



Accounting for the Cost of Health Care in the United States

| January 2007

McKinsey Global Institute

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Preface

This report is the end-product of a project by the McKinsey Global Institute (MGI), working in collaboration with our colleagues in McKinsey & Company's health-care practice groups around the world. In this study, we account for the higher cost of the US health care system by analyzing the seven cost categories used by the OECD. This research builds on an earlier MGI effort in which we compared the health care systems in the United States, the United Kingdom, and Germany by assessing the productivity and treatment of four major diseases.

Our aim is to provide a sound and unbiased fact base for use in the public debate on health care and to enable policy makers, regulators, intermediaries, payors, providers, employers, clinicians, and patients, to make more informed and therefore better decisions.

Bob Kocher, an Associate Principal McKinsey's Washington, DC office, Martha Laboissière, an MGI Senior Fellow in San Francisco, Carlos Angrisano, an Associate from McKinsey São Paulo's office, and Sara Parker, a research analyst from the North America Knowledge Center in Boston, worked closely with me to develop this research.

We have benefited enormously from the extensive input received from McKinsey's global network of industry experts. We would like to acknowledge Ajay Dhankar, Lynn Dorsey-Bleil, Jean Drouin, Yair Elbaz, Lucia Fiorito, Ernest Franklin, Clemens Guth, Viktor Hediger, Nicolaus Henke, Michael Hughey, Sonosuke Kadonaga, James Kalamas, Ludwig Kanzler, Kamiar Khajavi, Nancy Killefer, Toby Lambert, John Leaman, Alison Loat, Simon London, Paul Mango, Lenny Mendonca, Alexander Moscho, Mona Mourshed, David Nuzum, Jeremy Oppenheim, Michael

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We would also like to acknowledge Kelly McLaughlin and Anne Clark for the development of the interactive graphics, and Janet Bush, MGI's senior editor, Deadra Henderson, MGI's practice administrator, Terry Gatto, Sara Larsen and Linda Corbin, our executive assistants, Roberta Blanco and Jose Carlos de Sousa, in report production, and Rebecca Robboy and Kim Brooks in External Relations, who supported the effort throughout.

This work draws on McKinsey's in-depth analytical work and understanding of health care systems. As always, the findings and conclusions draw on the unique perspectives that our colleagues are able to bring to bear through their intensive client work with the world's leading companies. Extensive interviews with leading academics, executives, and government officials, provided additional input. As with all MGI research, this report is independent and has not been commissioned or sponsored in any way by any business, government or other institution.

Diana Farrell
Director, McKinsey Global Institute
January 2007

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Synthesis

The United States spends more of its wealth on health care than any other developed country, and that share is rising. In 2005, the United States spent \$1.9 trillion, or 16 percent of GDP, on health care, up from \$1.7 trillion, or 15 percent of GDP, in 2003. This compares with an OECD median of 8.5 percent. In 1960, the share of GDP had been only 5.2 percent. It is an arresting statistic that the United States now spends more on health care than it does on food.

Many studies have attempted to explain why the United States spends disproportionately more on health care—some popular theories include the high price of drugs, the abundance of new medical technology and the private nature and administrative complexity of the system—but none has fully justified why it costs so much, or why it seems to have fallen short in delivering the expected value. Few have attempted a holistic view of the system, and not many analysts have direct experience in working across all parts of the US health care system.

The McKinsey Global Institute (MGI), with input from McKinsey's health care practice leaders and experts, has undertaken major research on the US health care system. This study builds on an earlier MGI effort that compared the health care systems in the United States, the United Kingdom, and Germany and assessed the productivity and treatment of four major diseases. At that time, we concluded that input prices were the major differences across systems at the disease level. Our aim now is to provide a sound and unbiased fact base for policy makers, regulators, intermediaries, payors, providers, employers, clinicians, and patients, grounded in the realities of health care systems around the world in which our McKinsey colleagues operate extensively.

While there is no clear optimal amount that the United States should spend on health care—every country makes its own societal choices—global comparisons can highlight potential opportunities for more rational spending. Using a sample of 13 OECD countries, we developed a measure we call Estimated Spending According to Wealth (ESAW). This measure adjusts health care spending according to GDP per capita and is anchored in the fact that countries spend more on health care (or any good or service) as their prosperity increases. Even after adjusting for its higher per-capita income levels, the United States spends some \$477 billion—\$1,645 per capita—more on health care than peer countries.

In this study, we show that the overriding cause of high US health care costs is the failure of the intermediation system to (a) provide sufficient incentives to patients and consumers to be value-conscious in their demand decisions, and (b) establish the necessary incentives or mandates to promote rational supply by providers and other suppliers. There are, currently, no fully reliable mechanisms to drive down input prices or to stem the United States' very high use of consultations and outpatient testing and imaging—some of which is potentially unnecessary. Moreover, the system incurs a range of costs not borne in other countries, which are unique to the US system with its significant for-profit element and its multiple-state and multiple-payor administrative structure.

Despite higher costs, the United States does not deliver objectively better quality and access for US citizens as a whole relative to peer countries. This global comparative analysis therefore suggests that major opportunities for cost improvement—even if not the full \$480 billion—are as possible as they are necessary, given the pressures of fiscal imbalances, demographics, and rising health care costs. With this analysis, we invite intermediaries—payors, employers, regulators, and government—to engage in an empirically grounded debate about all aspects of the US health care system that will lead to sound reform, delivering better management of costs while improving care quality and patient access.

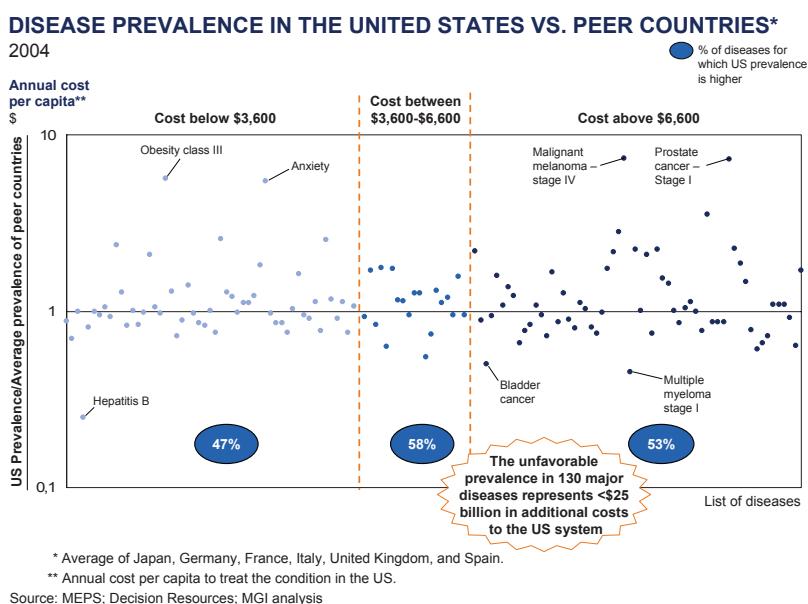
POSSIBLE EXPLANATIONS FOR HIGHER US HEALTH CARE SPENDING

Our report identifies and analyzes two main potential explanations for the relatively high level of US spending on health care. Either the US population is sicker than those in other countries, so that citizens naturally demand more care, or the system is intrinsically more expensive.

DISEASE MIX IS NOT TO BLAME

We conclude that the additional spending in the US health care system is not explained by a higher disease burden. We found that the US population is not significantly sicker than the other countries we studied, a conclusion we arrived at by comparing the prevalence of 130 diseases in the United States, including the most common disease groups, with their prevalence in Japan, Germany, France, Italy, Spain, and the United Kingdom (Exhibit 1). The differential impact of the 130 diseases analyzed, is less than \$25 billion in treatment costs.

Exhibit 1



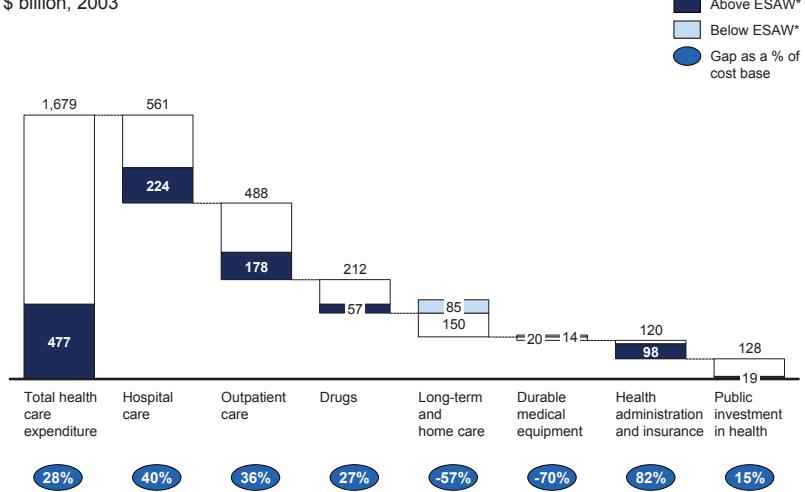
The high prevalence of some conditions in the United States (e.g., heart conditions, diabetes, and select types of cancer) indicates that prevention programs targeted at reducing the prevalence of disease, particularly diseases with high treatment costs, would offer very substantial opportunities for better health and lower cost.

AN INTRINSICALLY MORE EXPENSIVE SYSTEM

Our analysis shows that across five of the seven health care categories used by the OECD—hospital care, outpatient care, drugs, administration and insurance, and public investment in health—the United States spends above its ESAW. In only two categories—long-term care and durable medical equipment—does it spend below the ESAW (Exhibit 2).

Exhibit 2

BREAKDOWN OF ADDITIONAL SPENDING IN US HEALTH CARE SYSTEM \$ billion, 2003



* Estimated spending according to wealth
Source: OECD; MGI analysis

Of the \$477 billion that the United States spends above ESAW, we calculate that \$224 billion are found in hospital care and \$178 billion in outpatient care. Together, these account for more than 80 percent of US spending above the level its ESAW would predict. Further analysis allows us to map, in hospital and outpatient care, \$147 billion of the additional costs to operational expenses and support functions, \$100 billion in medical labor, \$75 billion in the profits made and taxes paid by private payors and providers, and \$49 billion in supplies (Exhibit 3).

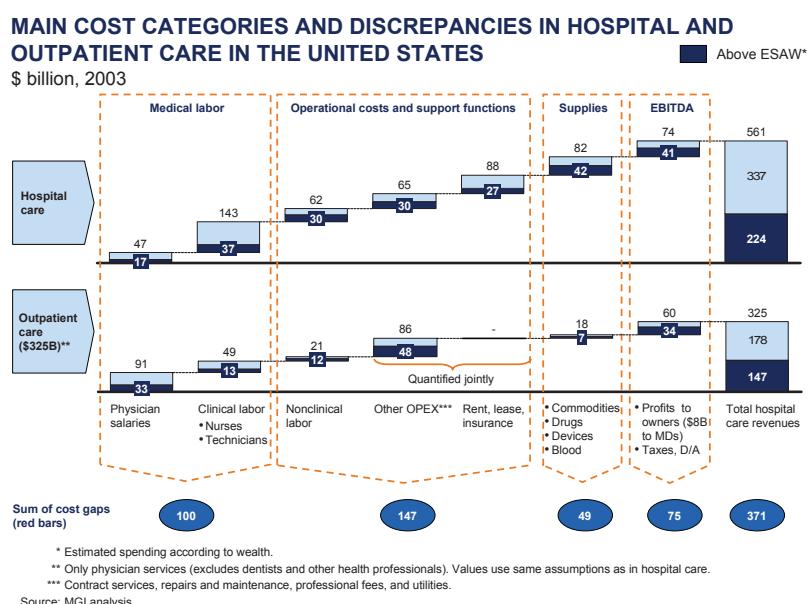
Within the other categories in which the United States spends above ESAW, together amounting to \$174 billion, \$98 billion is incurred in administration and insurance, \$57 billion in outpatient drugs, and \$19 billion in public investment. In long-term and home care the United States spent \$85 billion less than ESAW, and in therapeutic and durable medical equipment, \$14 billion less than ESAW. This report examines in detail the level of spending in each category.

ACCOUNTING FOR THE HIGHER SPENDING

We analyzed the three main components of the US health care system: the inputs consumed (both the volumes and unit costs), the operational processes that are in place, and the intermediation processes. This approach yields a clear picture of the sources of higher spend. Input costs—including doctors' and nurses'

salaries, drugs, devices, and other medical supplies, and the profits of private participants in the system—explain the largest portion of high additional spending, accounting for \$281 billion of spending above US ESAW. Inefficiencies and complexity in the system's operational processes and structure account for the second largest spend above ESAW of \$147 billion. Finally, administration, regulation, and intermediation of the system cost another \$98 billion in additional spending. Together, these three account for \$526 billion of US spending above ESAW. Other miscellaneous expenditures in outpatient care (including durable medical equipment), as well as in public investment, account for \$36 billion. If we then include the spending below ESAW in long-term care, we reach our net figure of \$477 billion spending above ESAW (Exhibit 4).

Exhibit 3



HIGHER INPUT COSTS

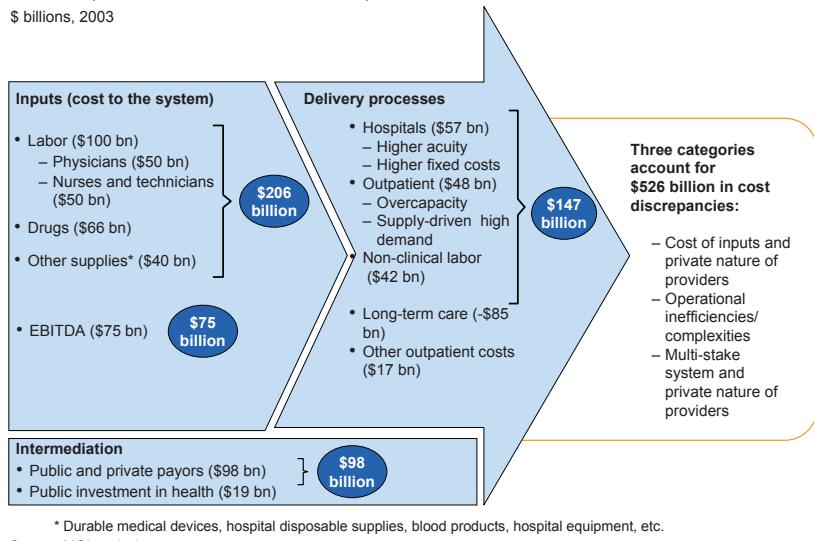
Inputs into the US health care system include payments to doctors, nurses, and other technicians and the cost of drugs, medical devices, and other supplies. Together, these account for a full \$206 billion spend above ESAW.

Drugs. The cost of drugs to the system contributes to higher spending by an estimated \$66 billion above ESAW, of which \$57 billion is incurred by outpatients and \$9 billion is consumed in hospitals and outpatient procedure centers. Our analysis shows that the higher relative cost of drugs to the system is largely responsible for the US spend above ESAW in this category.

Exhibit 4

ADDITIONAL SPENDING CAN BE ALLOCATED ACCORDING TO INPUTS, DELIVERY PROCESSES, AND INTERMEDIATION

\$ billions, 2003



In analyzing the volume of drugs consumed per person (standard drug units per capita) for the nine major therapeutic areas in Germany, Canada, the United States, and the United Kingdom, we found that US patients consume approximately 20 percent less prescription drugs than patients in these other nations. As both drug costs and volumes determine total spending in the system, we determine that drug costs to the US health care system are, through this measure, 70 percent higher in the United States than in peer nations.

To validate this finding, we used three distinct analyses comparing wholesalers' prices for drugs. A comparison of branded drugs in the United States and Canada shows that in the United States, prices of branded products are 60 percent higher; an evaluation of a sample of the top-selling drugs of the leading pharmaceutical companies shows that the US drugs are on average 2.3 times more expensive than in other countries; and finally, an evaluation of generic and OTC drugs—which correspond to approximately 10 percent of the market in sales—shows that in the United States prices varied from 10 percent higher to 50 percent lower.

We also analyzed the drug distribution and retail pharmacy system in the United States and peer countries. We found that distribution systems are overall quite similar, except for two distinctions. The first is the use of pharmacy benefit managers (PBMs), an entity unique to the United States, which adds 1 to 3

percent to the total cost of drugs to the system. The second is the use of rebates negotiated between pharmaceutical companies and payors or PBMs. Although in extreme situations rebates can reach 50 percent, they generally average 10 percent.

Taking all this into account, we find that overall US drug costs to the system are 50 to 70 percent higher than in peer countries, even after PPP and wealth (GDP) adjustments. This additional cost varies by type of drug (higher in branded, patented drugs, lower in generics), by therapeutic group, and by age of drug.

In addition, the United States uses a mix of drugs that is, on average, slightly more expensive than that used in peer countries, though this is a much smaller contributor to the United States' higher spending than are prices. The United States tends to be an early adopter of newly launched drugs, which are patent-protected and sold at higher prices. For a short period—usually less than 24 months—consumers in the United States have greater access to next-generation drugs, some of which rapidly become top sellers in the United States, but not necessarily in other countries. Within one to two years, however, the top-selling drugs in the United States, the United Kingdom, and Germany tend to converge, from the perspective of both revenue and unit volumes.

Physicians' compensation. Physicians' total compensation contributes an additional spending above ESAW of \$58 billion, of which \$50 billion arises from their remuneration from salaries, professional fees, or a combination of these, and \$8 billion is income from equity stakes at outpatient centers. Our analysis shows that, for our OECD comparison countries, physicians' compensation is, on average, 4 times GDP per capita for specialists and 3.2 times for generalists. In the United States, these figures rise to 6.6 and 4.2, respectively.

In the complex US remuneration structure, physicians more commonly receive fee-for-services provided (although they can receive salaries if fully employed by a hospital). The fee-for-service format creates incentives to see more patients than other formats would—especially since subjective clinical judgment guides treatment intervals and consultations in most cases. Not surprisingly, then, physicians in the United States see, on average, 1.6 times more patients than do physicians in other countries. Thus, physician remuneration in the United States accounts for \$50 billion of the spending above ESAW.

In addition to the fee-for-service payments for consultations and procedures, physicians frequently co-own outpatient facilities, such as ambulatory surgery centers (ASC), diagnostic imaging centers (DIC), and diagnostic testing and

procedure laboratories, and receive their share of profits from these. The profit sharing in those centers generates additional income for owning physicians above and beyond fee-for-service payments and accounts for another \$8 billion of US higher spending.

Nurses and other clinical labor compensation. Compensation for nurses and other clinical labor is \$50 billion above ESAW in the United States. Additional spending on nurses' labor is a result of staffing patterns, increased acute care needs in hospitals, and higher ratios of clinicians to patients. For instance, the United States employs 9.5 nurses per 1,000 acute care bed day compared with the OECD average of 7.1 nurses. In inpatient medical and surgery units, staffing ratios are usually one nurse for six to eight patients compared with one nurse for 10 to 12 patients in Europe.

Additionally, a complex structure of regulation in the United States mandates these higher staffing ratios, which are regarded by nursing unions and others as important for providing quality care. The salaries of nurses in the United States, however, are in line with peer OECD countries, around 1.3 times GDP per capita.

Non-drug supplies. Non-drug supplies account for another \$18 billion of spending above ESAW. The United States is the largest consumer of medical devices in the world. It spends 54 percent above its ESAW on the top five inpatient devices—defibrillators, pacemakers, coronary stents, hip implants, and knee implants—when compared with Europe and Japan. Our analysis of knee and hip replacements indicates that higher implant prices—and, in some cases, higher volumes—account for additional spending on this input. The wealth-adjusted cost of a knee implant is 32 percent higher, and a hip implant 65 percent higher, than the average of France, Germany, Italy, and the United Kingdom. In terms of volume, one example of higher utilization is the fact that the United States has the highest incidence of knee-replacement surgeries for the over-65-year-old population.

PROVIDER PROFITS AND TAXES

The substantial private component of the US health care system adds another \$75 billion to US spending through the profits earned and taxes paid by providers.

Public data sources show that \$27 billion of the profit generated by US health care providers can be attributed to higher returns on investment. Of this \$27 billion, \$8 billion accrues to physicians as income resulting from equity positions in the facilities we described in the previous section on physicians' compensation.

Assuming a tax rate of 33 percent for the system's for-profit segment, this generates approximately \$25 billion in taxes that are not incurred in the largely publicly owned health care systems in comparison OECD countries. Finally, higher expenditures arising from interest, depreciation, and amortization account for the remaining \$23 billion.

ADDITIONAL OPERATIONAL COSTS

Accounting for \$147 billion of US health care spending above ESAW, this category includes all non-clinical labor, operational expenses (maintenance and repairs, contract services, professional services, and utilities, among others), rent and lease, and insurance against medical malpractice. Additional operational costs of hospitals and outpatient centers are the result of different drivers.

In hospitals, the additional operational costs are due to the increased acute care needs of patients, the mix of cases treated, and the higher costs associated with miscellaneous staff and support functions (such as administration). Additional factors contributing to higher operating expenditures include the need to pay for higher staff-to-patient ratios, medical insurance, and diagnostic equipment (including increased costs for the lease, maintenance, and repair of sophisticated equipment).

In recent years, outpatient procedures (such as colonoscopies, MRIs, CT scans, and other laboratory tests) have increasingly been moved out of hospitals into ASCs, DICs, and diagnostic testing and procedure centers. Simpler cases have moved out of hospitals into physicians' offices. As a consequence, US hospitals have a case mix and acuity that is higher than other OECD countries, with a larger proportion of medical cases and costly procedures (such as trauma and complex surgeries), necessitating higher operational expenses. The highly acute hospital-case mix might help explain why, although the average of hospital days per year in the United States is relatively low, the cost per day is the highest of all countries analyzed, and 2.6 times higher than the OECD average.

In outpatient centers, higher operational expenditures are in large part explained by subscale operations and a lack of value-consciousness on the part of consumers and providers. Outpatient centers benefit from a cost base that is 20 to 30 percent lower, while receiving reimbursement that is frequently similar to that of inpatient providers. Outpatient centers have grown rapidly by capturing less-acute and high-margin procedures from hospitals. The high profitability of the emerging outpatient centers has driven investors and physicians to fund a rapid expansion in the number of these facilities, which has resulted in subscale

operations and redundancy in capacity. For example, in a hospital, a CT scanner will perform approximately 20 to 30 scans in a day; in a DIC, this same equipment will complete many less, since they tend to be open for fewer hours a day and the breakeven number of scans can be as low as four to eight scans a day. Yet, these scanners still require largely the same staff and maintenance as in a hospital setting.

The fee-for-service reimbursement system creates an incentive for physicians to see more patients. This is magnified by physician co-ownership of these facilities, which offers a strong incentive to self-refer cases—physicians who own imaging equipment refer between two and eight times more tests than their peers without equity interest. Furthermore, manufacturers of imaging and diagnostic equipment advertise to physicians the financial advantages of pursuing additional testing. Ultimately, the excess installed capacity (the US has three to six times more scanners than Germany, UK, France and Canada) with low utilization further increases the pressure to generate more demand in order to justify the investments made. The vicious circle is not easily interrupted by a reduction of reimbursement fees, since revenue levels can be maintained through incremental demand fueled by clinical discretion.

Finally, insurance against malpractice adds to higher operational costs. Doctors in the United States pay an estimated average of \$27,500 a year for coverage. With some 700,000 doctors in practice, this amounts to approximately \$20 billion in insurance costs that are not fully incurred in other countries.

ADMINISTRATION

The United States spent \$412 per capita on health care administration and insurance in 2003—nearly six times as much as the OECD average. This is because of its unique multiple-payor system, differences in insurance regulation across states, and the complexities of administering Medicare, Medicaid, and private-insurance products. This total does not include the additional administrative burden of the multi-payor structure and insurance products on hospitals and outpatient centers, which is accounted for under providers' operational costs. Nor does it include the extra costs incurred by employers because of the need for robust human resources departments to administer health care benefits.

Of the \$98 billion of spending above ESW on administration, \$84 billion can be traced to private stakeholders, and the remaining \$14 billion to public-sector stakeholders. In the US private sector, we found that some 64 percent of the administrative costs incurred by private payors is due to underwriting health

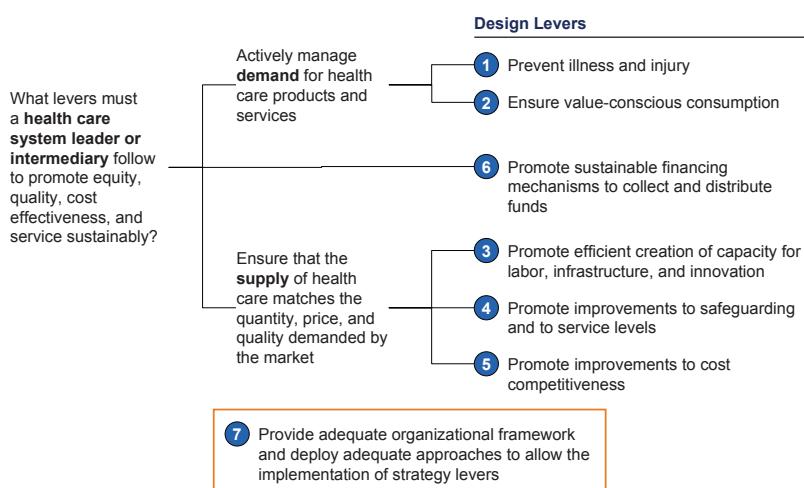
risks, and sales and marketing—costs that do not arise in the public systems of most OECD countries. In the public sector, administrative expenses take up 3 percent of the Medicare budget and 3 to 5 percent of the Medicaid system, compared with 2 percent spent in Britain's National Health Service (NHS).

...

Our analysis shows that the high costs of US health care are widespread across the system. In the public debate about how to bring costs under better control, different advocates have proposed a variety of preferred targets for change—whether the administrative complexity of the private system, the profitability of pharmaceutical companies, or the compensation system for physicians. Yet, our analysis shows that most components of the US health care system are economically distorted and that no single factor is either the cause, or the silver bullet, for reform actions. To be effective, reform in the US health care system will need to involve all key stakeholders and will require the proposal of solutions that are placed in the context of a coherent set of principles covering both the demand and supply sides of the system (Exhibit 5).

Exhibit 5

REFORMS SHOULD BE GUIDED BY A SUPPLY AND DEMAND FRAMEWORK



Source: MGI analysis

Accounting for the Cost of the US Health Care System

COMPARISON OF UNITED STATES HEALTH CARE SPENDING TO OTHER OECD COUNTRIES

Health care spending per capita

The United States has the highest overall health care expenditure as well as the highest expenditure per capita¹ of any country in the world. MGI conducted a bivariate analysis of health care expenditure against GDP² per capita for 13 Organisation for Economic Co-operation and Development (OECD) countries³ for which detailed spending data is available.

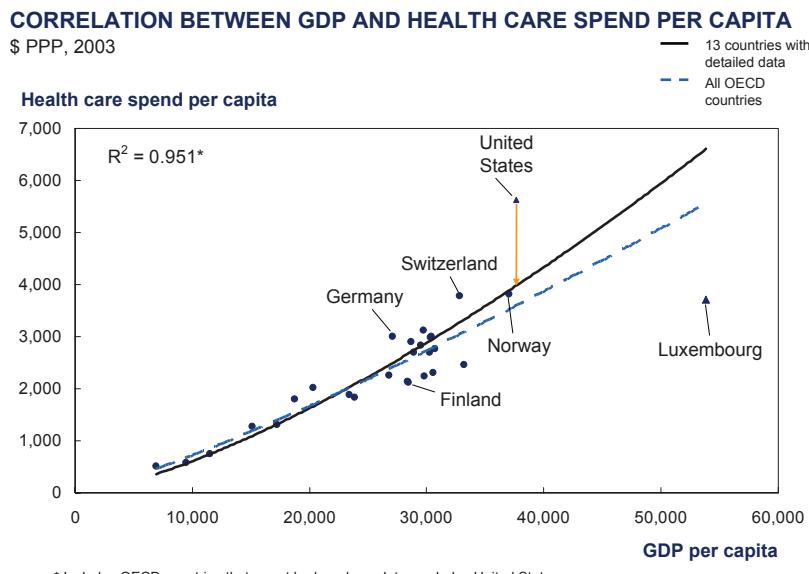
In 2003, the United States spent \$5,635 per capita on health care. Our analysis predicted that the United States would spend \$3,990 per capita if it were to fit the correlation curve—a measure we call the Estimated Spending According to Wealth (ESAW). The United States thus spent \$1,645 per capita more than would have been expected (Exhibit 1). The per capita expenditure in the United States was 48 percent higher than in Norway, the country with the next highest health spending per capita figure, and more than twice the OECD average of \$2,572. As a consequence, the United States spends \$477 billion more than would be predicted by the ESAW regression line.

1 See Technical Notes for an explanation of what health care expenditure is included.

2 Gross domestic product (GDP) is the total value of goods and services produced by a nation, and is a useful indicator of a country's ability to pay for any consumed good, including health care.

3 Canada, Czech Republic, Denmark, Finland, France, Germany, Iceland, Italy, Mexico, Netherlands, Norway, Spain, and Switzerland. Not always the 13 countries are used in the correlation due to gaps in the datasets.

Exhibit 1



Evolution of health care costs

Measured in terms of share of GDP, the United States spent 15 percent on health care in 2003 compared with the OECD median of 8.5 percent. Timeline maps show that US health care spending has been growing more quickly than GDP—as well as population growth and inflation—and therefore, health care spending as a percentage of GDP has been increasing. In 1960, the United States spent 5.2 percent of GDP on health care; by 2004 that number had risen to 16 percent (Exhibit 2). By 2030, the United States is forecast to be spending 25 percent of its GDP on health care.⁴

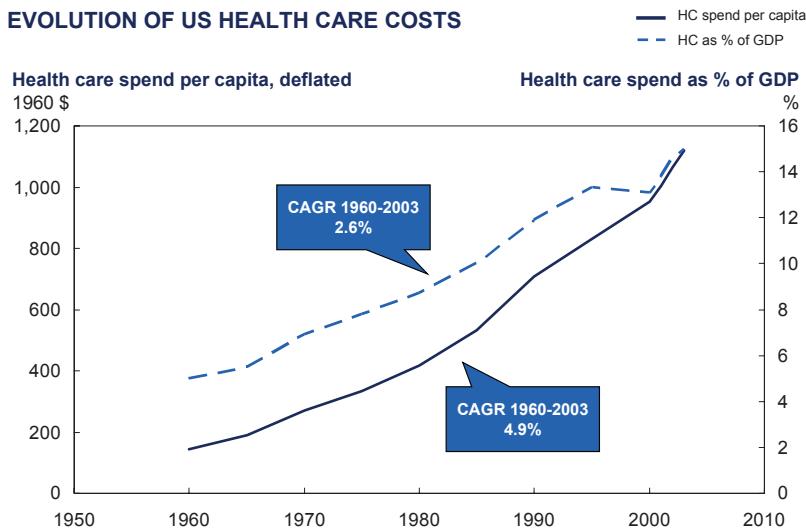
Measures of outcomes in the US health care system

The United States spends more than would be expected for its level of wealth. This raises the question of whether it provides more services or achieves better health outcomes for its population than other OECD countries. To address this question, we analyzed the relationship between increasing health care costs and life expectancy. We compared the United States with both the OECD average and with Japan, the developed country with the highest life expectancy.

This analysis found that US life expectancy does not reflect the country's high cost of health care. Over the past 50 years, despite consistently spending more

4 Robert W. Fogel, University of Chicago Graduate School of Business as cited in http://www.hrpolicy.org/downloads/2006/NYT_HC_Engine_082206.pdf.

Exhibit 2



Source: OECD; MGI analysis

than the OECD average on health care, US life expectancy—while increasing in absolute terms—is still below the OECD average. Over the same period, Japan has surpassed OECD average life expectancy, while increasing its average health care spending per capita from 0.36 to 0.76 of the OECD average. In the last five years, health care spending in Japan has stabilized, a trend that can be attributed to increased government intervention in inputs such as labor costs and drug approvals (Exhibit 3).

Demographic and regional differences in infant mortality have been posited as explanations for the fact that US life expectancy is lower than the OECD average. It is the case that the infant mortality rate is higher in the black population of the United States; however, even if this population is excluded from the analysis, US life expectancy would only rise to 78.2 years, which is the same as the OECD average. In fact, life expectancy in the United States is driven up by other minority populations—7 percent of the US population is Native American and Asian, groups that combined have an average life expectancy of 80.7 years, compared with 78 years in the white population (Exhibit 4).

The United States does not seem to be capturing disproportionate value across other metrics we evaluated. Although the US population faces shorter waiting times than some countries (e.g., United Kingdom, Canada), that metric does not appear to be significantly correlated with health care spending (Exhibit 5). We

Exhibit 3

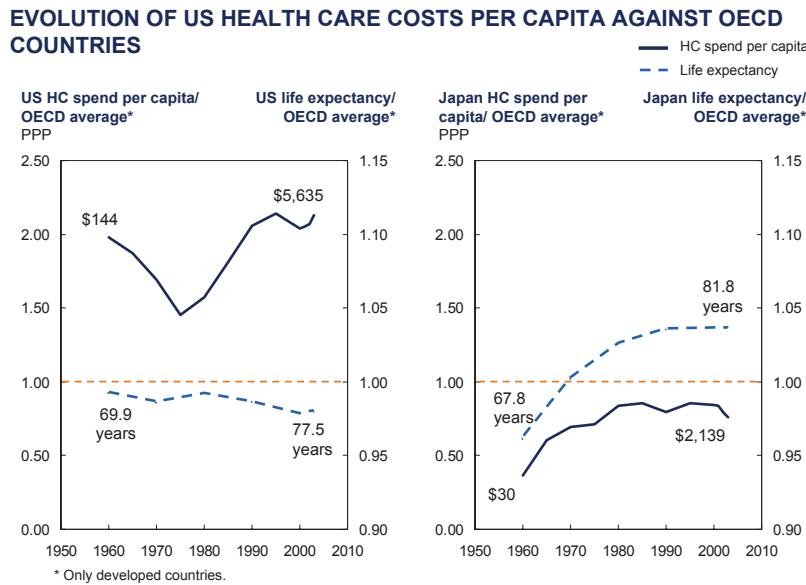
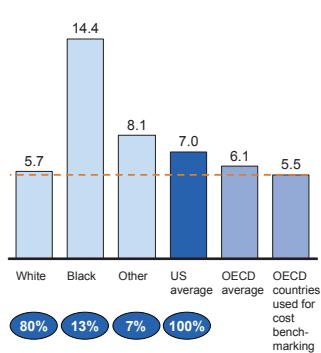


Exhibit 4

IMPACT OF INFANT MORTALITY OF MINORITIES ON US LIFE EXPECTANCY

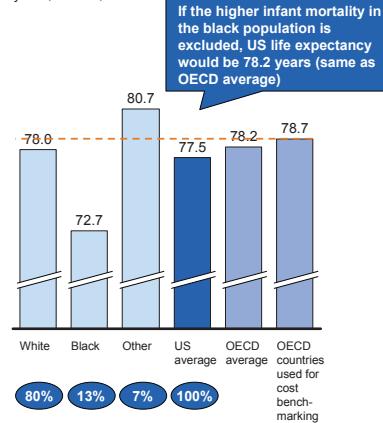
The differences in infant mortality among US minorities ...

Infant mortality rates
per 1,000 live births, 2003



... don't explain the below OECD average US life expectancy

Average life expectancy
years, at birth, 2003



Source: OECD; CDC; MGI analysis

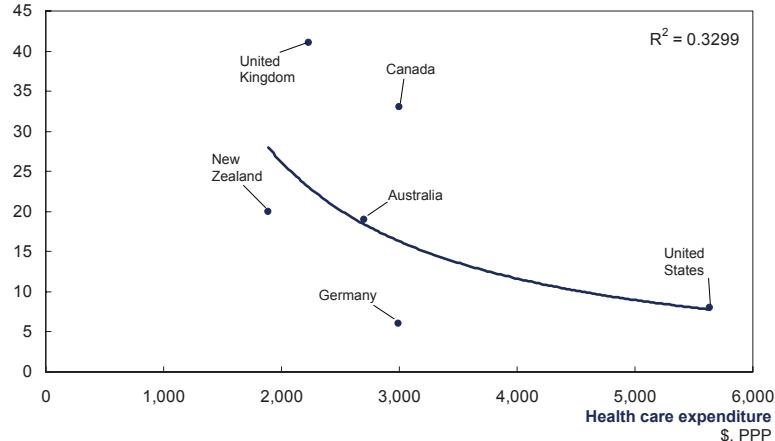
found a possible relationship between spending and absence from work due to illness (Exhibit 6) with the United States having low absenteeism (although we should note that different policies for absenteeism in different countries make comparisons more complex). Moreover, other countries have similarly low absence rates but spend far less than the United States—this is the case with Australia, which spends, per capita, half of what the United States does.

Exhibit 5

HEALTH CARE EXPENDITURE AND WAITING TIMES

2005

Patients waiting more than four months for elective surgery
% of patients



Source: 2005 Commonwealth Fund International Health Policy Survey; MGI analysis

Confronted by these results, we then asked the \$480 billion question: Why is the US health care system so much more expensive than those of other countries (without markedly improved outcomes)? Traditionally, the main explanations have been the system's high prices [1] and its inefficiency. Other reasons proposed are that the US population is less healthy [2, 3] and that the United States uses a greater amount of new and expensive medical technology [4].

This study builds on an earlier MGI effort that compared the health care systems in the United States, the United Kingdom, and Germany and assessed the productivity and treatment of four major diseases. At that time, we concluded that input prices were the major differences across systems at the disease level. Our aim now is to provide a sound and unbiased fact base for policy makers, regulators, intermediaries, payors, providers, employers, clinicians, and patients, grounded in the realities of health care systems around the world in which our McKinsey colleagues operate extensively.

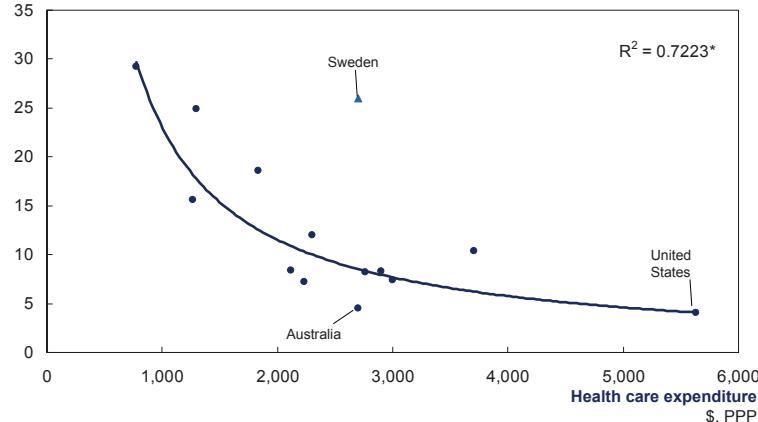
Exhibit 6

HEALTH CARE EXPENDITURE AND ABSENCE FROM WORK DUE TO ILLNESS

OECD countries, 2003

Absence from work due to illness

Days in a year



* Excludes Sweden.

Source: OECD

In this report, MGI accounts for the higher US health care spending. We have not focused on access or quality outcomes—acknowledging that these are important elements of health system performance—but instead focused on accounting for the higher costs of the system benefiting from the microeconomic perspectives of McKinsey's practitioners (Exhibit 7).

Key explanations for higher US health care cost

There are two major explanations for the higher cost of US health care. The first is that the US population is less healthy or the disease mix is less favorable. For example, if the United States had a higher number of cases of cancer, a very expensive disease to treat, it would be anticipated that the United States would need to spend more on health care than other countries. The second possible reason is that the system is intrinsically more expensive, independent of the relative health of the population. In this case, the United States would spend more for the same disease mix due to higher prices, more consumption, or inefficiencies in particular spending categories and inputs such as hospital care or drugs (Exhibit 8).

Exhibit 7

FOCUS OF THE STUDY

Focus of
the study

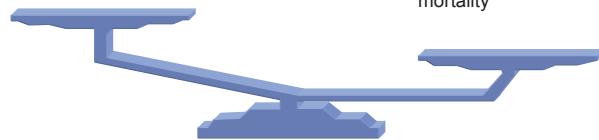
Benefits and challenges of the US health system

Benefits

- Focus on quality of life
- Convenience
- Patient choice
- Innovation
- Access to new treatments and technologies

Challenges

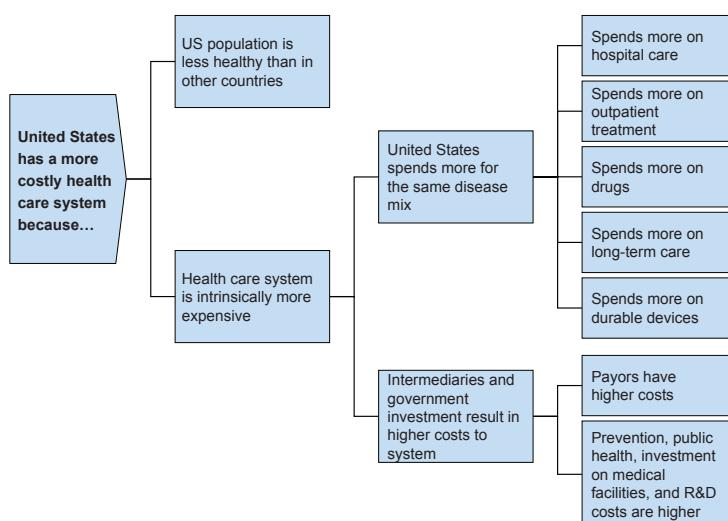
- **Highest per capita expenditure (16% of GDP)**
- Access for uninsured (16% of the population)
- Compared to OECD, lower life expectancy and higher infant mortality



In this study we evaluated cost in the U.S. health care system

Exhibit 8

POSSIBLE EXPLANATIONS FOR HIGHER US HEALTH CARE SPENDING

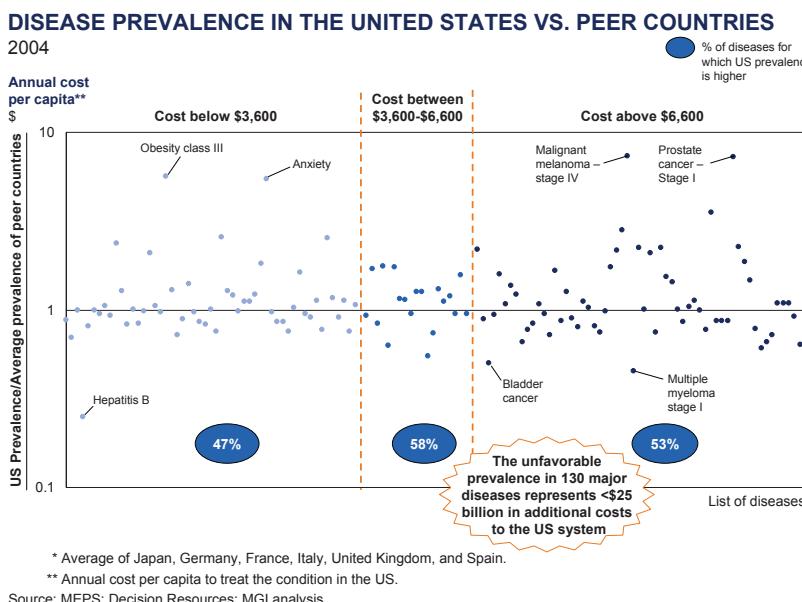


Source: MGI analysis

DISEASE MIX OF THE US POPULATION

A comparison of the prevalence of 130 diseases, including the most common disease groups,⁵ shows that the United States is, in fact, moderately sicker, on average, than the populations of Japan, Germany, France, Italy, Spain, and the United Kingdom, whose data we used for comparison. By dividing the prevalence of a disease in the United States by the average prevalence in the comparison countries, we calculated the relative prevalence in the United States. By cross-referencing this information with the average cost of treating these diseases we calculate that the United States has a slightly greater prevalence of the diseases studied resulting in approximately \$12–14 billion in additional health care costs (Exhibit 9). This calculation takes into account the health care cost for the diseases that the United States has higher prevalence (\$64–67 billion) minus the cost for those that the United States has lower prevalence (\$52–53 billion).

Exhibit 9



The conditions studied cover approximately 40 percent of medical expenses in the United States (excluding payors, public investment, nonpatient revenues in providers, and long-term care⁶). By extrapolation, the disease mix would explain less than \$25 billion in additional health care costs. Further analysis, with more granular data, suggests that the impact may be even lower than this value.

5 Includes cardiovascular, infectious, central nervous system, metabolic, immune, inflammatory, pain-related, cancer, and other high-interest diseases (e.g., erectile dysfunction).

6 See Technical Notes for detailed description of methodology.

These results are consistent with those discussed in the study by Banks et al [2], who concluded that US health care consumers are sicker than those in the United Kingdom. The authors compared the prevalence of seven diseases (diabetes, hypertension, heart disease, myocardial infarction, stroke, lung disease, and cancer) in the 55 to 64 age-group in the United States and the United Kingdom. An analysis of a subset of our dataset for the same diseases results in similar findings. Banks et al also notes that the fact that many US citizens lack health insurance does not account for the differences observed, since even wealthy US health care consumers are less healthy than their equivalents in the United Kingdom.

Our analysis is also consistent with a study by Himmelstein and Woolhandler [5] which compared the Canadian and US health care systems and concluded that the Canadian population is healthier than that in the United States. According to Dr. David Himmelstein, “We pay almost twice what Canada does for care, more than \$6,000 for every American, yet Canadians are healthier, and live two to three years longer.” This survey indicated that US citizens have higher rates of diabetes (6.7 percent versus 4.7 percent), arthritis (17.9 percent versus 16.0 percent), and high blood pressure (18.3 percent versus 13.9 percent). It also found that the US population is more likely to lead sedentary lifestyles and to be obese.

However, evidence that the US population is slightly less healthy than those in other developed countries does not go far in explaining the \$480 billion the United States spends on health care over and above what would be predicted given the level of its wealth. We therefore conclude that it is the nature and operational features of the US health care system that account for the excess US expenditure.

Disease targets for prevention efforts

This evaluation of the prevalence of diseases of the US population and the cost to treat them brings to attention a group of diseases that would be ideal targets for prevention efforts, as they stand out for the combination of both higher prevalence and high cost to treat. Those include heart conditions, select types of cancer, diabetes, and HIV.

Eleven diseases account for approximately 80 percent (\$52 billion) of the total \$64 billion of additional cost to the US health care system when compared to the peer countries.⁷ This high concentration of cost on the 11 conditions suggests

⁷ France, Germany, Italy, Japan, Spain and the UK.

that prevention actions against these diseases should gain focused attention, due to their high potential cost savings, in addition to the benefits to the overall population health.

Prevention efforts should be pursued despite the seemingly low net cost differential, as it is important to recognize that the low prevalence of some diseases is the consequence of targeted effort (e.g., low prevalence of Hepatitis B is the consequence of vaccination efforts). It is also important to recognize that for some conditions (e.g., HIV), prevention actions must be thought in the long term, as there is no immediate action that will reduce current prevalence ratios.

US HEALTH CARE SYSTEM IS INTRINSICALLY MORE EXPENSIVE

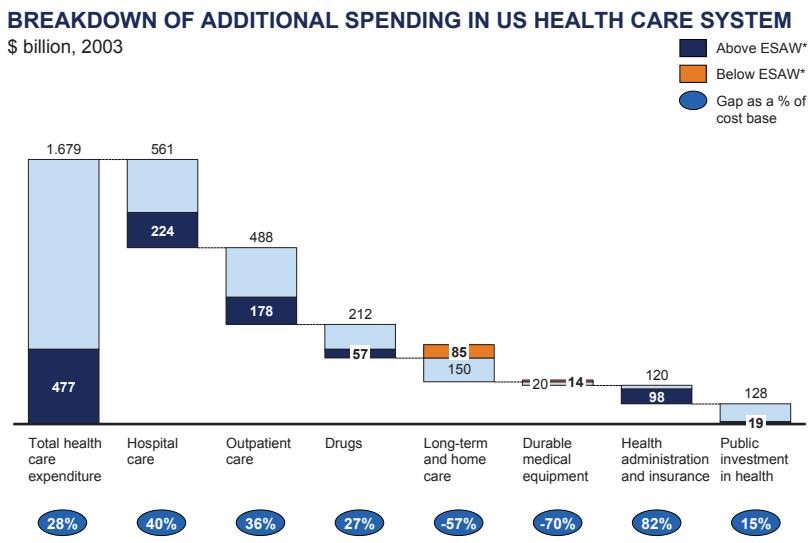
To assess the reasons for the additional US spending on health care, we analyzed the seven categories of health care spending used by the OECD and compared US spending with that of 13 OECD countries. The first five categories relate to different segments of health care payments to providers/suppliers and are (i) hospital care, (ii) outpatient treatment, (iii) drugs, (iv) long-term care, and (v) durable medical equipment. The last two categories map to the intermediation dimensions in the provision care and are (vi) health administration and insurance, and (vii) public investment in health.

SUMMARY OF RESULTS

In five out of the seven spending categories—hospital care, outpatient treatment, drugs, health administration and insurance, and public investment in health—the United States is above ESWA, spending more on health care than would be expected given its wealth. In absolute terms, the highest discrepancy is in hospital care (\$224 billion dollars), followed by outpatient care (\$178 billion). From a percentage standpoint, the largest discrepancy is the administration of the health care system, on which the United States spends six times more per capita than its peer OECD countries (\$412 versus \$72) (Exhibit 10).

For the remaining two categories (long-term care and durable medical equipment), the United States consumes below ESWA. However, this is partly explained by an accounting discrepancy—in the United States, a significant amount of out-of-pocket payments in those categories are not captured in the OECD method of accounting for costs. The relatively young age of the US population is a factor accounting for the rest of the difference. Age adjusting the US population to the OECD average would add \$115 billion of additional spending.

Exhibit 10



* Estimated spending according to wealth.

Source: OECD; MGI analysis

HOSPITAL CARE

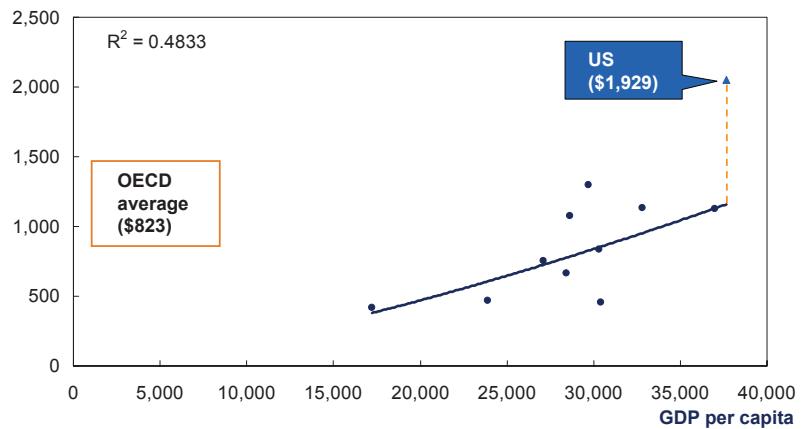
Hospital care spending includes every hospital expense billed to a patient or payor including, but not limited to, bed/ward expenses, surgical procedures, tests, imaging, and inpatient pharmacy. It also includes any physician fees billed directly to the consumer (patient/payor) for seeking treatment in a hospital. The United States currently spends \$1,929 per capita on hospital care compared with the \$1,159 per capita predicted by ESAW. Consistent with findings of other researchers, hospitals capture the largest share of health care spending and have been a major component of recent growth [6, 7]. Spending on hospital care accounts for \$224 billion, or 41 percent, of the total gap between US health care spending and what would be predicted by its ESAW (Exhibit 11). This includes outpatient facilities (ASCs and DIs) that are owned and operated by hospitals both on and off hospital campuses. Centers that are not owned by a hospital are evaluated as part of the outpatient category discussed later.

To further refine our analysis, we divided total hospital care spending into key input categories. Of the \$224 billion additional spending, \$54 billion are in medical labor costs; \$87 billion in operational costs and support functions; \$42 billion in supplies; and \$41 billion in profits, taxes, depreciation, and amortization, in providers' facilities (Exhibit 12).

Exhibit 11

HOSPITAL CARE – COMPARISON WITH OECD COUNTRIES' SPENDING \$ PPP, 2003

Hospital care expenditures per capita



Source: OECD; MGI analysis

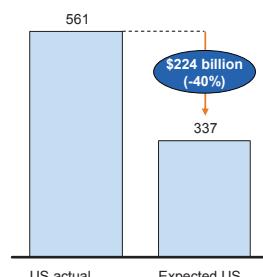
Exhibit 12

HOSPITAL CARE: SUMMARY OF RESULTS

\$ billion, 2003

Above ESAW*

Cost gap



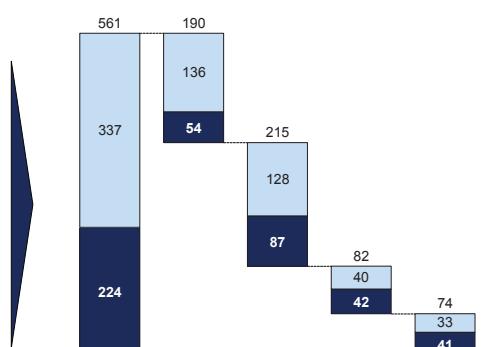
What's included

- Inpatient care (every hospital bill, including tests and inpatient pharmacy)
- Part of physician salaries (when billed direct to patient)
- Outpatient surgery facilities when owned by hospital

* Estimated spending according to wealth.

** Earnings before interests, taxes, depreciation and amortization.

Source: MGI analysis

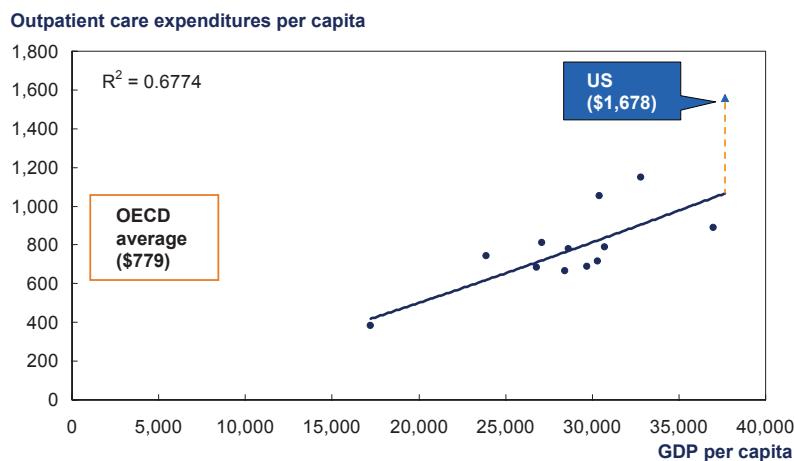


OUTPATIENT TREATMENT CENTERS

Outpatient treatment centers are defined as physician services, dental services, and other outpatient medical facilities that are not owned by hospitals. These facilities include ambulatory surgery centers (ASC) and diagnostic imaging centers (DIC), drug rehabilitation clinics, mental health clinics, and nonphysician offices. The United States currently spends \$1,678 per capita in outpatient care compared with the \$1,066 predicted. This corresponds to a total spend above ESAW of \$178 billion, or 37 percent, of the total additional health care spending in the United States compared to ESAW predictions (Exhibit 13).

Exhibit 13

TOTAL OUTPATIENT CARE EXPENDITURES PER CAPITA
\$ PPP, 2003



Source: OECD; MGI analysis

The breakdown of this spending shows that, of the \$178 billion, \$33 billion is attributable to physician salaries, \$114 billion to facilities charges, and \$38 billion to other outpatient expenses (Exhibit 14). Interestingly, the United States spends \$7 billion less on dental services than would be predicted by the ESAW (Exhibit 15). This is likely due to differences in health system benefit designs.

To map the cost breakdown and understand the root causes of higher outpatient facility spending, we analyzed the cost structure of representative ASCs and DICs using proprietary financial statements from major inpatient and outpatient health care systems, as well as expert interviews. For each of the cost catego-

Exhibit 14

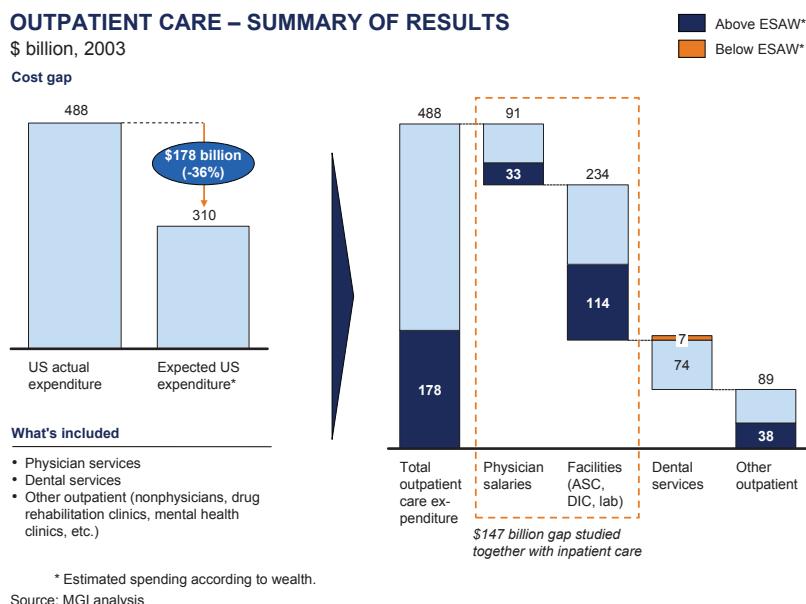
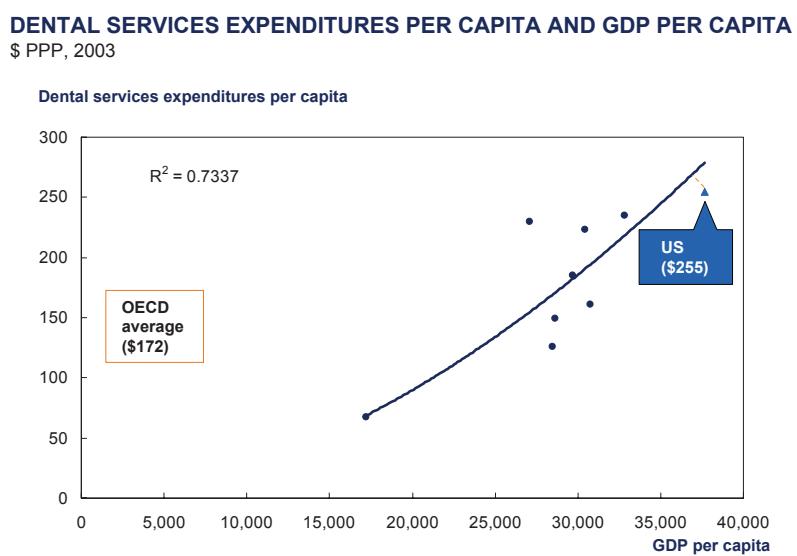


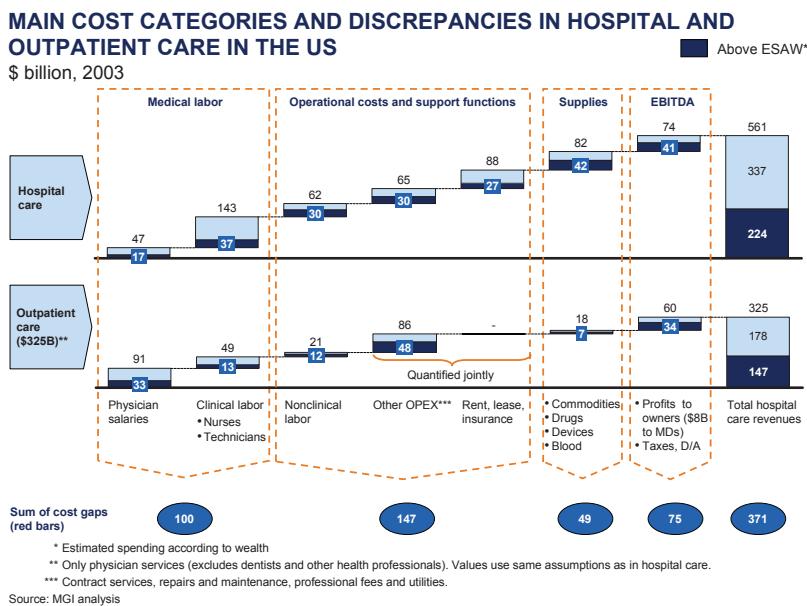
Exhibit 15



ries—medical labor, operational expenses, supplies, and EBITDA⁸—we sought to address potential discrepancies between them in volume, price, or operational efficiencies. We used the same ESAW methodology to determine expected expenses, with OECD data.

Grouped together, hospital care and physician-staffed outpatient facilities accounted for additional spending above ESAW of \$371 billion. Our results show that operational costs and support functions account for the largest discrepancy of \$147 billion above ESAW; medical labor accounts for \$100 billion; EBITDA, \$75 billion; and supplies, \$49 billion (Exhibit 16).

Exhibit 16



Accounting for higher spending in hospitals and outpatient facilities

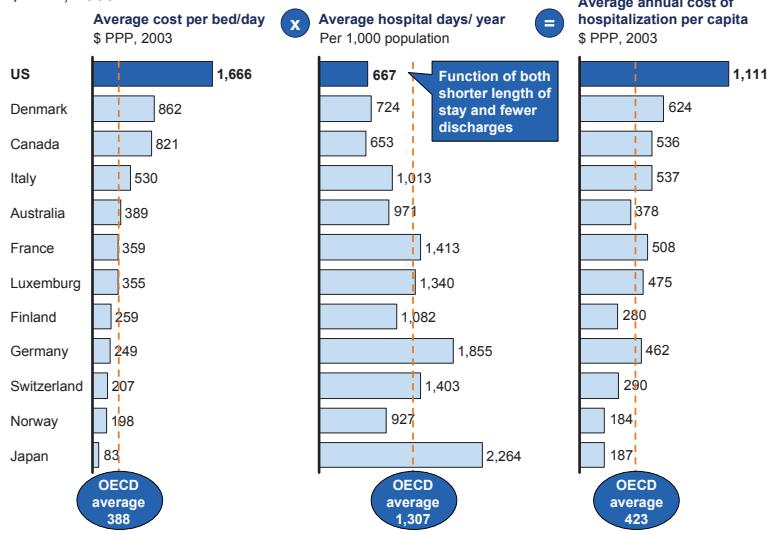
Cost and volume of hospital and other provider procedures. To provide an overview of hospital spending, we evaluated three areas: (i) hospitalization cost, (ii) available capacity (which could impact the cost charged for procedures), and (iii) the volume of inpatient surgical procedures. The annual cost of hospitalization per capita in the United States is the highest of the countries analyzed and 2.6 times higher than the OECD average (Exhibit 17).

8 EBITDA stands for Earnings before Interest, Taxes, Depreciation, and Amortization.

Exhibit 17

DRIVERS OF HIGH HOSPITALIZATION SPEND IN THE UNITED STATES

\$ PPP, 2003



Source: OECD; MGI analysis

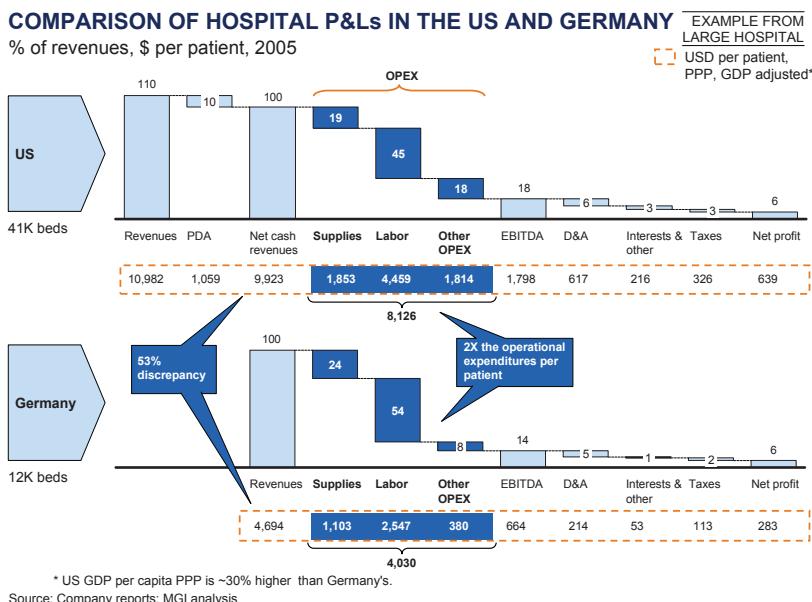
Since hospital costs are a function of the average cost per bed per day and the average number of hospital days per year, we evaluated these values separately. The results show that the average number of hospital days per year in the United States is relatively low—second only to Canada. However, the hospital cost per day in the United States is the highest of all the countries we analyzed, and 4.3 times higher than the OECD average.

Comparison of hospital revenue per patient for two large hospitals—one in the United States, the other in Germany—shows that, consistent with the cost discrepancy calculated for hospital care, the US hospital obtains twice as much revenue per patient (Exhibit 18). This discrepancy is even higher if we consider that a significant share of physician compensation for hospital treatment in the United States is not included in hospital bills (as opposed to Germany), but is billed directly to the patient. Thus, the high relative cost is explained not by the volume of hospitalizations, but purely by the price of hospital stays.

In addition to the high average cost of hospital stays, there is significant price dispersion in procedures even within a particular geographic market that can range from 26 percent to more than 200 percent [8]. For example, mothers going to medical facilities in Orange County, California, to have their new babies delivered face a 237 percent variability in price, despite this being a routine procedure with typically predictable costs. Hospital pricing and its discrepancies

have been largely discussed by several authors [9-11]. It has been argued that the high pricing is necessary to cross subsidize for the uninsured [12]. Other authors argue that it is the result of absence of price and quality competition among providers [13].

Exhibit 18



In exploring the extra costs of US hospital and outpatient care, we also evaluated hospital capacity. The OECD uses total acute care beds per 1,000 patients as a measure of capacity, and, on this measure, the United States appears to have a relatively low bed capacity (2.9 beds per 1,000 population versus the OECD average of 4.2 beds per 1,000). However, the low average length of stay (number of hospital days per year) and the fewer hospital discharges in the United States must be taken into account in an analysis of bed capacity (Exhibit 19). A plot of hospital days per year per person versus acute care beds per person in different countries shows that the United States actually has an overcapacity of hospital beds (Exhibit 20). This conclusion is supported by empirical observations that hospitals in comparison countries tend to average 60 percent to 70 percent utilization rates while US utilization is typically between 50 percent and 60 percent. Because unused—and therefore unstaffed—beds incur minimal variable costs, it is worth noting that simply removing an unused bed from a facility will not be effective in reducing hospital costs. Reductions in capacity will only secure significant cost savings if there is hospital consolidation, or the closure of facilities, both of which reduce fixed costs.

Exhibit 19

HOSPITAL CAPACITY VS. EFFICIENCY (1/2)

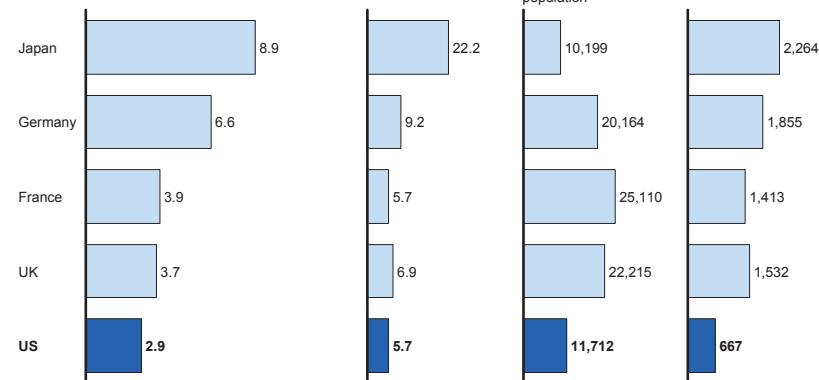
2003

United States has less physical capacity than peer countries ...

... but that is explained by higher hospital efficiency and lower utilization

Acute care beds/ 1,000 population, 2002

ALOS* days Discharges Per 100,000 population Hospital days/year Per 1,000 population



* Average length of stay.

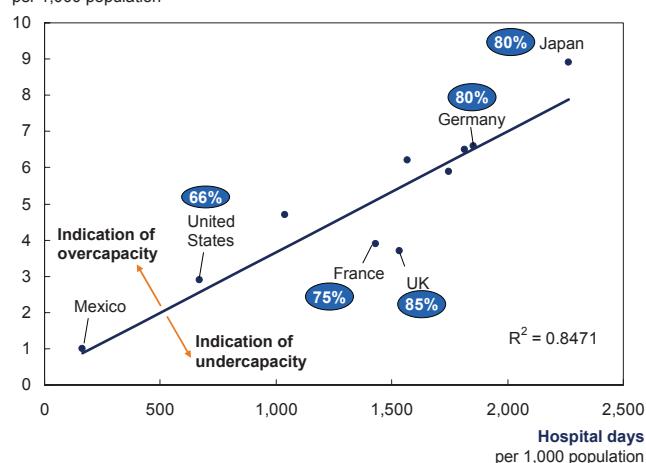
Source: OECD; MGI analysis

Exhibit 20

HOSPITAL CAPACITY VS. EFFICIENCY (2/2)

Acute care beds occupancy

Acute care beds per 1,000 population



- Unused beds in one hospital are not staffed and have minimal variable cost
- Savings can only be captured if there is hospital consolidation or closure of facility

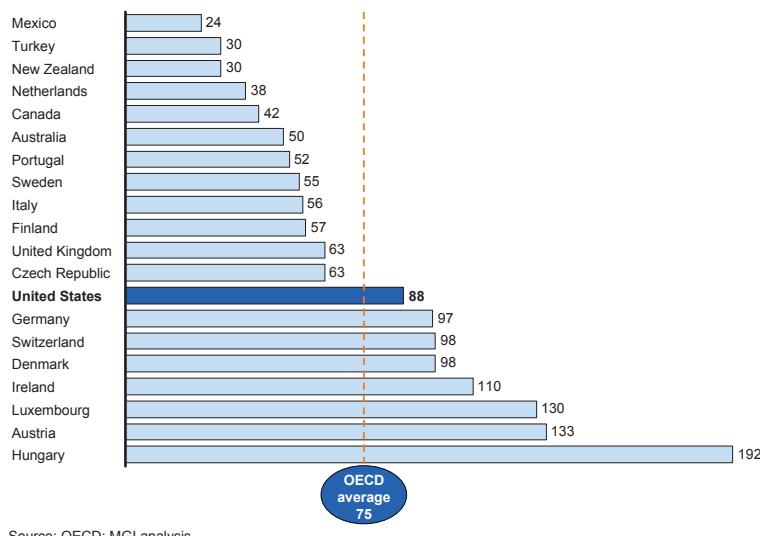
Source: MGI analysis

Having examined various aspects of the cost of hospital procedures, we evaluated volume—in particular, that of inpatient surgical procedures. The United States performs 88 procedures per year per 1,000 of the population compared with the OECD average of 75 (Exhibit 21). This bias towards more procedures contributed to higher health care spending in the United States.

Exhibit 21

INPATIENT SURGICAL PROCEDURE VOLUMES

Procedures per 1,000 population, 2002



Source: OECD; MGI analysis

Our results are in agreement with those reported by others that examine particular diseases. For example, coronary heart disease is the number one cause of mortality in both the United States and the United Kingdom. In both countries, the most common surgical treatments for coronary heart disease are coronary bypass and angioplasty. Yet, Aaron [4] showed that these procedures are performed more than four times as frequently in the United States. Moreover, these additional procedures do not translate into favorable survival rates. In 1968, the age-adjusted mortality rate from heart disease was 25 percent lower in the United Kingdom than in the United States; by 2000, it was 7 percent higher.

Operational costs and support functions. In this category, we included all nonclinical labor, all operational expenses (OPEX),⁹ the renting and leasing of medical equipment, and insurance for medical malpractice.

⁹ In operational expenses, we include contract services, repairs and maintenance, professional fees, and utilities.

Nonclinical labor. As with other businesses, hospitals employ large staffs who are indirectly involved with the services provided. We have divided these employees into three groups. First, there are those who support clinical labor: people to perform registration and scheduling, supply management, provide food, clean rooms (often outsourced), and attend to billing and medical records. Second, there are the administrators, such as the chief executive officer and chief operating officer for each location, as well as “corporate center” staff for all the systems involved, including IT, human resources, and finance and accounting. Finally, also at the corporate center, there are people to negotiate managed-care contracts, handle billing and revenue cycle, and perform quality oversight and compliance tasks. As we discuss below, the higher expenditure on nonclinical labor stems in part from the high operational expenses of both hospitals and outpatient facilities.

Operational expense and rent and lease of medical equipment. OPEX involves not only the cost of hospital administration but also its running costs. The operational inefficiencies of hospitals and outpatient centers are driven by different factors.

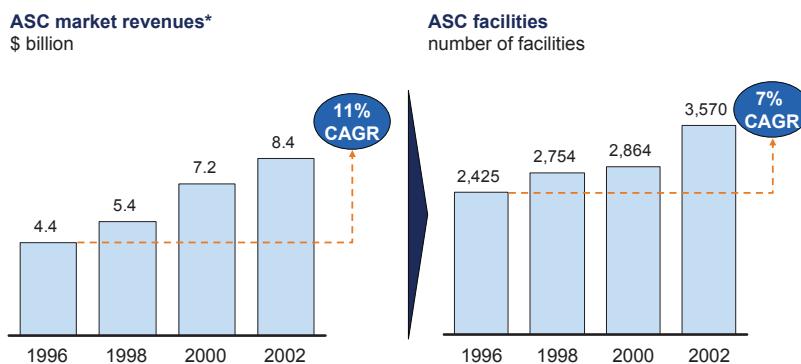
In hospitals, they arise from a combination of (a) the mix of cases treated and (b) higher costs related to miscellaneous staff and support functions. In the United States there has been a significant increase in the number of outpatient-associated surgery centers (Exhibit 22) and a migration of health care from hospitals to ASCs and DICs (Exhibit 23) and, in simpler cases, physicians’ offices. This has increased the acuity of the inpatient hospital-case mix and thus contributed to driving up hospitals’ OPEX when compared with other OECD countries. This trend is driven by changes in both the demand and the supply of health care.

From the demand perspective, several factors are contributing to the growth of outpatient care, which accounts for nearly all of the recent volume growth in US health care delivery. One factor is increasing demand from an aging population. However, beyond such demographic trends, several forces are working to augment outpatient demand. These include changes in accepted medical practice, which are enabling procedures that used to be performed on an inpatient basis to be carried out on an outpatient basis; technology innovations that create new procedures (for instance, new devices and minimally invasive surgical techniques); payors and physicians shifting patients from higher-cost inpatient settings to lower-cost outpatient facilities; and additional capacity—since incremental outpatient capacity has been shown to generate demand.

As a consequence, hospitals in the United States are left with a proportionately higher mix of costly procedures (such as complicated medical patients, trauma, and complex surgery), which necessitate higher operational expenses. This fact may partially explain the two times higher operational expenditure observed in Exhibit 18.

Exhibit 22

GROWTH OF THE ASC MARKET IN RECENT YEARS



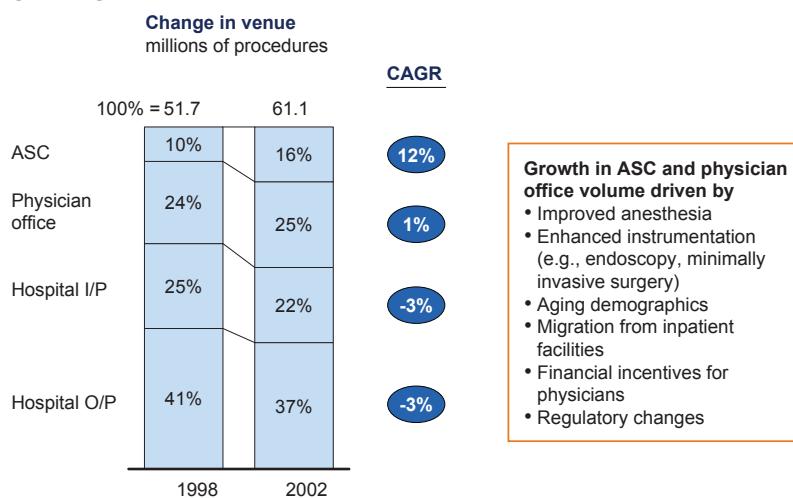
* Estimated payment to facility based on Medicare spending on ASCs (Ambulatory Surgery Centers) and extrapolation using USPI, AmSurgeon, and HealthSouth as industry proxy.

Note: Ongoing growth roughly estimated to be 7%-11% annually.

Source: MedPAC data book; annual reports; Verispan; press clippings; MGI analysis

Exhibit 23

MIGRATION OF CASES FROM HOSPITALS TO ASCS AND PHYSICIAN OFFICES



Source: Verispan; MGI analysis

Meanwhile, in outpatient centers, higher OPEX are explained by a combination of (a) inefficient and subscale operations and (b) a lack of value consciousness on the part of consumers and providers.

From the perspective of financial intermediation, these centers are approximately 20 to 30 percent less expensive than hospitals. Therefore, at least superficially, the trend toward outpatient centers should represent a high value-added proposition, producing lower cost, increased access, and equivalent, or better, quality. However, as we shall explain, these outpatient centers offer a complex interaction of incentives, capacity, and costs that casts doubt whether their increasing importance to the US health care system as a whole is, in fact, a net benefit from a cost containment perspective.

The process of owning and operating medical equipment associated with imaging and minor surgeries has changed over time. In the past, regulatory restrictions and the need for high upfront investment meant that only large facilities were typically able to afford the equipment necessary to provide tests such as MRI¹⁰ and CT¹¹ scans. For this reason, such services were almost exclusively provided in large hospital settings. However, high procedure reimbursement coupled with low operating costs made it possible for freestanding outpatient centers to operate at costs that were 20 to 30 percent lower than those of hospitals. Changes in regulation and high profitability encouraged large investors—such as JPMorgan and others—to invest in outpatient capacity.¹²

Further changes in regulation enhanced the growth in the number of outpatient centers. In the United States, physicians can hold equity in medical service centers. While there are rules ostensibly designed to prevent abuses (such as payments for referrals), current Stark¹³ regulations enable practitioners to refer patients to centers in which they have ownership interests, and physician-owners are entitled to any surpluses generated at these centers. Changes in the business model of equipment manufacturers have further facilitated this growth—for instance, leasing options make it possible for smaller physician-owned centers, or even physician offices, to provide these services (e.g., CT and MRI scans;

10 Magnetic resonance imaging.

11 Computerized tomography.

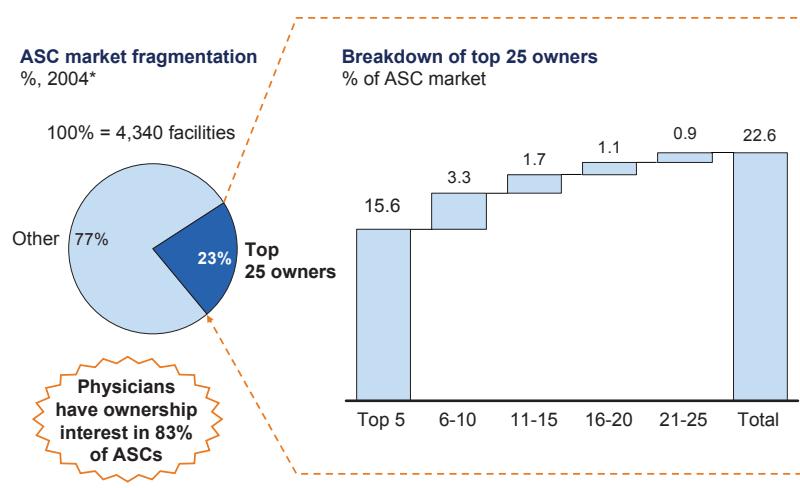
12 JP Morgan owns MedQuest.

13 The Stark Law prohibits physicians from making referrals for certain “designated health services” (DHS) payable by Medicare to an entity with which the physician has a financial relationship, unless an exception applies. The Stark Law prohibits entities from submitting claims to Medicare for DHS furnished as a result of a prohibited referral. Familiar exceptions to the Stark Law include the exception for in-office ancillary services and the exceptions for office space and equipment rentals.

nuclear medicine) and still be profitable (Exhibit 24). Furthermore, manufacturers of imaging and diagnostic equipment advertise to physicians the financial advantages of pursuing additional testing. This has resulted in subscale operations and significant redundancy in capacity. For example, to cover the cost of leasing an MRI machine, an office needs to perform approximately four scans per day per scanner. This compares with the 20 or more scans per day per scanner performed in traditional large hospital settings.

Exhibit 24

FRAGMENTATION IN OWNERSHIP OF ASCs



* Estimated midyear 2004.

Source: Verispan; American Association of ASCs; MGI analysis

The high profitability of the procedures associated with the excess installed capacity (the United States has three to six times more scanners than Germany, the United Kingdom, France, and Canada), combined with low utilization, further increases the pressure to inflate the number of tests and scans ordered by doctors in order to justify the investment made. It is natural that outpatient centers will try to break even individually—which results in an overall pressure for higher volumes and use. The vicious cycle is not easily interrupted by reduction of reimbursement fees, since revenue levels can be maintained through clinical discretion driving incremental demand.

To examine this possibility, we analyzed the prevalence and use of MRI and CT scanners—although similar results may apply to other imaging procedures such as ultrasound, PET¹⁴ scanners, and X-rays. The United States has approximately

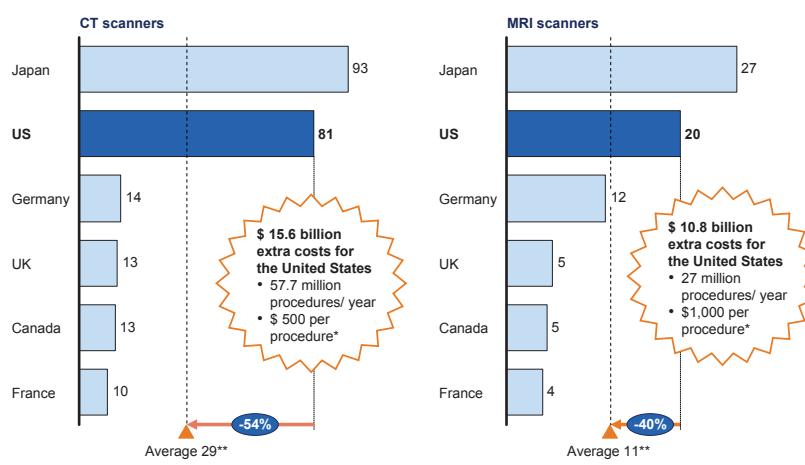
14 Proton emission tomography.

54 percent more CT scanners and 40 percent more MRI machines per million of population than other developed nations such as Germany, the United Kingdom, Canada, and France. Only Japan has more scanners per capita than the United States (Exhibit 25). Given the direct correlation between CT and MRI scanners and the volume of the procedures they perform (Exhibit 26), we conclude that excess capacity translates into some \$40 billion of additional cost to the US health care system. It is projected that, in 2006, one out of every four US citizens will receive a CT scan (Exhibit 27). In addition, prices charged to commercial insurers are usually higher than those charged to Medicare (Exhibit 28).

Exhibit 25

SCANNER CAPACITY: UNITED STATES VS. OTHER OECD COUNTRIES

Scanners per million population, 2002



Source: OECD; Frost and Sullivan; MGI analysis

These conclusions are in line with other research showing that self-referring physicians order two to eight more scans than the average physician¹⁵ and evidence that not all of these are necessary. An NIA¹⁶ audit concluded that 30 to 40 percent of diagnostic imaging is inappropriate or noncontributory. The fact remains that many outpatient treatments and diagnostic decisions are ambiguous and reliant on clinical judgment—the case for any particular procedure is not clear-cut—and outpatient facilities and ownership structures create incentives toward more interventional and procedure-oriented care approaches.

15 Pennsylvania Health Care Cost Containment Council.

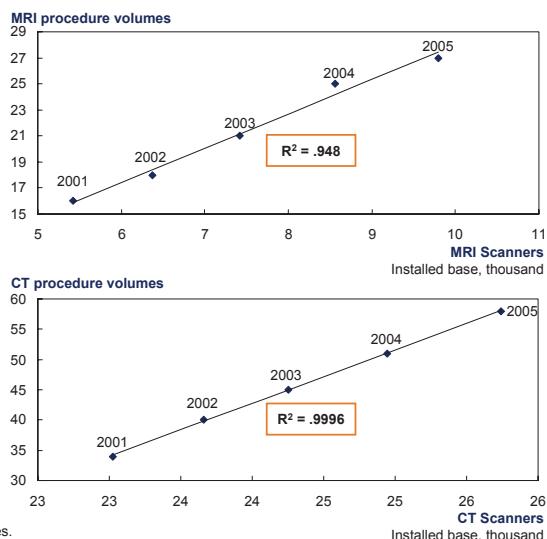
16 National Imaging Association.

Exhibit 26

CORRELATION BETWEEN CT/MRI SCANNERS AND PROCEDURE VOLUMES

million

- Self-referring physicians order two to eight times more scans than average, probably due to high cost of acquisition
- NIA* audit concluded that 30% to 40% of diagnostic imaging is inappropriate or noncontributory

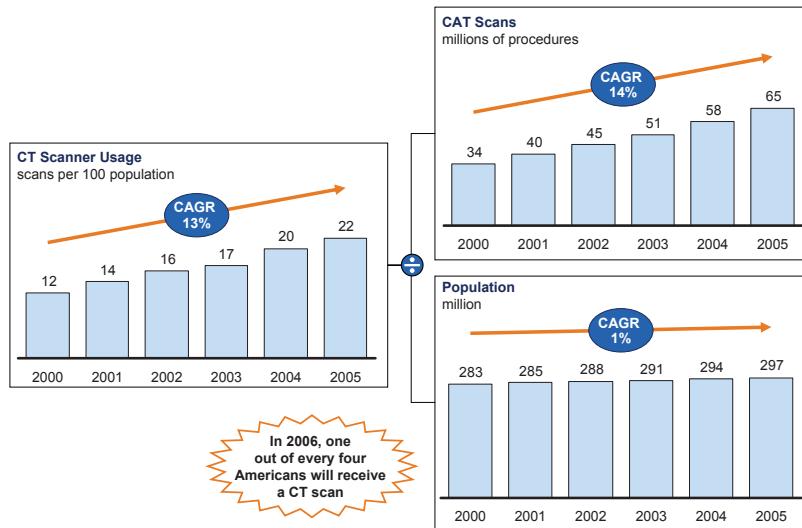


* National Imaging Associates.

Source: Frost and Sullivan; Pennsylvania Health Care Cost Containment Council; MGI analysis

Exhibit 27

US CT SCAN CONSUMPTION



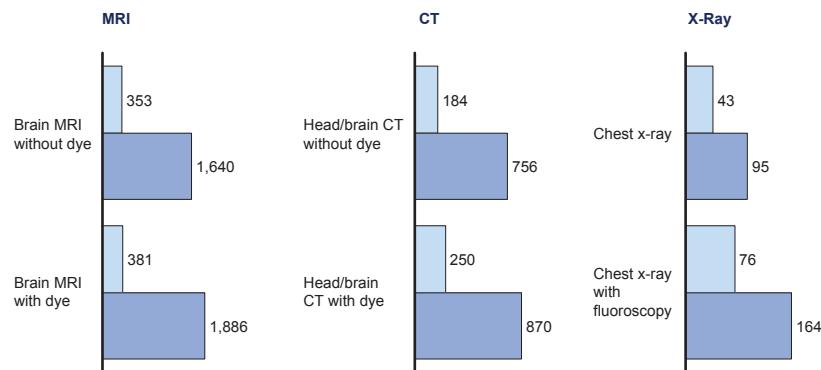
Source: Frost and Sullivan; US Census; MGI analysis

Exhibit 28

REIMBURSEMENT FEES FOR MEDICARE AND COMMERCIAL PAYORS IN SELECTED SCANNING PROCEDURES

\$, 2006

Medicare rate
Commercial payor
rate (50th percentile)



Source: Centers for Medicare & Medicaid Services; MGI analysis

Ultimately, the operational expense and rent and lease of medical equipment have become a circular relationship. The ease of building the centers and renting and leasing equipment, allied with the compensation benefit to physicians, creates demand for more tests. However, this process incurs more operational costs. More clinical labor is necessary to care for patient in outpatient facilities and more nonclinical labor is required—people to schedule tests, to maintain the machines, to clean the rooms, and to bill the insurance to support these facilities.

In a study comparing the United States and the United Kingdom, Aaron [14] showed that the United States has four times the number of CT scanners per person, and performs four times the number of scans per person. The authors note that, in the United States, CT scans are routinely requested by ER physicians while, in Britain, only leading trauma centers have CT equipment. It has been argued, including by British radiologists, that the United States scans more people than is medically, or economically, warranted and therefore wastes a great deal of money on equipment and tests that produce little benefit [7]. It is a similar picture with MRI scanners. Catton et al [15] and others have argued that the development and proliferation of expensive medical technologies such as CT scanners and MRIs (as well as expensive pharmaceuticals) has been a significant factor driving up the cost of US health care.

Similar incentives are also in play for laboratory and diagnostic testing, distorting underlying demand for such services and negatively affecting the value consciousness of doctors and their patients, neither of whom are often aware of how much these tests costs. Because patients incur very low out-of-pocket costs for lab tests, there is little incentive for them to question the clinical value of tests ordered. Combined with this, payors have done little to manage the use of lab tests because they are a relatively small cost category and thus there is little incentive to manage anything but the most expensive diagnostics (e.g., PET scans, genomics assays).

For more complex diagnostic tests, doctors frequently benefit from incremental procedures. As is the case with MRI imaging and ambulatory surgery, many physicians offer in-office testing services (such as stress tests, nuclear medicine, and PFTs¹⁷). Physicians usually profit from the operating margins of these tests—and this creates an incentive to use the tests when evidence-based indications are not clear. As for patients, they find co-located diagnostics convenient and reassuring and, because they incur very low out-of-pocket expenses, they are not motivated to question the incremental value of additional tests. Most patients operate with the mind-set that more testing is reassuring.

Kwok and Jones [16] identified several reasons—both clinical and administrative—for excessive numbers and repetition of tests. In particular, they reported that providers: (i) are unaware that tests have been performed or fail to check for previous results; (ii) have a poor understanding of the value or timeliness of a test (e.g., tumor marker tests); (iii) overemphasize surveillance; (iv) are inexperienced; (v) are faced with having to comply with ill-conceived or outdated test-ordering procedures; (vi) fear malpractice suits; and (vii) feel the need to respond to patients who demand unnecessary tests.

The current reimbursement structure provides an incentive for using expensive medical technologies. This creates an oversupply of such technologies and, as we have already described, this increases demand, leading to a self-perpetuating cycle of consumption. For example, Bryce and Cline [17] found an oversupply of five medical technologies in Pennsylvania. Consistent with our results, the authors report that privately owned MRIs perform more scans than hospital-based units, suggesting inappropriate use. Outpatient oversupply results in more demand.

Where demand is less elastic, oversupply creates unused capacity. Organ transplant units are one example. They have become more numerous, yet run below

¹⁷ Pulmonary function tests.

capacity because the supply of organs is limited. Machines for extracorporeal shock wave lithotripsy (introduced in 1984 as a cost-effective alternative to surgery to treat kidney stones) doubled in number between 1988 and 1994; however, treatments increased by only 40 percent as there is a finite number of people with kidney stones who require treatment. Uses per machine therefore decreased. Another example is cardiac catheterization labs whose number increased by 90 percent between 1988 and 1994 but whose utilization grew by only 41 percent.

Several authors have argued that the diffusion of technologies in the United States has outpaced any ability to evaluate them and assess their value [16, 18, 19]. Moreover, coverage by health insurance plans are normally based on evidence criteria, rather than cost-effectiveness criteria [20-22]. While some innovations truly represent major improvements in outcomes many others add cost and complexity with marginal impacts on quality. Chernew [23] argues that medical services and new medical technologies create value that people desire as manifest by demand. However, the opportunity to purchase these services does not imply that efforts to reduce wasteful practices in the health care sector can be ignored.

Insurance for medical malpractice. “Defensive medicine” is the name given to tests or other procedures that are requested, or performed, more to protect physicians from lawsuits than as value-added services to the patient. In addition to the actual cost of unnecessary tests or procedures, physicians must purchase medical malpractice insurance—an additional fixed operating cost, which is recovered in fees and prices. It is estimated that doctors in the United States pay approximately \$27,500 per year for coverage.¹⁸ Considering the United States has approximately 700,000 doctors, this means that approximately \$20 billion in insurance is paid. No other country pays such a premium to insulate physicians from malpractice suits. Payors ultimately pay for malpractice insurance, as well as for any settlements or awards against doctors and hospitals. Interestingly, government-run integrated systems (including the Veterans Administration and the Military Health Service) have indemnified physicians against lawsuits. While the US malpractice system is extraordinary, it is only a small contributor to the higher cost of health care in the United States.

Medical labor. Traditional medical labor capacity evaluations measure the number of hospital staff per portion of the population (usually per 1,000 people). But medical labor capacity should also take into account the staff and services that support physicians. In evaluating the adequacy of capacity and the compensation

18 GAO report on premiums, June 2003.

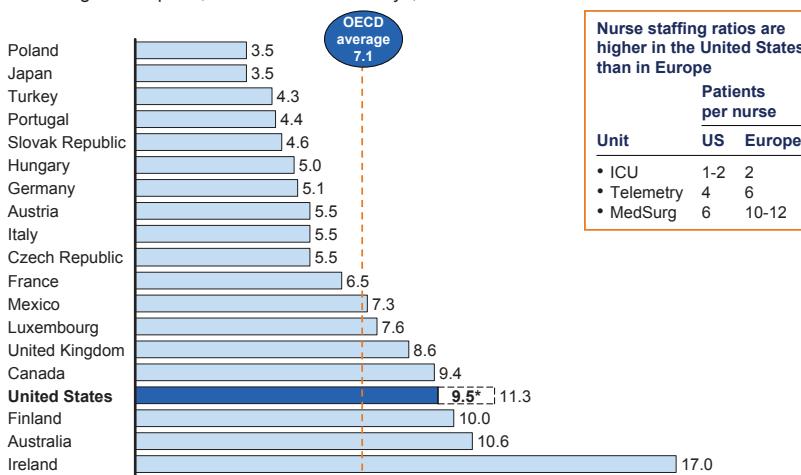
of medical professionals, we have looked beyond the readily available data to understand the impact of the structure of the US health care system on the “pricing” and consumption of medical labor.

Nurses. The United States spends more on nurses than would be predicted from the ESAW. However, this additional spending comes less from nurse salaries and more from the manner in which nurses are employed and utilized in the United States. By conventional calculations, the number of nurses per capita in the United States is 7.9 nurses per 1,000 population. This compares with the OECD average of 8.1. However, as discussed above, the United States has lower than average hospitalization stays, which is not taken into account in these numbers. We therefore calculated nurse utilization per acute care bed day, a measurement that should theoretically reflect the lower number of hospital days in the United States. From this perspective, the United States employs 9.5 nurses per 1,000 acute bed day against an OECD average of 7.1 it should be noted that this ratio excludes nurses who are working in sub-acute nursing facilities or are not attending to an acute bed (Exhibit 29).

Exhibit 29

NURSE UTILIZATION PER ACUTE CARE BED DAY

Practicing nurses per 1,000 acute care bed days, 2002



* United States includes nurses involved in patient care only; excludes nurses employed by industry or noncare social programs (17% of total).

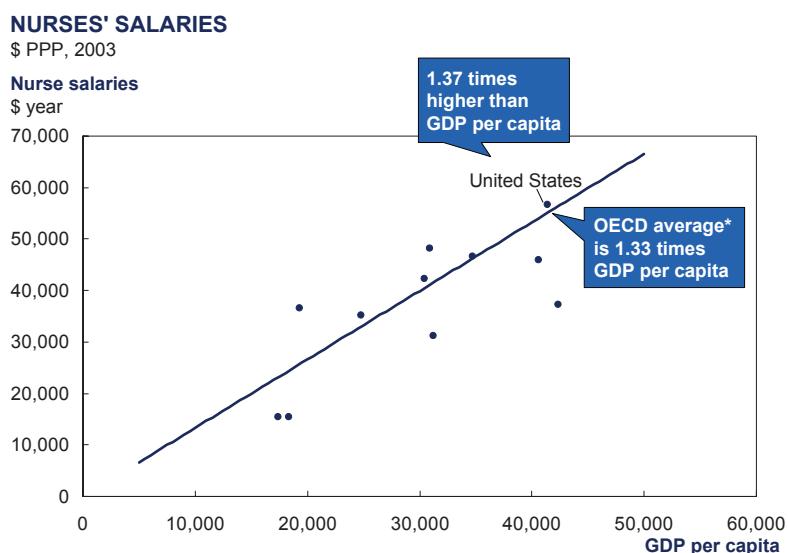
Source: OECD; expert interviews; MGI analysis

Further analysis of the data reveals that the higher ratio in the United States is explained by the staffing ratios applied to nurses in US hospitals. While Europe allows as many as 10 to 12 patients to be cared for by a nurse in medical-sur-

gery wards, the United States' average ratio is six to eight patients per nurse.¹⁹ The generous nurse to patient ratio in the United States is largely the result of three factors. First, higher inpatient acuity necessitating more nursing care. Second, a combination of regulation and accreditation rules put in place under the presumption that a greater number of nurses improve quality of care. Third a staffing system that favors highly trained nurses doing lower value-added jobs (less delegation). These results are in agreement with a study by Bonds et al [24], which shows that between 1989 and 1998, mean registered-nurse staffing per 100 occupied beds increased almost 59 percent.

Our evaluation of nurses' salaries shows that while US nurses indeed receive higher absolute compensation than their peers in other OECD countries, their salaries are consistent with the additional wealth of the United States (Exhibit 30). So, although nurses' salaries contribute to the high cost of the US health care system, this is due not to their nominal salaries but to the number of nurses employed.

Exhibit 30

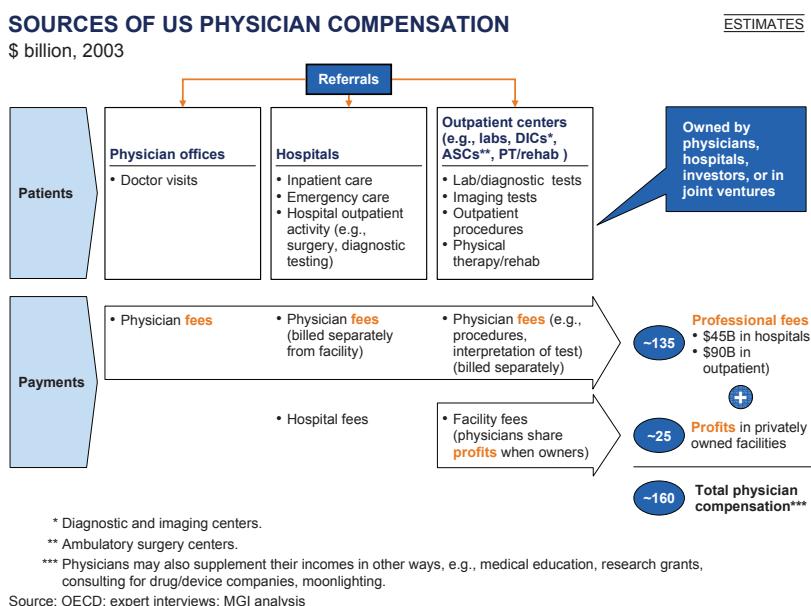


Physician compensation. Higher spending on physicians' compensation is due both to higher remuneration (in the form of salaries and/or professional fees) relative to other OECD countries, as well as to income from equity—profits physicians earn from their ownership or part-ownership of medical facilities.

19 Survey of McKinsey health care experts.

Physicians in the United States see patients in three settings: office visits; hospitals; and through freestanding outpatient centers where tests, procedures, and surgeries are performed (Exhibit 31). Total compensation varies based on the location of the encounter. In regular office settings (e.g., for routine visits and checkups) or for visits in a hospital (e.g., while seeing patients in a hospital bed), physicians usually receive payment in the form of fee-per-service.²⁰ In outpatient centers—similar to hospitals—two bills are generated: one for physicians' fees and the other for facility fees. Because these facilities are largely owned by physicians, the profit is shared among the physician-owners [25]. This creates an incentive for physicians to treat patients in these locations particularly when they are co-owners (Exhibit 32) and contributes to the fact that US physicians' compensation is higher than the OECD average.

Exhibit 31

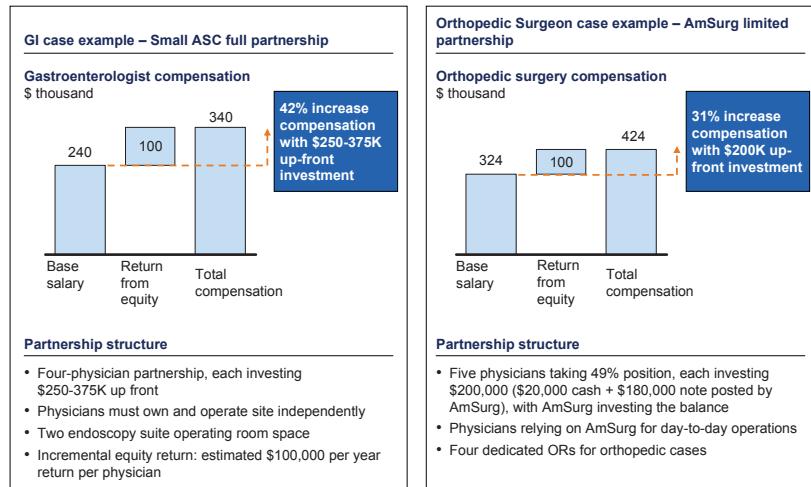


Within the OECD countries, physicians' compensation is 4 times GDP per capita on average for specialists and 3.2 times GDP per capita for generalists. In the United States, these numbers are 6.6 times and 4.2 times, respectively (Exhibits 33 and 34). This translates to physicians in the United States making approximately twice as much as their peers in OECD countries (Exhibit 35), in absolute terms. Considering that the United States has approximately 434,000 specialists with an annual salary of \$274,000, and 244,000 generalists with

20 Hospital fees are billed separately and revenues go directly to the hospital.

Exhibit 32

INCENTIVES FOR PHYSICIANS TO PERFORM CASES WHERE PARTNERSHIPS EXIST



Source: Physician interviews; AmSurg; Salary.com; AMGA survey; MedNews 3Q 2003; MGI analysis

an average annual salary of \$173,000, this result in an additional cost to the system of \$58 billion (Exhibit 36).

Two justifications are common for higher physician salaries in the United States: the first is the ratio of specialist to generalists, and the second is the cost and length of their education [26]. We have found that contrary to common belief, the United States has the same distribution of generalists and specialists as other OECD countries—64 percent to 36 percent (Exhibit 37). Similarly not convincing is the second argument because other US professionals undergo the same length of training and investment but are not as well compensated (Exhibit 38).

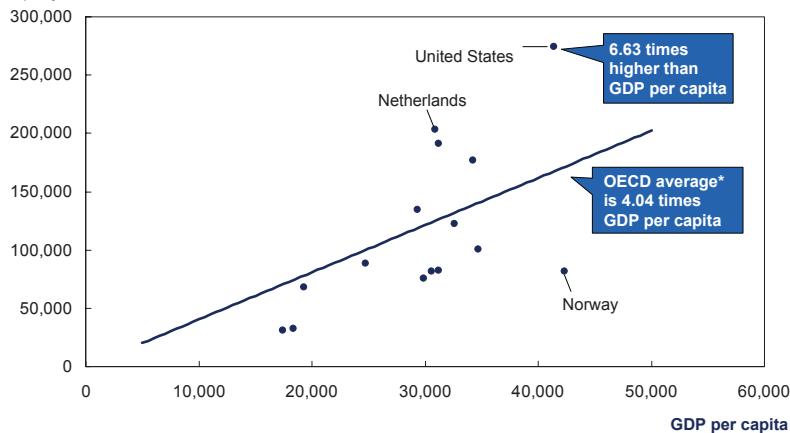
The multiple forms of physician remuneration in the United States create at least two distortions in the system. First, as US physicians are compensated on a fee-for-service basis, there is an incentive for them to see more patients and do “more and (more costly) procedures” than are done in other countries [25, 27]. It is therefore no surprise that the United States has among the highest number of physician consultations of any country (Exhibits 39). It is an open question how many of these are necessary; as described by Aaron et al [4], physicians in the United States who are paid on a fee-per-service basis must aggressively recruit patients. In addition, as we have suggested, if physician-owners self-refer, outpatient facilities create their own demand, which partially explains the additional number of imaging and diagnostic tests performed in the United States.

Exhibit 33

PHYSICIANS' COMPENSATION – SPECIALISTS \$ PPP, 2003

Physician compensation – specialist

\$ per year



* OECD average, excluding developing countries.

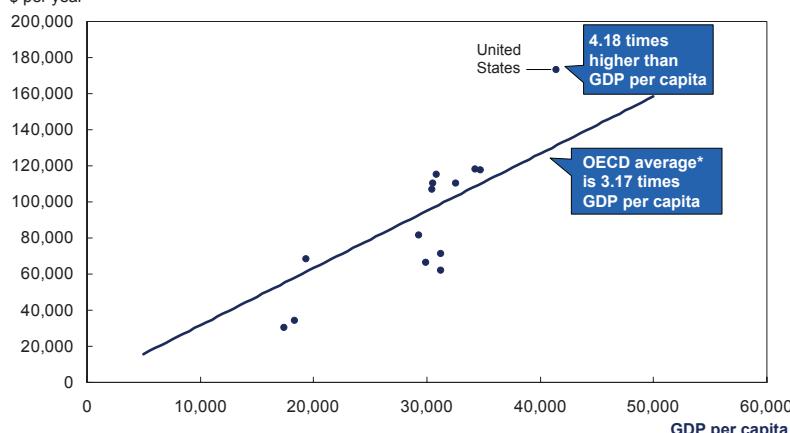
Source: OECD; MGI analysis

Exhibit 34

PHYSICIANS' COMPENSATION – GENERALISTS \$ PPP, 2003

Physician compensation – generalist

\$ per year

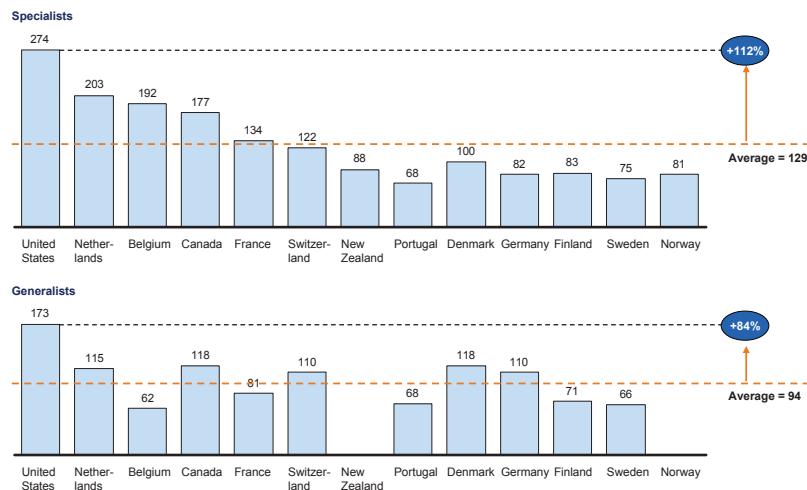


* OECD average, excluding developing countries.

Source: OECD; MGI analysis

Exhibit 35

PHYSICIAN SALARIES \$ thousand per year PPP, 2003



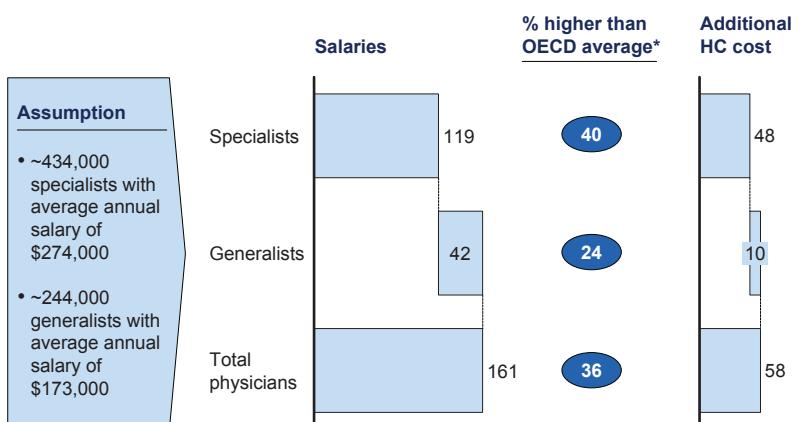
* OECD average, excluding developing countries.

Source: OECD; MGI analysis

Exhibit 36

ADDITIONAL HEALTH CARE COST DUE TO HIGH PHYSICIAN COMPENSATION

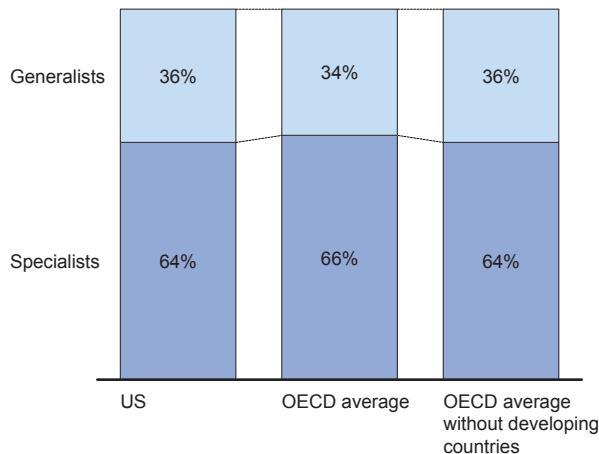
\$ billion PPP, 2003



* Developed countries only.
Source: OECD; MGI analysis

Exhibit 37

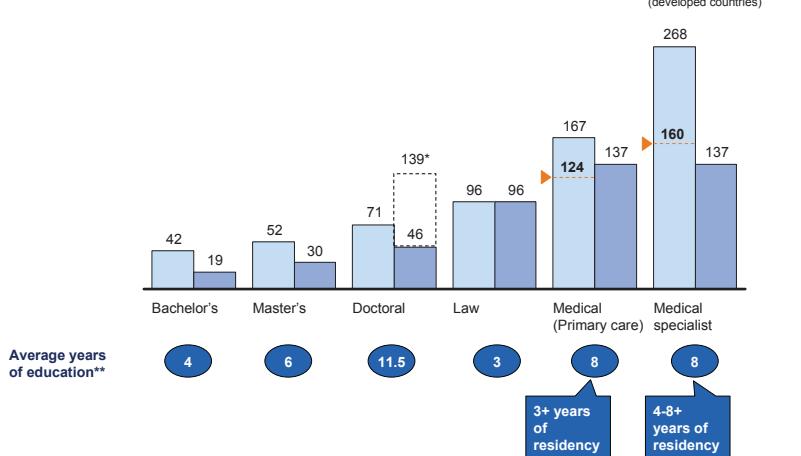
DISTRIBUTION OF SPECIALISTS AND GENERALISTS IN THE US vs. OECD
2005



Source: OECD; MGI analysis

Exhibit 38

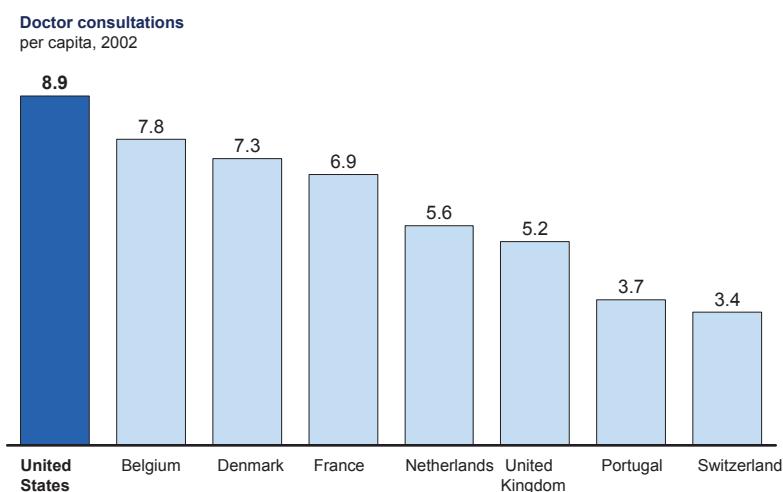
AVERAGE SALARIES COMPARED TO COST AND LENGTH
OF EDUCATION FOR SELECTED PROFESSIONALS
\$ thousand, 2003



Source: NCES; Stafford loan program; BLS; MGI analysis

Exhibit 39

DOCTOR CONSULTATIONS PER CAPITA



Source: OECD; MGI analysis

EBITDA.²¹ Private ownership in the United States health care system adds another \$75 billion of cost to the US system that isn't incurred in the publicly owned systems of the comparison OECD countries. In the United States, significant shares of providers (27 percent of beds) are for-profit organizations and, additionally, as a consequence, they pay taxes on their earnings (Exhibit 40).

Publicly available data show that US health care providers make profits of the order of about \$58 billion a year.²² Of these, \$27 billion are attributed to the spending above ESAW due to the higher returns on investment in the United States than peer OECD countries. The rationale to estimate the gap was to compare the returns on invested capital of private providers in the United States with the government cost of capital in OECD countries (those with public systems). Within the \$27 billion, \$8 billion is returned to physicians as part of their compensation from their equity positions.

At an average tax rate of 33 percent for the system's for-profit segment, this generates approximately \$25 billion in taxes that are not incurred in the largely publicly owned health care systems in comparison OECD countries. The taxes were estimated excluding the profits in nonprofit hospitals.

21 For this study, we excluded provision for doubtful accounts (not included in OECD accounting) and charity care.

22 American Hospital Association used as source for hospital profits, and sample outpatient centers' income statements used for outpatient facilities profits.

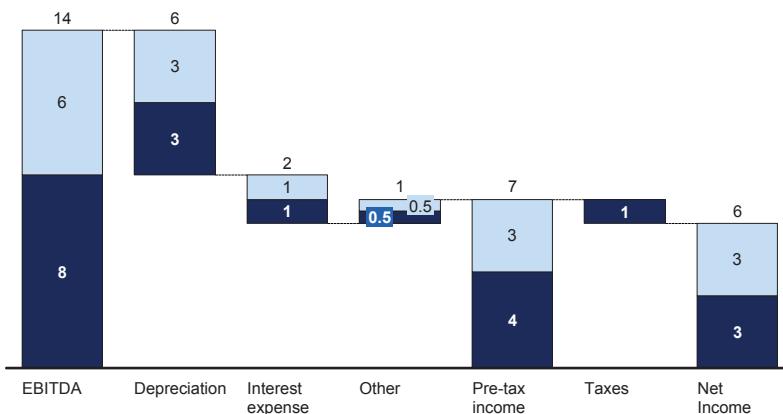
Exhibit 40

CALCULATION OF GAP WITHIN EBITDA

% of net cash revenues,* 2003

ROUNDED NUMBERS

 Above ESAW**



* Excludes provision for doubtful accounts.

** Estimated spending according to wealth.

Source: "Provider Landscape" database – NAPP; MGI analysis

Finally, interests, depreciation, and amortization account for the remaining \$23 billion. Higher capacity and greater utilization of expensive equipment are the main drivers of the additional spend.

Supplies. In supplies, we include implanted devices, in-hospital drugs, commodities, and blood. A typical large provider, participating in a group purchasing program, has the following breakdown of spending: 41 percent on commodities, 33 percent on devices, 22 percent on pharmacy, and 4 percent on blood.

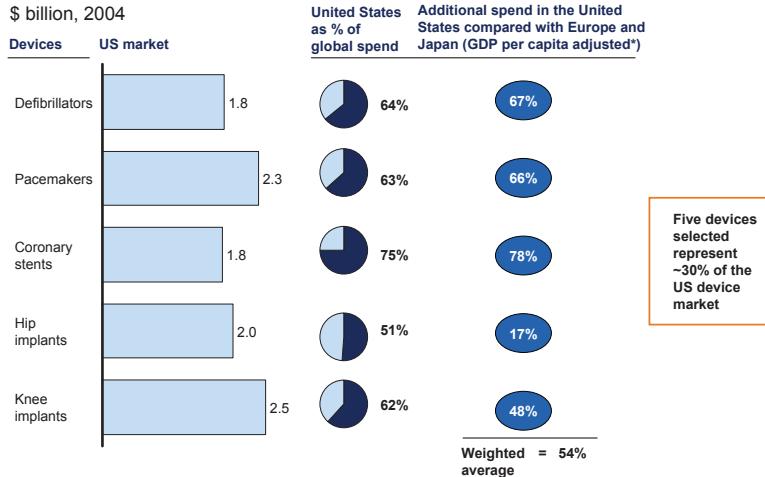
Implantable devices. The United States is the largest consumer of devices worldwide in terms of total spending (data on volumes is not available). If we take the top five devices associated with inpatient procedure²³ (corresponding to 30 percent of the United States device market), the United States spends 54 percent more than expected, when compared to Europe and Japan (Exhibit 41).

To distinguish between price and volume, we analyzed the market in knee and hip implants. At least as far as hip and knee implants are concerned, volumes alone do not appear to account for higher spending on devices in the United States—it has a lower incidence of hip replacement units, but a higher incidence of knee replacements (Exhibit 42). However, our analyses confirm that both knee and

23 Defibrillators, pacemakers, coronary stents, hip implants, and knee implants.

Exhibit 41

EXPENDITURE ON MEDICAL DEVICES ASSOCIATED WITH INPATIENT PROCEDURES



Note: Data for defibrillators/pacemakers is 2005; data for coronary stents is 2000. CAGR of total devices spend in the United States used to adjust US data to 2004.

* GDP per capita in the United States is ~30% higher than the average of comparison countries.

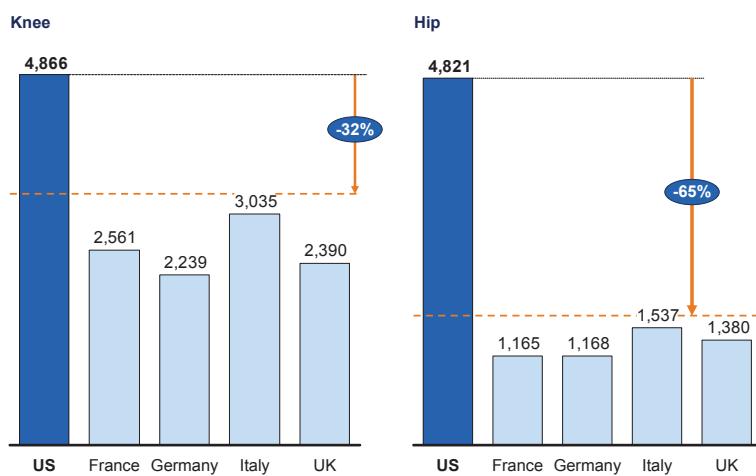
Source: Bernstein Research; top three companies' annual reports (market concentration between 92% and 100%); MGI analysis

Exhibit 42

COST OF KNEE AND HIP PROSTHESES TO PROVIDERS

\$, 2004

Average without US, GDP adjusted



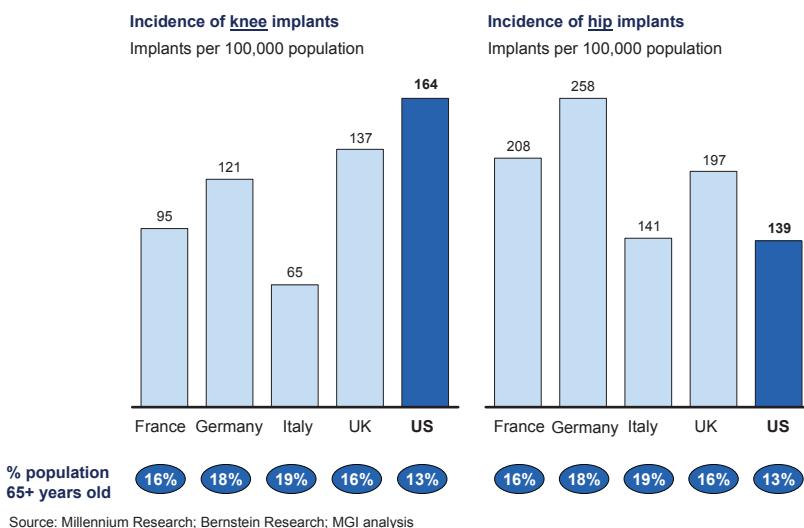
Source: Millennium Research; Bernstein Research; MGI analysis

hip implants cost more in the United States than in the other countries (Exhibit 43). Therefore, while knee implant volumes play a role in higher US spending on devices, the main contributor is prices.

Exhibit 43

HIP AND KNEE VOLUMES

2004



Pharmacy. The total amount spent on drugs in hospital pharmacies is approximately \$21 billion, which we calculate to be some \$9 billion above ESAW. The explanation for additional spending is presented next.

DRUGS

Our analysis of drugs includes both prescription and OTC²⁴ drugs. A comparison with OECD countries shows that the United States spends \$57 billion above ESAW in this category, or a total of \$66 billion if we include hospital-administered drugs (Exhibit 44).

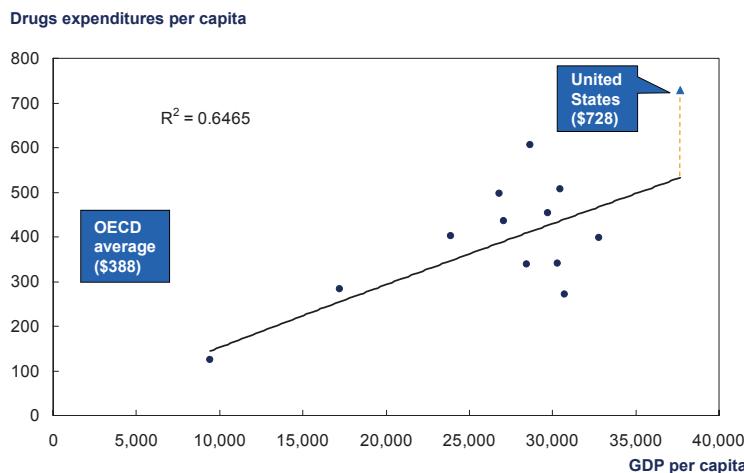
There are three potential explanations for this: (i) greater volume of drugs consumed; (ii) higher total cost to the system; and (iii) consumption of a more expensive drug mix. Our analysis has found that total drug costs to the system (sum of manufacturer's price plus all distribution costs), not volume of drugs consumed, are largely responsible for the US spending above ESAW in this category. Additionally, while the United States uses a mix of drugs that slightly favors newer and more expensive molecules, drug mix is a minor contribution to the higher spending (Exhibit 45).

24 Over-the-counter.

Exhibit 44

DRUGS EXPENDITURES PER CAPITA AND GDP PER CAPITA

\$ PPP, 2003



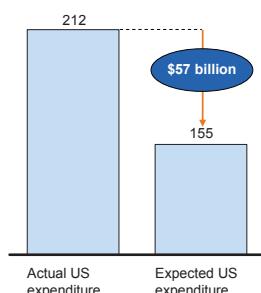
Source: OECD; MGI analysis

Exhibit 45

DRUGS—SUMMARY OF RESULTS

\$ billion, 2003

Total system cost discrepancy



What's included

- Drugs (prescription and OTC)
- Medical sundries



Source: OECD; MGI analysis

Main causes mapped for cost discrepancy

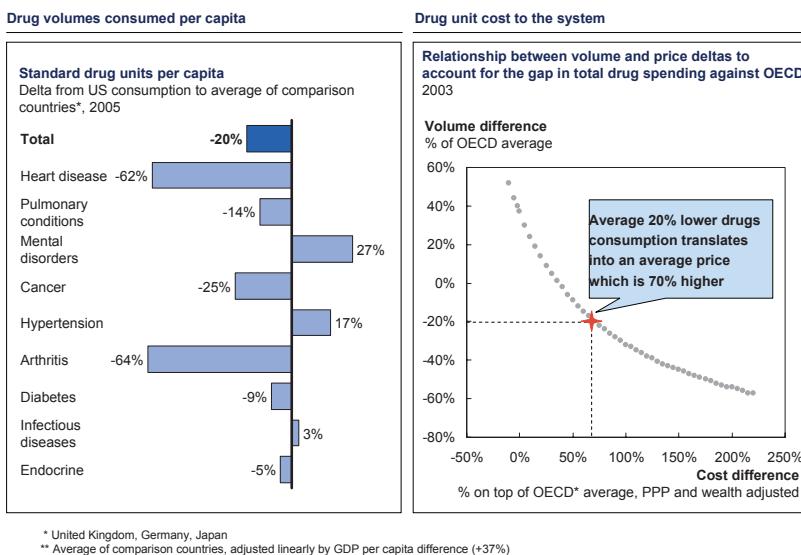
- Drug cost to the system is higher than in peer countries
- Units consumption in the US is lower than peer countries
- Mix of drugs used for some therapeutic areas is modestly different
- Same drugs (branded) cost to the system ~60-70% more in the United States than in peer countries
- Branded drugs in Canada are 60% lower than in the United States
- Top sellers from top pharmaceutical companies cost the system on average 2.3 times more
- Generics and OTC are generally lower-priced in the United States; however they represent 10-20 percent of the market
- Drug consumption levels for major diseases are ~20% lower
- Prescribed drug days per capita are fewer
- Main drugs used for pulmonary condition, cancer, and heart condition are the same overall in Germany, United Kingdom, and United States from a sales and unit perspective; some difference with Japan
- Major differences around early adoption of recently approved drugs in the United States

To understand the relationship between drug cost to the system and volume, we calculated the isoquant that defines this relationship. Since we know the absolute value of \$57 billion (above ESAW), we can calculate volumes and derive prices, or vice versa. To substantiate this relationship, we analyzed IMS²⁵ data on volume for nine therapeutic areas and the wholesalers' prices of the molecules of top drugs.

In analyzing the volume of drugs consumed per person (standard drug units per capita) for the nine major therapeutic areas in Germany, Canada, the United States, and the United Kingdom, we found that US patients consume approximately 20 percent less prescription drugs than patients in these other nations. By plotting this value on the isoquant, we can determine that drug costs to the health system are 70 percent higher in the United States than in peer nations (Exhibit 46).

Exhibit 46

ANALYSIS OF VOLUMES AS THE FIRST VARIABLE



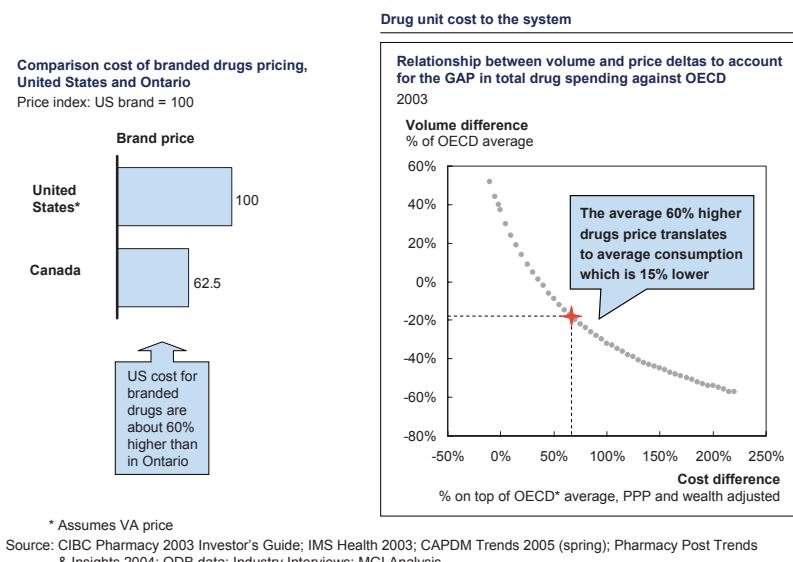
Using IMS data, which reports wholesalers' prices, we performed three distinct analyses. First, we compared branded drugs in the United States and Canada and found that, in the United States, prices of branded products are 60 percent higher (Exhibit 47); this translates into volume use of about 15 percent lower for these compounds in the United States. Second, we evaluated a sample of the top-selling drugs of the leading pharmaceutical companies and found that drugs in the United States are, on average, 2.3 times more expensive than in

25 IMS is a global company, providing pharmaceutical-market intelligence.

other nations (Exhibit 48). Third, we evaluated generic drugs, which, in 2003, accounted for approximately \$20 billion, or roughly 10 percent, of the US market by revenue and approximately 50 percent of prescriptions by volume. We found that the price of generic drugs in the United States varies significantly compared to other countries. In the case of the United States, the range of cost varied from approximately 10 percent higher to 50 percent lower than corresponding prices in peer countries. The same applies to OTC products that, in the United States, can be 20 to 80 percent less expensive but represented only about 15 percent of the market, or \$30 billion, in 2003.

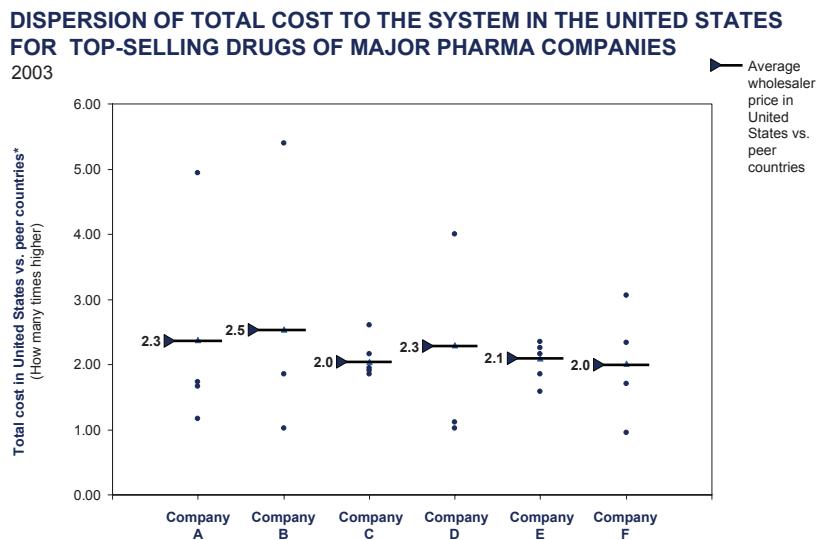
Exhibit 47

ANALYSIS OF TOTAL COST AS THE FIRST VARIABLE



In evaluating total drug cost to the system, we analyzed the drug distribution and retail pharmacy system in the United States and peer countries. In the United States, ex-factory drugs pass through distributors, pharmacy benefit managers (PBMs), wholesalers, and pharmacies. In other nations drugs also go through wholesalers, distributors, and retailers, but PBMs are an entity unique to the United States. In all nations, the drug-distribution system (distributors, wholesalers, and retailers) accounts for approximately one-third of total drug costs to the system. In the United States, PBMs add an additional 1 to 3 percent to total cost. Additionally, it is common practice in the United States for pharmaceutical companies to negotiate rebates with payors or PBMs. We find that, in extreme situations, these rebates can reach 50 percent, although they generally average 10 percent (Exhibit 49). Taking all this into account, we find that overall US drug costs to the system are 50 to 70 percent higher than in peer countries, even after PPP and wealth

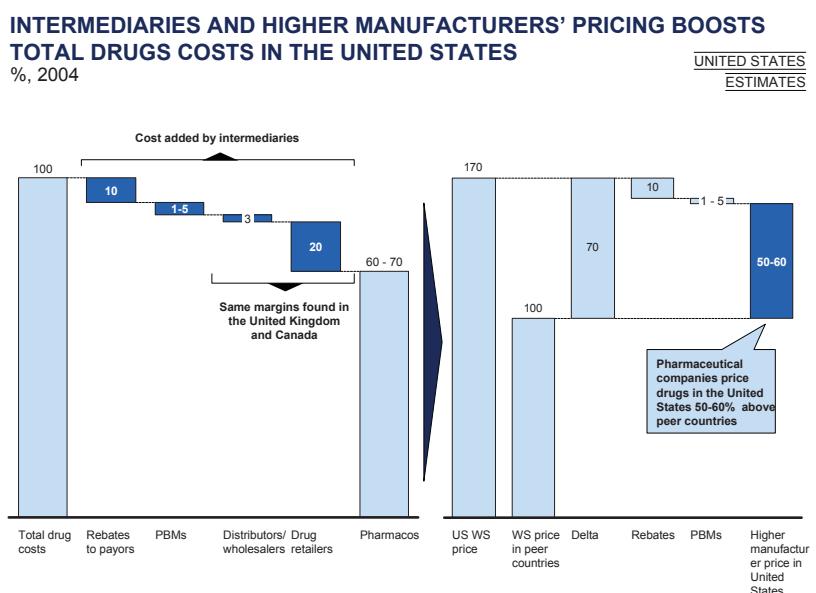
Exhibit 48



* Germany, Canada, and the United Kingdom

Source: IMS; MGI analysis

Exhibit 49



Source: Deutsche Bank Securities Inc.; MGI analysis

(GDP) adjustments. This additional cost varies by type of drug (higher in branded, patented drugs, lower in generics), by therapeutic group, and by age of drug.

To evaluate the drug mix, we compared the most commonly prescribed drugs for six diseases—hypertension, diabetes, cancer, heart disease, mental disorders, and pulmonary conditions—in the United States, the United Kingdom, Germany, and Japan. We found, for example, that although the five top drugs for cancer and the total market share they command are the same across countries, there is variation in market shares in other drug classes (Exhibit 50).

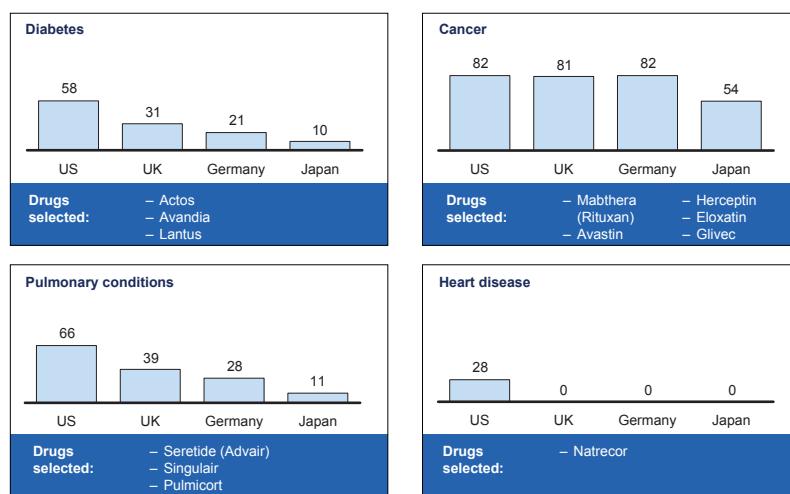
The explanation for this finding is that the United States is an early adopter of newly launched patent-protected drugs, which are sold at prices higher than those that are off-patent. As a consequence, during the early period after launch, a drug may be a top seller in the United States, while its entry and expansion in other markets happens at lower rates. Within a couple of years, however, we find that top-selling drugs in peer OECD countries tend to converge with those of the United States, from the perspective of both revenue and unit volumes.

Our observation of the higher total cost of drugs in the United States health system is in agreement with those of other researchers and of the public [28, 29]. Additionally, we note that there are major policy discussions in the United States about drug reimportation from Canada or lower-cost countries, as consumers seek to obtain access to lower-cost medications available in other health systems.

Exhibit 50

CONCENTRATION OF MORE EXPENSIVE DRUGS

% of total drug sales for each disease/condition



Source: IMS; MGI analysis

LONG-TERM CARE

The analysis of long-term care included nursing homes as well as home health care costs. According to OECD, the United States spends below ESAW in long-term and home health care (Exhibits 51 and 52). However, because of definitional differences, calculating by how much is not straightforward.

Market reports on long-term and home care show that the United States spends \$110 billion on nursing homes and \$40 billion on home care, and this broadly matches OECD reported data. However, an additional \$68 billion—30 percent—is paid by US consumers out-of-pocket for these services (Exhibit 53). This feature of US spending is quite different from comparison countries that include more home health care coverage in their national health care systems. For example, in Norway, 84 percent of institutional long-term care and 97 percent of home care expenditures are reimbursed [30].

Taking into account out-of-pocket spending in this category in the United States, total expenditure is \$218 billion. Although this is a very large amount, it is still \$17 billion below the predicted expenditure for the United States based on the national wealth. Part of the remaining difference may be explained by the relative youth of the population in the United States compared with other OECD countries. In the United States, the percentage of the population above age 65 is 12.5 percent; the average in OECD countries used for comparison is 15 percent. In Switzerland, which spends a relatively large amount on long-term care, the number is 17 percent (Exhibit 54). Projections based on the United States' having similar demographic patterns as comparison countries (considering the spend levels of below 65 and above 65 populations), show that the United States would spend an additional \$42 billion.

DURABLE MEDICAL EQUIPMENT

Durable medical equipment includes all retail sales of contact lenses, eyeglasses, surgical and orthopedic products, hearing aids, wheelchairs, and medical equipment rentals (Exhibit 55). The United States spends \$14 billion below ESAW in this category—\$70 per capita in 2003 compared with the OECD per capita average that year of \$88 (Exhibit 56). However, as with long-term care, there are statistical discrepancies in this category, which we explore.

Market research conducted by BCC Research shows that the United States spends \$29 billion on these products, \$9 billion more than the \$20 billion estimated by the OECD. This, therefore, accounts for \$9 billion of the \$14 billion gap between actual and ESAW-predicted spending. The remaining \$5 billion difference can likely be explained by the younger population of the United States compared

Exhibit 51

LONG-TERM AND HOME CARE

\$ billion, 2003

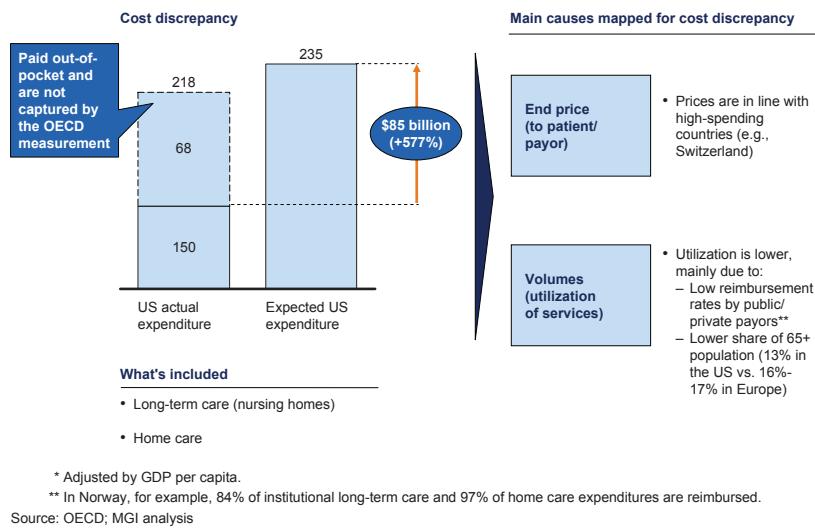
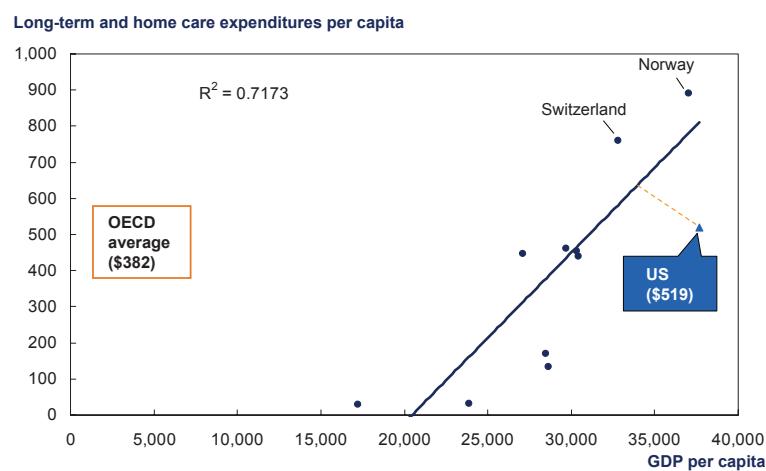


Exhibit 52

LONG-TERM AND HOME CARE

§ PPP, 2003

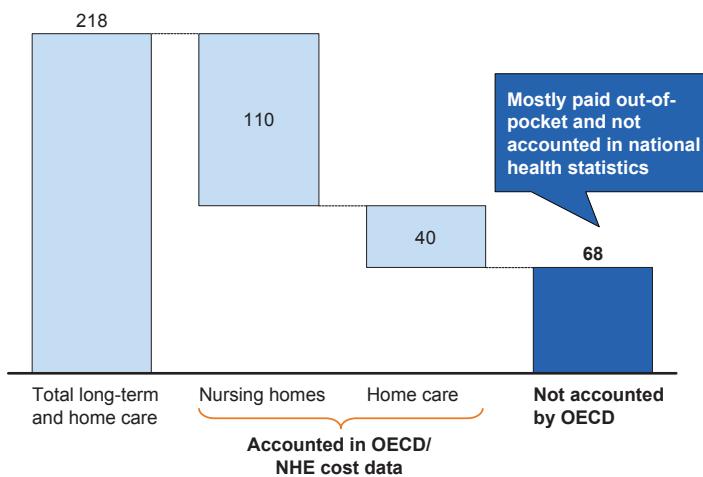


Source: OECD; MGI analysis

Exhibit 53

BREAKDOWN OF ACCOUNTED LONG-TERM AND HOME CARE EXPENDITURES ACCORDING TO OECD/NHE

\$ billion, 2003



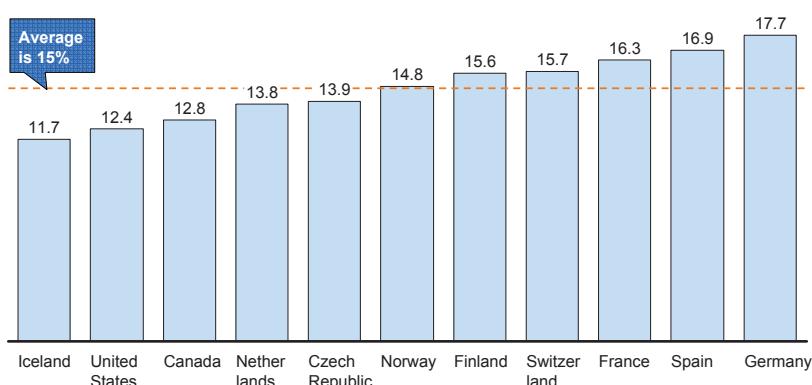
Source: Kalorama Information; OECD; MGI analysis

Exhibit 54

POPULATION ABOVE 65 YEARS FOR COUNTRIES USED IN LONG-TERM-CARE GAP QUANTIFICATION

% of population, 2003

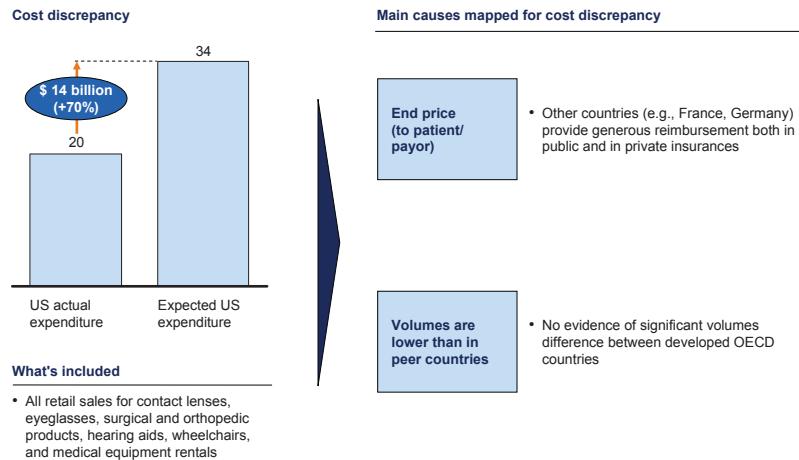
Average of comparison countries



Source: OECD; NCHS National Nursing Home Survey; MGI analysis

Exhibit 55

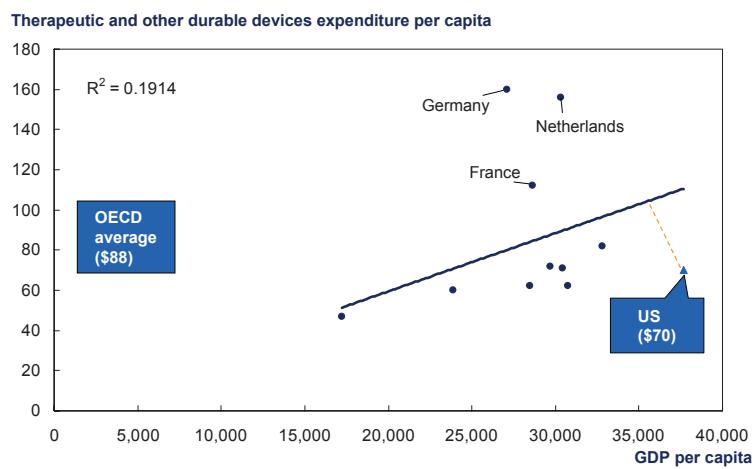
THERAPEUTIC AND OTHER DURABLE MEDICAL EQUIPMENT \$ billion, 2003



Source: OECD; MGI analysis

Exhibit 56

THERAPEUTIC AND OTHER DURABLE MEDICAL EQUIPMENT \$ PPP, 2003

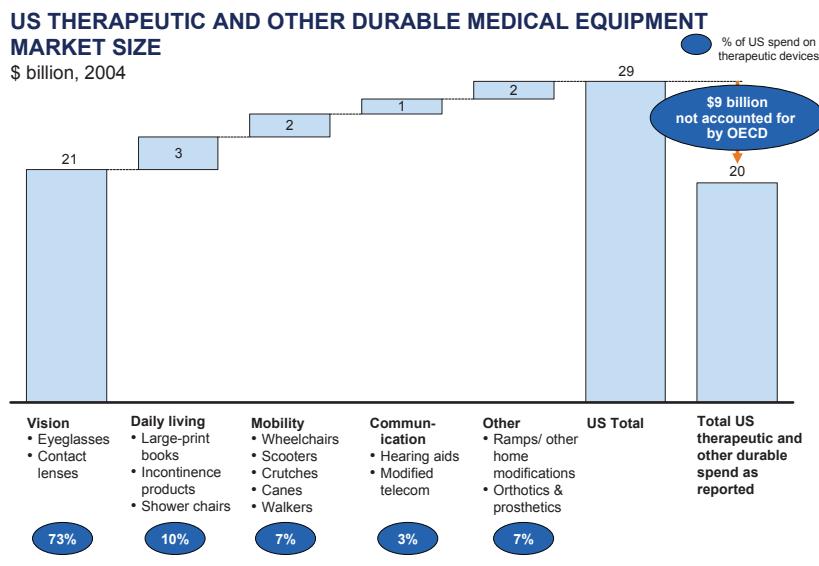


Source: OECD; MGI analysis

with other OECD countries and the less generous reimbursement policies in the United States.

The primary explanation for the discrepancy between OECD and market research values of therapeutic and other devices is out-of-pocket expenses. A breakdown of this category shows that most of the expenditure—72 percent—is on eyeglasses (Exhibit 57). A comparison of insurance coverage in different OECD countries shows that there are significant variations in the insurance coverage provided for eyeglasses. For example, in Germany, the public insurance system covers glasses with co-pay of € 20. In France, public health insurance covers the first € 15, and companies/employers cover the remainder (Exhibit 58). In the US, eyeglasses are not part of the benefit design of most health plans.

Exhibit 57



In analyzing volumes, we found no evidence that the US population uses any fewer therapeutic and other devices than other OECD countries. However, our results did not allow us to dissect the impact that turnover, another measure of volume, has on consumption. We believe that it is likely that where insurance coverage exists, patients are more likely to change, or update, their equipment or devices more often than is the case in the United States.

Exhibit 58

EXAMPLE – COMPARISON OF EYEGLASS COVERAGE IN SELECTED COUNTRIES

EXAMPLE OF A LARGE GLOBAL CORPORATION

Country	Eyeglass coverage plan
United States	<ul style="list-style-type: none">• No coverage (100% out of pocket) as part of most health insurance plans<ul style="list-style-type: none">– Private supplemental insurance available
France	<ul style="list-style-type: none">• Public health insurance: first €15• €310 for glasses, per year• €259 for lenses per year
Germany	<ul style="list-style-type: none">• €20 co-pay for glasses, per year• Some caps apply, depending on income

Source: Interviews; MGI analysis

HEALTH ADMINISTRATION AND INSURANCE

Health administration and insurance includes all the sales, administrative costs, and profits and taxes for private payors. It also includes government administrative expenses, both for Medicaid and Medicare, including payments to outsourced vendors. The United States spent \$412 per capita on health care administration and insurance in 2003—nearly six times as much as the OECD average and \$98 billion above ESAW (Exhibit 59). This result is not surprising if we consider that the United States has a unique and complex multipayer system, combining provision by Medicare, 50 distinct and independently administered state Medicaid programs, and private commercial payors, while most OECD countries have single public payor systems, which do not incur all the administrative and commercial costs borne in the United States (Exhibit 60).

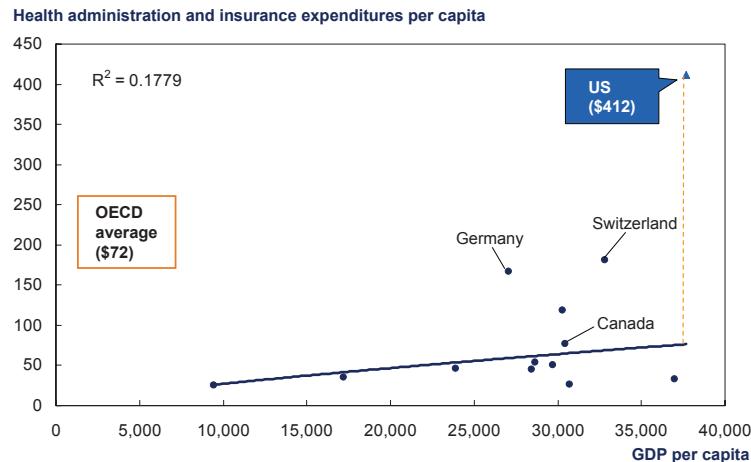
Breaking down the public and private components of the US health care system, we find that private payors spend \$84 billion above what ESAW would suggest; the public part of the system—that is, Medicaid and Medicare—spends the remaining \$14 billion above ESAW (Exhibit 61).

To better understand the explanation for higher spending in the private payor portion of US health care, we analyzed system into its component parts. Our evaluation of the administrative expenses incurred by private payors shows that

Exhibit 59

HEALTH ADMINISTRATION AND INSURANCE EXPENDITURES AND GDP PER CAPITA

\$ PPP, 2003



Source: OECD; MGI analysis

Exhibit 60

NATURE OF PAYORS IN HEALTH CARE SYSTEMS USED FOR QUANTIFICATION OF "ADMINISTRATION AND INSURANCE" GAP

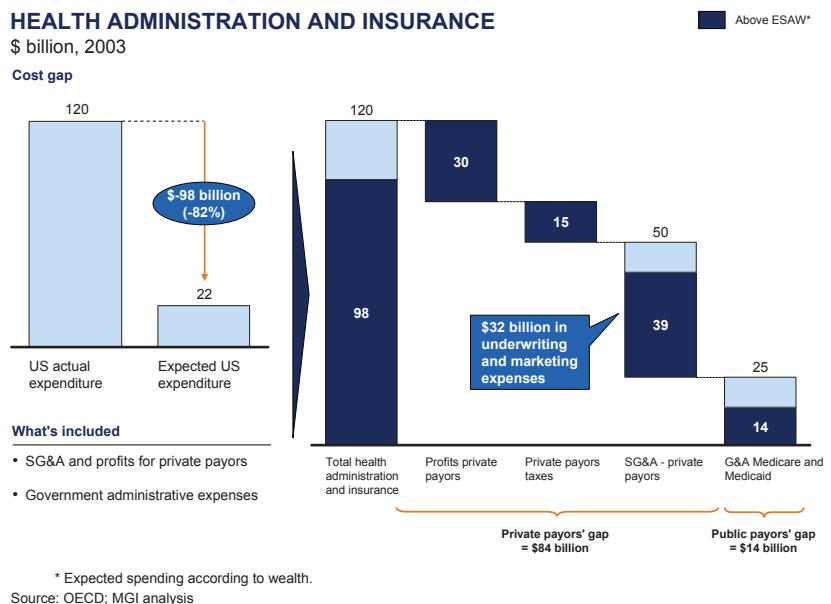
2004

Country	Payor system	Comments
Canada	• Public	• -
Czech Republic	• Public	• -
Denmark	• Mostly public	• ~28% of the population has private insurance for additional health coverage
Finland	• Public	• -
France	• Public	• -
Germany	• Mostly public	• ~10% of the population is covered by private health insurance
Iceland	• Public	• -
Mexico	• Mostly public	• ~50% of the population covered by public payors, ~1% by private payors, and the remainder is uninsured (~50% of population)
Netherlands	• Mostly public	• Majority of the population (75.6%) is covered by social insurance
Norway	• Public	• -
Spain	• Mostly public	• 15% of the population is covered by private health insurance
Switzerland	• Private	• -

Source: OECD; National Statistics; MGI analysis

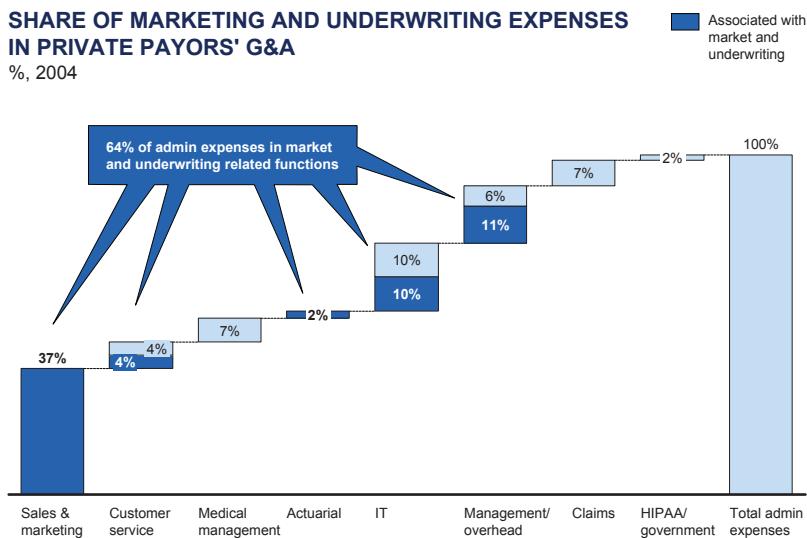
some 64 percent of these costs is associated with product design, underwriting, and marketing—expenses that typically do not exist within public systems (Exhibit 62). This is equivalent to a spend of \$32 billion over ESAW. In addition, private payors earned \$30 billion and paid an additional \$15 billion in taxes in 2003. We believe that the other \$7 billion can be attributed to the inefficiencies and duplication that characterize the multipayor and multistate system.

Exhibit 61



In the public portion of the US health care system, additional spending in this category stems from the fact that Medicare uses 3 percent of its budget on administrative expenses—compared with around 2 percent in other countries, including the United Kingdom. This difference is likely indicative of operational inefficiency [31]. However, it is even more marked in the Medicaid system, where total spending on administration ranges from 3 percent to 5 percent of the program's total cost.

We do not include in our evaluation two other important consequences of the multipayor system. The first is the higher administrative burden to providers—already captured as part of higher hospital and outpatient operational expenditures. The second is the extra cost incurred by employers because of the need for robust human resources departments to administer health care benefits.

Exhibit 62

Source: Industry reports on BCBS payors; MGI analysis

These results are in agreement with numerous publications that have argued that a sizable proportion of higher overall US health care spending—over and above the level of expenditure justified by the United States' higher GDP per capita—can be traced to the higher administrative overhead required by the United States' complex approach to financing health care. It is also generally agreed that oversight currently focuses on the quality of care and has reduced the focus on examining and controlling administrative costs.

An article by Woolhandler et al, based on 1999 data, showed that 30 percent of US health care costs are spent on administration [5], and that the United States could spend \$209 billion less. In another piece of research in 2004 [32], Woolhandler concluded that administrative costs are driven up by the use of private insurers. Some research[33, 34] suggests that administrative expenses for private insurance in the United States are two and a half times as high as those for public programs.

Moreover, the authors argue that automation of transaction processing in the United States has not reduced the costs arising from the participation of multiple private insurers (underwriters), hurdles and delays in payments, and fragmentation. It should be noted that Aaron [35] criticizes Woolhandler's calculations, concluding that the differences in administrative costs between the United

States and Canada are 25 percent lower than he has suggested—nonetheless, still a significant difference.

More recently, a study by the Commonwealth Fund compared the net costs of health administration and health insurance as a percentage of national health expenditures [36]. Of the 11 countries compared, the United States had the highest percentage at 7.3 percent and France the lowest at 1.9 percent.

PUBLIC INVESTMENT IN HEALTH

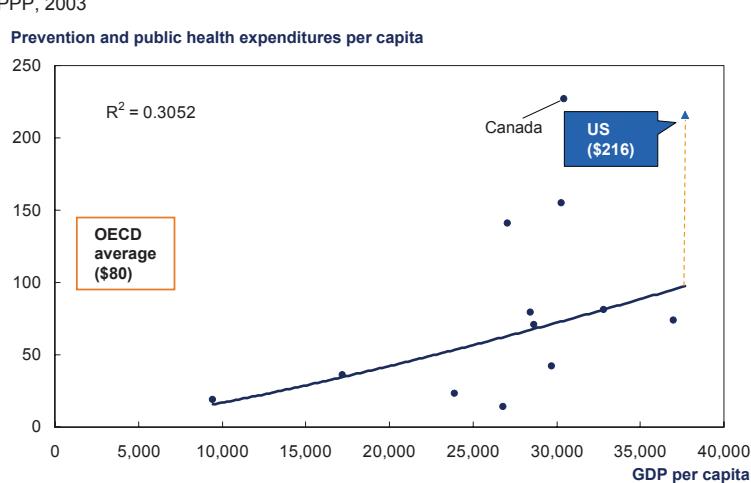
There are three broad categories of spending within public investment in health care: (i) public and nonprofit research and development efforts (excludes private R&D, such as that performed by pharmaceutical companies); (ii) public investment in medical facilities; and (iii) investments in prevention and public health. Our results show that the United States spends \$19 billion above ESAW in this category (Exhibit 63).

Breaking down total spending into the three categories we have mentioned, our results show that the United States spends \$34 billion above ESAW in prevention and public health and \$10 billion above ESAW in research and development, but \$25 billion below ESAW on investments in medical facilities (Exhibit 64).

Exhibit 63

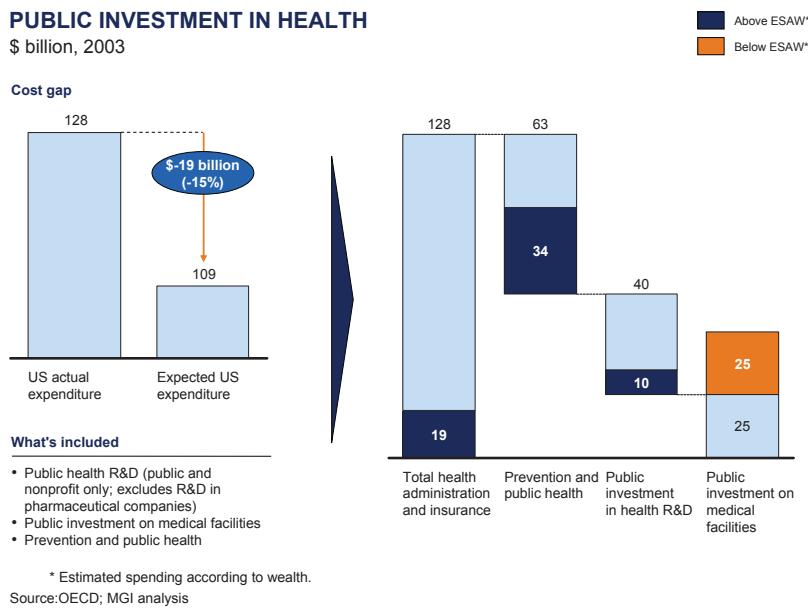
PREVENTION AND PUBLIC HEALTH EXPENDITURES AND GDP PER CAPITA

\$ PPP, 2003



Source: OECD; MGI analysis

Exhibit 64



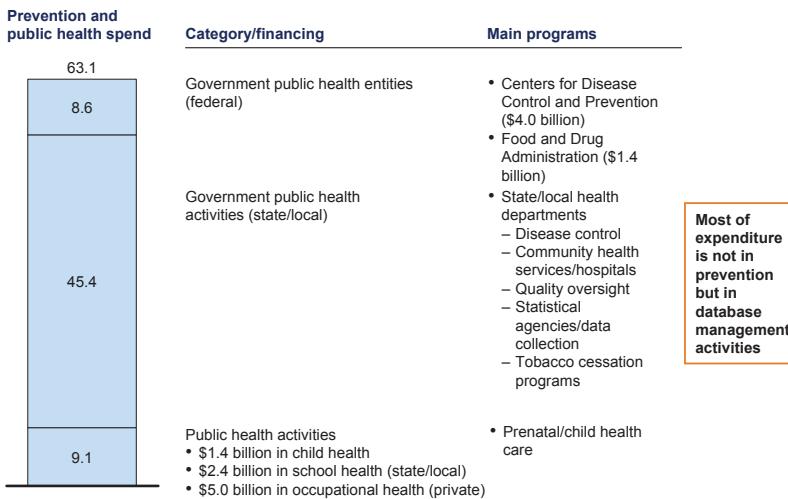
Prevention and public health expenditures. The United States spends approximately twice as much on prevention and public health as its ESAW would indicate. Some 70 percent of the US spending is in the form of state and local government-sponsored activities to further public health, yet the bulk of it is not on prevention per se. Most of these activities involve database management, rather than targeted prevention programs that reduce demand (Exhibit 65). Most prevention in the United States, such as immunization, is paid for by insurance. US government agencies, led by the Department of Health and Human Services (DHHS), spearhead most of the larger public health programs; nevertheless, such efforts represent only about 15 percent of the total expenditure on public health activities.

Research and Development. It is well known that the United States spends more than any other nation on public R&D efforts (Exhibit 66). However, it is important to mention that we do not include all the R&D investments undertaken by private companies (such as pharmaceutical and medical devices companies) in our comparison because OECD country statistics only account for public R&D investments.

Investment on medical facilities. Our finding that the United States spends below ESAW on investment in medical facilities (Exhibit 67) is not surprising given the large private component of the US health care system. It is expected that part of the capital expenditure in the construction of medical centers is made by the private investors that wish to operate in this market.

Exhibit 65

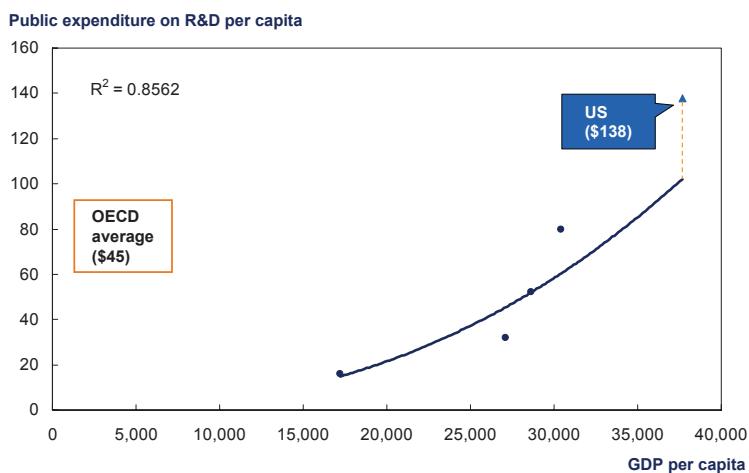
PREVENTION AND PUBLIC HEALTH SPEND BREAKDOWN \$ billion, 2003



Source: CMS Office of the Actuary

Exhibit 66

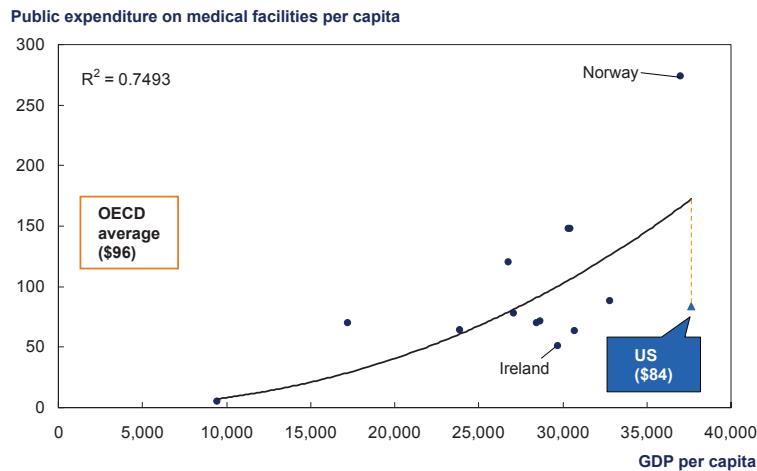
PUBLIC EXPENDITURE ON R&D AND GDP PER CAPITA \$ PPP, 2003



Source: OECD; MGI analysis

Exhibit 67**INVESTMENT ON MEDICAL FACILITIES EXPENDITURES AND GDP PER CAPITA**

\$ PPP, 2003



Source: OECD; MGI analysis

ACCOUNTING FOR DEMOGRAPHICS AND THE UNINSURED IN THE US HEALTH CARE SPEND

The United States spends \$477 billion more in health care than would be predicted by the ESW regression line, when compared with 13 OECD countries. Yet this result may be a low estimate, and the US health care spending above ESW could reach \$700 billion (Exhibit 68). Adjustments to OECD numbers to include the underreporting in long-term care (\$68 billion) and in durable medical equipment (\$9 billion), as well as the taxes paid by providers and payors (negative adjustment of approximately \$68 billions) results in an additional \$9 billion to the system costs.

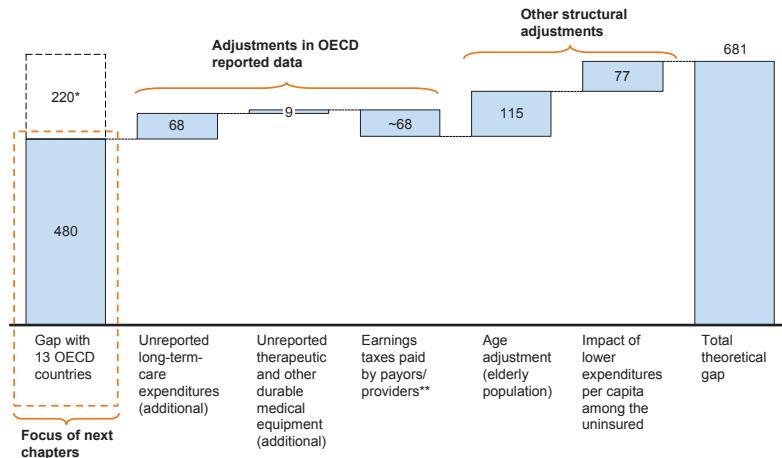
In addition, as discussed earlier, the United States has a younger population. It is well documented that medical spending for the elderly population (>65 years old) is as much as 2 times higher than the population below 65 years old [37]. We estimate that if the United States had the demographic pattern of European nations, yet spent per capita at current levels, this could add an additional \$115 billion in cost to the system (Exhibit 69).

More importantly, the United States is the only developed country not to provide comprehensive health insurance to its citizens. While the uninsured are able to obtain emergency care, their estimated expenditure per capita of \$1,188 lies

Exhibit 68

BREAKDOWN OF ADDITIONAL US HEALTH CARE SPENDING – \$700B

\$ billion, 2003

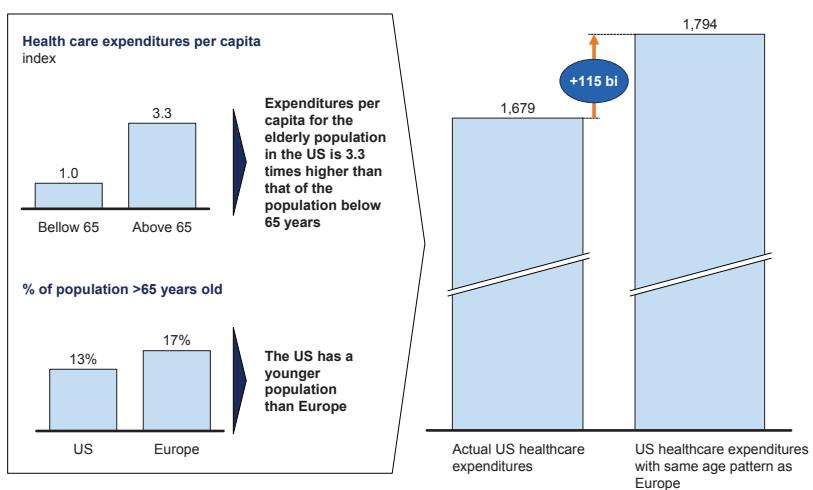


Source: OECD; MEPS; MGI analysis

Exhibit 69

CALCULATION AGE ADJUSTMENT

\$ billion, 2003



Source: MEPS; US Census; MGI analysis

below the minimum for existing commercial insurance products. Considering the approximately 40 million uninsured citizens in 2003, if basic coverage were provided to these citizens, the additional health care expenditure bill would be approximately \$77 billion.

...

WHY AND HOW TO PURSUE HEALTH CARE REFORM IN THE UNITED STATES

Health care reform in the United States has received considerable attention in recent years. Commentators have suggested that the current US health care system is economically unsustainable. Our analysis shows that the high costs of US health care are spread across the system. In the public debate about how to bring costs under better control, different advocates have a variety of preferred targets for change—whether the administrative complexity of the private system, the profitability of pharmaceutical companies the use of IT and electronic health records [38-40], consumer driven health care [41-44], or control over the use of technology [45] among others. Yet we show that most components of the US health care system are economically distorted. Among system stakeholders, there are few incentives to change the status quo, most of the stakeholders are currently benefiting. Our view is that intermediation in the provision of care has broken down and is in need of reform.

In fact, today, well-insured patients obtain a high standard of care with low out-of-pocket expenses; physicians are highly compensated professionals; nurses and other health care workers generally have high rates of employment and above-average incomes; suppliers of pharmaceuticals, medical devices, imaging equipment, laboratory supplies and equipment, and other medical equipment and services command high prices and sell large volumes; payors and providers are generally profitable; and large employers receive tax breaks to help offset insurance costs. Moreover, the health care industry is profitable, employs a large number of people, and enables patients with insurance to receive among the highest quality and most convenient health care in the world. These groups all benefit from the status quo in the US health care system.

However, there is another side to the health care system. Currently, the uninsured (15.9 percent or 46.6 million Americans up from 15.6 percent and 45.3 million in 2004) have only emergency access to care and the underinsured, representing many small and medium-sized businesses (these entities pay handsomely for health care) are frequently paying more or receiving less access to care than peers in other countries. In addition, objective system-level data for conditions

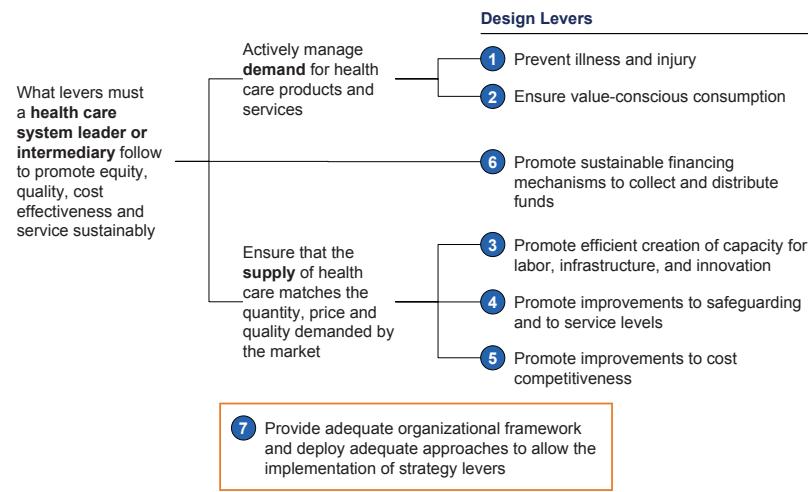
where data exists reveal that neither life expectancy nor quality is better in than US than peer health systems.

Thus, the best arguments for changing the current health care system are to reduce the disparity in access to health care among US citizens; to reduce the tax burden on the ordinary citizen; to reduce the cost to employees; and to assure that quality and value of care is the primary driver in services provided.

No single reform is likely to succeed in achieving the necessary rebalancing. To be effective, reform in US health care will need to apply sound principles on both the demand and the supply sides of the system.²⁶ We believe that a broad framework (Exhibit 70) should guide reform and involve all key stakeholders in the debate and solutions. Regulators, employers, patients, physicians, providers, and payors are faced with the challenge of addressing fundamental questions, reviewing their role in the process, and participating in the debate and the solution. In the appendix we provide recommendations of how stakeholders may participate in the process.

Exhibit 70

WE BELIEVE REFORMS SHOULD BE GUIDED BASED ON A SUPPLY AND DEMAND FRAMEWORK



Source: MGI analysis

²⁶ See "A Framework to Guide Health Care System Reform," MGI, 2006, available at www.mckinsey.com/mgi.

Appendix - How Stakeholders Can Participate to Improve the US Health Care System

To secure changes in behavior among consumers and suppliers, health care system stakeholders have three major levers at their disposal: (i) building awareness, (ii) adjusting incentives, and (iii) imposing mandates (Exhibit 1). System stakeholder need to find a balance between the three, appropriate to the political and cultural context of their system, through negotiations with other stakeholders.¹ It should be noted that system leaders also have the option to take direct action. In other countries, this is a frequent approach for reform. In the United States the government's management of the Veterans Administration and military health systems are examples. Below we discuss how the various system stakeholders could collaborate to create positive reform.

- **Regulators.** Regulators should take a broad view of health care reform in the United States and strive to address a number of entangled issues through a combination of promoting awareness, creating financial incentives, and (if necessary) issuing mandates or taking direct action. It is important for regulators to focus on both supply and demand to reduce unintended consequences.
- **Employers.** As the bearers of much of the high cost of health care, employers could play a more active role in managing health care costs. This is best performed by exerting pressure on payors and benefits administrators to define and maximize value and value consciousness. Employers are perhaps best positioned to shape efforts to promote transparency and value-based reimbursement systems.

1 See "A Framework to Guide Health Care System Reform," MGI, 2006, available at www.mckinsey.com/mgi.

Exhibit 1

REFORM ACTIONS CAN RANGE FROM AWARENESS TO DIRECT ACTION

	Awareness	Incentives	Mandates	Direct action	EXAMPLES
	Contextual	Indirect			Direct
Prevention	<ul style="list-style-type: none"> Educate public on diet, exercise, smoking, safe sex 	<ul style="list-style-type: none"> Contribute to HSAs based on lifestyle changes 	<ul style="list-style-type: none"> Restrict air pollution that is harmful to the public health 	<ul style="list-style-type: none"> Create public water and sewage systems 	
Value consciousness	<ul style="list-style-type: none"> Publish hospital quality metrics on the internet 	<ul style="list-style-type: none"> Tier benefit designs to encourage use of select providers 	<ul style="list-style-type: none"> Exclude coverage for high-cost providers or procedures 	<ul style="list-style-type: none"> N/A 	
Capacity	<ul style="list-style-type: none"> Conduct public needs assessments to inform private investment 	<ul style="list-style-type: none"> Forgive loans for physicians practicing in underserved areas 	<ul style="list-style-type: none"> Require regulatory approval based on demonstration of need 	<ul style="list-style-type: none"> Build public hospital in underserved communities 	
Quality, safety and service	<ul style="list-style-type: none"> Publish guidelines for evidence-based medicine 	<ul style="list-style-type: none"> Pay bonuses to providers for implementing EBM 	<ul style="list-style-type: none"> License/credential providers based on minimum standards 	<ul style="list-style-type: none"> Improve the quality of publicly run hospitals 	
Cost competitiveness	<ul style="list-style-type: none"> Document and disseminate best practices in lean ops 	<ul style="list-style-type: none"> Negotiate preferred vendor agreements with low-cost providers 	<ul style="list-style-type: none"> Impose standard pricing for all MDs, set at low level to drive cost reductions 	<ul style="list-style-type: none"> Increase the efficiency of publicly run hospitals 	
Financing	<ul style="list-style-type: none"> Educate consumers about the need to save for long-term care 	<ul style="list-style-type: none"> Offer tax subsidy for purchase of employer-sponsored coverage 	<ul style="list-style-type: none"> Mandate insurance coverage for all not covered by public entitlement program 	<ul style="list-style-type: none"> Offer tax-financed entitlement program 	

Source: MGIs analysis

- **Patients.** Patients should seek to become more value-conscious, as health benefits increasingly become more consumer-directed, and take a more active role in their care and health. This involves understanding what they are being treated for, what their options are, what the costs involved with the procedures are, whether the procedures are necessary, and whether there are higher-value alternatives.

Taking charge means monitoring and managing bills; understanding how new drugs, technologies, and devices add value; and frequently opting for generic drugs when they are available and appropriate. Patients should insist that health plans or other infomediaries emerge to help them identify high value providers and treatments efficiently.

Additionally, patients should prepare for predictable end-of-life expenses with a greater reliance on savings rather than insurance.

- **Physicians.** Physicians are the key intermediary in matching supply and demand. Among the players in the health care system, physicians possess the knowledge regarding the importance/relevance of tests, drugs, and imaging. Physicians can help tremendously by framing treatment options in terms of value (cost, quality, and convenience) for patients, becoming familiar with the

relative prices of different treatment and providers, and adhering to evidence-based medicine guidelines when they are available and helping to create more evidence.

- **Providers.** Providers should strive to create value by improving productivity, effectively monitoring and managing operating variations, and consolidating to create efficiencies of scale when feasible. Additionally, providers can do a great deal to help patients understand trade-offs associated with treatment options and help patients define value (how to assess quality and service for various treatments and diseases).

Providers could also innovate around reducing input prices—both capital and labor. When regulations allow, providers could experiment with different clinical labor mix and staffing patterns as well as with creating lower fixed-cost capacity.

- **Payors.** Payors can support system reform by designing products that favor value-conscious behavior on the part of patients and leveraging their existing data to help consumers efficiently identify high-value providers and treatment options [46]. Additionally, extending disease management to more high-risk patients together with the creation of lower cost health insurance products represent opportunities to improve quality and access.

Our hope is that our fact base, this framework, and these potential actions serve as a constructive starting point for enabling positive health system reform that promotes quality and access sustainably while ensuring ongoing innovation and US economic growth.

Technical Notes

EXPENDITURES COVERED IN HEALTH CARE COST

To evaluate the cost discrepancies between the US and OECD nations, we used the OECD definition of total health care cost. This includes public and private expenses in medical services and goods, and health administration and insurance. It however excludes education and research in health as well as some areas with bearing on health such as environmental issues and administration of social services (Exhibit 1)

Exhibit 1

COMPONENTS OF HEALTHCARE COST BASE USED IN THIS STUDY

What is included in the costbase	What is <u>NOT</u> included in the costbase
<p>• Public and private expenses including:</p> <ul style="list-style-type: none">– Services<ul style="list-style-type: none">• Curative care• Rehabilitative care• Long-term nursing care• Ancillary services to health care– Medical goods dispensed to outpatients– Services of prevention and public health– Health administration and health insurance	<ul style="list-style-type: none">• Education and training of health personnel• Research and development in health• Food, hygiene and drinking water control• Environmental health• Administration and provision of social services in kind to assist living with disease and impairment• Administration and provision of health-related cash-benefits

We used
the OECD
definition
of total
Healthcare
costs

Source: OECD, team analysis

DISEASE MIX OF THE US POPULATION

To assess the financial impact of this disease-mix profile, we first divided the disease list into three groups, according to the cost of treatment. We used MEPS (a survey conducted by the Agency for Healthcare Research and Quality [AHRQ] and the National Center for Health Statistics [NCHS], which combines household-reported information with information obtained from providers) data on inpatient and outpatient treatment costs for several diseases to determine the cost brackets. The first group of diseases has an individual cost to treat at, or below, the average of all diseases. The treatment costs of the second group are between the average cost and the average cost plus one standard deviation of those costs. The third disease group has a cost to treat greater than the average cost plus one standard deviation of treatment costs. All treatment costs include inpatient and outpatient care during a single full year—in this case, 2003.

As this MEPS data doesn't offer the same detail as prevalence data, we used the average cost of each disease group to assess the cost impact of the difference in prevalence. In order to ensure consistency, we defined a band from the 1:1 prevalence line within which the average treatment cost of the disease group was used for quantification. For those diseases outside this range, we studied the specific costs to treat, which allows a more accurate measure (and balances the effort, since the number of outliers is significantly smaller than the total disease list). We iterated the process with different band widths in order to determine the total cost impact of the US disease mix (Exhibits 2 and 3).

Exhibit 2

METHODOLOGY FOR DISEASE MIX CALCULATION

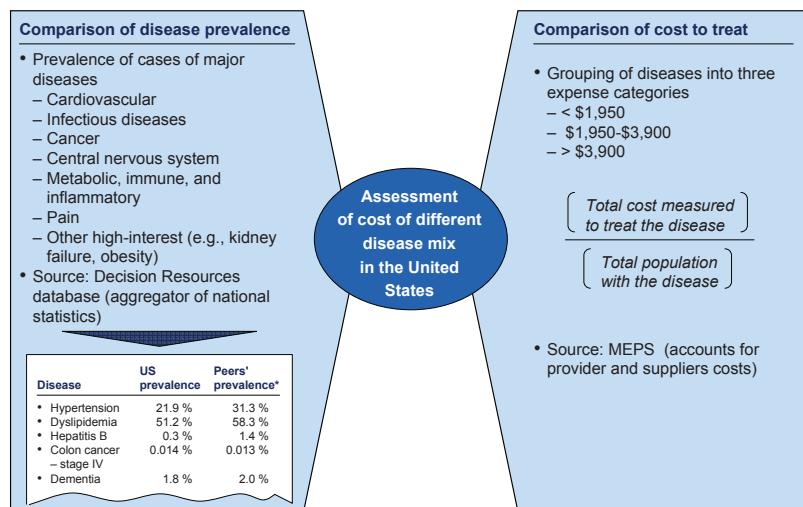
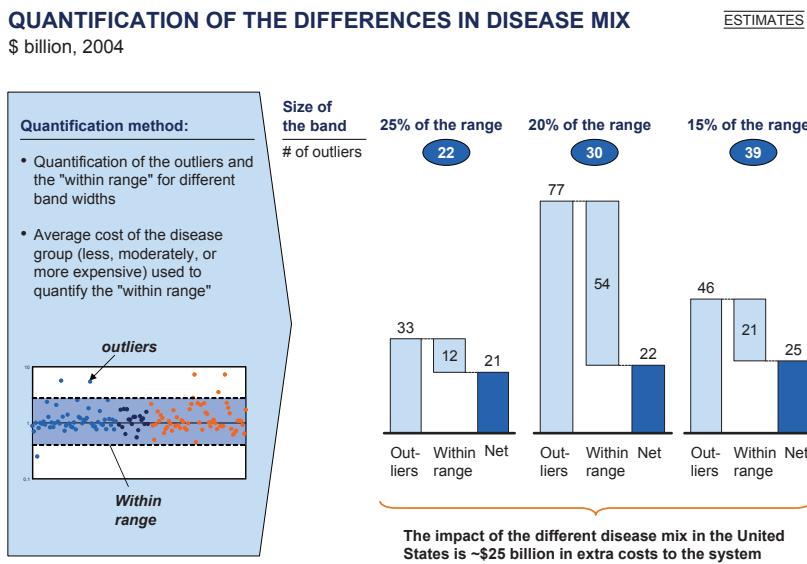


Exhibit 3



Source: Decision Resources; MEPS; MGI analysis

HEALTH CARE SYSTEM IS INTRINSICALLY MORE EXPENSIVE

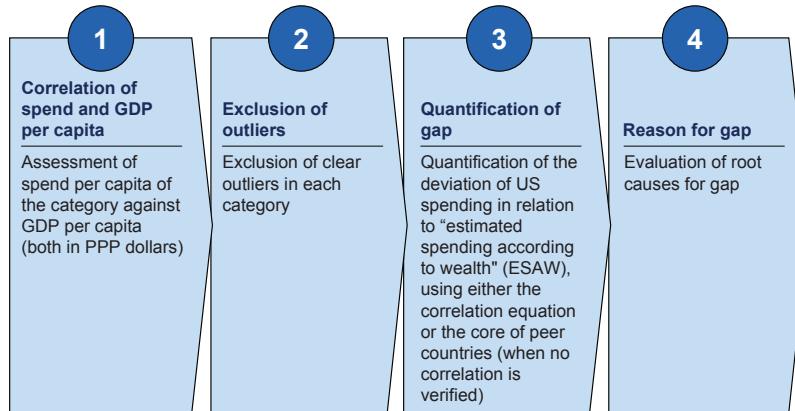
To assess potential discrepancies between the United States and other OECD countries in spending per capita in each of the cost categories we analyzed, we correlated each nation's spend against its GDP per capita and adjusted both by US dollars at purchasing power parity (PPP). A correlation line, equating to an Estimated Spending According to Wealth (ESAW) was drawn. We excluded outlier countries and then recalculated the line and the United States' deviation from it—regardless of whether the United States was above or below ESAW. To assess the numerical gap, we used either the correlation equation or the average of the core of peer countries (when no correlation was verified). Once the gap was mapped, we further analyzed the category and its component elements—both quantitative and qualitative—to better understand what root causes explained the deviation (Exhibit 4).

Different segments of the flow of funds in health care were used to calculate the gap between actual spending and ESAW and to map the root causes for the discrepancy in spending (Exhibit 5):

To calculate the gap between spending and ESAW, we used the actual values final consumers and payors pay for different health care services—the bill that a consumer paid, the cost to private insurance companies, or the amount Medicare or Medicaid paid to the providers.

Exhibit 4

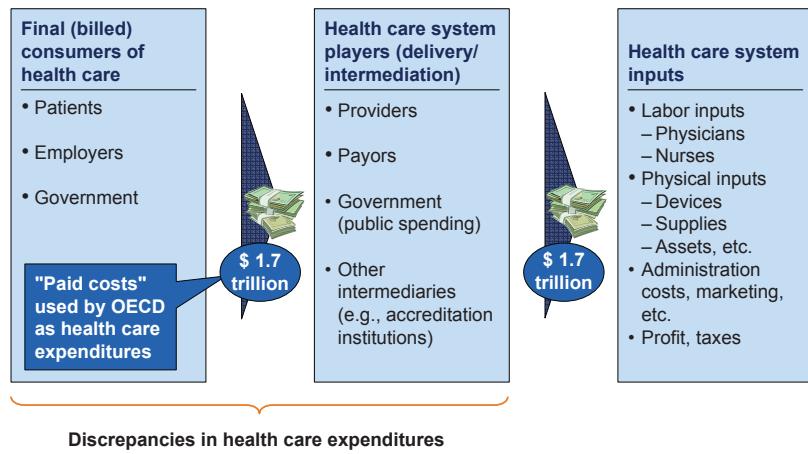
METHODOLOGY USED TO QUANTIFY ADDITIONAL HEALTH CARE SPENDING



Source: MGI analysis

Exhibit 5

MAPPING FLOW OF FUNDS USED TO MEASURE SPENDING 2003



* Hospital care; outpatient care; drugs and nondurables; long-term and home care; therapeutic and other durables; health administration and insurance; public investment in health.

Source: MGI analysis

To explain cost discrepancies, we analyzed the costs of the inputs to the health care system. For example, we evaluated compensation of medical and nonmedical labor, the cost of devices, operational expenditures, the profits of payors and providers, and the taxes they paid.

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