

**THE INTERACTION OF PRICE AND SERVICE CHANGES  
IN A MERGERS AND ACQUISITIONS ENVIRONMENT**

**A Response to Robert Connor**

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The recent appearance in *Health Affairs* of the article "Which Horizontal Hospital Mergers Save Consumers Money"<sup>1</sup> calls out for an expanded view of the "public interest" implicated by mergers. In his article, Connor finds that horizontal hospital mergers result not only in reduced costs, but in reduced prices as well. In addition, Connor identifies particular hospital characteristics that are positively associated with hospital merger savings. If Connor had stopped with these empirical findings, all may have been well. However, his public policy conclusions deserve response. Connor categorically states, for example, that "consumers benefit from cost savings when prices are also reduced." Moreover, he concludes that:

Horizontal hospital mergers during 1986 - 1994 were generally financially beneficial to consumers, providing average price reductions of approximately seven percent. . . Overall, these results suggest that horizontal consolidations of hospital markets can be beneficial.<sup>2</sup>

These findings are not supported by his evidence.

## OVERVIEW

Historically, federal and state regulators have addressed the consideration (and quantification) of the potential harms of a merger proposal in some detail, including the impacts of the merger on competition and market power.<sup>3</sup> Surprisingly, however, there has been considerably less attention devoted to the consideration and evaluation of the claims of benefits to be derived.<sup>4</sup>

### *The Common Argument of Cost Savings*

A common argument by analysts of hospital mergers --and the conclusion advanced by Connor-- has been that a merger is in the public interest due to the significant cost savings directly attributable to the merger.<sup>(5, 6)</sup> The cost savings are significant. According to Connor, mergers not only resulted in cost savings, but yielded situations where those cost savings are actually passed on to consumers.<sup>7, 8</sup> Total savings in the range of three to seven percent were found. The implicit assumption in these conclusions is that cost reduction, by definition, is *ipso facto* good and right. Cost reduction, this reasoning goes, is good and right because it allows the institution to reduce prices.<sup>(9, 10, 11)</sup>

***Purpose of this Paper***

This paper challenges that conclusion and offers the alternative conclusion that cost reduction is good and right *only* if the impact on consumers, including reductions in the service provided to consumers, is neutral or positive, regardless of the effect on prices. More specifically, the analysis below:

1. Presents a model of the interaction between changes in prices and changes in service and demonstrates that the "benefit" of reduced prices flowing from the cost reductions of a proposed merger must be balanced against the "harm" of reduced service flowing from those same reductions;
2. Demonstrates how a balance based on the perspective of the "average consumer" can result in misleading information and how the addition of a third-dimension to the base model can overcome this weakness; and
3. Demonstrates how the interaction of changes in prices and service can be converted into quantitative analysis.

**THE BASIC TWO-DIMENSIONAL MODEL**

***The Interaction of Changes in Prices and Service***

A two-dimensional model of the interaction of changes in prices and service is set forth in Figure 1. As this model shows, both prices and service can have three possible states: (1) increase; (2) decrease; or (3) remain unchanged. The three columns of the model represent the three possible states of "changes in prices." The three rows of the model represent the three possible states of "changes in service." The resulting cells of this model, where the changes in prices and service intersect, contain the projected benefits for consumers of the combined changes. Such benefits can be positive, negative, or neutral. A "Plus-Plus" indicates a higher level of benefit than simply a "Plus."

**Figure 1:  
Interaction of Changes in Prices & Service**

	<b>Prices</b>	<b>Prices are</b>	<b>Prices</b>
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	Decrease	Unchanged	Increase
Service Decreases	(1) neutral	(2) negative	(3) negative- negative
Service is Unchanged	(4) plus	(5) neutral	(6) negative
Service Increases	(7) plus-plus	(8) plus	(9) neutral

### *The Range of "Service"*

Before examining how one can use this model to evaluate proposed hospital mergers, it is necessary to understand what activities make up the "service" provided by a hospital. It would be easiest to conclude that the "service" provided by a hospital is solely the provision of specific health care activities. Indeed, Connor's statement that his study focused on the "hospitals' core business of patient care" lends evidence to the conclusion that this was the approach in his study. This approach has some merit but, standing alone, is too narrow of a basis to consider whether mergers are beneficial or not.

A better approach is to consider a hospital from the same perspective as the distributor of a "manufactured" product and adopt the manufacturing concepts of "product" and "service." In the manufacturing world, a company's "offering" to its market is composed of both a physical "product" and a "bundle" of related or supporting "services." A simple example would be the appliance manufacturer who offers free delivery. The delivery, installation and warranty comprise the "service" component of this offering. Applying these concepts to a hospital leads one to define the activities identified by Connor provided to consumers as the "product" component of the company's market offering.<sup>12</sup> All other activities related to the provision of health care or supporting the provision of health care would be the "service" component.

Consider a simplified range of service provided by a hospital. We know that the clinical treatment received from a hospital is but one part of the hospital's "market offering." In the pre-care phase of serving a person, the hospital may also provide a determination of creditworthiness. In the post-care phase of serving a person, the hospital may provide service relating to the negotiation of payment terms, provide assistance to

help make insurance claims, or provide assistance in obtaining public benefits. The obligation of a health care provider to render the "service" of helping to arrange payments has been recognized by both courts<sup>13</sup> and commentators.<sup>14</sup>

In addition to these financial services provided to consumers, the "service" provided to consumers includes a variety of sub-components, both substantive and procedural. The substantive aspect of a hospital's service not directly involving the provision of actual clinical services might involve the promptness of care. Substantial concern exists that consolidation and cost reductions will lead to delays in the provision of care. One analyst has noted, for example, that cutbacks in physicians and support staff would result in, among other things, "longer waiting lines in the clinics and pharmacy. . ."<sup>15</sup> Kassirer notes that staff reductions would result in "greatly delayed care or none at all."<sup>16, 17</sup> The fact that health care service has a time element inherent within it is evident from court holdings that significant delays in care do not represent "substantial equivalence" for Medicaid purposes.<sup>18, 19, 20</sup>

Finally, some public health facilities, in particular, are noted for providing additional non-health-care services which would be threatened by merger.<sup>21</sup> Public hospitals, for example, "have tried hard to provide culturally sensitive care to socially and economically underprivileged persons through multifaceted programs that include (among other things) social services, translators, security, transportation, and child protection."<sup>22</sup> Community health centers "provide transportation, translation, case management, and other services to help people gain access to health care."<sup>23</sup> Community health facilities also provide supplemental services involving home visits and patient education programs.<sup>24</sup>

In sum, the "service" of a hospital may be affected in a variety of ways by cost reductions attributable to mergers. Cutbacks in customer service activities are possible. Increases in delays (that could be characterized as a reduction in promptness) as well as decreases in supportive services (such as help in finding financial assistance) not involving clinical are possible.<sup>25</sup> All of these service reductions should be weighed against price changes to determine whether hospital mergers "benefit" consumers, even in light of forecast or confirmed price decreases.

## **EVALUATING MERGER PROPOSALS**

After defining which activities constitute the "service" component of a hospital's market offering, it is possible to use the model shown above to evaluate hospital merger proposals. The general approach is to recognize that any reduction in prices that might flow from a proposed merger must be balanced by the impacts of those reduced prices on the service that is provided. If such a balancing finds a net negative impact on consumers that is not specifically mitigated, then the merger should be judged not in the public interest and not approved. In the event that such balancing finds a neutral or net positive impact, then the merger should be approved from this perspective.

Hospital merger candidates generally tend to "sell," and regulators tend to accept,<sup>26</sup> mergers as falling into cell #4 in the long term.<sup>27, 28, 29</sup>

Prices decline (due to cost reductions flowing from the merger), service remains unchanged, and the net effect on consumers is positive. The recent merger announcement of New York Hospital and Presbyterian Hospital in New York City said, for example, that the merger would save \$60 million annually while improving quality. Connor's article appears to adopt this same philosophy.

Experience suggests, however, that hospitals also consider cell #1 a reasonable course of action in this new age of competition. In this scenario, prices decline and service declines, but the impact on consumers is neutral because overall consumer satisfaction remains at an acceptable level. Cell #1 does not represent an improvement in efficiency. It represents a roll-back of service that is economically justified when the costs that are avoided exceed the reduction in prices. When evaluating merger proposals, care must be taken to assure that actions advanced as falling into cell #4 do not, in reality, fall into cell #1.

## **AN ENHANCED MODEL**

### ***The Weakness in the Base Model***

The weakness of the two-dimensional model stems from its reliance on the "average consumer" in assessing the impact of each price change/service change combination. Obviously, not all consumers are "average." The use of an average is justified only when the averaging process does not mask important differences that diverge from the "norm." In this case, use of the "average consumer" may well mask such differences.

Analysis of electric utility mergers has found that reductions in an electric company's service tends to affect, disproportionately and adversely, low-income and rural communities. Cell #1 of the base model is the price change/service change combination at issue. In this situation, both prices and service is reduced and the impact is regarded as neutral. When balancing the two changes, the reduction in prices is adequate compensation to the "average consumer" for the reduction in service. For the low-income or rural consumer, however, they may not be the case. The reduction in prices may not adequately compensate these consumers for the reduction in service.

The same would be true in health care. In the health care industry, one aspect of "service" about which concern is repeatedly expressed in the diversity of care. One analyst talks, for example, about how "large public hospitals are often the only source in a region for trauma care, burn units, neonatal intensive care units and other specialized services that are necessary but tend to be money-losers."<sup>30</sup> Another talks of how public hospitals "handle proportionately more patients with conditions that have considerable financial and social, as well as medical, impact including drug addiction, alcoholism, abuse, trauma, tuberculosis, and AIDS."<sup>31 32 33</sup> Poison control units, emergency psychiatric care, and disaster response teams are also illustrations of service that may be put at risk.<sup>34</sup> One commentator noted that services to the disabled and

chronically ill may be placed at risk, including occupational and physical therapists.<sup>35</sup>

### *Adding a Third Dimension*

Fortunately, this shortcoming in the two-dimensional model is easily overcome with additional analysis. It is a three-step process. One must first identify specific consumer groups for whom the impact of proposed changes may differ from the "average." A two-dimensional model is then constructed for each consumer group identified. This process effectively adds a third dimension to the base model (a consumer group dimension) and is illustrated in Figure 3.

The final step is to revise the decision rule used for balancing the impacts of changed prices on the service that is provided. The new rule states that if balancing finds a net negative impact on any consumer group that is not specifically mitigated, then a merger should be judged not in the public interest. In contrast, in the event that such balancing finds a neutral or net positive impact on every consumer group, then the merger can be found to be in the public interest.

**Figure 3: The Three-Dimensional Model**

<i>(Group C)</i>			
<i>(Group B)</i>			
<i>(Group A)</i>			
	<b>Prices Decrease</b>	<b>Prices are Unchanged</b>	<b>Prices Increase</b>
<b>Service Decreases</b>	(1) neutral	(2) negative	(3) negative- negative
<b>Service is Unchanged</b>	(4) plus	(5) neutral	(6) negative
<b>Service Increases</b>	(7) plus-plus	(8) plus	(9) neutral

Note that there is no requirement for the three-dimensional model to include analyses for all possible consumer groups. The decision rule is based on finding an exception to the "average consumer." An exception occurs whenever the projected benefit of a change in prices and service for a specific consumer group differs from the benefit for the "average consumer." Consequently, a three-dimensional model consisting of two-dimensional analyses of the "average consumer" and low-income consumers is valid if such a model illustrates the needed exception. Similarly, models including just the "average consumer" and older consumers, or just the "average consumer" and rural consumers, or some other particular combination, could also be valid models.

**DEVELOPING A QUANTITATIVE MODEL**



### *Advantages of a Quantitative Model*

The model presented in this paper examines the interaction of changes in prices with changes in service for hospitals. It relies on subjective assessments of those changes. It has thus far been assumed that the "direction" of such changes will be universally recognized and that the magnitude of the changes is not relevant. In practice, neither assumption may be accurate. The primary advantage of integrating quantitative analysis with this model is that "changes" themselves can be objectively determined and policy discussion thus focused on the impacts of the changes.

### *Quantitative Measurement of "Service"*

Quantitative analysis of the changes in prices and changes in service for a hospital requires the definition of quantitative measurements for both elements. Creating a measurement for "service" is by far the more difficult of the tasks. The industry has only just begun to experiment with quantitative performance measurements and no-one has yet to develop a metric that encompasses all aspects of a hospital's "service."<sup>36, 37, 38)</sup>

One approach would be to again borrow the manufacturing concepts of "product" and "service" and state the requisite measurement as a function of both. Symbolically, this would be expressed:

$$(1) M_s = f(\text{product}) + f(\text{service}).$$

Measurements of a company's "product" offering usually include factors for variety and quality. Expanding the term of Equation (1) would yield:

$$(2) M_s = [f(\text{product variety}) + f(\text{product quality})] + f(\text{service}).$$

The terms "product variety" and "product quality" could then be further disaggregated. In this sense, however, Equation 2 demonstrates one potential pitfall to avoid when developing a quantitative model. To create a measurement that encompasses all aspects of performance, one might be tempted to define a multitude of different factors and then add layer upon layer of subdivision to increase the "accuracy" of each factor. The result is unnecessary complexity. Additional studies would assist in determining a reasonable collection of factors to describe the "product" component of a hospital's offering.

Measurements of the "service" component of a hospital's market offering will be more difficult to develop. Factors could be included that measure the availability and accessibility of Customer Service personnel, the cycle time of Customer Service transactions, the availability and flexibility of payment plans, the effectiveness and cycle time of problem resolution procedures, and overall consumer satisfaction. This "service" component is particularly susceptible to a proliferation of factors that would measure specific aspects of Customer Service and additional studies would again assist in defining a reasonable set. In practice, the factors that are included to measure both the "product" and the "service" components will be the result of negotiation and administrative proceedings. Equation 3 demonstrates how the "service" term of Equation 2 could be expanded:

$$(3) M_s = [f(\text{product variety}) + f(\text{product quality})] + \\ [f(\text{CS availability}) + f(\text{CS transaction time}) + f(\text{payment plans options}) + f(\text{problem} \\ \text{resolution effectiveness})]$$

### ***Evaluating Merger Proposals with a Quantitative Model***

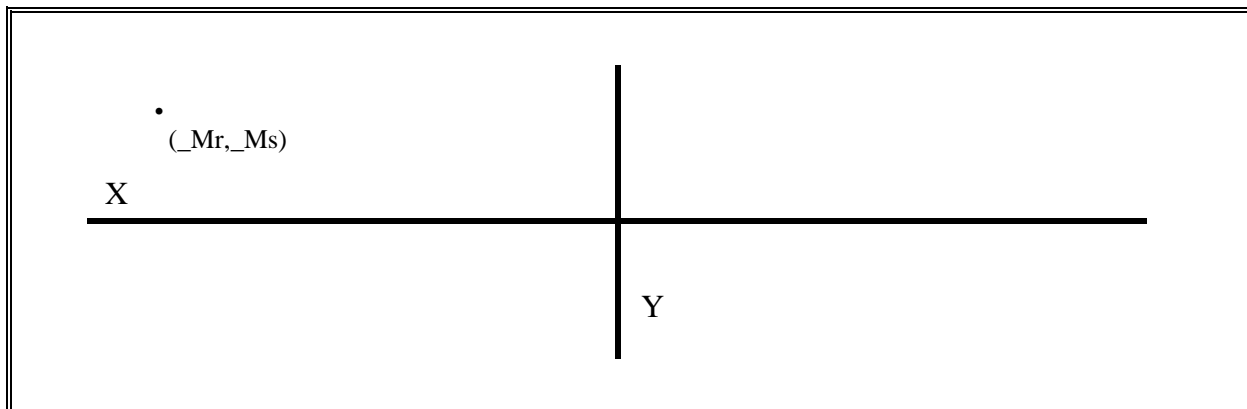
After quantitative measurements of prices and service are developed, it is possible to compare changes in prices ( $\Delta M_r$ ) with changes in service ( $\Delta M_s$ ) and thus integrate those metrics with the model presented in Figure 1. One first calculates a pre-merger baseline value for both prices ( $M_r$ ) and service ( $M_s$ ). One then calculates a post-merger value for both elements ( $M_r^1$  and  $M_s^1$ ). At that point, the changes in both prices and service can be calculated as follows:

$$\Delta M_r = M_r - M_r^1$$

$$\Delta M_s = M_s - M_s^1$$

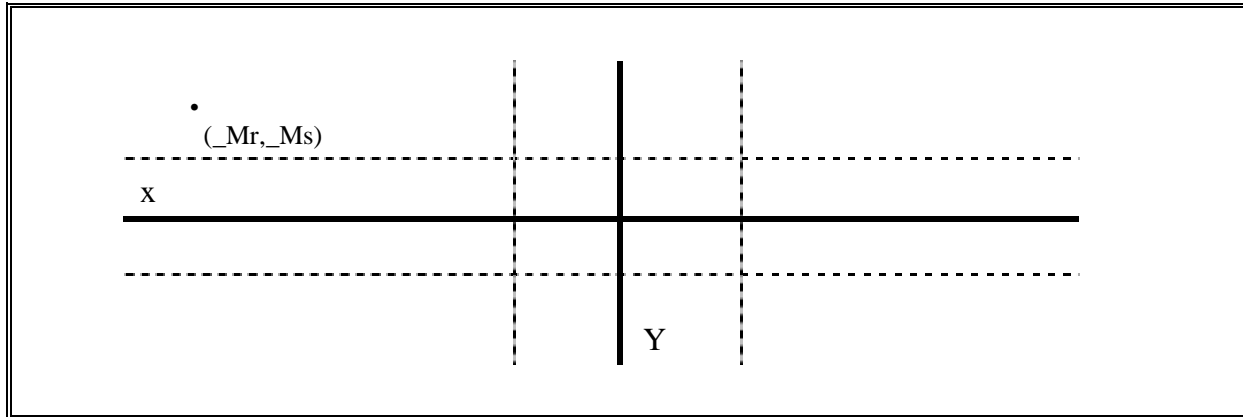
The point ( $\Delta M_r$ ,  $\Delta M_s$ ) is then plotted in X-Y space as shown in Figure 4. (Note that  $\Delta M_r$  is plotted on the X-axis and  $\Delta M_s$  on the Y-axis.

**Figure 4. Locating Changes in X-Y Space**



Finally, the location of the point  $(\_Mr, \_Ms)$  can be evaluated by overlaying the X-Y space with the qualitative model from Figure 1. The result is shown in Figure 5. The "no change in prices" column of Figure 1 becomes a "tolerance zone" surrounding the Y-axis in Figure 5. Likewise, the "no change in service" row becomes a tolerance zone around the X-axis. Non-zero changes within these zones are treated as if they were zero. Changes that fall outside these zones are assessed using all the techniques previously described. The sole difference is that the "location" of the changes were quantitatively determined.

**Figure 5. The Quantitative Approach**



**SUMMARY AND CONCLUSIONS**

The primary conclusion of this paper is that the analytic approach used by Connor to determine whether hospital mergers are beneficial to consumers is incomplete and inaccurate. The cost reductions advanced as the primary benefit of many hospital mergers are *only* of benefit when the impact on consumers, including reductions in service provided to consumers, is neutral or positive, regardless of the effect on prices. Even if Connor is right that horizontal hospital mergers yield reduced prices to consumers, it does not *a priori* follow, as he suggests, that "consumers benefit" or that horizontal hospital mergers are beneficial.

In addition, changes in hospital prices and in the service provided by a hospital are interrelated and the impact of such changes on consumers can be modelled using a two-dimensional matrix. Such a model can be used to balance the "benefits" of reduced prices that may flow from the cost reductions of a proposed hospital merger as identified by Connor with the "harms" of reduced service that may flow from the same cost reductions. As explained above, the "service" offered by a hospital is more than its "product offering."

Finally, development of such a model based on the impact of changes on the "average consumer" can yield misleading information. This phenomenon can be overcome by combining multiple models, each based on the impact of a different specific consumer group. Not all consumer groups need to be identified; only those relevant "exceptions" need to be subjected to analysis.

With additional analysis, the models and techniques demonstrated in this article can be converted into quantitative analysis.

## NOTES

1. Robert Connor, et al., *Health Affairs*, 16:62-74 (Nov./Dec. 1997). (hereafter, Connor). Subsequent references to "Connor" are intended to reference the entire group of authors.
2. *Connor*, 70-71.
3. *National Association of Attorneys General Horizontal Merger Guidelines* (1993) § 2, reprinted at 4 *Trade Reg. Rep. (CCH)* ¶ 13,406.
4. *But see*, Thomas Greaney, "Regulating for Efficiency in Health Care Through the Antitrust Laws," *Utah L.Rev.* 1995:465-501 (1995), citing "Merging HMOs Agree to State Plan on Social Spending, Contract Approvals," *Health L.Rep. (BNA)* 4:6 (Jan. 20, 1995) (settling state's objections to merger of second and third largest HMOs on agreement to freeze group rates for one year, double enrollment in Medicare risk program, and spend \$4 million on social services such as health care for the homeless, violence prevention and AIDS prevention).
5. *See e.g., Pennsylvania v. Capital Health System Service*, 1995-2 Trade Case. (CCH), ¶ 71,205, 1995 W.L. 787534 (M.D.Pa. Dec. 15, 1995).
6. Janet McDavid, "Antitrust Analysis of Hospital Mergers," *PLI/Comm.* 694:369-385, 380 (1994).
7. Paul Yde and Michael Vita, "Merger Efficiencies: Reconsidering the "Pass-On" Requirement," *Antitrust L.J.* 64:735-747 (1996).
8. U.S. Department of Justice and Federal Trade Commission, Statements of Enforcement Policy and Analytical Principles Relating to Health Care and Antitrust, Statement 9, at 104 (Sept. 27, 1994) ("In assessing efficiency claims, the agencies focus on net efficiencies that will be derived from the operation of the network and that will be passed on to consumers in the form of lower prices and higher quality.")
9. Joseph Kattan, "Efficiencies and Merger Analysis," *Antitrust L.J.* 62:513-535, 518-21 (1994).
10. Steve Stockum, "The Efficiencies Defense for Horizontal Mergers: What Is the Government's Standard?" *Antitrust L.J.* 61:829-855,

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14. See e.g., Barry Furrow, "Forcing Rescue: The Landscape of Health Care Provider Obligations to Treat Patients," *Health Matrix* 3:31-87 (1993) ("one emerging duty to rescue is the obligation to throw a financial lifeline to a patient. A physician may have a duty to assist patients in obtaining payment for health care. . .At a minimum, this means that the doctor must be aware of reimbursement constraints so that he can promptly advise the patient or direct him to an appropriate institutional office for further information."
15. Jerome Kassirer, "Our Ailing Public Hospitals--Cure Them or Lose Them?," *New England Journal of Medicine* 333:1348-1349 (November 16, 1995).
16. *Kassirer*.
17. Kenneth Thorpe and Charles Brecher, "Improve Access to Care for the Uninsured Poor in Large Cities: Do Public Hospitals Make a Difference?" *Journal of Health Politics, Policy and Law*, 12:313-324 (Summer 1987).
18. Sylvia Law, "A Right to Health Care That Cannot Be Taken Away: The Lessons of Twenty-Five Years of Health Care Advocacy," *Tenn. L.Rev.* 61:771-795 (1994).
19. Colleen Foley, "The Doctor Will See You Now: Medicaid Managed Care and Indigent Children," *Seton Hall Legis.J.* 21:93-139 (1997).
20. Jane Perkin, "Increasing Provider Participation in the Medicaid Program: Is There a Doctor In the House?" *Soc.Sec.Rep.Ser.* 26:846-876 (1989).

21. Lisa Ikemoto, "When a Hospital Becomes Catholic," *Mercer L.Rev.* 47:1087-1134 (1996).
22. *Kassirer*.
23. Cara Lesser, Kathryn Duke and Harold Luft (1997). *Care for the Uninsured and Underserved in the Age of Managed Care*, Institute for Health Policy Studies, University of California: San Francisco.
24. Julie Rovner, "The Safety Net: What's Happening to Health Care of Last Resort?," *Robert Wood Johnson Foundation Advances*, 1:1 (1996).
25. The purpose here is not to determine the likelihood of these reductions occurring. The intent here is to articulate the model.
26. See e.g., *Pennsylvania v. Capital Health System Services*, 1995-2 *Trade Cas. (CCH)* ¶ 71,205 (M.D. Pa. 1995); *Susquehanna Health System*, 70 *Antitrust & Trade Reg. Rep. (BNA)* 356 (March 28, 1996).
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28. Lawrence Manson, "Hospital Merger Allowed Despite FTC Prima Facie Case," *Health Lawyer* 9(7):1-15 (1997).
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30. *Rovner*
31. *Kassirer*, citing, Chris Burch, *et al.*, eds. (1994). *Preserving Access in the Era of Reform: America's Urban Health Safety Net*, National Association of Public Hospitals: Washington D.C.
32. Larry Gage (1995). *America's Essential Providers: The Foundation of our Nation's Health System*, National Association of Public



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