Closing Hospitals in New York State Won't Save Money But Will Harm Access to Health Care

A Short Report Prepared for

The Committee of Interns and Residents
New York City

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A note about this short report

This short report presents evidence on the effects of hospital closings. It is drawn from a from a larger study of health care costs, coverage, and caregiver survival in New York State.

It has been prepared by Alan Sager and Deborah Socolar, directors, Health Reform Program, Boston University School of Public Health for the Committee of Interns and Residents, New York City.

The authors have prepared this report with complete independence. They take sole responsibility for the evidence, analysis, conclusions, and all other aspects of the report. It does not necessarily represent the views of the Committee of Interns and Residents, or of Boston University or any of its schools.

Established in 1998, the Health Reform Program designs practical solutions to health care problems--solutions that address the needs of all parties. The program's work on U.S. health reform addresses patients' inability to afford needed prescription drugs; the disproportionate closing of hospitals in minority and lower-income communities; and methods of winning affordable health care for all. Some 70 reports on these topics are posted on the program's web site, www.healthreformprogram.org.

The program's Access and Affordability Monitoring Project, established in 1988, tackles coverage and cost problems, and survival of hospitals and other caregivers in Massachusetts. Some 60 reports on these topics are posted on the program's web site.

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SUMMARY

Findings. This short report presents two key findings from a larger study of health and hospital costs in New York State.

1. New York State suffers high health care costs in general and high hospital costs in particular, but hospitals closings have repeatedly failed to cut costs, and can even result in increased costs.

2. Even worse, hospital closings have harmed access to care—particularly in underserved areas and communities of color. The effects of hospital closings on access to care have been poorly studied and systematically downplayed by advocates of closings.

Hospital closings don't save money. The evidence overwhelmingly indicates that closing hospitals will do little or nothing to slow health care cost increases.

New York State does have more hospital beds per 1,000 people than most other states, but excess beds do little to explain the state's very high hospital costs. After controlling for other important characteristics, it appears that hospital spending per person is not very strongly influenced by hospital beds per 1,000 people.

Efforts to reduce hospital cost per person by trying to cut hospital beds would therefore not be very effective.

Worse, it is more likely that costs will actually increase—if, as is widely expected, the types of hospitals that close in the future resemble the types of hospitals that closed in the past—and if the patients displaced by closings actually obtain needed care at surviving hospitals. If beds are closed at non-teaching hospitals or smaller teaching hospitals, the share of hospital admissions at larger teaching hospitals will rise. This could be expected to result in an increase in hospital costs per person.

For three decades, the policy of closing hospitals has been held out as a painless, efficient, and even noble way to cut hospital costs by cutting ostensibly wasted care and liberating funds to be used, somehow, to finance more primary care services.

Proponents of closings have wrapped themselves in the mantle of the public interest and have sometimes castigated those who oppose closings as selfish protectors of special interests, as unreasoning obstacles to more efficient and equitable delivery of care.

But if hospital closings don't save money, and if they tend to benefit the more powerful surviving hospitals, perhaps it is the advocates of closings who are selfishly violating the public interest in affordable care for all New Yorkers.

Having more hospital beds does little to cause high health care costs today. Decades of evidence indicates that even if more beds did contribute to higher costs (and more beds seem to be only a minor contributor), closing hospitals would still not save money and can even lead to increased costs.

The speedier rise of hospital costs per person since about 1975, while beds per 1,000 people were cut, should be called a macro-failure of policy.

We suggest that continuing to focus on the hospital bed supply per 1,000 people is a distraction, one that will allow costs to continue to increase.

The way to contain cost is by containing cost, not by cutting beds.

To cut cost, it is helpful to focus on the main types of waste in New York State health care—clinical waste, administrative waste, excess prices, and theft.

Closings harm access, especially for patients who are vulnerable to denial of needed care. The observed pattern of hospital closings undermines equity of access to urban health care. It does so in two ways.

The first is geographic.

✓ Cities vary greatly in the ratio of hospital beds per 1,000 citizens. Hospital closings do not tend to even out these differences. This is important to consider in light of the differences in beds per 1,000 people among large counties in New York, and also in inter-borough differences in beds per 1,000 in New York City.

✓ Hospitals in black/African neighborhoods are much more likely to close. Over several decades, this pattern has strikingly visible consequences.

✓ Hospital closings undermine continuity of inpatient care. Many of the patients displaced by closings take long times to re-weave the fabrics of their health care.

The second concerns hospitals and the provision of physicians' services.

✓ Hospitals are very important providers of ambulatory care, especially to black/African-American patients and to Latino patients.

✓ Hospitals and doctors are mainly symbiotic. Each is needed to sustain the other. Because hospitals need doctors to refer, admit, and care for patients, hospitals are motivated to recruit and sustain doctors who practice nearby. Some hospitals are located in areas where physicians are in short supply, and are therefore motivated to recruit physicians into the area, but these tend to be the very hospitals that lack the money to do so—and are the most likely to be closed.

We are concerned that the important aim of slowing cost increases in New York State may be used as a pretext to close some hospitals in order to improve the financial margins and credit ratings of hospitals that would survive. Accepting the recommendations from the hospital closings commission has been made a condition of receiving special federal Medicaid financing that can be used to retire hospital debt.[1] A prominent press report on the new Medicaid waiver focuses on the aim of stabilizing "the state's financially troubled hospital industry." [2]

These changes indicate that the intent of those who would close hospitals is no longer saving money, but rather helping the industry to consolidate and to be more successful financially.

Such consolidation would mean much less price competition among hospitals. That would bolster hospitals' bargaining positions, allowing hospitals to raise prices. That would mean higher insurance premiums and, therefore, greater pressure for public re-regulation of hospitals' revenues.

The main goal of health care reform should be durably affordable and high-quality health care for all New Yorkers. Pursuing this goal requires ensuring that all needed hospitals remain open, and that they are paid enough to finance efficient provision of high-quality care. And no more.

Shifting more hospital care into fewer, larger, and more specialized hospitals would speed New York State toward an increasingly costly and unequal pattern of hospital services. We would spend more money to provide less care to fewer people.

Hospital closings might seem to be a logical solution to a real cost problem. Unfortunately, closings don't save money and they do harm access to care. Their promise greatly exceeds their performance. Closing some hospitals will benefit the surviving hospitals, but that will not lower cost or protect access to care. It will, though, protect the survivors. Until the next round of closings.

By boosting cost and degrading access, hospital closings accelerate the drift of health care toward fewer services for fewer people at greater cost.

This is medically, socially, economically, and politically dangerous.

EXHIBITS

I. CLOSING HOSPITALS DOES NOT SAVE MONEY

A. THE PROBLEM OF HIGH HEALTH COSTS

High health care costs and high hospital costs have long plagued New York State. Indeed, New York State has the second-highest health care costs among the 50 states and therefore the second-highest in the world.

In 2004, personal health spending per New Yorker was 25 percent above the U.S. average. Hospital spending per New Yorker was 34 percent above the national average. If New Yorkers had spent on hospital care at the national per person average, savings in 2004 would have totaled $10.7 billion.

At the same time, New York had 21 percent more hospital beds per 1,000 people than the national average.

Health care costs have continued to rise in the nation and in New York despite efforts to use both public regulation and market forces to control them. Indeed, none of the cost control attempts of the past three decades has worked well.

Today, informed Americans have great reason to worry that the public and private dollars needed to finance constantly growing health care spending simply can't be found. This strengthens pressures to somehow contain costs.

In New York State, hospital financial margins are among the tightest in the nation. It is not clear whether this stems from high costs, from low revenues, or from some combination of the two. As in the 1970s, when hospitals' revenues were also tight, thoughts turn to closing some hospitals in hopes of relieving the financial pressure on those that would survive.

B. THE APPEAL OF HOSPITAL CLOSINGS

Many people have long believed that having a great number of hospital beds is one of the main causes of high hospital costs. From this follows a belief that closing beds will save substantial sums.

Since the 1970s, New York State has periodically sought to slow the rise in health care spending by closing hospitals. These attempts have been accompanied by public declarations that the state had too many hospitals and too many beds, that extra beds wasted money, and that—done carefully—closing beds could save money without appreciable harm to access to care.

As will be seen shortly, the evidence indicates that the link between hospital bed supply and costs of hospital care is very weak. Still, many efforts to contain health care costs have focused on hospital closings. There are at least eight main reasons for this focus. Some are public-spirited but others are more selfish.

First is logic. New York's hospital costs are indeed high. And so is the state's ratio of hospital beds per 1,000 people. Long-standing literatures on hospital bed supply and costs seem to suggest that closing beds and closing hospitals would save money.

Second is feasibility. It seems to be politically possible to actually close hospitals. The hammer of closing hospitals is a tool that can be swung, with the force of legislation behind it, to hit the nail of certain hospitals. And that might be viewed as a visible political and a policy success—something that was believed to slow the rise in health care spending was actually done. Few other politically feasible steps to contain costs seem to be available. It follows that the hospitals likeliest to be forced to close would tend to be those with the least political power, allowing closings to be accomplished with relatively little political struggle.

Third is symbolism. The very weakness of the policy in containing costs probably appeals to those who want to be seen to be doing something about high health care costs—without actually slowing spending growth in ways that might anger hospitals and others who don't really want spending increases to be slowed.

Fourth is self-interest of some hospitals. The most powerful and prestigious hospitals seldom expect that they would be affected by proposals to close hospitals. Rather, their competitors might be closed, thereby increasing the flow of patients to the surviving hospitals (making for higher volume and revenue at surviving hospitals) while also boosting the market power of the surviving hospitals. This would allow them to raise their prices, and also enable them to borrow money at lower interest rates.

Fifth is the insulation of the decision-makers. Those who decide which hospitals must close seldom expect that the hospitals that serve them or their families—or their physicians—will be among the victims. Understandably, it's easier to try to close other people's hospitals.

Sixth is self-interest of some bond-holders. Those who hold the bonds of hospitals slated for closing, or who insure those bonds, might benefit from a process of planned closings of hospitals that includes provisions to pay off the bonds of those hospitals—bonds that the hospitals might not have been able to pay themselves.

Seventh is hope of linkage to primary care. Some who desire to see higher spending on primary care services and prevention hope or imagine that closing hospitals will somehow liberate funds that can be devoted to addressing pressing primary care and prevention needs. Many advocates of this position see hospitals as inefficient institutional dinosaurs.

Eighth is high-mindedness. Hospital closings are sold as essential to the public interest in cost control, which should prevail over what is portrayed as the private or parochial interests of hospitals and of communities that selfishly fight to retain unneeded hospitals.

C. THE FAILURE OF HOSPITAL CLOSINGS TO SAVE MONEY

These eight reasons help to explain why some people would try to close hospitals in hopes of saving money.

But evidence is more important than motives or hopes, however appealing. It is more important to assess whether closing hospitals has saved money in the past or could be expected to save money in the future.

The current campaign to close New York hospitals does not seem to have been informed by careful or reasonable analysis of
  ✓ the evidence on the causes of high hospital costs in New York State,
  ✓ why previous efforts to save money by closing hospitals failed, or
  ✓ alternative methods of containing hospital costs.

This is somewhat surprising, given Stephen Berger's involvement in the New York State effort of the 1970s to close hospitals and his central role in the new campaign.

The best that can be expected from the current campaign is that few hospitals are closed, and that these hospitals are located in areas that will continue to be well-served, meaning that this effort does little harm and possibly a little good.

Even if public efforts to close hospitals proceed in this way, they are a waste of time, at best, because they steal energy, time, and attention from identifying the real causes of high health costs, devising methods to attack those causes, and developing politically feasible ways to employ those methods. Wasting time could work to delegitimize other efforts by governments that might actually help to safely restrain health care spending.

At worst, the campaign would be counter-productive—if it closes relatively low-cost and good-quality hospitals in lower-income communities at risk of under-service. The campaign would thereby accelerate the rise in health care spending and the drop in equity of access to health care. That's because the hospitals targeted for closing will probably be those with the least money and located in the areas where they are most needed.

Unfortunately, the evidence indicates that closing hospitals has not worked to save money and will not work to save money. This evidence comes in three main packages.

  ✓ The first is the detailed analysis of hospital costs in New York State.
  ✓ The second is the evidence from hospital closing efforts over the past 30 years.
  ✓ And the third is the evidence from analyses of hospital closings in 52 U.S. cities since the 1930s.

1. Why Are New York State's Hospital Costs So High?

One reason why closing hospitals and beds is ineffective is that, even if over-bedding were a major source of high costs, a growing share of hospital costs are associated with outpatient care. The inpatient share of New York's hospital's revenue is now only about two-thirds, down from 90 percent in 1970.

It is revealing to compare hospital resources, use, and costs in New York State with those of the nation as a whole. Selected comparisons are summarized in Exhibit A.

Hospital cost per person in New York is 34 percent above the U.S. average, ranking 3rd among the states. But New York ranks only 15th in beds per 1,000 people.

To begin to understand why hospital cost per person is so high in New York State, it is helpful to exclude some of the potential culprits. These have been widely but wrongly discussed.

- ✓ Empty beds are not a culprit. New York ranks second-highest nationally in occupancy rate—the share of beds that are actually used. Even more important, the cost of building the beds themselves is a sunk (fixed) cost. There is no added cost unless they are occupied and staffed. Empty beds are not staffed—no hospital can afford to do so. Therefore, there's not much reason to worry about the cost of empty beds.

- ✓ A high rate of ER use is not a culprit. New York is only 3 percent above the U.S. average rate of ER visits per 1,000 people.

What factors do seem to be important in explaining high hospital costs in New York?

- ✓ Hospital patient-days per 1,000 people are very high, 42 percent above the U.S. average.

- ✓ Only a small share of the extra patient-days is attributable to more admissions or higher surgery rates (10 percent and 9 percent above the national averages, respectively).

- ✓ Instead, the extra patient-days are overwhelmingly attributable to longer stays (30 percent above the national average). New York's long average stays don't present a big opportunity to cut hospital costs. That is because savings from cutting length-of-stay tend to be very low. Suppose a cut in the number of hospital beds in New York State. Hospitals are likely to respond by cutting average length-of-stay, since it has remained relatively high in New York State. But this will do little to reduce the cost of hospital care, since days that can be cut are typically recuperative, and these are inexpensive for the hospital to provide.

- ✓ New Yorkers rely heavily on hospitals to provide ordinary outpatient department (OPD) or clinic visits. They do so at rates 40 percent above the national average.

- ✓ Hospitals in New York employ salaried doctors and dentists at double the national rate.

- ✓ The share of patients served in major teaching hospitals, members of the Council of Teaching Hospitals (COTH) is more than double the national average share.

Exhibit A

**Characteristics of Hospital Resources, Use, and Costs,
New York State versus the Nation, 2004**

	USA	New York	NYS as % of USA	NYS rank among states
Cost/person	$1,639	$2,196	134%	3
Patient-days/1,000 people	672.8	958.6	142%	4
Admissions/1,000 people	119.5	131.0	110%	13
Average length-of-stay	5.6	7.3	130%	7
Occupancy rate	67.0%	78.9%	118%	2
Beds/1,000	2.75	3.33	121%	15
Surgeries/1000	93.3	101.5	109%	24
ER visits/1000	383.5	394.8	103%	23
OPD visits/1000	1,562.9	2,184.4	140%	13
Physician + dentist FTEs/1,000	0.25	0.50	199%	6
Resident FTEs/1,000	0.29	0.80	279%	1
COTH % beds	18.5%	39.5%	213%	4
COTH % admissions	20.7%	45.3%	218%	4
Operating margin	3.58%	-0.41%	-11%	49
Total margin	5.18%	1.32%	25%	47

Notes: Costs per person are hospital costs divided by population. Rates per 1,000 people are the hospital data per 1,000 people. ER is emergency room. OPD is hospital outpatient department. FTE is full-time equivalents.

Sources: American Hospital Association, *Hospital Statistics, 2006 Edition,* Chicago: American Hospital Publishing, 2006, Tables 3, 6, and 8.

Outpatient care. New Yorkers' heavy reliance on outpatient (OPD) care is a substantial source of higher cost, and one that can only be addressed by serious efforts to make primary care and specialty services much more widely available outside hospitals.

Simply closing hospitals to cut OPD use might save money but is irresponsible and medically dangerous. Also, as will be shown in Part II, the harm would fall disproportionately on patients who are already vulnerable to denial of needed care—black/African-American and other New Yorkers. In the U.S. black/African-American reliance on hospitals' ERs and especially OPDs to see a doctor is double that of whites.

Cutting New Yorkers' visits to doctors in hospital OPDs to national rates would eliminate 3.5 million OPD visits by black/African-American residents of the state, we estimate. And if hospital closings were concentrated disproportionately in black/African-American communities, the loss of visits would be appreciably higher.

Similar losses are likely to prevail among Latino/Hispanic, Asian, and other groups of patients who are vulnerable to deprivation of needed care.

Major teaching hospital care. High reliance on larger teaching hospitals—major medical centers—is associated with high hospital costs in New York State. New Yorkers' reliance on larger teaching hospitals (members of the national Council of Teaching Hospitals, COTH) is more than double the national average. Supposed that New York State sought to have hospital patients to be served in COTH members at the national average. That would require shifting some 624,000 admissions out of larger teaching hospitals and into smaller teaching hospitals or community hospitals annually.

We have calculated the effects on costs of closing 2,000 beds at non-teaching hospitals and shifting those admissions to major teaching hospitals. We estimate that hospital costs would rise by $1.5 billion annually as a result. The calculations that support this estimate are derived from a multivariate regression analysis, whose methods and findings are explained in detail in Appendix 1.

<u>Which of these factors have greater impacts on cost of hospital care in New York State?</u>
<u>Results of a multivariate analysis of predictors of hospital costs per person</u>

We have performed a multivariate regression analysis to try to tease out the main independent predictors of high hospital costs across the 50 states. We compiled data on all 50 states on a number of hospital, physician, population, and other characteristics.

Five independent variables formed associations with hospital cost per person that would be found by chance no more often than five times in one hundred. That is, they had a statistical significance of $p = 0.05$ or lower.

COTH share of admissions in the state was most important, followed by OPD visits per 1,000 residents of the state, beds per 1,000 residents, the ratio of practicing office-based physicians per 10,000 residents, and labor share of total expenses.

The regression equation as a whole was highly statistically significant. More important, it was practically powerful. The five independent variables explained fully 81.3 percent of the difference in hospital cost per person across the 50 states ($R^2 = 81.3$ percent).

A variable's semi-partial correlation squared measures the share of the total variance in the dependent variable, hospital cost per person, that is uniquely accounted for by a particular independent variable. We see that the five variables, together, sum to almost 0.44—44 percent—of the total variance.[3]

COTH hospitals' share of admissions accounted for about 12 percent of the total variance. So did the rate of OPD visits/1,000 residents. Hospital beds/1,000 residents accounted for 11 percent. The ratio of practicing office-based physicians to population accounted for about 5 percent, and labor share of total hospital expenses accounted for about 4 percent.

This analysis strongly suggests that efforts to reduce hospital cost per person by trying to cut hospital beds/1,000 people would not be very effective. After controlling for other characteristics, it appears that hospital spending per person is not very strongly influenced by hospital beds/1,000 people.

Closing beds is likely to be accomplished by closing community hospitals or smaller teaching hospitals. Some of these may even formally be COTH members. (Nationally, COTH members tend to be limited to the largest academic medical centers. New York State has 39 COTH members, fully one-seventh of the national total of 274. This suggests that some of New York's COTH members may not be large academic medical centers.)

If the patients displaced by the closing succeed in obtaining substitute care, their new hospitals are likely to be costlier than their old ones. The regression equation allows us to estimate just how much costlier. The boxed text tracks this estimation process.

Shifting beds, increasing costs

This analysis strongly suggests that efforts to reduce hospital cost per person by trying to cut hospital beds/1,000 people would not be very effective. After controlling for other characteristics, it appears that hospital spending per person in a state is not very strongly influenced by hospital beds/1,000 people.

Further, the close correlation between COTH share of hospital admissions and cost per person indicates that if beds are closed at non-teaching hospitals, the teaching hospital share of hospital admissions will rise. This could be expected to result in an increase in hospital costs per person in a given state.

This size of this relation can be estimated with reasonable precision. As discussed in Appendix 1, COTH share of hospital admissions had a Beta of 0.458635, controlling for the other independent variables in the regression equation. Thus, a one percent rise in the share of admissions to teaching hospitals will predict a rise of 0.458635 percent in hospital cost per person statewide.

Hospital admissions totaled a bit over 2.5 million in New York State in 2004. And some 45.3 percent of admissions were to COTH hospitals (Exhibit A). Statewide, we have calculated, admissions per hospital bed averaged almost exactly 43 admissions in 2004.[4] Suppose, then, that 2,000 beds are closed at non-COTH hospitals and that the patients formerly admitted to these hospitals are shifted to COTH hospitals.[5]

We are thereby shifting some 86,000 admissions. Teaching hospitals admitted some 1,139,000 patients in New York State in 2004. This rises to 1,225,000, or 48.7 percent of admissions as a result of the closing of 1,000 beds in non-teaching hospitals.

That's a rise of 7.6 percent in teaching hospitals' share of admissions (48.7/45.3 = 1.076).

Consequently, hospital cost per resident of New York State rises by 7.6 * 0.458635 (the Beta), or almost 3.5 percent.

A 3.5 percent rise in hospital spending per person would have been $76.70 in 2004. This would have translated into an actual increase of $1.5 billion in 2004's statewide hospital spending—raising spending from $42.0 billion to $43.5 billion.

2. Evidence from Efforts to Close New York and U.S. Hospitals over the Past 30 Years

We have examined the evidence on hospital closings that has been compiled since the mid-1970s. This evidence does not support the hope that closing hospitals will save money. Similarly, it does not support the hope that closing hospitals will allow improved financing of badly-needed doctor care and other primary care.

a. Roemer's Law, Saving Money by Closing Whole Hospitals, Crowded Lifeboats, and Bondholders' Hopes

Six specific clusters of ideas and analysis have sparked and supported efforts to save money by closing hospitals, closing beds, or restraining growth in beds. They are:

i. Capital spending shapes care delivery generally, and a bed built is a bed filled, specifically.
ii. The health planning perspective that reducing capacity and consolidating services can both save money and improve quality—without harming access to care.
iii. The managed care perspective that HMOs needed and used fewer beds, and a more general view that variations in patient-days per 1,000 people were not associated with differences in quality of care.
iv. The perspective that saving substantial sums through bed-reduction is best accomplished by closing entire hospitals.
v. The crowded lifeboat perspective, which makes some hospitals happy to close their competitors.
vi. The bondholder or bond-insurer perspective that regards closing of some hospitals favorably.

This short report now examines the origins, evidence, and interests supporting the first, fourth, fifth, and sixth of these ideas.

i. Capital spending shapes care delivery generally, and a bed built is a bed filled, specifically

In the late 1950s, Roemer and Shain proposed that a greater supply of hospital beds led to greater use.[6] This proposition is sometimes phrased informally as "a bed built is a bed used." This is sometimes called "Roemer's Law."

In 1983, Ginsburg and Koretz examined the empirical evidence on Roemer's Law. Reviewing a number of analyses, they concluded that an increase of 10 percent in beds per 1,000 people would typically result in about a 4 percent rise in use of hospitals by Medicare patients. Use was measured in patient-days per 1,000 Medicare enrollees.[7]

A little more than seven years after Ginsburg and Koretz published their analysis, the General Accounting Office examined studies conducted from 1979 to 1983 and concluded that there is only a weak relation between bed capacity and volume of use of hospital care.[8] The GAO report estimated that "in 1983, a reduction of one bed per thousand population would have reduced admissions by almost 3 percent (equivalent to about $5 billion in costs). . . ."

We have examined this finding. Please consider that a reduction of one bed per thousand people in 1983 would have meant a cut from about 4.2 beds per thousand to about 3.2 beds per thousand—a reduction of 24 percent. Cutting costs by $5 billion that year (out of $136.3 billion) would have meant a reduction of 3.7 percent. Cost would have fallen only about one-seventh as much as beds.[9]

But both of these meta-analyses considered the relation between bed supply and bed use while Medicare was still reimbursing hospitals' costs. On 1 October 1983, Medicare abandoned cost-reimbursement and began paying hospitals by a formula set in advance— by the discharge, as clustered into hundreds of diagnosis-related groups.

Once hospitals came to be paid by the discharge, they had a financial incentive to cut length-of-stay. As length-of-stay began to fall, beds emptied. This suggests that cost-reimbursement provided the nutrient-rich financial environment in which Roemer's Law had some explanatory value. Abandonment of cost reimbursement may have largely repealed Roemer's Law.

iv. The perspective that saving substantial sums through bed-reduction is best accomplished by closing entire hospitals.

In 1976, McClure urged closing entire hospitals to close beds to save money. Only three years later, he concluded that the types of hospitals likely to be closed—whether by financial pressures through reimbursement or markets, or by planning pressures through governments—were unlikely to save money. He focused instead on the types of hospitals that remain open, on their intensity, and on the cost of their care.

McClure's first report is far better-remembered today. His second report, which essentially repudiates the core recommendations of the first, is generally ignored. This is regrettable.

McClure in 1976 prepared a powerful report in support of cutting beds to save money and urging that the greatest savings would be won by closing entire hospitals. McClure's main findings from 1976 are worth citing in detail because they received a great deal of attention when they were published: [10]

- "Hospital capacity in the United States could be reduced, conservatively, by at least 20% or more without harm to the health of the American people."

- "Similar excess capacity, both under-utilized and unnecessarily-utilized, appears to be present in high intensity service facilities."

- "Retiring entire hospitals produces substantially more savings than an equivalent reduction closing portions of several hospitals."

- "Savings from hospital capacity reduction will be gradually eroded unless hospitals are restrained from excessively increasing the labor and capital intensity of the remaining beds."

Repudiation. Only three years later, McClure published a second report. It examined case studies of hospital closings and conversions. McClure's new findings, which received much less publicity, merit at least as much attention as his better-known work. That's probably because they call into question the entire saving-money-by-closing-hospitals enterprise, one that McClure had just strikingly endorsed.

Essentially, McClure discovered that the hospitals that could actually be closed easily were inexpensive, so closing them did not save much money. Costs could rise as care was relocated to more intensive surviving facilities. These are the salient new findings:[11]

- "The most likely candidates for hospital closure appear to be financially marginal, older hospitals with weak constituencies. . . . Unfortunately such hospitals contribute relatively little to rising national hospital expenditures. Nationally, 12% of hospitals account for 50% of hospital expenditures, and 50% of hospitals account for 90% of expenditures. Under financial pressure it seems likely that the smaller, financially weaker hospitals will be pushed over the edge first, especially if they have no constituency that can rescue them. Under planning pressure—especially a public process that must inevitably respond as much to political muscle as to technical merits—it seems especially unlikely that the larger, costlier hospitals will succumb. Thus no matter what tools are used, an emphasis on closing capacity is likely to force out the smaller, weaker hospitals. This will require much effort but will only make a small dent in the expenditures problem." (Emphasis supplied.)

- "Even a reduction in hospital beds and patient days did not appear to slow the annual increase in hospital expenditures in the community; apparently, increased service intensity more than offset the reduction in bed use and bed capacity." (Emphasis supplied.)

- "It thus appears that the profligate growth of intensity capacity (i.e., the capacity to use labor and capital more intensively in a single bed or bed day) is as much or greater a danger to expenditure containment than bed capacity. Attention to intensity capacity may be more vital than attention to bed capacity. The best measure of capacity is expenditures. It is the capacity to generate expenditures that we are trying to reduce. It appears that beds are a very poor measure of capacity. It is not clear, for example, that closing two smaller hospitals, with no tertiary capability or aspirations, in favor of a larger hospital, with less total bed capacity but more intensity capacity,

confers any net cost containment gain. (If intensity capacity is already adequate in the community, there is no quality gain either.) Rather, the more intensive hospital can use the larger patient base to further increase intensity capacity." (Emphasis supplied.)

Many people who still hope to save money by closing hospitals remain captives of McClure's 1976 report and are not aware that he essentially repudiated it only three years later.

v. <u>The crowded lifeboat perspective, which makes some hospitals happy to close their competitors.</u>

Hospitals in a state or region sometimes point to past hospital closings and current financial distress of surviving hospitals as reasons to increase rates of payment to hospitals. But the powerful hospitals that often dominate state or regional hospital trade associations seldom fight for objective or balanced analysis of which hospitals are needed. Generally, powerful hospitals are willing to accept the closing of smaller and weaker hospitals.[12]

Hospitals that are financially and politically powerful—owing to some combination of size, teaching status, prestige, reputation and perceived quality, service to politically influential people, and high revenue associated with a desirable payer mix—have been unlikely to close.

Survivors tend to be sanguine about the loss of their weaker competitors. If some hospitals close, and if those closings can be attributed to managerial incompetence, bad planning, and other blameworthy behaviors, then the survivors can applaud themselves for their superior competitive prowess. Winners often imagine that a putative freely competitive market sanctifies their successes.

Since hospital revenue is often finite, more powerful hospitals are willing to see their weaker competitors slip overboard from the health care lifeboat (whose supplies of food and water are not sufficient for its many passengers), and may even be willing to give them a push. The closing of some hospitals means more patients for the survivors. At the same time, fewer hospitals means more bargaining power for the survivors, other things equal.

In New York State, where hospitals' financial margins are low, on average, some hospitals apparently hope that the current hospital closings/rightsizings process will benefit them. "The state intends to close under-used hospitals and improve the economic health of those that remain. . . ." [13]

During two distinct periods of fiscal crisis, powerful New York hospitals supported a policy of hospital closing, apparently because they saw that policy to be helpful—or even essential—to protect their own institutions. The first period was triggered by state

government's regulatory squeeze on Medicaid and Blue Cross payments to hospitals during the 1970s. The state took this action to hold down its own Medicaid obligations during the economic downturn that began with the first oil shock of 1973. [14]

The second period began early in the 20th century. Large teaching hospitals—among them Westchester County Medical Center, St. Vincent's, Mt. Sinai, and Nassau County Medical Center—lost large sums. The rate of hospital closings accelerated in many parts of the state. A combination of forces seems to have weakened hospitals' finances. One is the federal Balanced Budget Act of 1997, which slowed Medicare payment increases to hospitals. A second was the repeal of the state's hospital rate setting law, which had protected payments to hospitals. A third was the squeeze on hospitals' revenues by some managed care plans. A fourth was the apparent high levels of borrowing, building, and debt accumulated by many hospitals. [15] Bad strategic and managerial decisions seem to have been problems at some institutions. [16]

But it seems that certain hospitals are likely to be protected even if they made bad managerial decisions or otherwise were suffering financially. "The consensus view is that some hospitals will be spared, no matter how poorly they fare financially. These include those that are far from other hospitals, are closely tied to medical schools, have very busy emergency rooms, or are rated as Level I trauma centers. . . ." [17]

With hospital payments in New York State largely deregulated, and with more hospitals to be closed in the future, the surviving hospitals will have greater market power. That would allow them to raise prices—as has been happening elsewhere. Without either effective regulation or effective market competition, New York State would enter an era of growing hospital anarchy, with more care concentrated in fewer and costlier teaching hospitals that are newly empowered to raise prices. <u>Hospital closings, sold to the public as a vehicle for saving money, could then be used to enable higher spending</u>. This would not be the first time that a public policy achieved ends different from those publicly declared by its sponsors.

vi. <u>The bondholder or bond-insurer perspective that regards closing of some hospitals favorably.</u>

Similarly, those who worry about New York hospitals' difficulty in selling bonds without public subsidies might wish to boost hospitals' operating margins so that they can obtain lower interest rates without public support. This concern emerges loudly from the pages of the 2004 Berger Commission's third report to Governor Pataki. [18]

Those who now hold some hospitals' bonds but fear they may not be repaid might welcome a public buy-out of their investments. Similarly, those who worry about the capacity of New York's major teaching hospitals and strong community hospitals to borrow at low interest rates might prefer to see an improvement in hospitals' operating margins.

The 2004 Berger Commission was clearly concerned by New York State hospitals' heavy reliance on Federal Housing Administration insurance to obtain strong credit ratings and thereby borrow through the Dormitory Authority of the State of New York (DASNY). That report noted that "over 60% of FHA-insured [hospital] debt nationwide is in New York State."[19]

The needs of stronger New York State hospitals for more generous operating margins and for greater ability to borrow at low interest rates without public insurance are real. In today's health care market, hospitals often feel that they must be able to borrow to invest in new buildings and equipment to continue to attract the doctors who admit the patients who pay the bills. But it would be ironic and peculiar to boost the finances of the stronger hospitals by closing the weaker hospitals—especially since, as McClure warns, this is likely to increase total costs.

If New York State moves to close hospitals and thereby builds surviving hospitals' market power, while at the same time refusing to contain hospital costs by promoting careful cooperation among hospitals or by regulating hospitals' revenues, then it has deliberately set down all three of the main tools for containing costs.

It is willfully advancing down the road toward hospital anarchy. Higher spending on fewer surviving hospitals would mean that fewer New Yorkers will be served, but at higher cost.

b. Beds close but hospital costs keep rising rapidly

The nation's number of acute hospital beds peaked around 1985 at just over one million beds. In the two decades from 1985 to 2004, the number of beds fell by about 193 thousand, or almost one-fifth. Since the nation's population rose by 23 percent during the same two decades, it is not surprising that the number of acute care beds per 1,000 people plummeted from 4.21 in 1985 to 2.75 in 2004—a cut of 34.7 percent.

This means that the most aggressive proposals of the 1970s—for a bed-to-population ratio of 3.7 per 1,000 people or less—have been much more than realized.

Even so, hospital costs have generally risen at faster rates over time, as is shown Exhibit B. Remaining advocates of closing hospitals might assert that costs would have risen even faster had beds not been closed.

Well, they have to say something.

14

Hospital Cost/person (Consumer Price Index-adjusted) and Beds/1,000, U.S. 1946 - 2004
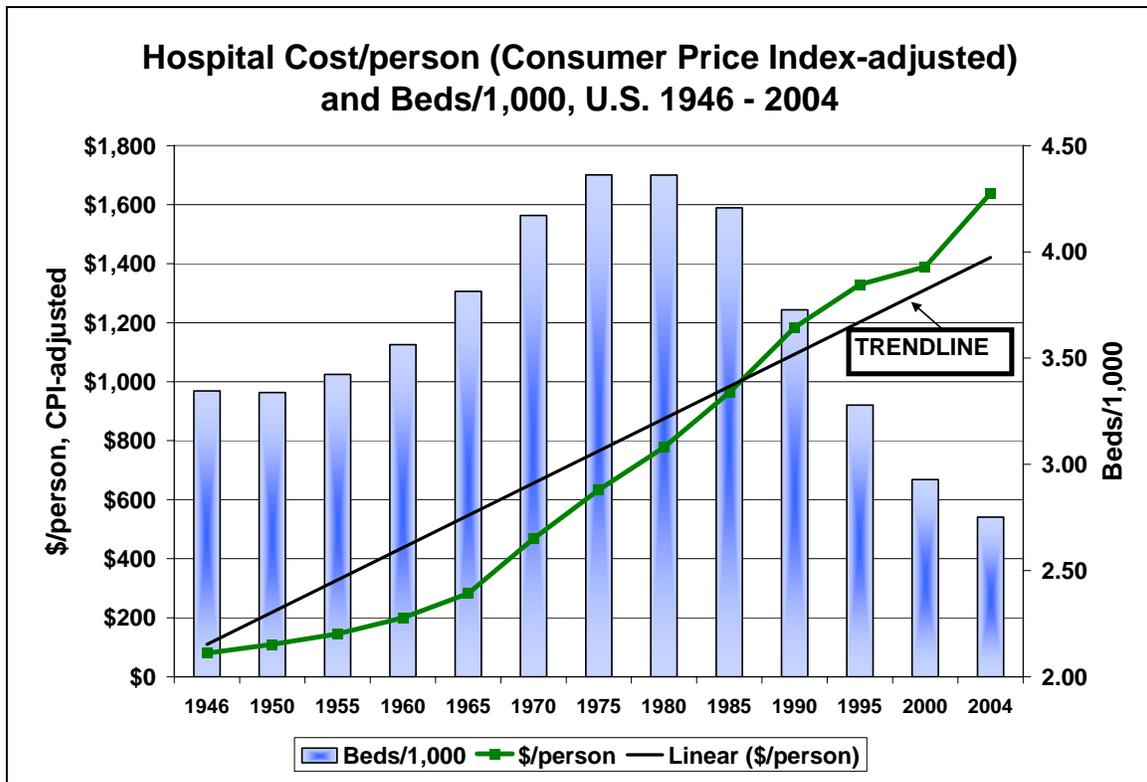
Exhibit B shows that there is no association between hospital cost per person and beds per 1,000 people over the years from 1946 to 2004. [20]

Beds per 1,000 Americans rise and fall over time. But cost per person rises fairly steadily.

Importantly, cost per person rises relatively rapidly during the years after 1985, when beds per 1,000 people falls substantially.

In Exhibit B, this is captured by the actual rise in spending per person—the green line—rising above the trendline. The trendline reflects the increase in spending per person over the full 58 years from 1946 to 2004.

The correlation between inflation-adjusted hospital cost per person and beds per 1,000 people over time is $R_p = -0.2973$, $R^2 = 8.8\%$, significant at $p = 0.324$. Change in one variable over time predicts only about 9 percent of the change in the other. <u>What is salient here is not the statistical significance but the inverse or **negative relationship between beds and costs**: Over time, more beds per thousand people are associated with lower costs per person.</u>

c. Evidence on hospital closings' and bed supply's link to hospital costs

This section summarizes our analyses of seven types of evidence on the links between hospital closings' and hospital bed supply (on one hand) and the cost of hospital care.

First, the financial benefits of closing hospitals have been systematically over-sold. Walter McClure, whose early work was one of the foundations of the policy of closing hospitals to save money, essentially repudiated his own quantitative analyses after observing how closings and consolidations actually worked in practice. As just noted, he saw that the financially and politically vulnerable hospitals were being closed, and that more care was being given in costly and intensive hospitals.

Second, the financial harm and the harm to access have been systematically downplayed. One reason why it has been possible to downplay harm has been the consistent refusal to carefully analyze the actual effects of closing on patient outcomes. The adverse and disproportionate impact of closings on black/African-American citizens (and on other patients who are vulnerable to deprivation of needed care), owing to their greater reliance on hospitals for ambulatory care in the ER and especially in the hospital outpatient department, has been largely ignored. So has the systematic and persistent racial association with hospital closings themselves, as will be seen in the next section.

Third, closings and proposed closings in Washington, D.C. and in Los Angeles have been accompanied by misleading and, sometimes, outright inaccurate claims and promises. In Washington, for example, the city government claimed that evidence from other cities supported the workability of a proposed free-standing emergency room, but this purported evidence was simply inapplicable.[21] Nonetheless, that proposal keeps resurfacing. Promises of support for appropriate primary care, ambulatory care, and other vital preventive services swirl around proposals to close hospitals. These promises are seldom redeemed. Promises that substitute inpatient care would be adequate, available, and accessible also abound. They are seldom fulfilled.[22]

Fourth, the association of higher ratios of beds per 1,000 people to higher hospital cost per person—across states or over time—is very weak, as the data and multivariate analyses in the previous section have shown. Even worse, in practice, hospital costs keep rising even as hospitals and beds are closed. As McClure showed in 1979, the less costly hospitals are more likely to close. And even if there were there an association across states or over time, that does not mean that lowering the beds per 1,000 people will result in lower hospital cost per person.

> Physicians and hospitals of a city, region, or state respond and adapt to changes in the number of beds in ways that can keep revenue flowing at high rates. The hospitals that generally remain open tend to be larger teaching hospitals that already provide more intensive patterns of care.

A wide range of forces shape hospital care and hospital costs, as our full report will show. For example, many doctors earn incomes by providing care in hospitals. Doctors' decisions control, shape, and influence almost 90 percent of personal health spending. Closing hospitals does not directly affect doctors' behavior. They may respond to a closing by relocating, changing their patterns of care, and otherwise adapt—all in ways that sustain or even increase the flow of revenues to surviving hospitals, and that safeguard their own incomes.

In other words, hospital costs result from a complex set of relations. Closing beds is a mechanical action, one that does not acknowledge or respect this underlying complexity. Not surprisingly, it fails to save money.

Fifth, public actions to close hospitals—whether through planning in Detroit or through a combination of targeted planning and overall tight financial squeezes in New York—tend to accelerate the closing of the less costly non-teaching hospitals.

Sixth, the Finger Lakes experience in New York State shows that closing a hospital can certainly make sense under the right circumstances—especially when methods of paying hospitals reward efficient delivery of care and when hospitals and their communities are oriented toward meeting patient needs. These conditions liberate hospitals—and their physicians—to steer by clinical compasses, not financial compasses. In particular, these conditions remove incentives to boost revenue and cover costs by hiking volume or intensity of care.

Seventh, as the AIDS experience in New York City reminds us, need for hospitals beds can ebb but also flow. In the years ahead, the growing number of older Americans will require more hospital beds. Many of the beds closed today will have to be rebuilt tomorrow, probably at very great cost. Costs of building a new hospital have passed $500,000 per bed and sometimes approach $1,000,000 per bed.[23] In a decade, and especially in urban areas where costs are already high, $2,000,000 per bed is likely. Consider, then, that building a new 500-bed hospital to replace beds closed in recent years would cost $1 billion around the time the baby boomers begin passing age 70.

d. Hospital closings in New York State and New York City, 1969-1980

Faced with unexpectedly high Medicaid cost, New York State restricted growth in payments to hospitals starting in 1969. This financial squeeze threatened many hospitals statewide. In response, hospitals demanded a more targeted cost control effort—closing some hospitals to spare the rest.

In 1969, New York State was the first to control increases in rates of payment to hospitals. As Caress and Kotelchuck report, this was directly associated with the launch

of Medicare and, especially, of Medicaid. (This section of our report rests heavily on a 1977 paper by Caress and Kotelchuck.)[24]

New York's legislature cut spending directly, acting in 1969 to declare over one million recipients to be ineligible for coverage.   But even this was not enough.

In 1969, the legislature also acted to freeze Medicaid's rates of payment to hospitals for three years. After January of 1970, a prospectively set daily rate was imposed on Medicaid and Blue Cross, which together provided 60 percent of hospitals' revenues from patient care.

Hospitals responded, in part, by increasing length-of-stay very slightly even though average stays fell slightly nationally. Believing unused beds to be costly, the state obliged hospitals to shut some 6,000 acute beds between 1972 and 1977. Caress and Kotelchuck cite Dowling's estimate that the state's legislative ceiling on daily hospital payments saved Medicaid and Blue Cross over $200 million in total between 1970 and 1974.

This was also not enough. Even these strong steps proved inadequate to hold hospital costs in New York State to affordable levels. High hospital costs and a weak economy pressed New York State to take sharper action. In 1976, an emergency Medicaid law empowered the state budget director to approve all reimbursement rates. Medicaid payment rates were essentially frozen.

A "publicly authorized but privately-constituted planning body dominated by powerful voluntary interests" sought to direct cost control activities.[25] This body, a task force of the Health and Hospitals Planning Council, proposed selected hospital closings in place of the uniformly applied freeze on Medicaid payment rates. "'The Task Force believes that a sounder approach to decreasing expenditures is to eliminate entirely expenditures for services in institutions which are not needed to meet the public's requirements for services.'"[26]

The Task Force called for 27 hospitals to be closed. Most of the beds slated for elimination were in public hospitals. Twenty small for-profit and non-profit hospitals were to be shut.

The state's health commissioner was authorized to close hospitals thought to be unnecessary owing to excess bed availability. Commissioner Whalen in August of 1976 announced a "'hit list' of 13 New York City hospitals he deemed to be 'unnecessary.'"[27] All were on the Task Force's list.

In November of 1976, the state's Health Planning Commission decided that New York State thenceforth needed 3.75 beds per 1,000 people, not 4.1 beds per 1,000. New York City therefore moved from being considered under-bedded to being over-bedded.

Beginning in 1975, New York City's federally-financed health systems agency (HSA) had been planning its own approach to bed-reduction. The HSA proposed closing two large non-profit hospitals and cutting beds dramatically at a third. "The HSA argued that 'closure solely of small voluntary and proprietary hospitals could be counterproductive— the patients from these institutions might well simply be redistributed among the relatively more expensive hospitals providing a more intensive and unnecessary level of care.'"[28]

Larger voluntary hospitals disliked this idea. The final HSA plan removed mention of excess beds.

In January of 1977, the governor and mayor declared they would appoint a "health 'czar'" to close hospitals.
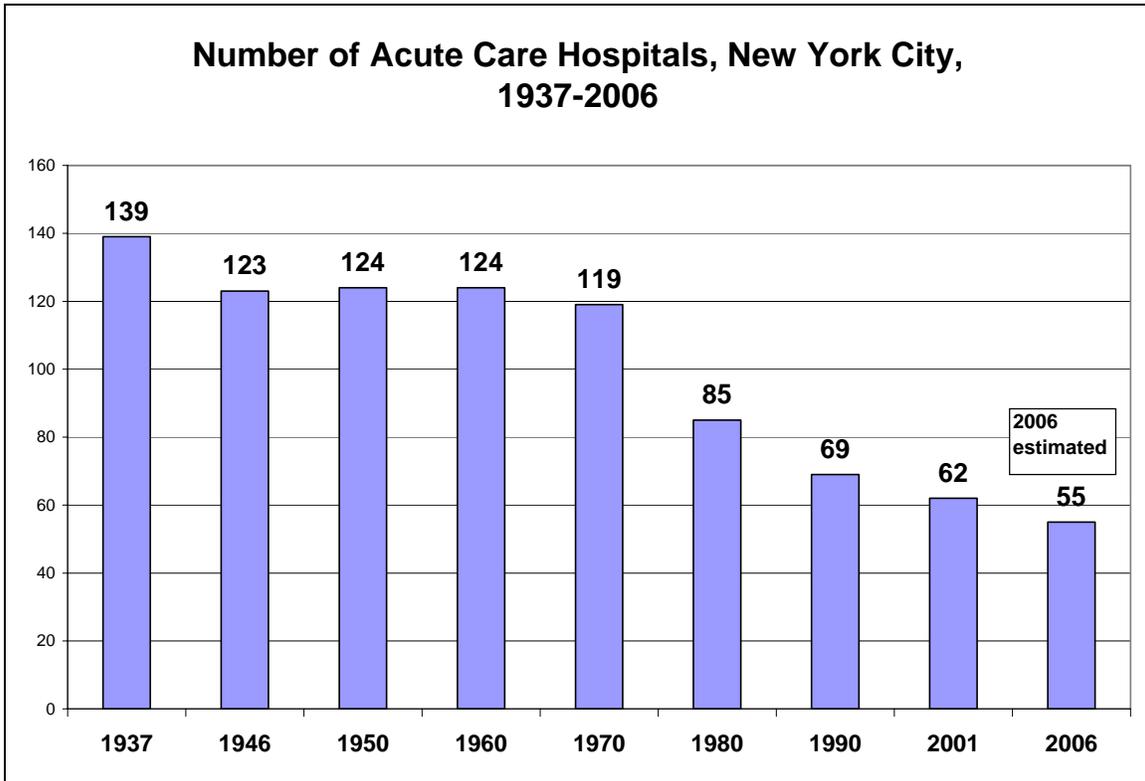
"According to Stephen Berger, Director of the Emergency Financial Control Board, the state's agency for controlling New York City finances, the czar 'would take the heat and . . . public officeholders would be in a position to step back.'" [29]

Exhibits C and D clearly indicate that, owing to a combination of regulatory threats and pressures, and tight payments to hospitals, a very substantial number of hospitals and beds was indeed closed in New York City.

McClure has also noted that New York State was able to exert modest financial pressure on hospitals by tightening Medicaid and Blue Cross payment rates in the 1970s. Writing in 1979, he claimed that "capacity is so excessive in New York that even this modest financial pressure has been sufficient to forces a number of weaker hospitals over the edge." But he also noted that "Presently only very weak hospitals with weak constituencies are being forced out by rate controls. When large prestigious hospitals start to go over the edge (the ones that generate the bulk of expenditures), it may not be so easy to maintain tight rates."[30]

The number of acute care beds in New York City continued to slide downward decade by decade. This slide was slowed for a time in the later half of the 1980s and early 1990s, when AIDS—combined with crack cocaine use and related violence and trauma[31]—led to a shortage of acute hospital beds in New York in many places and times. Late in 1987, for example, the state's health commissioner authorized a rise of up to 500 beds in the city's allowed capacity.[32] This is roughly in accord with the prediction by Green and colleagues in 1987, who projected that treatment costs for patients with AIDS would rise from 3 percent of hospital costs in New York City in 1986 to 8 percent in 1991.[33]

19

Exhibit C

Number of Acute Care Hospitals, New York City, 1937-2006

Bar chart values by year:
- 1937: 139
- 1946: 123
- 1950: 124
- 1960: 124
- 1970: 119
- 1980: 85
- 1990: 69
- 2001: 62
- 2006: 55 (2006 estimated)

Exhibit D

Licensed Beds in New York City Acute Care Hospitals, 1937- 2001

Bar chart values by year:
- 1937: 30,126
- 1946: 31,733
- 1950: 32,473
- 1960: 38,917
- 1970: 39,860
- 1980: 34,972
- 1990: 31,453
- 2001: 25,431

20
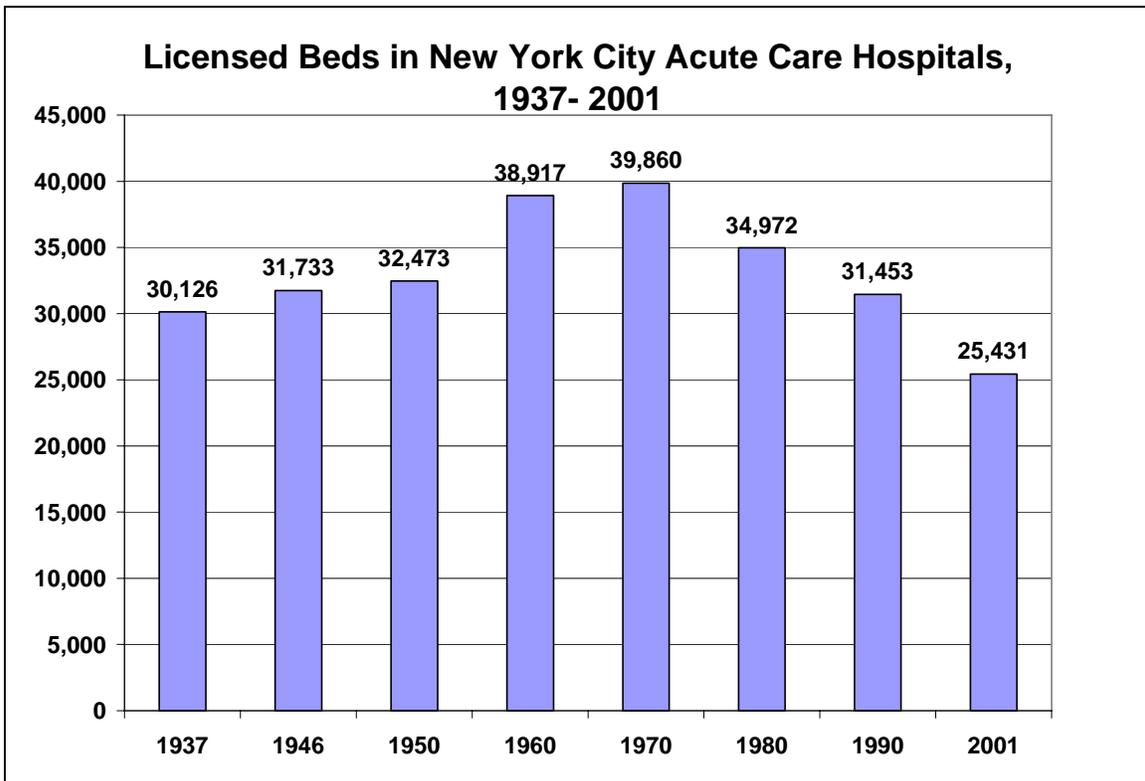
e. A new wave of hospital financial distress sparks a second wave of demands to close hospitals, 2000-forward

Since about the late-1990s, as in the late-1960s, widespread hospital financial distress has again sparked demands to close hospitals in New York State.

As was shown in Exhibit A, New York State hospitals' operating margins were second-worst in the nation in 2004. This is a long-standing problem, one whose genesis is fairly well understood. For many years, state government set rates of payment to New York hospitals. Then, hospital payments were deregulated. Around this time, the federal government acted to substantially slow the growth of Medicare payments to hospitals. Also around this time, managed care organizations in New York grew large enough to exert financial leverage over hospitals. Hospitals were squeezed tightly in many or even most parts of the state.

As in the 1970s, many hospitals sought relief. As in the 1970s, they hoped to find it through the closing of some other hospitals.

As in the 1970s, Stephen Berger emerged as a central proponent of the idea that closing hospitals would save money overall, and that it would help some hospitals to survive.

The first seems untrue. The second is possible. But would the right hospitals survive?

3. Evidence from a 52-city study of race, efficiency, and hospital closings

We have been studying closings among 1,200 hospitals in 52 cities since the 1930s. Decade after decade, clear patterns have emerged:

- ✓ Surprisingly, greater <u>efficiency</u> does not help hospitals survive.
- ✓ <u>Larger teaching hospitals</u> are much more likely to survive.
- ✓ <u>Hospitals in black/African-American neighborhoods</u> are less likely to survive.
- ✓ Hospitals with <u>more money in the bank</u> are more likely to survive.

This section focuses on efficiency. Advocates of closings promise that they will save money. Because the hospitals that close are typically as efficient as those that survive, though, it is hard to hope to save money by closing hospitals.

<u>Efficiency does not help hospitals survive</u>. The fittest are not more likely to survive. This relationship holds consistently in all decades studied. This relationship holds when considering efficiency alone and also when controlling for other factors (see Appendix 2

for the regression results). Given the tendency of hospitals with more endowment per bed to remain open, the observed pattern might better be called "survival of the fattest."

No free market justifies hospital closings or survival. The disproportionate survival of larger teaching hospitals is not result of winning an efficiency contest or a contest to satisfy sovereign consumers' desires in a freely competitive market. Nothing close to a free market exists for hospital care.

Hospitals that do better financially, or hospitals that are larger and more seemingly indispensable, often assume that they deserve to survive. Their leaders—and public officials anxious to appear active in fighting high health costs—often assume that financially weaker hospitals deserve to close.

In reality, some hospitals are financially weaker even though they seem just as efficient as those that do better financially. They may not be able amass enough revenue to cover their costs—perhaps because they can't attract enough doctors to admit enough patients, and perhaps because the patients they do attract include many who are covered by Medicaid or who are uninsured and therefore don't generate enough revenue to cover the legitimate costs of efficient care.

In hospital care, no competitive market exists. Therefore, there is no mechanism to render a fair judgment that financially failing hospitals deserve to close.

And many governments—obsessed by the persisting hope of saving money by closing hospitals—have paid insufficient attention to assessing which hospitals, of what types, and in what locations are actually needed to protect the health of the public.

Without a functioning free market, careful government plans and regulations, or fair payment to hospitals and doctors for each patient in need, hospitals today try to survive under conditions of growing financial and political anarchy.

There is surprisingly little published evidence on the comparative costs of closed and surviving hospitals.[34] Shepard performed one empirical analysis of the cost associated with a hospital closing. He found that the closing of a small community hospital probably resulted in a slight increase in area-wide hospital costs. In large part, this was because a great share of the displaced patients who obtained care elsewhere were served in a costly teaching hospital. Shepard suggested that "for service discontinuations to generate savings, recipient hospitals must be low in costs, the outflow rate [drop in admissions] must be large, and the marginal cost ratio must be low."[35]

We have found that, decade by decade, larger hospitals generally and teaching hospitals specifically are likelier to survive in the 52 cities studied. Many of these teaching hospitals apparently suffer high average costs, adjusted for case mix.[36] This may be attributable to superior quality, inefficiency, or other factors.
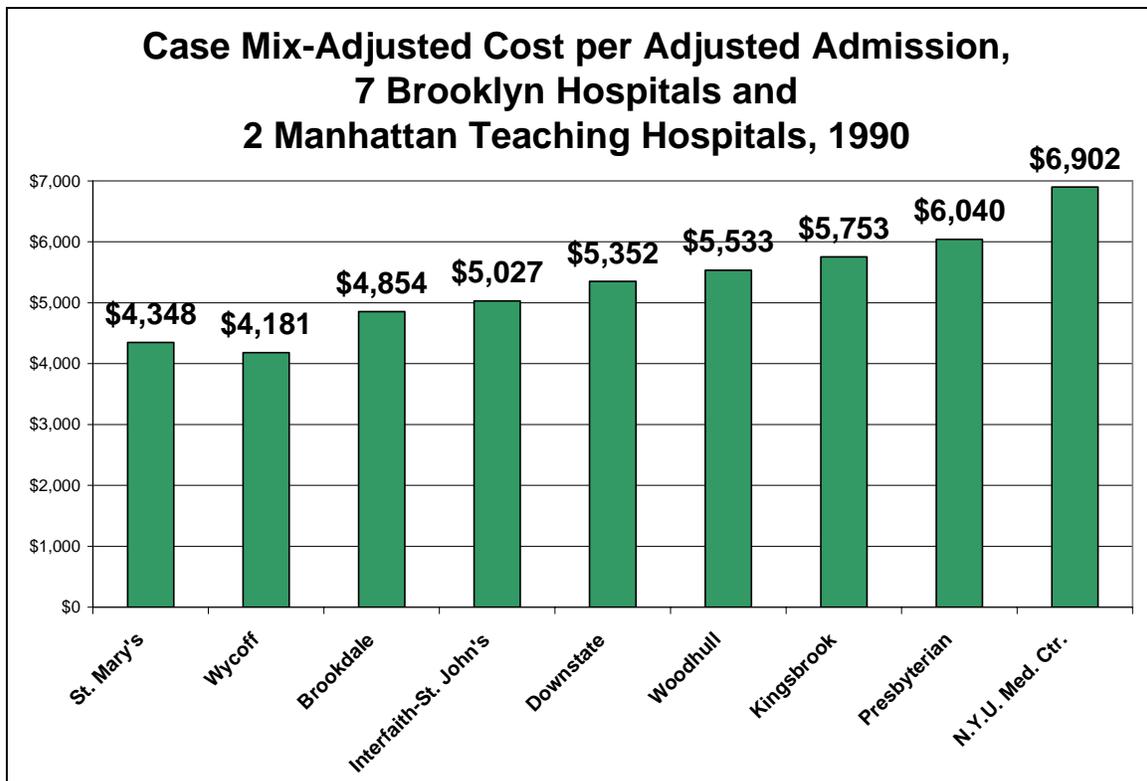
In 2005, we compared the costs at Brooklyn's St. Mary's Hospital with those of surviving nearby alternative hospitals. Specifically, we examined the efficiency of St. Mary's in 1990—the last year for which we now have data—with the efficiency of Wycoff Heights, Brookdale, Interfaith-St. John's, Downstate, Woodhull, and Kingsbrook. The results are presented in Exhibit E.

St. Mary's was appreciably less costly—more efficient—in 1990 than all but one of the hospitals most likely to deliver substitute care after it closed. The efficiency measure controls for case mix—severity of illness.

Indeed, the alternative hospitals' average case mix-adjusted cost per adjusted discharge of $5,116 was fully 17.4 percent higher than that of St. Mary's. The measure of efficiency is the one used consistently in this report, cost per adjusted discharge, as adjusted for case mix index (one measure of severity of illness).

Exhibit E also compares the efficiency of St. Mary's with that of Manhattan's Presbyterian Hospital and N.Y.U Medical Center. <u>Those two Manhattan teaching hospitals were 39 percent and 59 percent more costly, respectively, than St. Mary's, again controlling for severity of illness.</u>

Exhibit E

Case Mix-Adjusted Cost per Adjusted Admission, 7 Brooklyn Hospitals and 2 Manhattan Teaching Hospitals, 1990

Hospital	Cost
St. Mary's	$4,348
Wycoff	$4,181
Brookdale	$4,854
Interfaith-St. John's	$5,027
Downstate	$5,352
Woodhull	$5,533
Kingsbrook	$5,753
Presbyterian	$6,040
N.Y.U. Med. Ctr.	$6,902

When patients are displaced from a closed community hospital or a smaller teaching hospital and obtain care at a surviving larger teaching hospital, the cost of their care might rise if they receive greater amounts of care similar in type to that provided earlier, a richer mix of care, or less efficient care at the substitute hospital.[37] Some teaching hospitals serve higher proportions of poor patients, whose care is likely to cost more.[38]

Displaced patients' cost might also rise if they are charged higher prices to cross-subsidize teaching hospitals' more esoteric services (if the latter are priced below cost). Even if short-run marginal costs at surviving hospitals are low, what matters eventually is the long-run average cost. Solid comparative information on average costs for urban hospitals is not yet available. But McKay and Dorner report that while surviving rural hospitals located near closed rural hospitals experienced higher volumes, this was not associated with either reduced average cost or improved financial margins.[39]

Garber and colleagues compared costs of faculty and community services at one teaching hospital, and found that the former's DRG-adjusted costs were 11 percent higher.[40] Frick and others reported teaching hospital care to be 60 percent more costly than non-teaching hospital care, with only one-quarter of the excess attributable to case mix difference.[41] In both instances, higher costs may have been associated with greater severity of illness.

Since African-American and Latino patients are displaced disproportionately by hospital closings, they and their insurers may be especially likely to suffer higher costs when they are served by surviving larger teaching hospitals.

Today, it's important to note that about 9 in 10 beds in New York City are in teaching hospitals, compared with about three-fourths across all of the 52 cities we've been tracking. This means that closing hospitals is very likely to mean closing teaching hospitals. And this, in turn, points to the importance of distinguishing among the various types of teaching hospitals—those large and prestigious institutions with many residents and close affiliations with medical schools, and other, smaller teaching hospitals. Among the teaching hospitals, it is the less prestigious institutions that are likelier to be targeted for closing.   And these hospitals typically have lower costs.

D. CONCLUSIONS—
HOSPITAL CLOSINGS AND SAVING MONEY

The evidence overwhelmingly indicates that closing hospitals will do little or nothing to slow health care cost increases.

Indeed, it is more likely that costs will actually increase—if, as is widely expected, the types of hospitals that close in the future resemble the community hospital and smaller teaching hospitals that closed in the past—and if the patients displaced by closings actually obtain needed care at surviving hospitals.

For three decades, the policy of closing hospitals has been held out as a painless, efficient, and even noble way to cut hospital costs by cutting ostensibly wasted care and liberating funds to be used, somehow, to finance more primary care services.

Proponents of closings have wrapped themselves in the mantle of the public interest and have cleverly castigated those who oppose closings as selfish protectors of special interests, as unreasoning obstacles to more efficient and equitable delivery of care.

But if hospital closings don't save money, and if they tend to benefit the more powerful surviving hospitals, perhaps it is the advocates of closings who are selfishly violating the public interest in affordable care for all New Yorkers.

Having more hospital beds does little to cause high health care costs today. Decades of evidence indicates that even if more beds did contribute to higher costs (and more beds seem to be only a minor contributor), closing hospitals would still not save money and can even lead to increased costs.

The speedier rise of hospital costs per person since about 1975, while beds per 1,000 people were cut, should be called a macro-failure of policy.

We suggest that a continued focus on the hospital bed supply per 1,000 people will allow costs to continue to increase. Focusing on closing hospitals to cut beds distracts attention from taking serious action to save money by attacking the sources of waste in health care in New York State.

The way to contain cost is by containing cost, not by cutting beds.

II. HOSPITAL CLOSINGS HARM ACCESS TO HEALTH CARE

Closing hospitals undermines equity of access to urban health care. It does so in two general ways.

<u>The first is geographic.</u>

- ✓ Cities vary greatly in the ratio of hospital beds per 1,000 citizens. Hospital closings do not tend to even out these differences. This is important to consider in light of the very substantial differences in beds per 1,000 people among large counties in New York, and also the inter-borough differences in beds per 1,000 in New York City.

- ✓ Hospitals in black/African neighborhoods are much more likely to close. Over several decades, this pattern has strikingly visible consequences.

- ✓ Hospital closings undermine continuity of inpatient care. Many of the patients displaced by closings take long times to re-weave the fabrics of their health care.

<u>The second concerns hospitals and the provision of physicians' services.</u>

- ✓ Hospitals are very important providers of ambulatory care, especially to black/African-American patients.

- ✓ Hospitals and doctors are mainly symbiotic. Each is needed to sustain the other. Because hospitals need doctors to refer, admit, and care for patients, hospitals are motivated to recruit and sustain doctors who practice nearby. Some hospitals are located in areas where physicians are in short supply, and are therefore motivated to recruit physicians into the area, but these tend to be the very hospitals that lack the money to do so.

A. HOSPITAL CLOSINGS UNDERMINE ACCESS GEOGRAPHICALLY

1. Inter-county differences in beds per 1,000 residents

Large counties in New York State differ substantially in their ratios of hospital beds per 1,000 people. Data from 2004 show that Manhattan had 7.7 beds per 1,000. At the other extreme, Queens had only 2.0 and Saratoga had only 0.9 beds per 1,000. These ratios count licensed beds, many of which are not actually staffed. A look at staffed beds shows even greater disparities among some of the counties.

Evidence from our 52-city study of hospital closings nationwide shows that there is no tendency for hospitals to close in the cities with high beds per 1,000. Indeed, the reverse seems to be true. It seems that the forces that make for more beds generally tend to sustain more beds over time.

Even an across-the-board 10 percent cut in beds would do nothing to help equalize the ratios of hospital beds per 1,000 people across counties.

Exhibit F

Licensed Hospital Beds per 1,000 People, 2004
New York Counties with More than 200,000 People
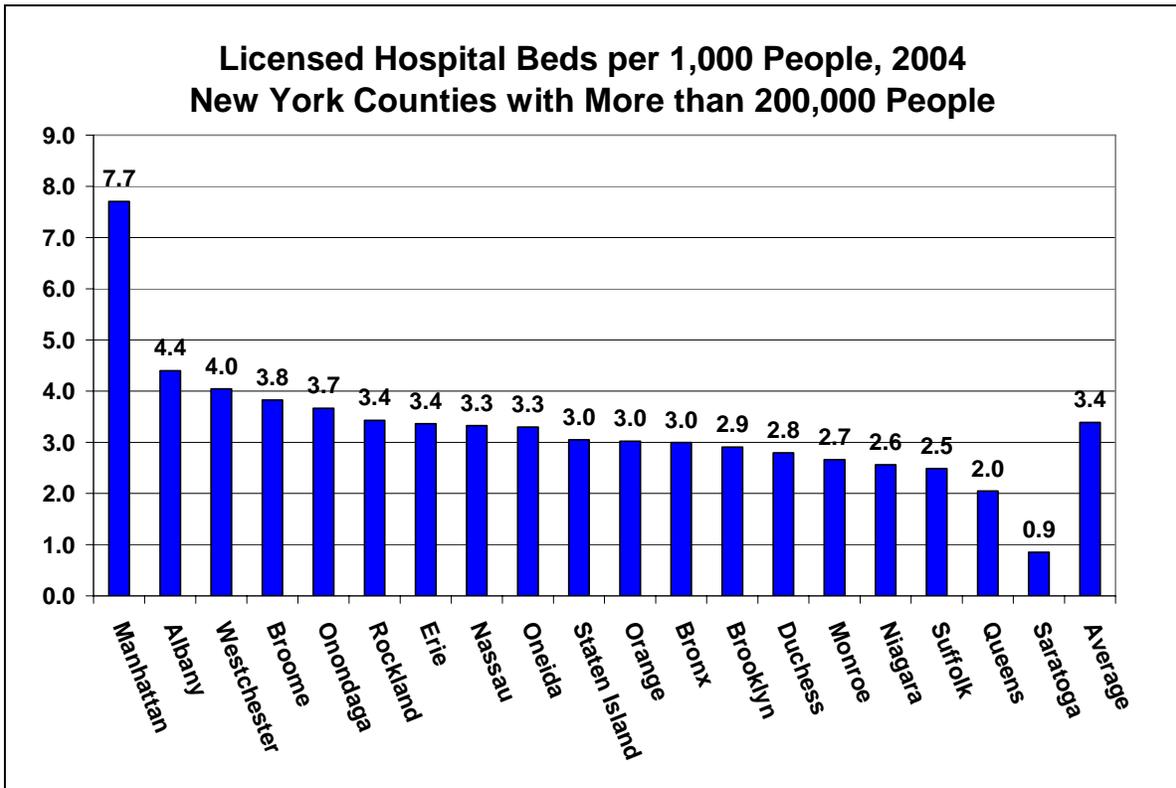
2. Race and closings

Decade after decade, since the 1930s, hospitals located in black/African-American neighborhoods of 52 U.S. cities have been substantially more likely to close than those located in white neighborhoods. This relationship holds up after controlling for many characteristics of hospitals themselves, their competitive environments, and other factors. Appendix 2 presents the results of logistic regressions for various periods from 1980 to 2003.

Exhibit G shows the probability that a hospital will close at any time from 1980 to 2003, depending on the racial mix of its neighborhood in 1980 and its bed size in 1980. As shown in Exhibit G,

- ✓ less than three percent of hospitals with 832 beds that were located in areas that were 1.0 percent black in 1980 were predicted to close during the following 23 years;
- ✓ the average hospital with 340 beds had a 23 percent chance of closing in a neighborhood that was 1 percent black/African-American, but a 43 percent chance of closing in a neighborhood that was 90 percent black/African-American; and
- ✓ at the other extreme, almost three-fourths of 66-bed hospitals that were located in areas that were 90.0 percent black in 1980 were predicted to close.

Exhibit G
The Predicted Chance of Closing between 1980 and 2003
Is Greater for Hospitals with Fewer Beds in 1980 and
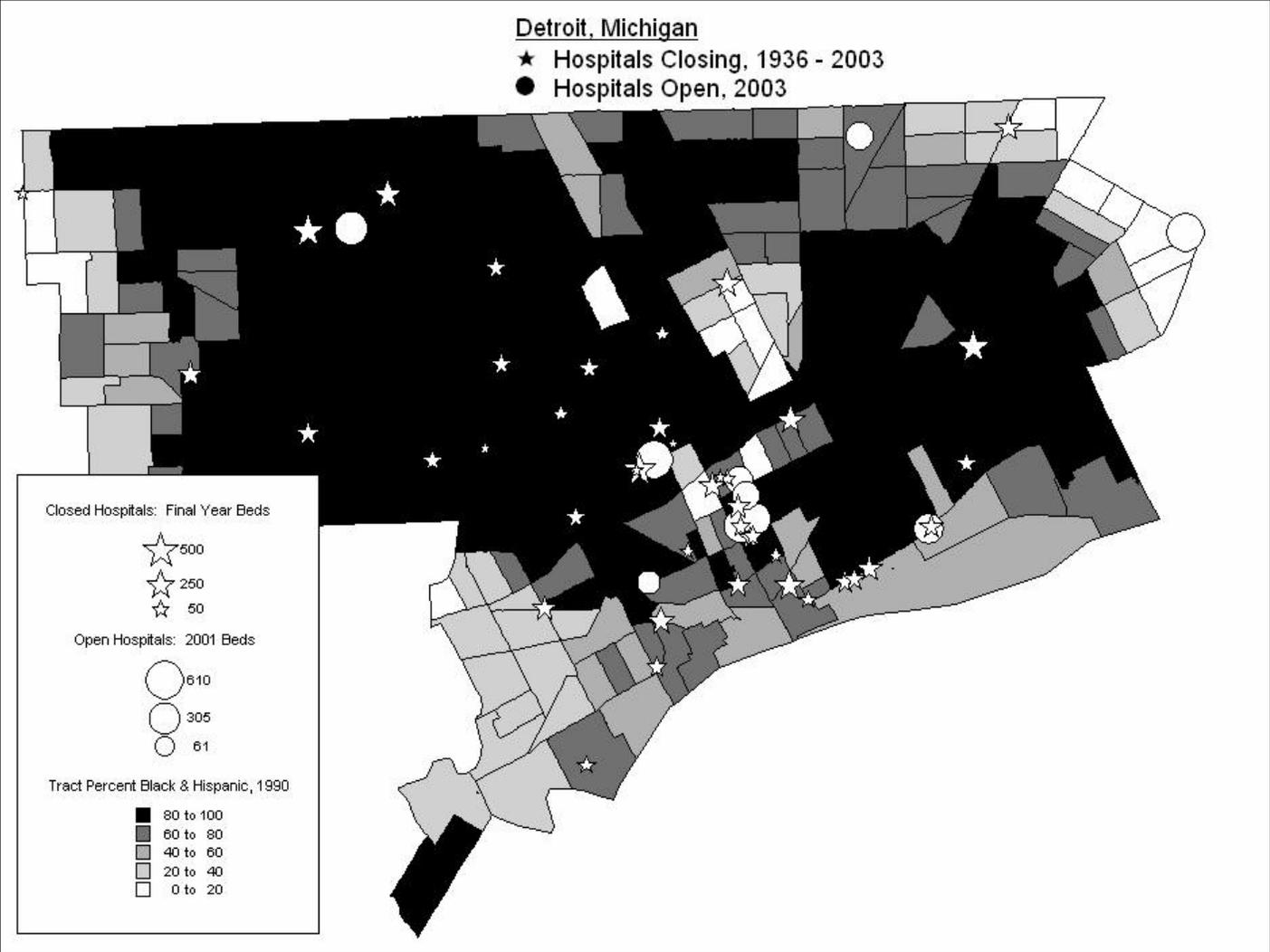**Greater Area Percent Black**

	Area % black in 1980	Hospital beds in 1980					5th %ile / 95th %ile
		95th %ile	75th %ile	mean	25th %ile	5th %ile	
		832	443	340	162	66	
5th %ile	1	2.9%	15.5%	22.8%	40.2%	51.2%	17.7
mean	30	3.9%	19.9%	28.6%	47.7%	58.8%	15.1
75th %ile	50	4.8%	23.4%	33.0%	53.0%	63.8%	13.3
95th %ile	90	7.1%	31.8%	42.9%	63.2%	72.8%	10.3
95th %ile / 5th%ile		2.4	2.1	1.9	1.6	1.4	

The cumulative impact of decades of closings has been to strip away hospitals from large expanses of U.S. cities.

Today, these are neighborhoods where large numbers of black/African-American, Latino, and other people live—people who are often vulnerable to denial of needed health care owing to their insurance status, their lack of primary care physicians, and other factors. The loss of hospitals from these neighborhoods heightens that vulnerability. (Even though race is the main demographic predictor of closing across the 52 cities, older residential neighborhoods in older northeastern and midwestern cities that are heavily black/African-American or Latino tend to lack hospital care.)

We display this loss through maps of Detroit, St. Louis, and Washington, D.C. in exhibits H, I, and J.

Exhibit H
Hospital Survival and Closings in Detroit, 1937 - 2003

Detroit, Michigan
★ Hospitals Closing, 1936 - 2003
● Hospitals Open, 2003

Closed Hospitals: Final Year Beds
☆ 500
☆ 250
☆ 50

Open Hospitals: 2001 Beds
◯ 610
◯ 305
◯ 61

Tract Percent Black & Hispanic, 1990
■ 80 to 100
■ 60 to 80
■ 40 to 60
□ 20 to 40
□ 0 to 20

Exhibit I
Hospital Survival and Closings in St. Louis, 1937-2003

St. Louis, Missouri
★ Hospitals Closing, 1936 – 2003
● Hospitals Open, 2003

Closed Hospitals: Final Year Beds
☆ 550
☆ 275
☆ 55

Open Hospitals: 2001 Beds
○ 980
○ 490
○ 98

Tract Percent Black & Hispanic, 1990
■ 80 to 100
■ 60 to 80
■ 40 to 60
□ 20 to 40
□ 0 to 20

© 2003, Alan Sager
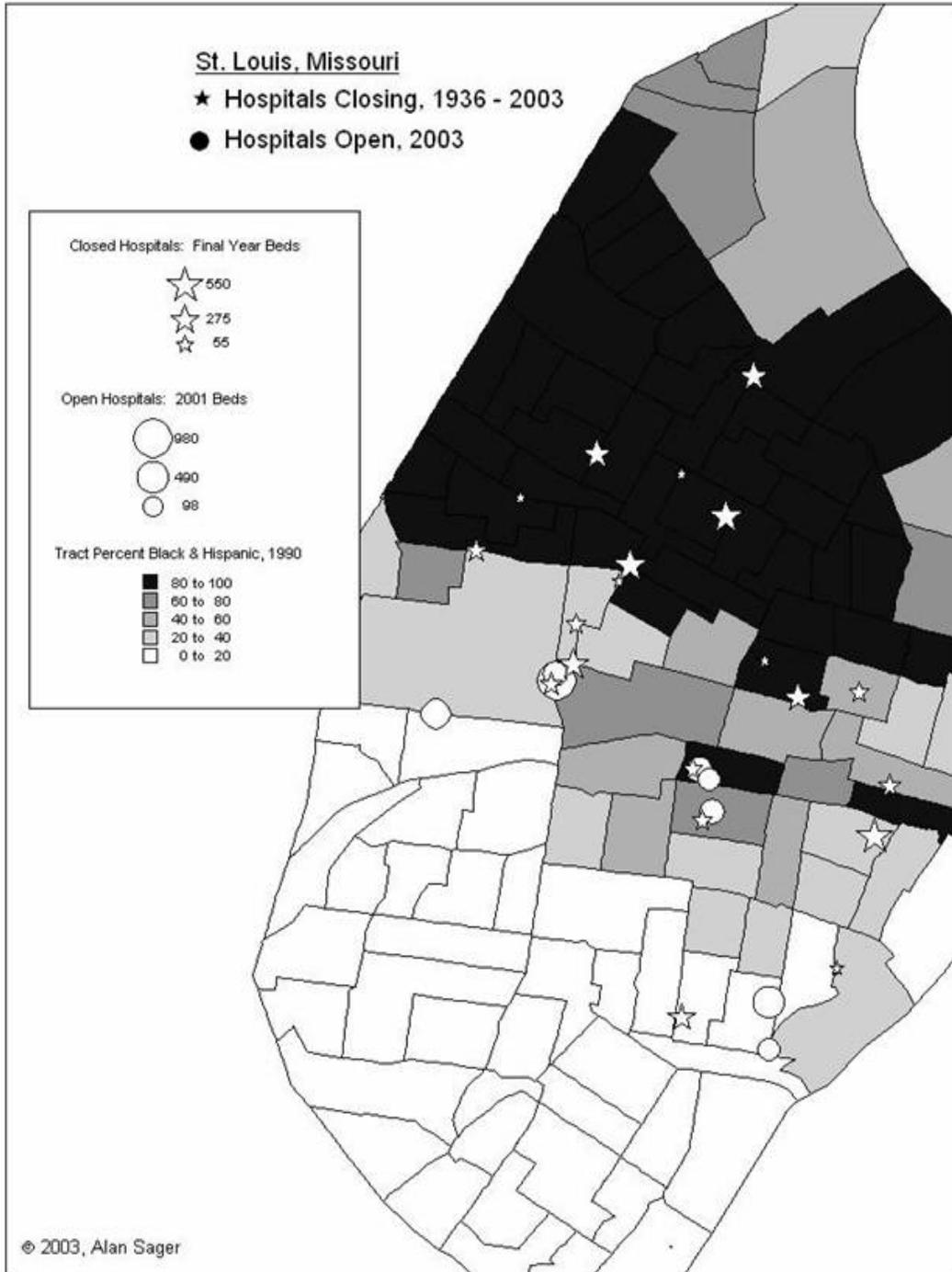
Exhibit J
Hospital Survival and Closings in Washington, D.C., 1937-2001

Washington, District of Columbia
★ Hospitals Closing, 1936 - 2003
● Hospitals Open, 2003

Closed Hospitals: Final Year Beds
☆ 420
☆ 210
★ 42

Open Hospitals: 2001 Beds
○ 870
○ 435
○ 87

Tract Percent Black & Hispanic, 1990
■ 80 to 99.8
■ 60 to 80
■ 40 to 60
□ 20 to 40
□ 0 to 20

© 2003, Alan Sager
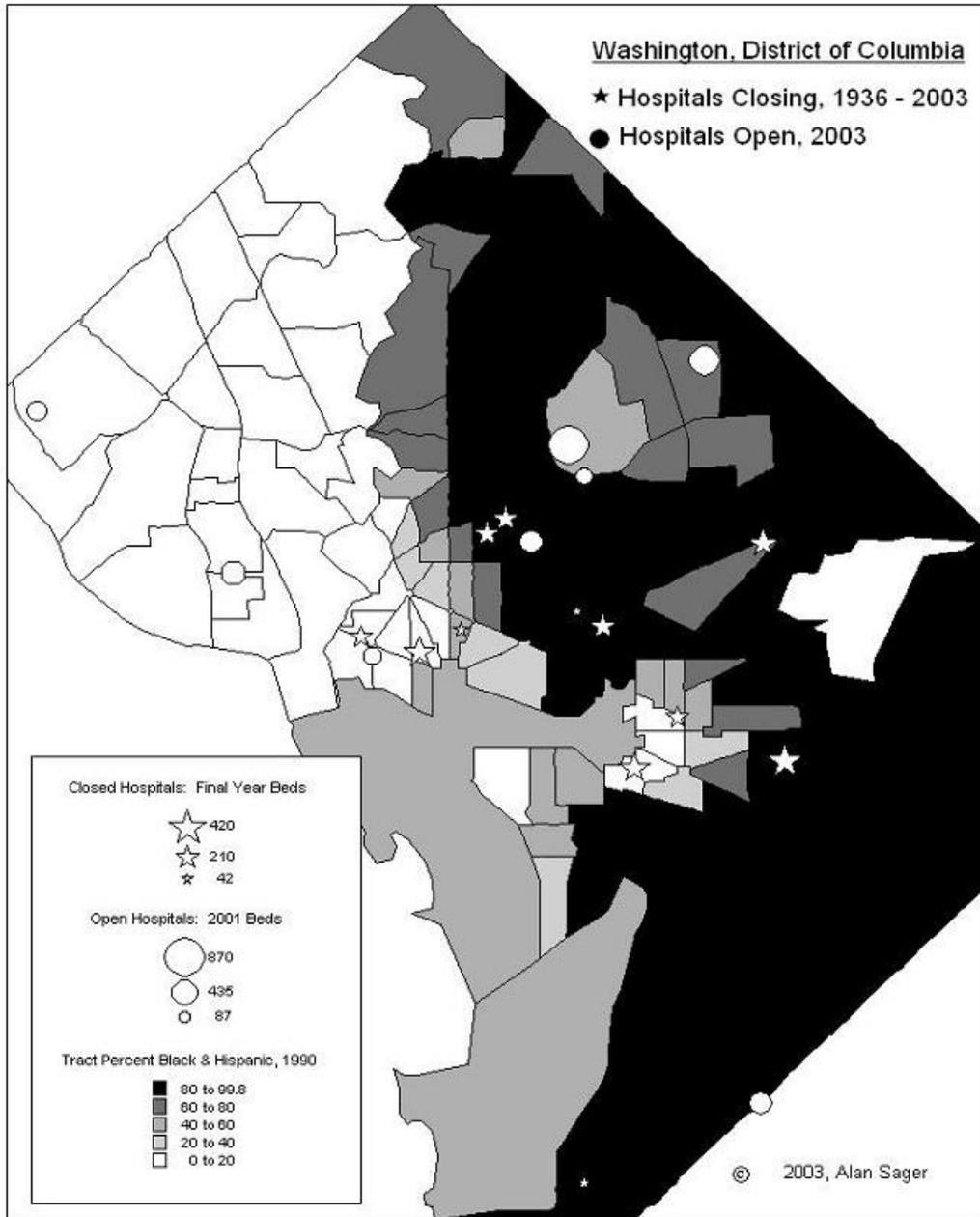
3. Continuity of care

Continuity of care rests strongly on hospital survival. Closing a hospital removes inpatient care, emergency room care, and outpatient clinics.

Hospitals are not characters in a video game that can just be blown up or moved around with a controller. For many patients, a stable hospital—open for business in one location— is a visible, solid, and trustworthy guarantor that needed health care will be provided.

Disruption of inpatient care may also follow hospital closings. Some who are sanguine about hospital closings, relocations, or mergers may regard hospitals largely as interchangeable parts in a health care machine. But this may be inaccurate. Many patients appear to respond conservatively when their customary hospital closes. Shepard found that 30 percent of the inpatients displaced by a hospital closing do not re-appear at surviving institutions nearby, at least not for some time.[42]

In one eastern Massachusetts community, half of all residents never or only occasionally leave the immediate area to obtain health care. "Eighty-five percent said that distance was the most important factor in deciding where to get care."[43]

Bindman, Keane, and Lurie succeeded in following patients of a closed county hospital. In the year after the closing, they found a doubling in the share of patients lacking a regular provider, a rise of more than one-half in the share reporting a denial of care, a drop in perceived health, and a rise in pain. Regular patients of a surviving county hospital experienced no deterioration.[44]

B. HOSPITALS AND PROVISION OF PHYSICIANS' SERVICES

Some advocates of hospital closings have tried to justify their proposals by claiming that dollars saved could be used to finance vitally needed ambulatory care services.

There are several problems with these assertions. One is that money is not saved when hospitals are closed. A second is that savings, even if they did arise, usually can't be captured and put to other uses. Third, and at least as important, hospitals and doctors are more symbiotic than adversarial. Both are needed—especially in communities that lack adequate medical resources. We find, therefore, that it is a mistake to pit primary care and other physician services against hospital services.

There are two distinct reasons.

1. Hospitals are very important providers of ambulatory care

We are concerned that closing some hospitals will remove needed services from communities in which inpatient and ambulatory care are already in short supply. Closing some hospitals will do little to advance the financing of important primary care for patients who are already vulnerable to denial of needed services. New investments in primary care services should be guaranteed and actually made—not promised—before hospitals providing ambulatory care are closed. No such guarantees appear to be in place.

As shown in Exhibit A, New Yorkers rely very heavily on hospital-based non-emergency outpatient department (OPD) care. New York's rate of use of the OPD per 1,000 residents is two-fifths above the national average, and the state ranks 13[th-] highest in reliance on OPD care.

This reliance on hospitals for ambulatory physician services might seem unexpected— since New York ranks fifth in the nation in office-based physicians per 10,000 people— but it is real.

Unfortunately, office-based physicians are unevenly distributed geographically, and some physicians are not readily available to Medicaid-financed or uninsured patients. Consequently, hospitals are vital providers and sponsors of OPD services to patients who lack good alternative sources of physician care. This is particularly true for blacks/African-Americans, who rely twice as heavily on OPDs and ERs as do whites. (Data on doctor visits by site of care and by race are available; data by ethnicity are not similarly available.)   It is probably true as well for Latino patients and others who are vulnerable to deprivation of needed care.

Race and OPD/ER use. As shown in Exhibit K, whites and blacks visit physicians almost exactly as often overall, about 400 visits per 100 people in 2003. But 68 of whites' visits (17 percent of 399 visits per 100 annually) were made in hospital OPDs or ERs, while 130 of blacks' visits (33.2 percent of 391 visits per 100 annually) were made in OPDs or ERs. [45]

This appears to be tied mainly to race, not to insurance status alone. Consider only people aged 75 and above. Virtually all are covered by Medicare. Whites relied on hospital OPDs and ERs for 12 percent of their physician contacts in 2003, while blacks relied on them for 22 percent of their physician contacts.

Exhibit K
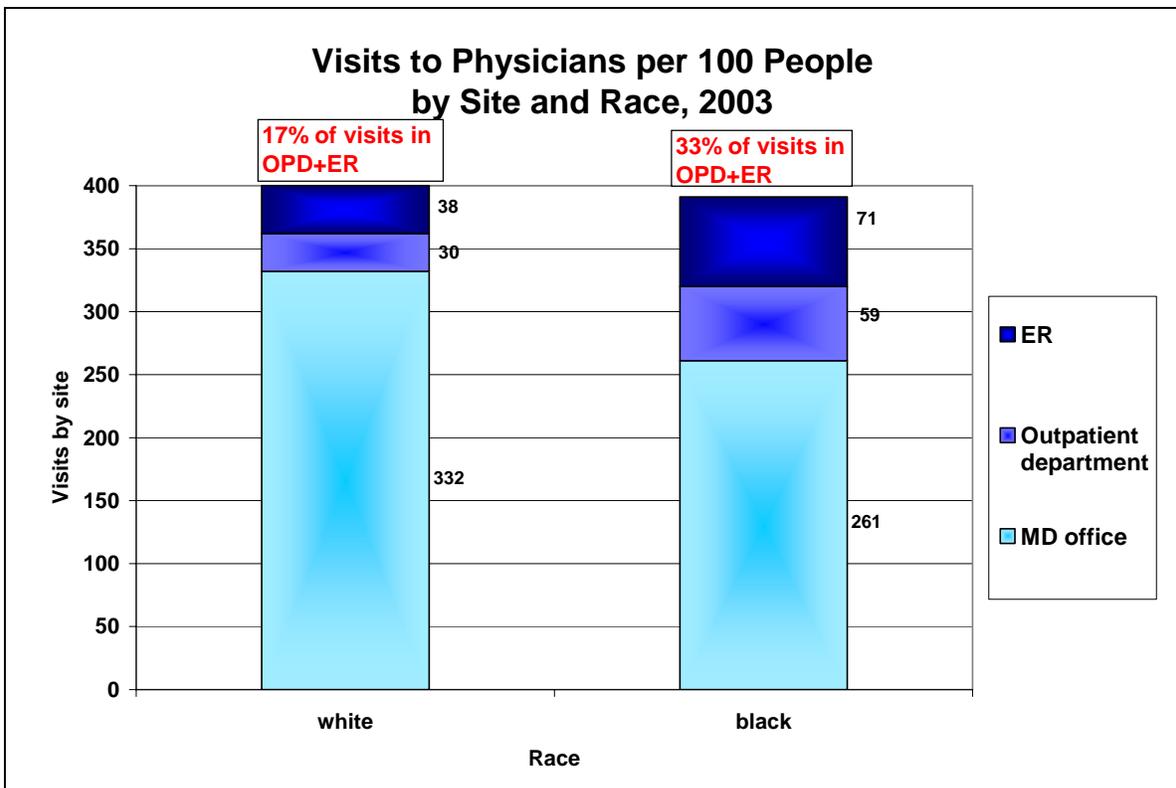
These are national data but this pattern can be expected to prevail in individual states also. Therefore, it is reasonable to predict that closing of hospitals will disproportionately harm blacks'/ African-Americans' access to physician services. Latinos/Hispanics are also likely to experience disproportionate harm.

Cutting New Yorkers use of hospital OPDs to national levels might, by itself, save money, but it would result in a loss of 11.0 million doctor visits in OPDs annually—a cut of 26 percent.

In 2000, blacks were 15.9 percent of New York State's population. [46] But, applying blacks' higher national rate of use of OPDs, 59 OPD visits per 100 people, we estimate that about 31.5 percent of OPD visits in New York State are made by blacks. This means that blacks would lose 3.5 million of the 11.0 million reduction in OPD visits necessitated to cut use of OPDs in New York State down to national levels.

This calculation assumes that the loss of OPD care were evenly distributed throughout the state. Were hospital closings and associated OPD losses disproportionately concentrated in black/African-American neighborhoods, blacks' share of loss of OPD care would be substantially greater.

2. In areas where vulnerable patients reside, hospitals and doctors are symbiotic, not competitors

In some communities, physician groups build free-standing ambulatory surgery or MRI centers to try to compete with doctors for well-insured patients or patients with profitable diagnoses.

But in neighborhoods where patients who are vulnerable to denial of needed care reside, hospitals and doctors are mainly symbiotic. Each is needed to sustain the other. Because hospitals need doctors to refer, admit, and care for patients, hospitals are motivated to recruit and sustain doctors who practice nearby.

In under-served areas, symbiosis means that without hospitals, many physicians can be overwhelmed or experience greater difficulty in earning a living. As the share of U.S. physicians in primary care shrinks, and as extensive areas of many cities experience loss of physicians, hospitals that depend on physicians in private practice are vulnerable to closing. The neighborhoods with high minority population share and lower incomes, that are likeliest to lose their non-teaching hospitals, tend to start with fewer physicians.[47]

Other things equal, closing a hospital generates greater need for more non-hospital care— from physicians, free-standing ambulatory surgery centers, community health centers, pharmacies, and the like. But does the amount of such care rise after a nearby hospital closes? Physicians, for example, might move in to care for patients displaced by a hospital closing. And community health centers might expand. Alternatively, though, physicians who had depended on a closed hospital to care for their patients— physicians who had been in and out of a hospital daily or more often— might choose to retire or relocate their practices after their hospital closed.[48] [49]

In a very large expanse of one large U.S. city, large-scale demographic change resulted in a pronounced change in the racial mix. Most of the physicians in private practice

gradually relocated their offices to suburban areas, to follow their patients. Some retired. Most physicians see themselves as serving patients, not places.

As a result, this sector of the city had far fewer physicians than before the demographic succession.

Still, the area retained most of its hospitals, and these wished to remain open and available to address the medical needs of the new residents surrounding them. The great majority of these new residents were insured.

Unfortunately, without enough doctors to admit patients and care for them, the hospitals could not remain open. In time, all closed or relocated to suburban areas.

Like cars with well-tuned engines and good tires, they could not function—because they lacked transmissions. Doctors play that role in a hospital.

Some hospitals are located in areas where physicians are in short supply, and are therefore motivated to recruit physicians into the area, but these tend to be the very hospitals that lack the money to do so. They are willing but not able.

In summary, hospital costs in New York State are very high. The state does have an above-average number of hospital beds per 1,000 residents. Therefore, it seems logical to close hospitals to save money.

Unfortunately, this will not work, and is likely actually to be counter-productive. It won't work because excess beds account for only a very small share of the state's high costs. Also, it is counter-productive. There are two reasons. First, hospitals that close tend to be less costly than survivors. Second, closing some hospitals will boost the market power of surviving hospitals, allowing them to raise their prices. This will force us and our insurers to pay them even more money.

At the same time, the pattern of hospital closings has been racially and ethnically imbalanced. The cumulative effect of past closings has left many neighborhoods without needed hospital care. Imbalances in hospital beds per 1,000 people among the boroughs of New York City are also clear.

Hospital closings are sometimes sold as a means to save money to finance badly needed primary care. But usually, there are no mechanisms to capture the savings on hospital care—if any actually materialize—and use them to finance more primary care. At the same time, hospital closings deprive many neighborhoods of vitally needed services provided by doctors in outpatient clinics and emergency rooms.

Hospital closings look attractive for many reasons—because they seem like a logical solution, and because hospitals can actually be closed. Unfortunately, they don't save

money and they do harm access to care. <u>Their promise greatly exceeds their performance</u>. Closing some hospitals will benefit the surviving hospitals, but that will not lower cost or protect access to care. It will, though, protect the survivors. Until the next round of closings.

By boosting cost and degrading access, hospital closings accelerate the drift of health care toward fewer services for fewer people at greater cost. This is medically, socially, economically, and politically unwise.

Appendix 1

Multivariate analysis of predictors of high hospital costs per person across the states

As described briefly in the text, we have performed a multivariate regression analysis to try to tease out the main independent predictors of high hospital costs across the 50 states. We compiled data on all 50 states on a number of hospital, physician, population, and other characteristics.

We selected eleven specific variables for analysis. These were chosen mainly in light of their conceptual interest as predictors of variation in cost. The eleven variables chosen were:

Hospital occupancy rate	Acute hospital beds/1,000 residents
In-hospital surgeries/1,000 residents	ER visits/1,000 residents
OPD visits/1,000 residents	Average length-of-stay
Operating margin	Share of state population > age 65
COTH hospitals' share of total admissions	Labor share of total hospital expenses
Practicing office-based physicians/10,000 people	

The main results of the regression are presented in Appendix Exhibit 1-A.[50] Five of the eleven independent variables formed associations with hospital cost per person that would be found by chance no more often than five times in one hundred. That is, they had a statistical significance of $p = 0.05$ or lower.

The independent variables are ranked by their Beta values. The Beta value indicates the association between a one percent change in the variable in question and the change in the dependent variable that's being analyzed—hospital cost per person in a state. The value of each Beta is controlled for the values of the other independent variables in the regression equation. So, for example, a one percent change in COTH share of hospital admissions, across the 50 states, is associated with a 0.458635 percent rise in hospital cost per person, controlling for OPD visits/1,000 residents, and the other independent variables listed in Appendix Exhibit 1-A.

Ranking the predictors' importance by their Beta's indicates that COTH share of admissions was most important, followed by OPD visits per 1,000 residents, beds per 1,000 residents, the ratio of practicing office-based physicians per 10,000 residents, and labor share of total expenses. The Beta is a useful way to rank the predictive power of the different independent variables. In other words, hospital beds per 1,000 residents was statistically significant but was only the third-most-useful predictor of differences in hospital cost per person across the states.

The p-level of each independent variable is its statistical significance—the probability that the observed relationship between the independent variable in question and hospital

cost per person would occur by chance (controlling for the values of the other independent variables). The relation between COTH share of admissions across the states and hospital cost per person across the states is very close—it would be found by chance only 4 times in 1 million—0.000004. Inspection of Appendix Exhibit 1-A reveals that, generally, the greater the Beta, the more statistically significant the variable (the lower the p-level).

The regression equation as a whole was highly statistically significant. More important, it was practically powerful. The five independent variables explained fully 81.3 percent of the difference in hospital cost per person across the 50 states (R^2 = 81.3 percent).

Appendix Exhibit 1-A

Results of Regression Analysis of Hospital Cost/Person across the 50 States

Independent variable	Beta	B	t (44)	p-level
Intercept		-867.212	-1.86821	0.068400
COTH share of admissions	0.458635	893.309	5.30452	0.000004
OPD visits/1000 residents	0.416987	0.189	5.08607	0.000007
Beds/1000 residents	0.388850	112.493	5.27010	0.000004
Practicing Office-based physicians/pop.	0.322196	31.369	3.55126	0.000928
Labor share of total expenses	0.248460	2313.306	2.96012	0.004938

Note: The regression equation was significant at p = 0.000000. Its adjusted R^2 = 81.3 percent.

The data in Appendix Exhibit 1-B further assess the five independent variables' usefulness in predicting differences among the states in hospital cost per person.

The variable's tolerance indicates its separate predictive power. The higher the tolerance, the less redundant is the variable with other independent variables—in a sense, the less it overlaps or correlates highly with other variables in the regression equation. All of these tolerances are above 0.50.

The variable's partial correlation measures its unique contribution to predicting the value of the dependent variable. The five variables' partial correlations rank in the same order as did their Beta's.

A variable's semi-partial correlation squared captures share of the total variance in that is uniquely accounted for by this variable. We see that the five variables, together, sum to almost 0.44—44 percent—of the total variance.[51]

COTH hospitals' share of admissions and the rate of OPD visits/1,000 residents each accounted for about 12 percent of the total variance. Hospital beds/1,000 residents accounted for 11 percent. The ratio of practicing office-based physicians to population accounted for about 5 percent, and labor share of total hospital expenses accounted for about 4 percent.

**The Independent Variables' Tolerances, Partial Correlations,
and Semi-partial Correlations**

Independent variable	Tolerance	Partial correlation	Semi-partial correlation	Semi-partial correlation squared
COTH share of admissions	0.568847	0.624545	0.345911	0.1197
OPD visits/1000 residents	0.781109	0.622064	0.343667	0.1181
Beds/1000 residents	0.632641	0.608475	0.331666	0.1100
Practicing Office-based physicians/10K	0.516609	0.471987	0.231580	0.0536
Labor share of total expenses	0.603593	0.407519	0.193032	0.0373
Sum of semi-partial correlations squared				0.4387

This analysis strongly suggests that efforts to reduce hospital cost per person by trying to cut hospital beds/1,000 people would not be very effective because—after controlling for other characteristics—beds do not strongly influence costs.

Further, the close correlation between COTH share of hospital admissions and cost per person indicates that if beds are closed at non-teaching hospitals, the teaching hospital share of hospital admissions will rise. This could be expected to result in an increase in hospital costs per person in a given state.

This relation can be quantified with reasonable precision. As noted earlier, COTH share of hospital admissions had a Beta of 0.458635, controlling for the other independent variables in the regression equation. Thus, a one percent rise in the share of admissions to teaching hospitals will predict a rise of 0.458635 percent in hospital cost per person statewide.

Hospital admissions totaled a bit over 2.5 million in New York State in 2004. And some 45.3 percent of admissions were to COTH hospitals (text Exhibit A). Statewide, we have calculated, admissions per hospital bed averaged almost exactly 43 admissions in 2004.[52] Suppose, then, that 2,000 beds are closed at non-COTH hospitals and that the patients formerly admitted to these hospitals are shifted to COTH hospitals.[53]

We are thereby shifting some 86,000 admissions. Teaching hospitals admitted some 1,139,000 patients in New York State in 2004. This rises to 1,225,000, or 48.7 percent of admissions as a result of the closing of 2,000 beds in non-teaching hospitals.

That's a rise of 7.6 percent in teaching hospitals' share of admissions (48.7/45.3 = 1.076).

Consequently, hospital cost per resident of New York State rises by 7.6 * 0.458635 (the Beta), or almost 3.5 percent.

A 3.5 percent rise in hospital spending per person would have been $76.70 in 2004. This would have translated into an actual increase of $1.5 billion in 2004's statewide hospital spending—raising spending from $42.0 billion to $43.5 billion.

Appendix 2

Regression analysis of hospital closings in 52 U.S. Cities, 1980 – 2003

We studied hospital closings from 1980 to 2003 as functions of hospitals' 1980 or 1990 characteristics, focusing on the six characteristics that significantly predicted closings during the full 23 years from 1980 to 2003, and also hospital efficiency.

Only two of these—number of beds and fund balance per patient— were significant during all periods (Appendix Exhibit 2-A). Area percent black significantly predicted chance of closings during all periods but one, 1990 to 1997. Greater efficiency never predicted survival.

Appendix Exhibit 2-A
Significance of predictor characteristics during five periods

Initial year characteristic [a]	Significance level of each variable during each period [b]				
	1980-2003	1980-1990	1990-1997	1997-2003	1990-2003
Medical school affiliation	*0.031460*	*0.014292*	0.161555	0.288121	0.090647
Beds	*0.000000*	*0.000000*	*0.000062*	*0.001826*	*0.000002*
Area percent black	*0.000841*	*0.000096*	0.412443	*0.016508*	*0.008305*
Hospitals within one mile	*0.018967*	*0.002387*	0.438814	0.335435	0.197952
Fund balance per patient	*0.000210*	*0.021249*	*0.000866*	*0.003237*	*0.000013*
Case mix index, Medicare patients	*0.004696*	0.804076	0.140895	0.624833	0.218536
Efficiency	0.150235	0.095338	0.852061	0.635725	0.796208
Adjusted R^2 from regression	26.1%	16.7%	10.5%	6.9%	16.0%
number of hospitals in 52 cities	692	701	623	550	621
Hospitals closing during period	252	123	72	68	139
Hospitals remaining open at end of period	440	578	551	482	482
Percent of hospitals closing during period	36.4%	17.5%	11.6%	12.4%	22.4%

Note for Exhibit 65: Hospitals with 25 or more beds in the initial year are included.

[a] 1980 for 1980-2003 and 1980-1990 analyses, and 1990 for the others.
[b] Characteristics significant at 0.05 or better are italicized.

Notes

[1] Judy Wessler, *Analysis of the Approved Federal-State Health Reform Partnership (F-SHRP) Waiver,* New York: Commission on the Public's Health Care System, October 2006.

[2] Richard Perez-Pena, "In Move to Cut Hospitals, U.S. Will Pay New York $1.5 Billion," *New York Times,* 3 October 2006.

[3] This sum is well below the adjusted R^2 of 81.3 percent of the entire regression equation. The difference would seem to be accounted for by interactions between and among the variables.

[4] This analysis assumes that the average occupancy rate and annual admissions/bed at closed hospitals and surviving teaching hospitals are equivalent.

[5] Owing to the attrition of non-teaching hospitals over many decades in New York City, for example, surviving hospitals are increasingly likely to be teaching hospitals and COTH members.

[6] Milton Roemer and Max Shain, *Hospital Utilization under Insurance,* Chicago: American Hospital Association, 1959. See also Milton Roemer, "Bed Supply and Hospital Utilization: A Natural Experiment," *Journal of the American Hospital Association,* Vol. 35 (1 November 1961), pp. 36-42.

[7] Paul B. Ginsburg and Daniel M. Koretz, "Bed Availability and Hospital Utilization: Estimates of the 'Roemer Effect,' " *Health Care Financing Review,* Vol. 5, No. 1 (Fall 1983), pp. 87-92.

[8] U.S. General Accounting Office, *Available Research Shows that Capacity Is Only Weakly Related to Volume,* Washington: GAO, 31 January 1991, GAO/PEMD-01-7.

[9] Calculated from American Hospital Association, *Hospital Statistics, 2002 Edition,* Chicago: AHA, 2002, Table 1.

[10] Walter McClure, *Reducing Excess Hospital Capacity*, Excelsior, Minnesota: InterStudy, 15 October 1976, prepared for the Bureau of Health Planning and Resource Development, Department of Health and Human Services, under Contract HRA-230-76-0086. The material cited is from the executive summary.

[11] Walter McClure and Lenore Kligman, *Conversion and Other Policy Options to Reduce Excess Hospital Capacity,* Washington: Bureau of Health Planning, Health Resources Administration, September 1979, under Contract No. HRA 230-77-0033, DHEW

Publication No. (HRA) 79-14044. The material cited is from Section V, especially pp. 99-100.

[12] Witness, for example, the Massachusetts Hospital Association's dozen years of opposition to proposed state legislation that would identify and stabilize all needed hospitals. The law's stabilization fund would be financed by a one-quarter of one percent assessment on the revenues of all hospitals.

[13] Richard Perez-Pena, "In Move to Cut Hospitals, U.S. Will Pay New York $1.5 Billion," *New York Times,* 3 October 2006.

[14] Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[15] Some of these forces are discussed in Richard Perez-Pena, "Hospital Business in New York, Once Prized, Braces for a Crisis," *New York Times,* 11 April 2005.

[16] For a look at some of the problems at one hospital, see Katherine E. Finkelstein, "Layoffs Feared as Consultant Examines Mount Sinai's Budget," *New York Times,* 29 November 2001; and Janny Scott with Mary Williams Walsh, "Mt. Sinai on a Path away from the Past," *New York Times,* 25 August 2002.

[17] Richard Perez-Pena, "Hospital Business in New York, Once Prized, Braces for a Crisis," *New York Times,* 11 April 2005.

[18] Stephen Berger, Third report of the Working Group on Medicaid and health care, 17 November 2004, especially pp. 16-19.

[19] Stephen Berger, Third report of the Working Group on Medicaid and health care, 17 November 2004, p. 17.

[20] Consumer Price Index data are the annual figure for all items, U.S. city average, Series ID CUUR0000SA0, http://data.bls.gov/PDQ/servlet/SurveyOutputServlet, access confirmed 21 October 2006.

[21] Alan Sager, "D.C. General Must Be Resuscitated," op-ed., *Washington Post,* 3 December 2000; Alan Sager, *Saving D.C. General Hospital: Why and How?* Boston: Health Reform Program, Boston University School of Public Health, 5 October 2000; Alan Sager, *D.C. General Hospital Should Be Renewed, Not Closed,* Testimony before the Washington, D.C. City Council, Boston: Boston University School of Public Health, 18 September 2000.

[22] See, for example, Alan Sager, *The Proposed Closing of Rancho Los Amigos National Rehabilitation Center Endangers the Health of Disabled Medi-Cal Patients Who Reside*

in Los Angeles County, Statement of expert witness prepared in the case of <u>Rodde, et al. v. Bonta et al</u>, 3 April 2003.

[23] *Report to the Princeton Health Care Task Force on the University Medical Center at Princeton's Capital Needs and Location Options,* Boston: Boston University School of Public Health, 1 February 2005, 31 pages, www.healthreformprogram.org.

[24] This section relies heavily on Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[25] Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[26] Health and Hospitals Planning Council of Southern New York, "Unneeded Facilities for General Hospital Care in New York City," New York: The Council, 5 February 1976, p. 2, cited in Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[27] Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[28] Cited in Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[29] *New York Times,* 18 February 1977, cited in Barbara Caress and Ronda Kotelchuck, "Politics Makes Strange Beds: New York as a Laboratory for Cost Controls," *Health PAC Bulletin,* No. 77 (July/August 1977), pp. 1-10, 19-21.

[30] Walter McClure and Lenore Kligman, *Conversion and Other Policy Options to Reduce Excess Hospital Capacity,* Washington: Bureau of Health Planning, Health Resources Administration, September 1979, under Contract No. HRA 230-77-0033, DHEW Publication No. (HRA) 79-14044, pp. 108-109.

[31] Howard French, "Crime and Fear Follow Crack in Hospitals," *New York Times,* 10 May 1989.

[32] Wolfgang Saxon, "Hospital Bed Shortage Tied to Type of AIDS Cases," *New York Times,* 25 December 1987.

[33] Jesse Green, Madeleine Singer, Neil Wintfeld, Kevin Schulman, and Leigh Passman, "Projecting the Impact of AIDS on Hospitals, *Health Affairs,* Fall 1987, pp. 19-31, Exhibit 3.

[34] Niccie L. McKay and Fred H. Dorner, "The Effect of Rural Hospital Closures on the Financial Performance of Neighboring Rural Hospitals," *Inquiry*, Vol. 33 (Fall 1996), pp. 271-282.

[35] Donald S. Shepard, ""Estimating the Effect of Hospital Closure on Areawide Inpatient Hospital Costs: A Preliminary Model and Application," *Health Services Research*, Vol. 18, No. 4 (Winter 1983), pp. 513-549, at p. 513.

[36] See, for example, Robert Mechanic, Kevin Coleman, and Allen Dobson, "Teaching Hospital Costs: Implications for Academic Missions in a Competitive Market," *Journal of the American Medical Association,* Vol. 280, No. 11 (16 September 1998), pp. 1015-1019.

[37] As growing proportions of lower-income urban residents, who had formerly been admitted to now-closed non-teaching hospitals, are served in teaching hospitals, the cost of their care will rise if they receive more care or more esoteric care than formerly. Further, lower-income patients and their payors may be asked to assume greater shares of the cost of training and research conducted in teaching hospitals. Even if total cost of care in the community remains unchanged, health care for lower-income people will look more expensive to Medicaid, to other insurers, and to private employers worried about their bills.

[38] Arnold M. Epstein, Robert S. Stern, and Joel S. Weissman, "Do the Poor Cost More? A Multihospital Study of Patients' Socioeconomic Status and the Use of Hospital Resources," *New England Journal of Medicine,* Vol. 322, No. 16 (19 April 1990), pp. 1122-1128.

[39] Niccie L. McKay and Fred H. Dorner, "The Effect of Rural Hospital Closures on the Financial performance of Neighboring Rural Hospitals," *Inquiry*, Vol. 33 (Fall 1996), pp. 271-282.

[40] Alan M. Garber, Victor R. Fuchs, and James F. Silverman, "Case Mix, Costs, and Outcomes: Differences between Faculty and Community Services in a University Hospital," *New England Journal of Medicine,* Vol. 310, No. 19 (10 May 1984), pp. 1231-1237.

[41] Alexander P. Frick, Anne Grisez Martin, and Michael Shwartz, "Case-mix and Cost Differences Between Teaching and Nonteaching Hospitals," *Medical Care*, Vol. 23, No. 4 (April 1985), pp. 283-295.

[42] Donald S. Shepard, "Estimating the Effect of Hospital Closure on Areawide Inpatient Hospital Costs: A Preliminary Model and Application," *Health Services Research*, Vol. 18, No. 4 (Winter 1983), pp. 513-

549.

[43] Margaret O'Malley, "We Deserve More," *Gloucester Daily Times*, 29 April 1998.

[44] Andrew Bindman, Dennis Keane, and Nicole Lurie, "A Public Hospital Closes: Impact on Patients' Access to Care and Health Status," *Journal of the American Medical Association,* Vol. 264, No. 22 (12 December 1990), pp. 2899-2904.

[45] National Center for Health Statistics, *Health United States, 2005,* Table 88, http://www.cdc.gov/nchs/data/hus/hus05.pdf.

[46] This conservatively considers only those who designated themselves as black race alone on the U.S. Census.

[47] David Elesh and Paul T. Schollaert, "Race and Urban Medicine: Factors Affecting the Distribution of Physicians in Chicago," *Journal of Health and Social Behavior*, Vol. 13 (September 1972), pp.236-250; Sheila Joroff and Vicente Navarro, "Medical Manpower: A Multivariate Analysis of the Distribution of Physicians in the United States," *Medical Care,* Vol. 9, No. 5 (September-October 1971), pp. 428-437; and Donald Dewey, *Where the Doctors Have Gone: The Changing Distribution of Private Practice Physicians in the Chicago Metropolitan Area, 1950-1970*, Chicago: Illinois Regional Medical Program, 1973.

[48] Even turmoil or fears of a bankruptcy or closing can induce physician departure. See Scott Hensley, "Flight from Philly: Allegheny Collapse Further Fuels Doctors' Exodus," *Modern Healthcare*, 31 August 1998, p. 12.

[49] Only the rapid rise in the number of hospital-based physicians in poverty areas was sufficient to offset the substantial drip in office-based physicians, particularly in office-based primary care physicians. There was a substantial drop in the physician-to-population ratios in areas changing from non-poverty to poverty status over time. David A. Kindig, Hormoz Movassaghi, Nancy Cross Dunham, Daniel I. Zwick, and Charles M. Taylor, "Trends in Physician Availability in 10 Urban Areas from 1963 to 1980," *Inquiry,* Vol. 24 (Summer 1987), pp. 136-146.

[50] The regression analysis, like the Pearson product-moment correlation analyses that generated the R^2 values cited in the text, was performed in Statistica 6.1.

[51] This sum is well below the adjusted R^2 of 81.3 percent of the entire regression equation. The difference would seem to be accounted for by interactions between and among the variables.

[52] This analysis assumes that the average occupancy rate and annual admissions/bed at closed hospitals and surviving teaching hospitals are equivalent.

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[53] Owing to the attrition of non-teaching hospitals over many decades in New York City, for example, surviving hospitals are increasingly likely to be teaching hospitals and COTH members.