

The Cost Of Health Insurance Administration In California: Estimates For Insurers, Physicians, And Hospitals

Quantifying how much to attribute to billing and insurance-related expenses, to move the debate forward.

by **James G. Kahn, Richard Kronick, Mary Kreger, and David N. Gans**

ABSTRACT: Administrative costs account for 25 percent of health care spending, but little is known about the portion attributable to billing and insurance-related (BIR) functions. We estimated BIR for hospital and physician care in California. Data for physician practices came from a mail survey and interviews; for hospitals, from regulatory reporting; and for private insurers, from a consulting company. Private insurers spend 9.9 percent of revenue on administration and 8 percent on BIR. Physician offices spend 27 percent and 14 percent, and hospitals, 21 percent and 7–11 percent, respectively. Overall, BIR represents 20–22 percent of privately insured spending in California acute care settings.

ESTIMATES OF ADMINISTRATIVE COSTS in the U.S. health care system have been the subject of considerable controversy during the past decade. Single-payer analysts Steffie Woolhandler, David Himmelstein, and their colleagues have argued that moving to a Canadian-style system would reduce U.S. administrative costs by 10–15 percent of total health spending.¹ These estimates, the most comprehensive for the United States, have been taken to task for a variety of limitations.² Some criticisms are purely methodological, while others reflect underlying philosophical differences in designing and evaluating a health care system. Nonetheless, in our opinion, the evidence demonstrates that substantial U.S. resources are devoted to administrative activities in health care.

The reasons why this is the case are less clear. The hypothesis suggested by Woolhandler and colleagues, and supported by common sense, is that the complexities of a highly fragmented, multiple-payer system account for the “excess”

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administration. However, no direct data confirm this hypothesis. Of note, the high U.S. level relative to Canada could be accounted for in part by the greater complexities of running very large hospitals and medical groups, by greater scrutiny from public- and private-sector regulatory bodies, by greater effort devoted to utilization management and quality improvement, by a greater need to document activities in a litigious environment, or by U.S.-Canadian differences in the style and purpose of management and administration. To inform discussions of reform-related cost savings, it is valuable to document the portion of administrative costs attributable to the U.S. system of paying providers.

Problems of data interpretation present a major challenge for understanding administrative costs. Previous researchers have emphasized the limitations of any single-index measure of administrative cost (such as medical loss ratios), which reveal little of component costs, are defined inconsistently, and could be misleading if examined in individual health care sectors, because of complex health insurance arrangements.³ Instead, analysts have proposed a more nuanced scrutiny of administrative costs, including detailed classification that reflects functions, examination of how costs vary by administrative obligations, and a focus on the costs (and benefits) of specific activities—with the ultimate goal of understanding the overall implications of alternatives for administering the health system.⁴

Although administrative activities are sometimes thought of as “waste,” some administrative effort is required and desirable in a well-functioning system. Hospitals are complex organizations, and administrative effort is needed to use inputs efficiently and produce good outcomes. As physician practice moves toward larger medical groups, administrative effort is required to assure that the groups function efficiently. Administrative activities here include the work of the office manager, the receptionist, the billing staff, the information technology experts, and other personnel not directly contributing to the hands-on care of patients.

The current emphasis on improving quality and reducing errors further highlights the desirability of some administrative effort.⁵ Similarly, public and private payers’ desire for greater accountability from the health care system creates demands for administrative activities. As payers and patients increasingly demand information on outcomes and expect efforts to improve quality, administrative effort is required. The information revolution arguably increases providers’ capabilities and improves the ability to monitor, measure, and improve health system performance, but it also requires administrative effort.

Yet administrative activities are not all created equal. For this paper, we divide administrative activities into those that are billing or insurance-related (BIR) and all others. The primary purpose of BIR activities is to move money from payer to provider in accordance with agreed-upon rules. We attempt to separate BIR functions from those whose primary purpose is general management or those primarily directed at measuring or improving quality. For some functions, this distinction is easier to make in theory than in practice. For example, to the extent that

provider contracting at an insurance company is an effort to identify and contract with high-quality providers, it is part of quality improvement; to the extent that it is directed at reaching agreement on payment for services, it is BIR.

In this paper we estimate the fraction of health care spending for hospital and physician care in California that is devoted to BIR activities. Because we do not construct similar estimates for Canada and do not provide any detail on the non-BIR portion of administrative activities, we cannot fully answer the question of why U.S. administrative costs are so much higher than Canada's. However, we begin to shed light on the contents of the black box of U.S. administrative costs.

Study Data And Methods

We estimated the percentage of BIR costs in three settings: private insurers, physician offices, and hospitals. To accomplish this, we abstracted administrative cost elements from existing data sets, calculated overhead attributable to these costs, and estimated the percentage of each cost element that is BIR.⁶ We also describe how we estimated total percent BIR in California acute care funded through private insurance, and we examine the sensitivity of overall findings to uncertainty in particular BIR estimates. Our analysis best reflects administrative costs in 2000, based on the timing of input data.

■ **Private insurers.** We used data collected by Milliman USA during 1996–2001 at 73 insurers (7 in California) for 129 insurance plans (63 commercial, 43 Medicare, and 23 Medicaid). Median plan membership was 250,000. The data were provided to us as median cost per member per month for each plan type and cost element. The median premium per member per month, used as the denominator in calculating percent BIR, was \$177 for commercial plans, \$153 for Medicaid, and \$650 for Medicare.

We divided private insurers' costs into thirteen categories (Exhibit 1). Milliman collected data on the salary costs of employees involved in each category and added 150 percent for estimated overhead (employee benefits, information technology, and facilities). External brokers' fees and profits are excluded.

We assigned BIR percentages based on descriptions of each cost category and the consensus of two authors (Exhibit 1). For categories that appear to focus entirely on reimbursement (such as claims), we assumed 100 percent BIR. For categories that are likely to be predominantly about eligibility or reimbursement (such as customer services), we assumed a high percentage. For categories with mixed clinical and insurance functions (such as case management), we assumed about half. Finally, for one category with a large clinical focus (such as utilization and quality review), we assumed only 25 percent.

■ **Physician offices.** For overall cost by category, we used 2000 data from the Medical Group Management Association (MGMA) annual survey of its member physician group practices.⁷ We used data from the U.S. Western region rather than California alone because of sample-size considerations. The valid response rate was

EXHIBIT 1**Administrative Costs For Private Insurers In California, 1996–2000**

	Commercial		Medicaid		Medicare	
	Admin. % of premiums	BIR % of premiums % BIR	Admin. % of premiums	BIR % of premiums % BIR	Admin. % of premiums	BIR % of premiums
Total	9.9%	8.4%	11.6%	9.4%	4.5%	3.8%
Broad admin.	0.9		0.9	0.9	0.3	0.3
General admin.	0.9	90%	0.9	90%	0.3	90%
Claims billing/payment	1.6	1.6	1.8	1.8	1.2	1.2
Claims	1.6	100	1.8	100	1.2	100
Other specific admin.	5.6	5.1	6.0	5.5	2.2	2.0
Sales & marketing	1.5	100	1.2	100	0.6	100
Finance & underwriting	1.2	100	1.4	100	0.4	100
Membership & billing	0.2	100	0.3	100	0.1	100
Provider services & credentialing	0.8	75	0.9	75	0.3	75
Customer service	0.7	85	0.9	85	0.4	85
Information systems	1.2	85	1.4	85	0.4	85
Major clinical element	1.8	0.8	2.8	1.3	0.8	0.4
Utilization & quality review	0.4	25	0.6	25	0.2	25
Case management	0.3	50	0.4	50	0.1	50
Medical director	0.3	60	0.5	60	0.2	60
Other health care services	0.8	50	1.3	50	0.3	50

SOURCES: Administrative costs: Milliman USA data from 1996–2000 surveys. Percentage billing or insurance-related (% BIR) estimated by James G. Kahn and Richard Kronick; see text for details.

NOTES: Includes allocated overhead. Excludes broker fees and profits; see text.

23 percent. We grouped responses into three categories: multispecialty (52 groups, 2,682 physicians), single-specialty primary care (27 groups, 221 physicians), and single-specialty surgery (15 groups, 84 physicians). Means are weighted by number of physicians. We estimated physician time spent on administration from a national survey conducted by the American Medical Association (AMA).⁸

We divided physician practices' administrative costs into thirteen categories (Exhibit 2). Overhead was proportionally allocated to these categories.

We assigned BIR by cost category based on data we collected from eleven California medical groups (five multispecialty, three single-specialty primary care, and three single-specialty surgery). We chose the practices based on a convenience sample of twelve offices representing a mix of specialties, sizes, and geographic locations. One practice declined because a needed respondent was unavailable. Using a structured interview, usually with the practice manager, we gathered information for each MGMA category (such as "medical reception") on the number of people working in the category, their salaries and benefits, and the proportion of time spent on BIR versus other administrative activities. The distribution of administrative costs was similar in our practice interviews and in the MGMA data. Mean total administration costs for work done by nonproviders was

EXHIBIT 2**Administrative Costs In Medical Group Practices, Western United States, 2000**

	Multispecialty		Single-specialty primary care		Single-specialty surgical	
	Admin. % of total revenue	BIR % of total revenue % BIR	Admin. % of total revenue	BIR % of total revenue % BIR	Admin. % of total revenue	BIR % of total revenue
Total	26.7%	13.9%	26.7%	14.5%	20.1%	12.4%
Broad admin	8.0		7.1	3.4	6.0	2.4
General admin.	3.3	15%	3.6	41%	3.3	28%
Other admin. support	0.4	43	0.7	46	1.1	58
Contracted services	1.5	44	0.7	85	0.3	40
Admin. supplies & services	2.8	43	2.2	46	1.3	58
Claims billing/payment	3.9		4.8	4.0	3.0	2.1
Bus. office	3.9	89	4.8	83	3.0	69
Other specific admin.	8.9	3.9	9.0	3.3	5.2	3.2
Medical receptionists	3.4	33	6.4	29	2.8	68
Managed care admin.	1.2	82	0.7	65	0.4	62
Information technology	4.1	41	1.8	50	2.0	52
Mgmt. fees paid to MSO	0.2	43	0.1	46	0.0	58
Major clinical element	5.9	4.0	5.7	3.8	5.9	4.7
Med. secretaries/ transcribers	0.7	8	0.8	8	1.0	29
Medical records	1.5	21	1.4	14	1.1	51
Providers (BIR component)	3.7	100	3.6	100	3.8	100

SOURCES: Administrative costs: Medical Group Management Association (MGMA) annual survey. Percentage billing or insurance-related (% BIR): University of California, San Francisco, medical practice interviews and other sources (see text).

NOTES: Includes allocated overhead; see text. MSO is management services organization.

20.7 percent in our sample and 21.0 percent for MGMA. For four categories, the percentage of total costs in our eleven practices was within 0.1 percent of the value for MGMA data, and for four categories the differences were 0.4–1.8 percent.

Across the eleven practices, variation in the BIR percentage was lowest for the four administrative cost categories representing 70 percent of nonprovider BIR costs (business office, managed care administration, information services, and medical reception) and was higher for the four categories representing 30 percent of nonprovider BIR costs (Exhibit 2). This suggests consistency across practices in our respondents' judgments about the percentage of activity devoted to BIR in the areas responsible for most of BIR.

Nonphysician clinical staff contributed 7.5 percent of their time to BIR (1.6 percent of practice revenue). For physicians, we did not ask systematically about BIR but instead relied on survey results showing that physicians spend five hours per week (8 percent of their time) on administration and other nonclinical tasks.⁹ Based on the breakdown of tasks and our estimates of BIR, we estimated that 4.9 percent of physician time (2.1 percent of revenue) is dedicated to BIR.¹⁰

■ **Hospitals.** We used fiscal year 1999 hospital financial data reported to the California Office of Statewide Health Planning and Development (OSHPD) for 392 acute general and children's hospitals. Almost all hospitals reported data for each of

EXHIBIT 3 Administrative Costs In California Hospitals, 1999

	Admin. % of total revenue	% BIR		BIR % of total revenue	
		Low	High	Low	High
Total	20.9%			6.6%	10.8%
Broad admin.	9.7			2.2	6.5
Hospital admin.	7.3	25%	75%	1.8	5.4
Other admin.	1.2	25	75	0.3	0.9
General accounting	1.1	10		0.1	
Other fiscal	0.1	10		0.0	
Claims billing/payment	2.7			2.7	
Patient accounting	1.6	100		1.6	
Credit & collections	1.0	100		1.0	
Other specific administrative	5.2			0.6	
Public relations	0.8	0		0.0	
Personnel	0.8	0		0.0	
Governing board	0.2	0		0.0	
Employee health	0.1	0		0.0	
Auxiliary groups	0.1	0		0.0	
Chaplain services	0.1	0		0.0	
Medical staff	0.6	0		0.0	
Nursing admin.	1.3	0		0.0	
Admitting	1.0	50		0.5	
Outpatient registration	0.2	50		0.1	
Major clinical element	3.3			1.1	
In-service education—nursing	0.3	0		0.0	
Utilization management	0.9	75		0.7	
Community health education	0.1	0		0.0	
Medical library	0.1	0		0.0	
Medical records	1.9	21		0.4	

SOURCES: Administrative costs: California Office of Statewide Health Planning and Development, fiscal year 1999 reports. Percentage billing or insurance-related (% BIR) estimated by James G. Kahn and Richard Kronick; see text for details.

NOTES: Includes allocated overhead; see text. A range is used for hospital BIR because of the absence of estimates for the large "broad administrative" category.

the required data elements, with the exception of Kaiser Foundation hospitals, for which we were able to include Northern California hospitals in broad administrative and fiscal totals and some specific categories.

We divided administrative costs into twenty-one categories (Exhibit 3). Overhead was allocated to these categories.

We assigned BIR based on descriptions of each cost category and author consensus, as before. For categories that focus entirely on reimbursement (such as credit and collections and patient accounts), we assumed 100 percent BIR. For categories that are likely to be predominantly about reimbursement (such as utilization management), we assumed a high percentage. For categories with substantial but not exclusive BIR functions (such as admitting), we assumed 50 percent. For functions with clinical functions (such as medical staff), we conservatively assumed 0 percent. Finally, for two large general administrative categories (hospital administration and other administration), we used a range of 25–75 percent.

■ **Standardization across settings.** To facilitate comparison across settings, we grouped spending into four categories. “Broad administrative” represents nonspecific administration categories, which can be large. The estimated proportion attributable to BIR varies by setting. “Claims billing or payment” represents activities explicitly linked to movement of funds related to insurance and has high BIR. “Other specific administrative” represents explicitly defined categories, with BIR level appropriate to the category. “Major clinical element” represents activities with clear clinical components, with BIR depending on the category and setting.

■ **Total across settings.** We calculated a total BIR across settings. In particular, we estimated the contribution of BIR administrative costs to acute medical care services (hospital and physician) funded through private insurance in California. We calculated BIR for these services by first applying the BIR for commercial plans to all spending via this mechanism, and then applying the BIR for multispecialty groups and the BIR range for hospitals to the portion of funds used in each clinical setting. For this overall estimate of BIR for privately insured care, we calculated the results with several measures of insurer operational profit (range 1.84–2.72 percent).¹¹

To simplify the analysis, we restricted our estimates of BIR to insurers, hospitals, and physicians. Although a more complete analysis would include estimated BIR for pharmacy and other insured services, our analysis captures the major types of acute care spending and 80 percent of all privately insured health spending.

Study Results

■ **Private insurers.** For private insurers in the Milliman sample, administrative costs represent an estimated 9.9 percent of commercial plan premiums, 11.4 percent of Medicaid premiums, and 4.5 percent of Medicare premiums (Exhibit 1). BIR administration represents an estimated 8.4 percent, 9.4 percent, and 3.8 percent, respectively. BIR equals 85 percent of administrative costs for commercial and Medicare plans, and 81 percent for Medicaid plans. The largest BIR categories are claims, sales and marketing, finance and underwriting, and information systems, each accounting for 1.1–1.6 percent of premiums.

■ **Physician offices.** Medical groups in the MGMA sample report spending 20–27 percent of revenue on administration (Exhibit 2). BIR administration, calculated using BIR percentages from our California physician office interviews, represents 13.9 percent of total revenues for multispecialty, 14.5 percent for single-specialty primary care, and 12.4 percent for single-specialty surgery, respectively. BIR equals 52–61 percent of administrative costs for the three practice types. The largest BIR categories are the business office (3.5 percent for multispecialty groups), provider time (3.7 percent), information technology (1.7 percent), medical receptionists (1.1 percent), and administrative supplies and services (1.2 percent).

■ **Hospitals.** California acute care hospitals report spending 20.9 percent of revenue on administration (Exhibit 3). BIR administration represents an estimated 6.6–10.8 percent, depending on the BIR percentage value used for hospital adminis-

tration and other administration. We used a wide range of values for these two categories to reflect our uncertainty about the appropriate allocation to BIR. Thus, BIR equals an estimated 31–51 percent of hospital administrative costs. The largest BIR categories are hospital administration (2.2–6.5 percent), patient accounting (1.6 percent), and credit and collections (1.0 percent).

■ **Comparison across settings.** Exhibit 4 summarizes results by setting, using the predominant modes for physician groups (multispecialty) and insurers (commercial plans). Administrative costs are highest in physicians groups. BIR costs are also highest in physician groups, with insurers and hospitals having similar BIR levels. BIR administrative costs as a percentage of all administrative costs are highest for insurers, which is consistent with their insurance function.

■ **Total across settings.** We estimated that BIR administration in California acute health care for hospital and physician services paid through private health insurance plans represents 19.7–21.8 percent of spending. The range reflects the low and high BIR levels estimated for hospitals. Excluding profit paid as taxes, the range is 18.9–21.0 percent; excluding profits entirely, the range is 17.0–19.1 percent.

Because of uncertainty in our BIR estimates, we examined the sensitivity of these results to variation in our setting-specific estimates. We found that each ten-percentage-point-change in the BIR estimate in a specific setting results in a one-percentage-point-change in the overall BIR estimate. For example, we estimated that 52 percent of physician administrative costs are BIR, and if the true value is 42 percent, then BIR range drops from 19.7–21.8 percent to 18.7–20.8 percent.

We classified all health care spending for privately insured California hospital and physician care into four categories (Exhibit 5). For the private health care sector, BIR represents about one-fifth of costs, divided nearly equally between insurers and providers.

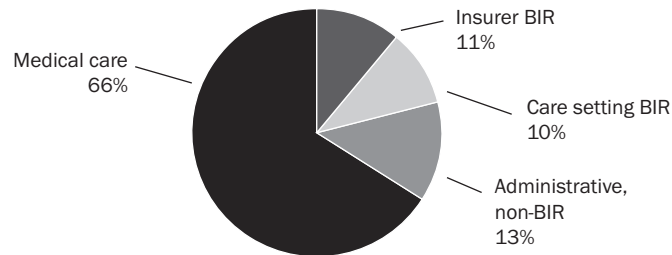
EXHIBIT 4

Summary Of Administrative Costs For Private Insurers, Physician Groups, And Hospitals

	Private insurers (commercial plans)		Physician groups (multispecialty)		Hospitals	
	Admin. % of total revenue	BIR % of total revenue	Admin. % of total revenue	BIR % of total revenue	Admin. % of total revenue	BIR % of total revenue
Total	9.9%	8.4%	26.7%	13.9%	20.9%	6.6–10.8%
Broad administrative	0.9	0.8	8.0	2.5	9.7	2.2–6.5
Claims billing or payment	1.6	1.6	3.9	3.5	2.7	2.7
Other specific administrative	5.6	5.1	8.9	3.9	5.2	0.6
Major clinical element	1.8	0.8	5.9	4.0	3.3	1.1

SOURCES: See Exhibits 1–3 and text.

NOTES: A range is used for hospital billing and insurance-related (BIR) because of the absence of estimates for the large “broad administrative” category. Excludes profits and broker fees for insurers.

EXHIBIT 5**Allocation Of Spending For Hospital And Physician Care Paid Through Private Insurers**

SOURCE: Analyses reported in this paper, and National Health Accounts data (see text).

NOTE: BIR is billing or insurance-related.

Discussion

Including health plan profits, we estimated that 19.7–21.8 percent of spending on physician and hospital services in California that are paid for through privately insured arrangements is used for billing and insurance-related functions.

■ **Study limitations.** Our analysis has important limitations. First, we assembled a variety of diverse data sources, none of them ideally suited for estimating BIR as a percentage of total costs. For hospitals and insurers, we relied on two authors' judgment to estimate the portion of effort in each area that is devoted to BIR. These estimates certainly contain some error, although we believe that the authors' competing leanings on level of BIR generated estimates that are not much different from those that many others would make. We were also reassured that many administrative tasks were reasonably assigned 100 percent or 0 percent BIR; they are, by definition, entirely or not at all for BIR. For physician practices, we relied on the judgment of respondents in a convenience sample of eleven practices. These judgments are subject to error, and a wider or more systematic sample of practices might have produced different estimates, although we observed consistency within our sample. Further, a sizable fraction of BIR activity in physician offices is accounted for by physician effort, and here we relied on estimates from a survey conducted by the AMA.

Our analysis applies to services paid for through insured arrangements. However, a substantial fraction of health care services in California are provided through self-insured arrangements. For self-insured services, we expect that hospital, physician, and insurer BIR would be similar to our estimates here, except that health plan profits might be smaller (most self-insured employers use health plans or other third-party administrators to administer health benefits, and these contractors need to make some profit to stay in business).

Our analysis excludes several sources of BIR administrative costs: external brokers' fees, oversight provided by employee benefits staff, and administrative costs of independent practice associations (IPAs). It thus understates total BIR costs in

the private insurance system. Also, our analysis of total BIR costs in privately insured hospital and physician care understates and mischaracterizes the distribution of systemwide BIR costs. Most importantly, hospitals and physicians incur BIR costs on all care, not just privately insured care. Thus, the total BIR burden on providers (in dollar terms) is well above that on private insurers—perhaps twice as much. Further, there are substantial, if less well understood, BIR costs in other care settings, in which one-third of all health care spending occurs.

Simplifying our methods of paying health care providers would reduce BIR, although anticipating the exact magnitude of savings is difficult. If a single-payer system of health care financing were adopted, a substantial portion of BIR could certainly be eliminated; less comprehensive financing reforms might yield smaller savings. We are just beginning a project studying a large multisite physician practice, to better understand what fraction of BIR costs at that practice could be eliminated with a variety of simplifications in financing rules or procedures.

■ **Uncertainty about BIR spending and value.** There is much uncertainty about the extent to which current BIR spending creates value. BIR activity could produce two types of value. First, it could lead to lower rates of payment per unit of service than would occur without it. This would result in a shift of resources from providers to patients, resulting in no net increase in social welfare, although a potentially significant redistribution.¹² Further, to the extent that rapidly increasing rates of health care spending create strains on public and private financing systems that lead to other negative results (such as increasing numbers of uninsured people or crowding out of other public-sector funding priorities), restraint in the growth rate of health care spending could do more than simply redistribute income from providers to patients. Partially counterbalancing the welfare gains from lower payment rates, a potential negative effect of slowing payment rates is reduced access to physicians.¹³ Second, BIR activities could result in a reduction in the use of health care services (through agreements reached between payers and providers on the services that will be paid for). To the degree that these reductions occur with no decline (or perhaps even an improvement) in the outcomes of care, the BIR services create value. However, if effective care is reduced, health care value is lost.

■ **Net impacts of BIR.** The net impacts of BIR are poorly understood. If BIR activities are, or are perceived as, simply a labor- and capital-intensive mechanism to move money around in a highly fragmented health care financing system, they are attractive targets for efficiency-increasing attempts at health care reform, because they consume resources that would be better spent on health care.

The empirical record is complicated. In comparison to the health care systems of other advanced economies, it is difficult to argue that the United States has an efficient health care system: Its high level of clinical health care spending does not seem to be matched by superior outcomes. However, competition among insurers from 1993 to 2000 almost certainly contributed to constraint of the rate of health spending growth in that period. Although BIR might have increased during the

1990s, the reduction in health care spending was greater than this increase in BIR and is likely attributable in part to the incremental BIR. Some argue that the slowing of spending growth led to negative effects on quality and a reduction in consumer welfare, although the evidence is complex. Further, very rapid spending growth returned after 2000. Regardless of the experience of the 1990s, prospects that insurer competition will foster substantial improvements in quality or efficiency in the coming years are uncertain at best. To the extent that competition does not foster cost control and quality improvement, and to the extent that a simpler system with fewer insurers would allow a reduction in BIR, then reductions in BIR are an attractive target for reform initiatives.

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NOTES

1. See, for example, S. Woolhandler, T. Campbell, and D.U. Himmelstein, "Costs of Health Care Administration in the United States and Canada," *New England Journal of Medicine* 349, no. 8 (2003): 768–775; S. Woolhandler and D.U. Himmelstein, "Costs of Care and Administration at For-Profit and Other Hospitals in the United States," *New England Journal of Medicine* 336, no. 11 (1997): 769–774; and S. Woolhandler, D.U. Himmelstein, and J.P. Lewontin, "Administrative Costs in U.S. Hospitals," *New England Journal of Medicine* 329, no. 6 (1993): 400–403.
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5. See, for example, Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the Twenty-first Century* (Washington: National Academies Press, 2001).
6. A complete description of methods is available in a technical supplement, online at content.healthaffairs.org/cgi/content/full/24/6/1629/DC1.
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9. Ibid.
10. The source of our task breakdown was Lewin Group, *Cost and Coverage Analysis of Nine Proposals to Expand Health Insurance Coverage in California: Final Report* (Sacramento: California Health and Human Services Agency, 31 March 2002).
11. The specific formula and other technical details are available in the technical supplement; see Note 6.
12. M.V. Pauly, "Should We Be Worried about High Real Medical Spending Growth in the United States?" *Health Affairs*, 8 January 2003, content.healthaffairs.org/cgi/content/abstract/hlthaff.w3.15 (29 August 2005).
13. L. Backus et al., "Specialists' and Primary Care Physicians' Participation in Medicaid Managed Care," *Journal of General Internal Medicine* 16, no. 12 (2001): 815–821.