INSTITUTE FOR HEALTHCARE IMPROVEMENT

INSTITUTE FOR HEALTHCARE IMPROVEMENT
SUMMARY REPORT: 90-DAY PROJECT
Resources Needed to Support the Triple Aim
May-July 2007

I. Research and Development Team:

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II. Intent:

The American health care system consumes more money than any health system in the world without showing equivalent benefit for the use of these resources.[1] This technical paper will outline how much money the system consumes for health care at both a state and national level. It will compare this to what other nations are spending. It will then compare the use of physician resources and hospital resources in the US with other parts of the world. The role and control of new technology will be discussed, followed by an analysis of how much more it would cost to provide better coverage for the uninsured. A set of recommended principles will conclude this paper.

III. Background:

In 2004 the US health care system consumed $1.551 trillion dollars to provide personal health care for its population. The total spending for all aspects of health care was $1.859 trillion.[2] This works out to a per capita spending of $5,283 for personal health care and $6,331 for total national expenditure.[2, 3]

The US spends significantly more money per capita for health care than eight other countries, according to data from the Organization for Economic Cooperation and Development (OECD).[4] (Figure 1) In addition, the US spent more public dollars on health care than the other nations in this same study. (Figure 2)

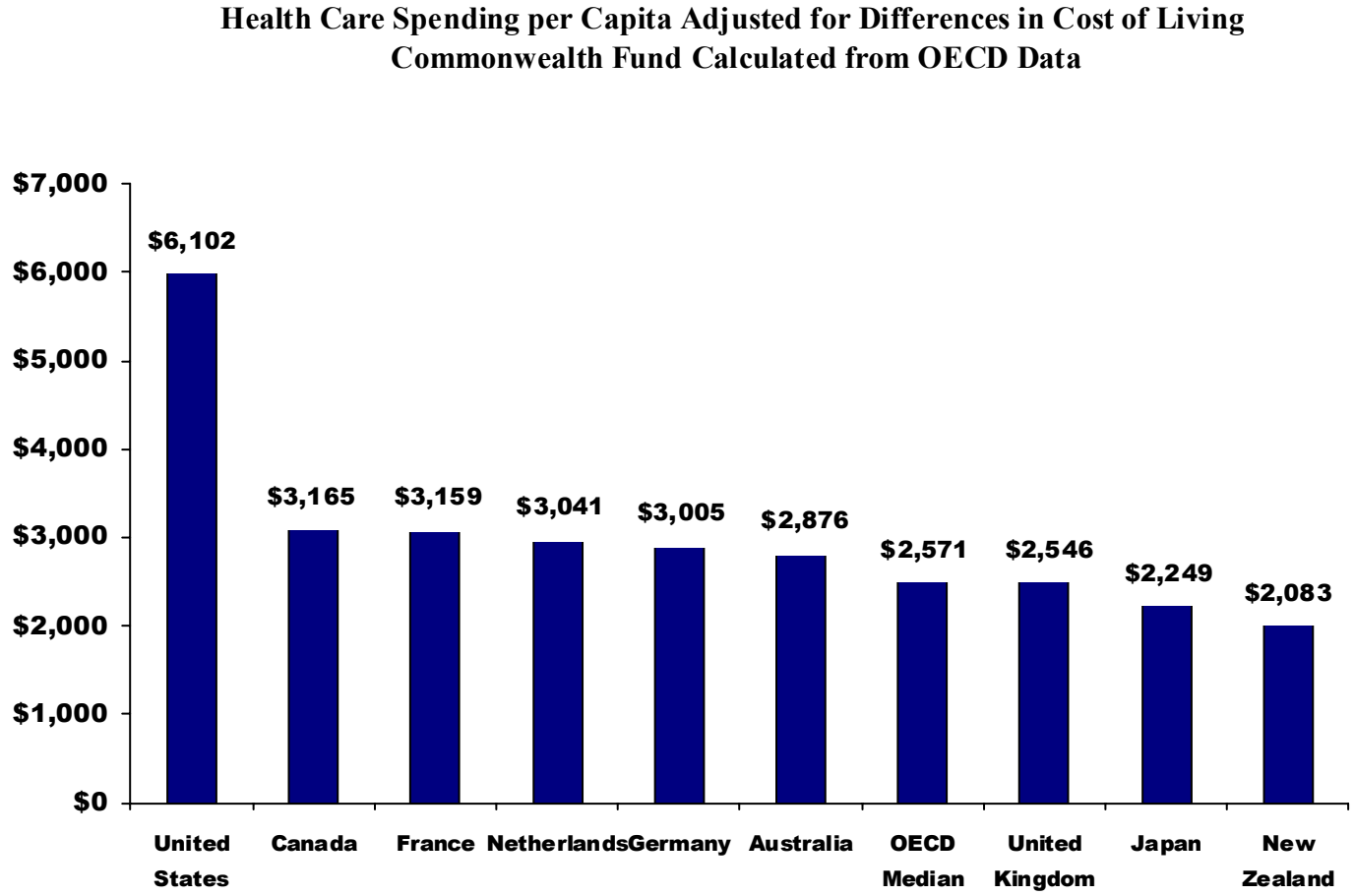


Figure 1. J. Cylus and G. F. Anderson, Multinational Comparisons of Health Systems Data, 2006 (New York: The Commonwealth Fund, Apr. 2007).[4]

Health Care Expenditure per Capita by Source of Funding in 2004
Adjusted for Differences in Cost of Living
Commonwealth Fund [4]

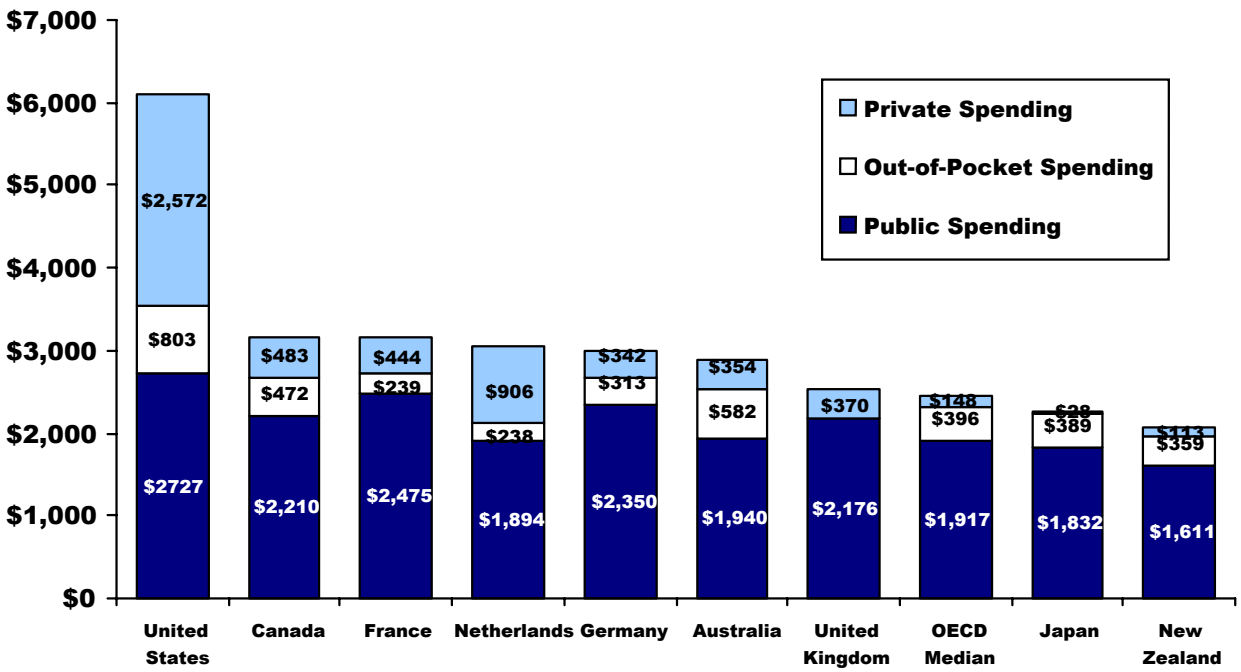


Figure 2. J. Cylus and G. F. Anderson, Multinational Comparisons of Health Systems Data, 2006 (New York: The Commonwealth Fund, Apr. 2007).[4]

Based on early research that was done for the Triple Aim technical brief,[1] US health outcomes lag behind the other nations shown in the graph. Even though the US spends more public money on health care than these nations, its health outcomes are worse. And the combined public, private, and personal total spending of the US is nearly double that of these same nations. In the US, extra dollars spent for health care do not equate to better outcomes.

Looking at state level data reveals a similar trend. Increased cost of health care does not provide increased quality. (Figure 3) In this figure, quality indicators for recipients of Medicare fee-for-service were compared against annual Medicare enrollee cost. The higher quality states cost less than the lower quality states overall.[5, 6] We are again seeing that more money spent does not equate to better care in the US.

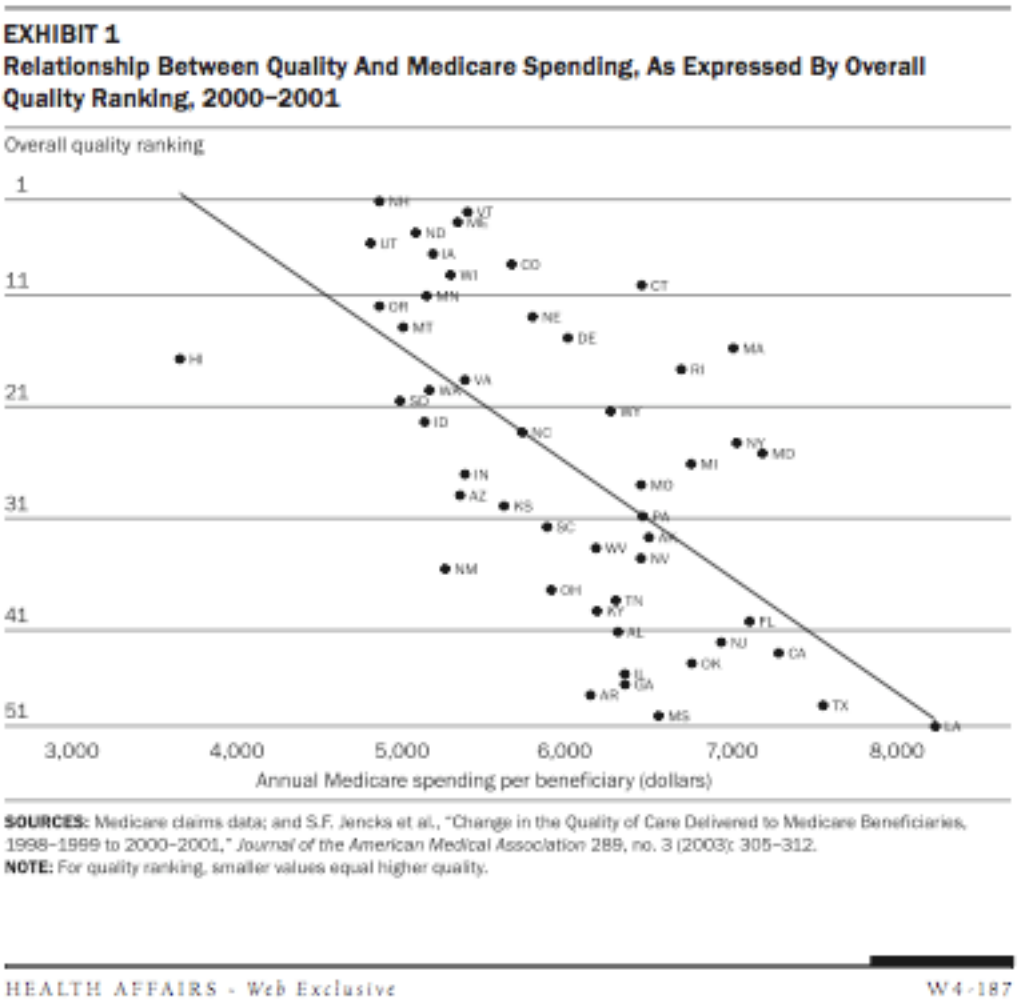


Figure 3. Relationship between quality of care and Medicare spending [5, 6]

The variation in spending on Medicare parts A and B in 2003 ranged from $8,076 per enrollee for New Jersey to $4,530 for Hawaii. (Appendix B) However, the state-level information actually hides even greater local variation. The Miami, Florida, hospital referral region reimbursement for 2003 was $11,352 per enrollee—the costliest in the nation—while Salem, Oregon, was the least expensive at $4,273.

More detail about per capita personal health care spending at the state level is available in Appendix A. In addition, state-level detail is available for Medicare spending in Appendix B.

The question is, *How is the money spent for health care?* Table 1 gives a breakdown of how the money was spent in the US in 2004.[2, 3]

	Cost in Billions	% of cost	Per Capita Cost
Hospital Care	$566.90	30.50%	$1,931
Physician and Clinical Services	$393.70	21.18%	$1,341
Other Professional Services	$52.60	2.83%	$179
Dental Services	$81.50	4.38%	$278
Other Personal Health Care	$53.30	2.87%	$182
Home Health Care	$42.70	2.30%	$145
Nursing Home Care	$115.00	6.19%	$392
Prescription Drugs	$189.70	10.20%	$646
Durable Medical Equipment	$23.10	1.24%	$79
Other Non-Durable Medical Products	$32.80	1.76%	$112
Total Cost personal health care=	$1,551.30	83.45%	$5,283
Administrative cost private and public	$135.20	7.27%	$460
Government Public Health Activities	$52.50	2.82%	$179
Research	$38.30	2.06%	$130
Structures & Equipment	$81.70	4.40%	$278
Total cost for Nation Health Expenditure	$1,858.90	100.00%	$6,331

Table 1. Health Care Spending in the US in 2004 [2, 3]

The total cost per capita for inpatient care based on OECD data[4] for the US in 2004 was $1,636. This compared to $1,069 for France and $879 for Japan, after adjusting for differences in cost of living. (Appendix C) The number of inpatient days per capita was 0.7 in the US, while France was 1.0 and Japan was 2.1.

The cost of physician services for the US per capita in 2004 was $1,362 in this same analysis,[4] while France was $371 and Japan was $563. The number of physician visits per capita for the US was 3.9, while France was 6.7 and Japan was 13.8. Health care resources cost more in the US and are utilized less. Later in this technical brief we will look at physician resources in more detail and compare some differences among nations.

Figure 4 shows how the money is spent for a commercial health care provider for a non-Medicare population. Dr Robert Hurley provided this information. Table 2 provides further detail for this same type of population.

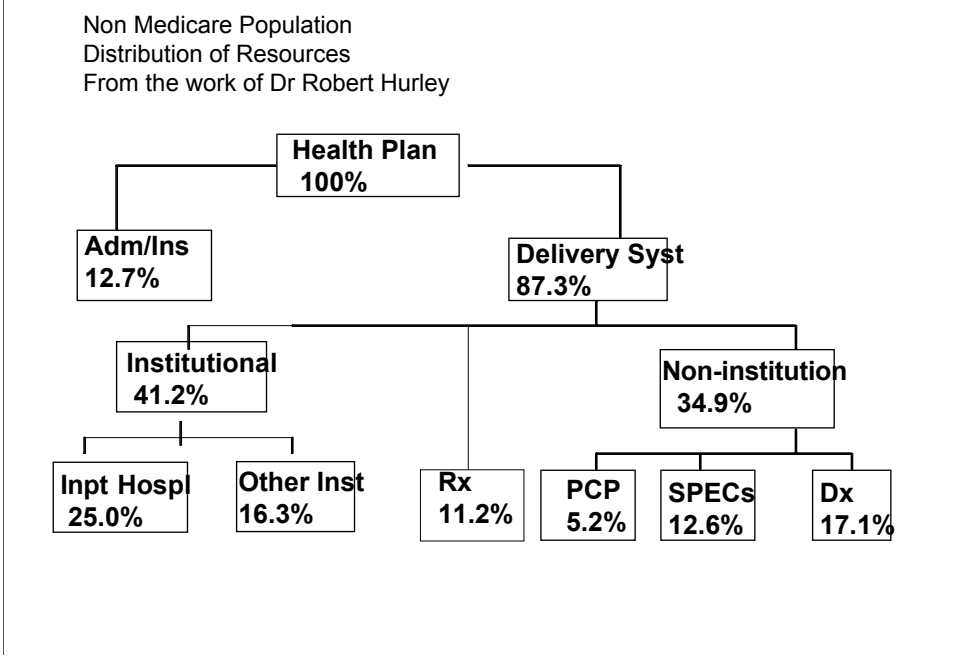


Figure 4. Distribution of Resources in a Commercial Non-Medicare Provider

Medical Service Benefits		Annual Use per 1000 members	PMPM (per member per month)
Hospital Inpatient			
	Med Surg	210 days	$111.63
	Psychiatric/ SA	60 days	$15.60
	Subtotal	270 days	$127.20
Hospital Outpatient			
	Emergency Room	261 visits	$13.02
	Surgery	85 visits	$35.23
	Other	512 visits	$27.55
	Subtotal		$75.80
Primary Care Capitation			
	Office/Inpt visits	2152 visits	$25.53
	Immuns/Injects	154 procs	$0.85
	Subtotal		$26.38
Fee-for-service physician			
	Surgery	374 procs	$35.28
	Anesthesia	78 procs	$15.88
	Office/inpt visits	1025 visits	$13.17
	Other	3277 services	$87.00
	Subtotal		$151.33
Other			
	Prescription Drugs	6000 scripts	$57.17
	Home Health	29 visits	$1.95
	Ambulance	15 runs	$2.58
	DME	32 units	$2.58
	Subtotal		$64.28
Total Medical Costs PMPM			$445.00
Retention Load (admin costs @ 11.00%)			$55.00
Required rate PMPM			$500.00

Table 2. Resource Use for a Non-Medicare Commercial Provider (based on a $500 per-member-per-month payment, or $6000 per year)

For comparison, Figure 5 shows the cost breakdown for the NHS in 2004 based on a per capita health care cost of $2,546.

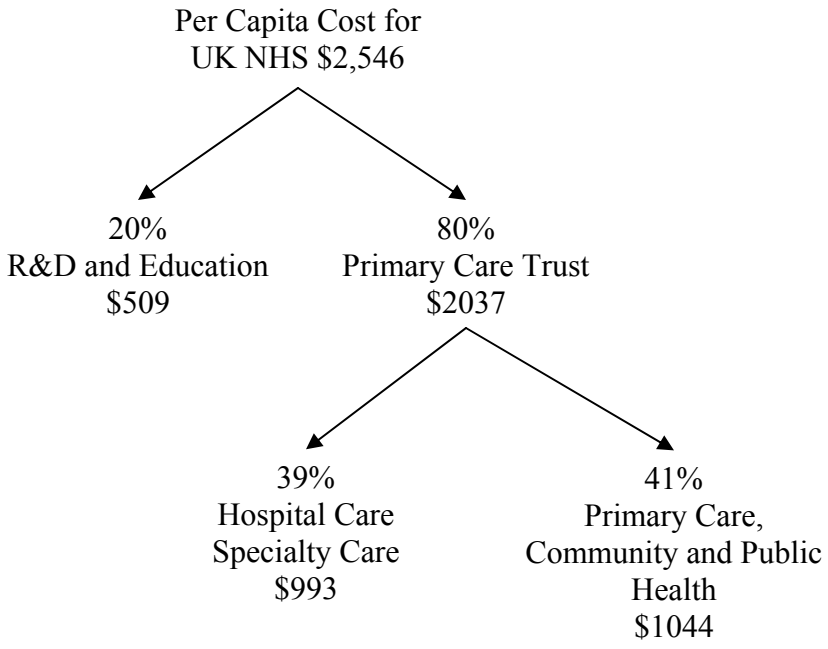


Figure 5. Per Capita Health Care Costs for a Primary Care Trust in England NHS

At the state level in the US, tremendous variation in the amount of resources used for health care exists. (Appendix A, B) Physician services and hospital services cost more in the US compared to other nations, and that is one reason health care costs more. Another driver may be that the specialty mix of physicians leads to different resource utilization. The specific claim is that stronger primary care systems lead to lower cost and better outcome.[7-11] Figure 6 is a graph where each point represents one of the hospital referral regions as described by the *Dartmouth Atlas of Health Care*.[12] It shows the relationship between total Medicare reimbursement for 2003 and the percentage of all physicians who are in primary care (Pediatrics, Internal Medicine, and Family Practice) in each state based on 1999 data retrieved from the *Dartmouth Atlas*. In the US, the overall percentage of physicians who are in primary care in 2006 is 39%.[13] This is compared to Australia and Belgium where the percentage of physicians in primary care is greater than 50%, and France and New Zealand where it is 50%.[14, 15]

Figure 7 is similar; each point represents one of the hospital referral regions. It shows the relationship between total Medicare reimbursement and the number of Family Practice physicians per 100,000 residents for that state, based on data retrieved from the *Dartmouth Atlas*. The trend in these graphs is that higher numbers of primary care physicians lead to lower cost.

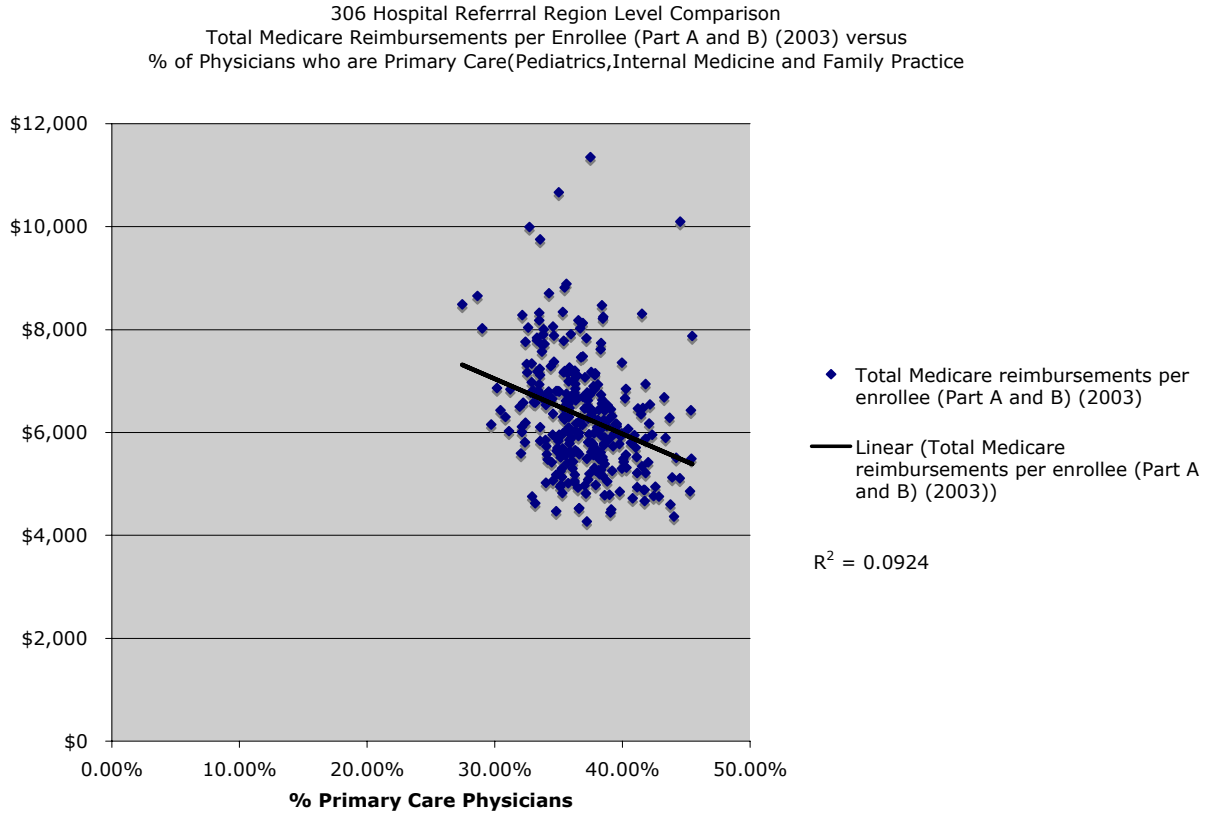


Figure 6. Medicare Reimbursement per Enrollee 2003 Versus Percentage of Physicians in Primary Care in 1999

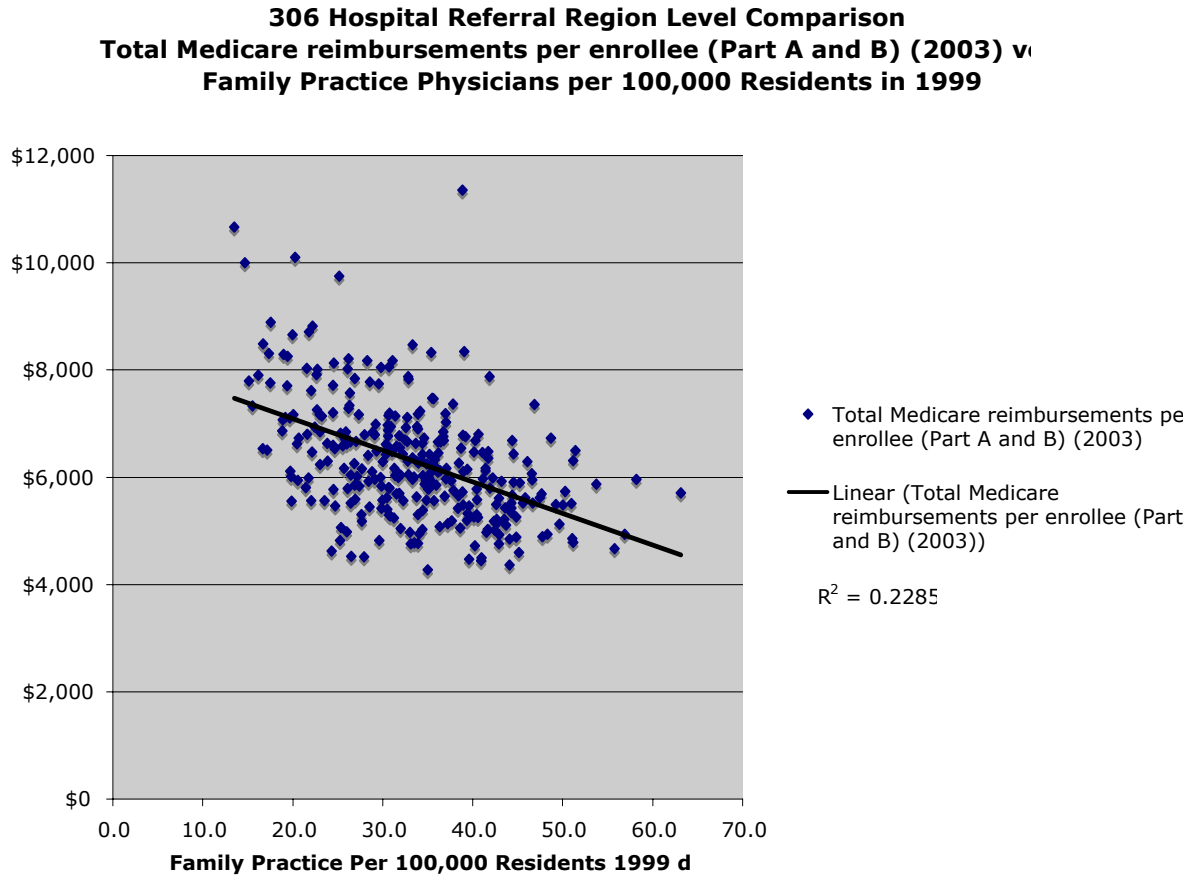


Figure 7. Medicare Reimbursement per Enrollee 2003 Versus Family Practice Physicians per 100,000 in 1999

The US system's emphasis on specialist care may have also led to greater consumption of high-end technology. For example, the May 9 issue of *JAMA*'s Medical News and Perspectives section noted that, "Today, more than 1 million stent procedures are performed in the United States and, while estimates vary, up to 85% of these interventions are carried out on patients with stable coronary artery disease, the COURAGE investigators said." COURAGE is a recent study that indicated that "As an initial management strategy in patients with stable coronary artery disease, PCI did not reduce the risk of death, myocardial infarction, or other major cardiovascular events when added to optimal medical therapy."[16] A crude estimate of the cost related to this procedure would be around $36 billion in the US in 2005. This is based on data from the Healthcare Cost and Utilization Project (HCUP). [17]

All countries must develop an approach to new technology. There is a potential for overuse, underuse, and misuse of new technology. In the UK, an approach they have taken to new technology is the creation of the National Institute for Health and Clinical Excellence. One of its main purposes is to provide "health technologies - guidance on the use of new and existing medicines, treatments and procedures within the NHS."[18]

To complete this report the problem of insuring the uninsured will be discussed. An article produced for the Kaiser commission on both full-year and part-year uninsured estimated in 2004 that the additional cost for covering the uninsured was $48 billion.[19] This would represent a 3.2% increase in personal health care cost for the US as a nation. They based their assumptions on a total cost for the uninsured of $124.5 billion. This was the amount presently "spent" by the uninsured through out of pocket, public, private and uncompensated care. They estimated that, in addition to current spending, it would require an additional $48 billion to cover the uninsured. This would bring the total amount of money to be spent on the uninsured to $172.7 billion.

IV. Description of Work Completed to Date: Update of Deliverables

1. Developed a population budget that includes breakdown for the various components to provide health care
2. Defined the inpatient resources needed for this population
3. Defined the clinical resources needed for this population
4. Defined the public health resources needed. Today we use approximately 3% of the US budget for public health.
5. The capital budget need to sustain this population was not defined or addressed in this paper. It was decided that this is an issue for the high-value supplier. The supplier needs a stable budget so that they can use it to plan for future capital requirements.

V. Results of the 90-Day Scan: Recommendations for the Integrator

In previous work on the Triple Aim, we have mentioned the concept of the "system integrator."[1] This is the entity that is focused on the Triple Aim and will organize and use the resources for its identified population. The integrator must use the health care budget it has to provide optimal health care. Most health care today works off of a defined benefits model of insurance. In this model, an insurance product is offered to a population and the cost for this product is based on past medical use experience. In a population-based budget there is an effort made to use the resources not on the basis of experience, but on the basis of what is the optimal use for the integrator's population. With this in mind, the integrator needs to strengthen and expand the role of primary care and decrease the dependency on specialized care.[7, 8, 10] One example of this type of approach is the company QuadGraphics, which has historically spent 20% more on primary care but achieved a total health care savings of 20%.[20] The integrator will need to optimize resource utilization closer to the best in the nation based on the *Dartmouth Atlas* (Appendix E). Every person needs to get the right care at the right location with the right personnel at the right time. This will require each clinician to practice to the maximum of their license. They will need to actually look at their region's use of resources and compare that to regions where there is more optimal use. This may help them in their pursuit to purchase from high-value suppliers.

Certain segments of the population consume far more health care resources than others.[21] A general plan and specific tools are needed to provide optimal care for each segment. Case management, the chronic care model, and the medical home [22] are examples of tools that can be used to provide support and care for the segments.

New technology must be managed. Thankfully, new technology is constantly being produced to help improve care; however, this technology must be judged on its potential impact on the population. The UK has developed an approach called the National Institute for Health and Clinical Excellence,[18] which analyzes and makes recommendations for the use of new technology. The integrator needs to have a systematic approach to technology.

Cost needs to be driven out of the system. For example, possibly 85% of coronary artery stents might be unnecessary at a cost of $30 billion to the US.[16, 17] Whether 85% are truly unnecessary is open to debate. However, some percentage of the present placement of coronary artery stents could be reduced. The health care system needs to drastically decrease waste/cost on an aggressive basis. An analysis of all major specialties needs to be performed and a target of the top five waste areas in each of the major specialties needs to be done.

Lastly, we need to provide health care coverage to all. The integrator will be doing this for their population, but this needs to be done at the macro level for all of the US.

VI. Conclusion

We spend more for hospital care, physician services, medication, and administration than any other nation.[4] More resources are not the answer to improve the US health care system. The District of Colombia in 2003 had 752 non-federal physicians per 100,000 population, which is the highest in the nation.[23] They had 6.1 beds per 1000 residents in 2005, when the average for the US was 2.7 per 1000.[24] At the same time, they have some of the worst health statistics in the nation. Infant mortality was 10.94 per 1000, when the US rate was 6.88 per 1000 during the same time period (2001-2003).[25] The death rate was 970 per 100,000 in 2004, when the US national average was 801 per 100,000.[26] The Commonwealth Fund ranked them the 48th worst state when it comes to healthy lives.[27] What the US needs now is a new approach to the use of resources.

Summary of recommendations for the System Integrator:

1. Identify the population.
2. Move away from a defined benefits financial model that provides health insurance. Move towards a population-based budget for the optimal use of resources.
3. Expand the role of primary care and decrease the dependency on specialized care.
4. Optimize resource utilization closer to the best in the nation based on *Dartmouth Atlas*.
5. Develop a segmented approach to resource utilization.
6. Develop a plan to manage new technology.
7. Drive cost out of the system.

VI: Appendices:

Appendix A
Per-Capita Spending at the State Level on Personal Health Care
The data was for the table was derived from National Health Care Expenditure data and census data.[2, 3]

State	Personal Health Care Spending Per Capita 2004	% of People Over 65
Massachusetts	$6,855	13.5
New York	$6,524	12.9
Maine	$6,399	14.4
Alaska	$6,349	5.7
Connecticut	$6,314	13.8
Rhode Island	$6,297	14.5
North Dakota	$6,266	14.7
Delaware	$6,110	13.0
Minnesota	$6,052	12.1
Pennsylvania	$6,018	15.6
Tennessee	$5,746	12.4
Ohio	$5,735	13.3
Vermont	$5,730	12.7
Nebraska	$5,644	13.6
Missouri	$5,613	13.5
Wisconsin	$5,610	13.1
West Virgina	$5,591	15.3
New Jersey	$5,574	13.2
South Dakota	$5,560	14.3
Maryland	$5,520	11.3
Florida	$5,478	17.6
Kentucky	$5,437	12.5
New Hampshire	$5,400	12.0
Indiana	$5,323	12.4
United States	$5,283	12.0
North Carolina	$5,227	12.0
Kansas	$5,203	13.3
Washington	$5,146	11.2
Illinois	$5,106	12.1
Iowa	$5,103	14.9
Louisiana	$5,075	11.6
Alabama	$5,066	13.0
Hawaii	$4,983	13.3

Montana	$4,965	13.4
South Carolina	$4,936	12.1
Michigan	$4,920	12.3
Oregon	$4,881	12.8
Colorado	$4,851	9.7
Mississippi	$4,822	12.1
Virginia	$4,787	11.2
Oklahoma	$4,711	13.2
Texas	$4,686	9.9
Nevada	$4,667	11.0
California	$4,666	10.6
Arkansas	$4,651	14.0
Georgia	$4,644	9.6
Wyoming	$4,490	11.7
Arizona	$4,223	13.0
New Mexico	$4,205	11.7
Utah	$4,112	8.5
Idaho	$4,050	11.3

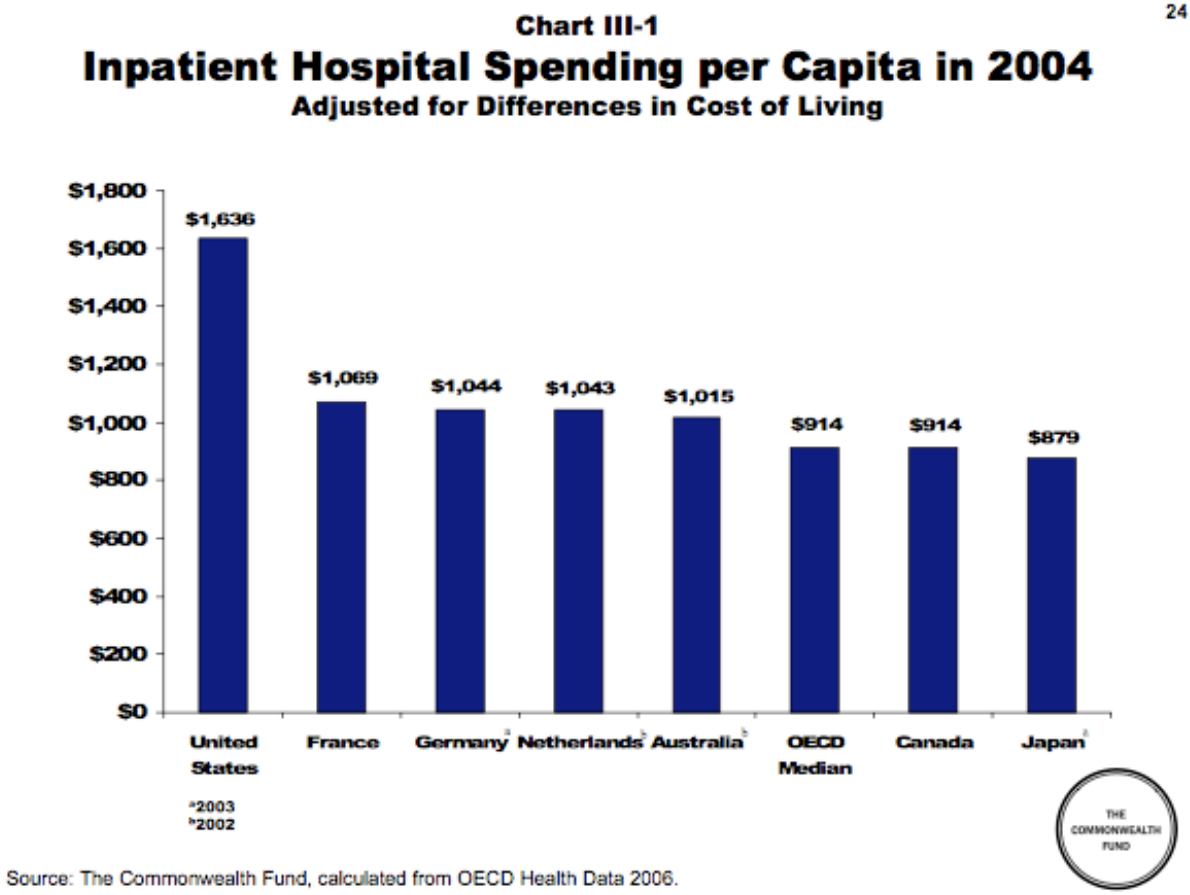
Appendix B

The table below represents the range of Medicare reimbursement per enrollee for the year 2003. It shows that the highest-cost state is New Jersey and the lowest is Hawaii. The data comes from the *Dartmouth Atlas*.[12]

State label	Total Medicare reimbursements per enrollee (Part A and B) (2003)
New Jersey	$8,076
Massachusetts	$7,804
Louisiana	$7,716
New York	$7,663
California	$7,424
Connecticut	$7,384
Maryland	$7,305
Florida	$7,225
Texas	$7,192
Nevada	$7,109
Pennsylvania	$6,860
Michigan	$6,841
Rhode Island	$6,824
Oklahoma	$6,675
Delaware	$6,637
Illinois	$6,625
United States	$6,611
Mississippi	$6,525
Alabama	$6,492
Ohio	$6,470
Alaska	$6,431
Tennessee	$6,411

Kentucky	$6,384
District of Columbia	$6,312
Colorado	$6,114
Arizona	$6,077
Kansas	$6,070
West Virginia	$6,041
Missouri	$5,990
Georgia	$5,979
South Carolina	$5,975
North Carolina	$5,873
Indiana	$5,851
Arkansas	$5,845
New Hampshire	$5,842
Maine	$5,581
Vermont	$5,580
Virginia	$5,568
Washington	$5,523
Wisconsin	$5,407
Nebraska	$5,370
Utah	$5,333
Wyoming	$5,323
Minnesota	$5,287
Montana	$5,178
Idaho	$5,126
New Mexico	$5,120
South Dakota	$5,024
Oregon	$4,933
Iowa	$4,888
North Dakota	$4,766
Hawaii	$4,530

Appendix C
J. Cylus and G. F. Anderson, Multinational Comparisons of Health Systems Data, 2006 (New York: The Commonwealth Fund, Apr. 2007).[4]



Appendix D
This example of the breakdown of health care cost provided by a commercial insurer in the US shows the impact of age on the distribution of money for that insurer.

	% distribution Commercial	% distribution Medicare
Inpatient	18.8%	39.7%
Outpatient	29.8%	24.3%
Physician	33.1%	25.9%
Pharmacy	16.9%	9.1%
Ment Hlth/Subs Abuse	1.5%	1.0%

This is an example of the breakdown in health care cost of physician services:

	% distribution Commercial	% distribution Medicare

PCP	18.3%	15.9%
Specialist	81.7%	84.1%
Total Physician	100.0%	100.0%

Appendix E
Sum of inpatient and Medicare Part B expenses in the last two years of life based on data from the *Dartmouth Atlas*.[12]

State	Sum of inpatient reimbursements and Part B payments per decedent during the last two years of life (2000-2003)
Idaho	$23,697.45
Iowa	$23,745.68
West Virginia	$23,788.51
North Dakota	$23,854.61
Indiana	$23,874.03
Utah	$23,936.10
South Dakota	$24,072.10
New Mexico	$24,615.88
Ohio	$25,004.53
Kentucky	$25,012.15
Montana	$25,056.28
Wyoming	$25,172.92
Maine	$25,195.74
Oklahoma	$25,227.48
Wisconsin	$25,343.23
Alabama	$25,343.65
Virginia	$25,435.38
Oregon	$25,508.53
Missouri	$25,680.80
Mississippi	$25,705.01
New Hampshire	$25,706.40
Arkansas	$25,723.74
Kansas	$25,739.53
North Carolina	$25,828.51
Nebraska	$25,837.58
Colorado	$25,887.60
Georgia	$26,266.50
Tennessee	$26,463.70
Louisiana	$26,829.85
Vermont	$27,049.73
South Carolina	$27,094.70
Minnesota	$27,410.92
Washington	$27,698.47

Arizona	$27,842.99
Nevada	$27,950.47
Michigan	$28,426.57
Delaware	$28,449.66
Texas	$28,466.16
Pennsylvania	$28,487.34
Rhode Island	$29,028.42
National Average	$29,199.34
Florida	$29,603.59
Illinois	$31,197.48
Alaska	$31,956.94
Massachusetts	$31,984.59
Connecticut	$32,636.48
Hawaii	$33,518.25
New York	$38,368.63
California	$38,573.40
District of Columbia	$39,637.48
New Jersey	$39,809.97

Appendix F
Estimated cost for health care for a population of 40,000 (age 0 to 64)

	Per capita all ages(a)	Estimated Per capita age 0-64(b)	Cost of care for 40,000 people age 0 to 64
Year	2007	2007	2007
Hospital Care	$2,115.00	(b) $1,482.83	$59,313,060
Primary Care Estimate	$391.20	c$274.27	$10,970,813
Specialty Care Estimate	$913.50	$640.45	$25,618,194
Other Professional Services	$217.85	$152.74	$6,109,408
Dental Services	$338.34	$237.21	$9,488,355
Other Personal Health Care	$221.50	$155.30	$6,211,801
Home Health Care	$176.47	$123.72	$4,948,962
Nursing Home Care	$477.08	$334.48	$13,379,263
Prescription Drugs	$589.66	$413.41	$16,536,359
Durable Medical Equipment	$96.15	$67.41	$2,696,331
Other Non-Durable Medical Products	$136.31	$95.57	$3,822,647
Total Cost personal health care (c)	$5,673.06	$3,977.38	$159,095,193

(a)These estimates are based on National Health Expenditures estimates[2]

(b)These estimates take in to consideration age adjustment along with an estimated of potential savings in hospital care of 10% , a decrease of specialist

use of 30%[28] , a 20% increase in primary care and a 25% reduction of medication cost [4]

c. This excludes the following: administrative cost both private and public, Government Public Health Activities, Research and National Structures & Equipment

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