for private fee-for-service (PFFS).

Making the case for care management in PFFS plans is particularly challenging when they were explicitly established as a non-managed alternative. Today’s PFFS plans do not use provider networks, cannot put providers at risk, and are extremely limited in how they may influence provider practice. Some PFFS sponsors say that care management is not consistent with PFFS. Reducing hospitalizations and costs in PFFS plans is closely akin to doing so in Medicare FFS, and the lessons from the Coordinated Care Demonstration should apply. PFFS plans also are not required to provide the kinds of quality data required of other MA plans, so the quality of care they provide cannot even be assessed (this will change in 2010).

Marsha Gold
Mathematica Policy Research
Washington, D.C.

NOTES
Some Facts On Rapid Imaging Growth

Although their paper solely addresses imaging growth in a particular health maintenance organization (HMO), Rebecca Smith-Bindman and colleagues (Nov/Dec 08) suggest that legislation focused on self-referral will not sufficiently limit the drivers of rapid imaging growth nationwide. They state, without supporting data, that imaging growth in HMO systems “closely parallel[s]” that in fee-for-service systems. They suggest that self-referral is therefore not a primary driver of escalating overall imaging costs. Neither the scope of their paper nor the published results support these claims.

Self-referral, by which providers refer patients to imaging centers or equipment they own, presents a significant conflict of interest and has been identified by private insurers and government agencies as a primary driver of spiraling costs. There is no financial incentive for ordering physicians to increase imaging utilization unless they self-refer.

Government Accountability Office (GAO) reports and published research document that imaging skyrockets when providers directly profit from ordering scans.1 As much as half of self-referred imaging may be unnecessary and may cost the health care system up to $16 billion annually.2

Self-referred imaging also presents significant quality and safety issues for patients. The Medicare Payment Advisory Commission (MedPAC) cited a major insurer study that found that 78 percent of nonradiologist imaging facilities had at least one serious deficiency—many of which could have “tragic” consequences.3 Also, the National Council on Radiation Protection and Measurements cited self-referral as a primary driver of a fivefold increase in Americans’ exposure to radiation over the past twenty years.4

Imaging is increasingly replacing more invasive procedures—enhancing and extending the lives of patients. Any imaging policy should curb growth in inappropriate imaging, not imaging that has clearly benefited patients. Efforts to discourage self-referral are the most direct and sensible way to reach this goal.

James H. Thrall
Board of Chancellors, American College of Radiology
Boston, Massachusetts

NOTES

Diagnostic Imaging: The Authors Respond

We appreciate the interest of James Thrall and the American College of Radiology in our study (Nov/Dec 08) and welcome the opportunity to respond. We reported a dramatic rise in the rates of diagnostic imaging over the past decade at a large nonprofit health maintenance organization (HMO). What we found to be striking about this rise is that it closely parallels the rise in imaging in fee-for-service set-
tions reported in several studies cited in our paper (Notes 1 and 3). In fact, a paper by Laurence Baker and colleagues in the same Health Affairs issue as our study provides further evidence of the similarities between the increases in imaging utilization in these two settings. Baker and colleagues documented that the number of computed tomography (CT) scans among Medicare beneficiaries approximately doubled between 1997 and 2005 (from 260 to 547 CTs per thousand), rates comparable to Group Health enrollees age sixty-five and older during the same years (from 214 to 476 CTs per thousand). Our results are presumably not affected by issues of self-referral or the high profitability associated with imaging in fee-for-service settings, given that our study was conducted at a nonprofit HMO.

We argue that more research is needed to demonstrate whether this increase in imaging is leading to improved health outcomes or efficiencies. Self-referral is clearly an issue of great concern, but it is not the main issue raised by our paper. We need to know more about the benefits and potential harms associated with the growing use of imaging. Ideally, efforts should be made to use imaging as efficiently as possible with the expectation that more judicious and evidence-based utilization would lead to cost savings and improved health. With regard to the evidence cited by Thrall on the inappropriateness of imaging related to self-referral, the cited report by Levin and Rao does not provide evidence that up to 50 percent of self-referred imaging may be unnecessary. Their work cites considerable variation in imaging rates, but they provide no data to support an estimation of how much imaging may be inappropriate. We agree that self-referral likely leads to a lowering in the threshold for imaging, but there are currently few data available to assess the appropriateness of this increased use of imaging.

In addition to self-referral, we believe that a large driver of increased imaging is clinical uncertainty and lack of evidence-based guidelines on when imaging should be used. The American College of Radiology guidelines have started to address this issue, but these guidelines are typically based on expert opinion instead of outcomes studies. Such studies are crucial for identifying when imaging benefits patients and when imaging is useless or potentially harmful. We hope that Thrall and the American College of Radiology will support investment in the conduct of outcomes studies and in the dissemination of those results, so that patients can have access to beneficial imaging at a cost we can afford.

Rebecca Smith-Bindman for the authors
University of California, San Francisco

Comparative Effectiveness Research: A Useful Tool

Brian Firth and colleagues (Nov/Dec 08) use the decision by the National Institute of Health and Clinical Effectiveness (NICE) on drug-eluting stents (DES) in the British National Health Service (NHS) as an example of why comparative effectiveness research (CER) leads to “erroneous” coverage decisions. However, the authors also identify five reasons why this research is a useful tool in reducing waste and maximizing health outcomes from investment in health technology.

CER allows the following: (1) The synthesis of good-quality randomized controlled trials (RCTs) in establishing clinical effectiveness. NICE’s Appraisal Committee considered twenty-five RCTs and meta-analyses pooling the results from more than 7,000 patients, which allowed comparisons of DES with bare metal stents (BMS). (2) The assessment of effectiveness during routine clinical practice by synthesizing different forms of evidence including national epidemiological data. (3) The consideration of value for money; even when improved performance is demonstrated, a decision has to be made as to whether the additional clinical benefit is worth the additional cost. NICE’s Appraisals Committee considered ten full economic evaluations from peer-reviewed publications, three models submit-
ted by stent manufacturers, and an independently commissioned model. (4) Payers, whether they be the British NHS, Medicare, private insurers, or individual consumers spending out-of-pocket, to take advantage of price competition—a core feature of the free market. CER empowered the British NHS to use its collective purchasing power to renegotiate regional contracts with DES manufacturers based on evidence of comparative value for money with BMS. (5) Decisionmakers to make their coverage decisions in a fair, contestable, and transparent way, based on a robust analysis of the best scientific evidence and on broad expert consultation. This is what NICE’s Appraisal Committee did in its evaluation of DES through several rounds of consultation, appeal hearings, and stakeholder meetings.

We fully concur with these five principles. They are all taken into account in the decisions made by NICE’s advisory bodies.

David Barnett, Kalipso Chalkidou, and Michael Rawlins
National Institute of Health and Clinical Effectiveness
London, England

Comparative Effectiveness Research: The Authors Respond

David Barnett and colleagues state that we used the National Institute for Health and Clinical Effectiveness (NICE) decision on drug-eluting stents (DES) “as an example of why comparative effectiveness research (CER) leads to erroneous coverage decisions.” As the abstract to our paper states (Nov/Dec 08), we used NICE’s DES appraisal as an example of the challenges faced when using cost-effectiveness analysis to make coverage decisions on rapidly evolving medical technologies. Our contention is that cost-effectiveness analysis may lead to erroneous conclusions when a broader perspective and the impact on health outcomes and costs are considered.

We cautioned against overreliance on incremental cost-effectiveness ratios based on quality-adjusted life-years (QALYs) when making what are essentially policy decisions about patients’ access to particular medical technologies. We argued that coverage decisions should not be overreliant on the cost-effectiveness ratio; they should be examined for their wider impact on the health system. In the case of DES, a decision not to recommend DES would have resulted in the referral of large numbers of patients back for coronary artery bypass surgery, with consequent increases in waiting times, lengths of hospital stay, and procedural costs. These consequences would have been in contradiction to recent National Health Service policy priorities and were fed into NICE’s consultation process by health care professionals, patients, and industry alike. Economic models do not necessarily capture such consequences; hence our urge for caution against overreliance on the cost-effectiveness ratios such models generate. Put simply, QALY-based incremental cost-effectiveness ratios should be “a tool, not a rule” in health policy decisions.

Of course, NICE’s final decision was to retain its previous clinical indications for the use of DES, and patients therefore continue to benefit from innovation, choice, and quality of care, all of which are U.K. policy priorities.

Liesl M. Cooper for the authors
Covidien
Mansfield, Massachusetts

Online Consumer Information in Pennsylvania

I was heartened to read Michael Rothberg and colleagues’ paper on “Choosing the Best Hospital” (Nov/Dec 08). The authors point to several key issues impeding greater public acceptance and understanding of hospital quality-reporting Web sites, correctly stating that “information must be accessible, interpretable, and consistent” and that hospitals must work with rating agencies and others to develop consensus on what quality data are most relevant and actionable for patients.

Over the past two years, the Pennsylvania Health Care Quality Alliance (PHCQA) has
pursued this strategy and focused on developing a uniform and consistent approach to hospital quality measurement. Its Web site, http://www.pahealthcarequality.org, is the first such site in Pennsylvania that compiles hospital quality data from a variety of sources and allows consumers to search and compare quality data (process and outcome measures) on acute care hospitals in the state. It includes representation from Pennsylvania’s four Blues insurers, its hospital association, its medical society, and representatives from state and federal governments. Much of its work has been spent on developing consensus on what quality measures are most indicative of overall quality and meaningful for patients, as well as how those data can best be displayed for interpretation by consumers.

We recently surveyed more than 900 Pennsylvanians to gain insight into consumers’ awareness and attitudes toward hospital quality-reporting Web sites. The results indicate that although most consumers continue to cite physician recommendation as the most influential and trustworthy source of information, about a third reported visiting a quality-reporting Web site and using its data to make a hospital selection decision.

Although hospital quality reporting is still in its relative infancy, the PHCQA and similar groups in other states are working hard to establish greater consistency and clarity in reporting data on quality.

Erik Muther
Pennsylvania Health Care Quality Alliance
Philadelphia, Pennsylvania

Telephone Interpreters: Vital Link

I wanted to offer a personal “thanks” for Nataly Kelly’s Narrative Matters essay on telephone interpreting (Nov/Dec 08). We have made strides over the past decade in raising awareness of the role that the culture and language of the patient and provider play during medical encounters. However, these issues remain to be widely integrated in quality improvement and patient safety efforts. Kelly’s narrative provided a reminder of the many settings in which language barriers can threaten patient safety, the intricate relationship between culture and language, and the challenges an interpreter is faced with when bridging communication gaps over the telephone.

Although all of these are crucial issues, Kelly’s insight into the challenges and necessary qualifications to interpret over the telephone deserves particular attention. Unfortunately, we know that many practitioners are reluctant to use telephone interpreter services for a variety of reasons, including lack of equipment (such as the dual handset), doubts about interpreters’ qualifications, preferences for in-person interpreters, and even the sense that a third-party presence impedes the building of rapport in the exam room. Regardless of the underlying rationale, this reluctance is worrisome, because telephone interpreters are not only the most commonly available language service in U.S. hospitals today, but are often the only qualified interpreters available.

Kelly’s essay helps readers understand why assessed and trained telephone interpreters should always be used in favor of less qualified in-person interpreters, whether they be family members, friends, or the casual bilingual staff member. I have circulated this narrative to several of my colleagues and leadership to share this point. As a member of that casual bilingual group, I understand that safe and effective interpreter services require far more skill than many of us have, whether interpretation occurs over the telephone, from an office one thousand miles away, or at an arm’s reach inside the same exam room.

Erica Galvez
Joint Commission
Oakbrook Terrace, Illinois

Physicians’ Motives In Imaging

As a new subscriber to Health Affairs, I was taken aback at the editor-in-chief’s apparent indictment of physicians’ motives in ordering computed tomography (CT) scans for their patients (Nov/Dec 08).

I am aware of the large increase in the num-
ber of imaging studies nationwide. The recent decision by Medicare to require accreditation in the future for certain imaging tests as a requirement for reimbursement is a major step in the right direction. Any test or procedure ordered for purely financial profit is reprehensible, and physicians should be prosecuted if proven guilty. However, as I read Susan Dentzer's editorial, I perceived the tone of her comments about "physicians’ wallets" and physicians’ "feeling right with their patients and God" as unfair. Laurence Baker and colleagues correctly (and rationally) question cost versus benefit of CT and computed tomography angiography (CTA) in the issue. Similarly, Julie Appleby’s Report from the Field presents both sides of the CTA controversy.

Physicians and insurers are very often at odds over utilization. We fight the battle over appropriate tests for our patients every day. As pointed out, there are other more obvious reasons for using CT scans and CTA, such as rapid and more precise information (compared to a cheaper alternative such as ultrasound), the evolving standard of care, patient demand, and, based on personal experience: defensive medicine. In my specialty (vascular diseases and surgery), CTA has become a valuable tool in avoiding invasive arteriography and planning of minimally invasive endovascular procedures. And no, we do not own a CT machine.

My object in subscribing to this journal was to learn more about how scientific methods are applied in analyzing health policy issues. I look forward to enjoying future issues of Health Affairs, but perhaps with less pointed editorial language.

Bhagwan Satiani
Ohio State University College of Medicine
Columbus, Ohio

Imaging: The Editor Responds

As I mentioned in my “From the Editor” note (Nov/Dec 08), “the benefits of many medical technologies are real,” and this includes the enormous benefits of medical imaging, as Bhagwan Satiani suggests. However, it is difficult to conclude based on the available evidence that all imaging that is being performed by doctors in their offices is either cost-effective or clinically necessary. As the Government Accountability Office (GAO) reported in its 13 June 2008 analysis of Medicare Part B and imaging, analysis over a six-year period showed “certain trends linking spending growth to the provision of imaging services in physician offices. The proportion of Medicare spending on imaging services performed in-office rose from 58 percent to 64 percent. Physicians also obtained an increasing share of their Medicare revenue from imaging services. In addition, in-office imaging spending per beneficiary varied substantially across geographic regions of the country, suggesting that not all utilization was necessary or appropriate. By 2006, in-office imaging spending per beneficiary varied almost eight-fold across the states—from $62 in Vermont to $472 in Florida.” That language rather pointedly suggests that the problem I referenced in my note—“that many doctors find ample reason to do more lucrative scans and still feel right with their patients and God”—has been noted by the GAO, as it also has been on a number of occasions by the Medicare Payment Advisory Commission.

Susan Dentzer
Editor-in-Chief, Health Affairs
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Hip And Knee Implants In Bulgaria

We read with interest the paper by Natalia Wilson and colleagues (Nov/Dec 08) about ongoing policy considerations for hip and knee implants. Summarizing recent evidence on hip-spine syndrome (HSS) management, we contribute recent results from a university hospital in Plovdiv, Bulgaria. HSS is chronically progressing and, if untreated appropriately, leads to deterioration of functional fitness and quality of life. In prior research, surgery (laminectomy) had multiple advantages over nonsurgical therapy in lumbar spinal stenosis (LSS) at the third month in prospective cohorts. A 7.8-point difference from baseline in bodily pain (according to the SF-
36) also was evidence of its effectiveness! Supporting these findings, we found that total hip replacement, alone or after laminectomy, was highly effective in aged patients with both lumbar and hip pain. Combined findings from our unique observational prospective data indicated very high efficacy levels of THR (in fifty-eight HSS patients).²

In particular, twenty-nine patients with hip osteoarthritis underwent THR; hip pain disappeared in 68.97 percent of them. Lumbar pain remained in eight who also had LSS. Seventeen out of another twenty-five patients with LSS underwent laminectomy. Lumbar pain decreased, but hip pain persisted. Thirteen patients had hip osteoarthritis (bilateral in six of them). Our most important advantage was targeted, patient-level decision making by a panel of highly-specialized experts (neurologist, neurosurgeon, orthopedic surgeon, roentgenologist) acting together to choose the best surgical intervention in each case. Assessing their own quality-of-life improvement, many patients reported relief from pain. Undoubtedly, our individualized surgery showed very high effectiveness as both clinical effects and patient-reported outcomes, especially in LSS combined with hip osteoarthritis. Interestingly, similar improvements in both patient-reported outcomes and clinical measures were reported in comparable prospective cohort of forty-two Japanese patients with LSS.³

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NOTES

Grim Prognosis For Massachusetts Reform

Jon Gabel and colleagues (Web Exclusive, 28 October 2008) hope that favorable employer attitudes mean that Massachusetts' 2006 health reform will succeed where the state's similar 1988 health reform failed. In truth, the demise of the 1988 law had more to do with economic cycles—the collapse of the Massachusetts Miracle—than with corporate attitudes. Unfortunately, this history, along with the recent downturn in the economy, implies a grim prognosis for the current Massachusetts reform.

The 1988 reform died because health care costs continued to soar, while a recession shrank tax revenues just as tens of thousands lost their jobs and private coverage. (Unemployment rose from 3.2 percent in 1988 to 9.1 percent two years later.) Neither massive expansion of state funding to subsidize coverage for the poor nor a costly mandate—the two main mechanisms to expand coverage under both the 1988 and 2006 laws—was tenable in a cooling economy.

Despite costs of $1.1 billion this year, the 2006 law has covered only half of the uninsured and has left many more with inadequate coverage. A recent Boston Globe/Blue Cross Blue Shield of Massachusetts Foundation survey found that 9 percent of Massachusetts residents avoided or postponed care within the past year because of costs; 14 percent had failed to fill a prescription; and 14 percent had run up medical debts.¹ The inadequacy of the new coverage is also evident in Robert Blendon and colleagues' survey (Web Exclusive, 28 October 2008); those directly affected by the reform were actually more likely to say that reform had hurt than helped them. This seemingly paradoxical result probably reflects
the fact that most of the newly insured had previously been eligible for completely free care at safety-net hospitals and clinics paid for by Massachusetts’ free-care pool.

Even the partial gains of the 2006 reform are now in jeopardy, and its collapse may well leave patients worse off than ever. The reform was partly financed by draining funds from the free-care pool, and hence from safety-net providers. Now, with tax revenues plummeting, the governor plans to pull another $100 million from funds owed to the safety-net hospitals in the Boston area (disclosure: we work as primary care doctors at one of them, where these cuts are projected to require hundreds of layoffs and the closure of critical services and community clinics). Further budget cuts likely lie ahead, and the ranks of the uninsured will doubtless swell.

In the end, Massachusetts’ 2006 reform may be remembered as a short-lived expansion of publicly subsidized coverage that served as political cover for the permanent destruction of institutions that have provided care and advocacy for New England’s poor for decades.

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NOTE

Massachusetts Reform: The Authors Respond

We concur with Steffie Woolhandler and David Himmelstein in their response to our paper (Web Exclusive, 28 October 2008) that the current economic downturn and rising cost of health care jeopardizes Massachusetts reform. However, we think that their “grim prognosis” misinterprets the historical record.

After 1988 passage, political opposition from employers, rising health care costs, and an economic recession contributed to suspension of the legislation. Although Massachusetts data are not available, the Health Insurance Association of America (now America’s Health Insurance Plans, or AHIP) reported an 18 percent national increase in premiums in 1989. Premium increases remained at double digits until 1993. From 1994 to 1998, premium increases were at record lows. Concurrently, Massachusetts unemployment rose from 3.5 percent in December 1988 to 9.1 percent in April 1992. By December 1993, unemployment fell to 6.3 percent and to 4.3 percent three years later. Hence, conditions for implementing the 1988 legislation were highly favorable when it was repealed in 1996.

We believe that Woolhandler and Himmelstein don’t sufficiently credit progress achieved in Massachusetts over the past two years. Compared to national statistics, the figures they cite from the Boston Globe/Blue Cross Blue Shield of Massachusetts Foundation survey are favorable. From a 2007 national household survey of adults ages 19–64, researchers reported that 31 percent of Americans “had a medical problem but did not visit the doctor,” 31 percent “did not fill a prescription,” and 27 percent “had problems paying medical bills.”

In the face of an economic downturn, public and employer support and a sympathetic Obama administration render the future of the Massachusetts plan “stable,” not “grim.”

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NOTES
Segmented Approach For China And India

Responses to our paper on a segmented approach to health care financing gaps in China and India (July/Aug 08) underscore the great contrasts public and private-sector decision-makers seek to balance: world-class health care facilities exist, yet they are sadly out of the economic reach of the majority (Tom Miller and Aparna Mathur, Letters, Jan/Feb 09). Low-cost public health care facilities are available, yet the quality of care provided leaves little confidence among most consumers. Undefined regulatory systems allow for experimentation, yet they also encourage perverse behavior (Chris Conover, Letters, Jan/Feb 09). While attempting to balance these contrasts, policymakers and consumers are asked to make difficult choices on how to pay for health care among a long list of other pressing needs (Michael Cannon, Letters, Jan/Feb 09).

In expanding health care financing, we do not advocate that a one-size-fits-all strategy (for example, centralized health care) would be effective or sustainable. We prescribe combining essential market foundations with a segmented approach to health care financing. Admittedly, public- and private-sector leaders in India and (to a lesser extent) China have taken steps in this direction. In view of this, the suggestion by Miller and Mathur that we are endorsing an overregulated or centralized approach is rather perplexing.

In implementing our approach, health care regulators and commercial payers in India and China should first establish a minimum base of reference in the form of a mix of regulatory and market-based “rules of the game” for health care financing markets. As Cannon correctly suggests, this may be the “best thing those governments could do.” The segmented approach to health care financing provides market-appropriate payment mechanisms based on consumers’ needs. For example, a segmented approach to address India’s financing gaps may involve government- or community-funded health care financing for the rural poor or needy and private health insurance for those who are better off. A similar analysis of China’s financing gap may involve segmenting along coverage levels, given the country’s expansive basic care health care coverage programs.

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Errata

The January/February 2009 issue of Health Affairs contained several errors. All of these articles have been corrected online. The authors and Health Affairs regret any inconvenience these errors might have caused.

Paez et al., pp. 15–25. A programming error caused several errors in “Rising Out-of-Pocket Spending for Chronic Conditions: A Ten-Year Trend,” by Kathryn Anne Paez and colleagues (Jan/Feb 2009, pp. 15–25). On page 22, the second and third full paragraphs have been revised. The new text reads as follows:

An out-of-pocket expenditure index (EI) was created to measure the overall increase in out-of-pocket spending comparing 2005 to 1996 spending, holding disease prevalence constant (Exhibit 5).13 The change seen is due solely to increasing out-of-pocket spending. The EI for the overall population was 1.19, indicating that expenditures were 19 percent higher in 2005 than in 1996, when chronic condition prevalence was held constant. The younger-old had the greatest increase, with an EI of 1.30, followed by young adults, those in midlife, young adults, and the old-old.

All insurance categories, including Medicaid recipients, had a sizable increase in out-of-pocket spending over the ten-year period. The largest increase was experienced by those in the “other public” insurance category, followed by the uninsured and Medicare-only beneficiaries. Although smaller, the EI for Medicaid recipients was substantial when controlling for rising chronic condition prevalence.

Also on page 22, the last full paragraph has
Our study found that out-of-pocket spending and chronic disease prevalence are increasing among not only the old-old but among people in midlife and early old age, without regard to sex, race, ethnicity, or income. The greatest growth occurred in the number of people reporting multiple chronic diseases; this is also the group with the most substantial out-of-pocket spending. Overall, out-of-pocket spending increased by 39.4 percent per person over the ten-year period. The growth in out-of-pocket spending was not evenly distributed across the population. Spending increases were 19 percent higher overall when holding the rising prevalence of chronic conditions constant, with the greatest increase among those in early old age, the “other public” insured, the uninsured, Medicare beneficiaries, the poor, and people who take prescription drugs. Medicaid continued to provide financial protection for people with chronic conditions from high out-of-pocket spending. When poverty status was considered, it became evident that Medicaid is not available to all poor people with chronic conditions.

On page 23, all of the data in Exhibit 5 have been replaced. This exhibit, as well as the corrected text, is available at http://content.healthaffairs.org/cgi/content/full/28/1/15.

- Grabowski, pp. 136–146. An endnote was inadvertently left out of “Special Needs Plans and the Coordination of Benefits and Services for Dual Eligibles,” by David G. Grabowski (Jan/Feb 09, pp. 136–146). On page 139, endnote 15 should be inserted at the end of the second sentence below the subheading “For Medicare and Medicaid.” On page 146, this note (new note 15) reads as follows: Saucier and Burwell, The Impact of Medicare Special Needs Plans. Every note after this, starting with the old note 15, is renumbered one higher. In addition, to make room for the added text, the first sentence has been deleted from note 14.


- Ham, pp. 190–201. Note 32 of “Chronic Care in the English National Health Service: Progress and Challenges,” by Chris Ham (Jan/Feb 09, pp. 190–201), contained a typographical error. The volume and issue number should be 288, no. 15.

- Anderson, pp. 202–205. Note 7 in “Missing in Action: International Aid Agencies in Poor Countries to Fight Chronic Disease,” by Gerard F. Anderson (Jan/Feb 09, pp. 202–205), contained two typographical errors. In the second citation, the author’s name is “Gaziano,” and the volume and issue number should be 26, no. 1.

- Hartman et al., pp. 246–261. There were several minor errors in “National Health Spending in 2007: Slower Drug Spending Contributes to Lowest Rate of Overall Growth since 1998,” by Micah Hartman and colleagues (Jan/Feb 09, pp. 245–261). On page 251, the phrase “the continued shift toward lower-cost mail order channels” has been deleted from the second sentence in the first full paragraph. The title of Exhibit 6 (page 259) has been changed to “Expenditure Levels For, And Average Annual Growth In, Health Services And Supplies...” Finally, the second source in Note 9, page 260, has been removed. The corrected article is available online at http://content.healthaffairs.org/cgi/content/full/28/1/260.