

Joint Statement of

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**Federal Trade Commission and Department of Justice Hearings on Health Care  
and Competition Law and Policy**

Geographic Market Definition in Hospital Merger Cases

**I. Introduction**

We commend the FTC and DOJ for holding these hearings on this important topic. Health care costs continue to rise rapidly, and total spending in the industry is approaching 15 percent of GDP. Eliminating cost growth that results from increased market power by health care providers is an important goal. We believe that in a number of recent hospital merger cases, this objective has been confounded by the courts accepting an inappropriate technique—patient flow analysis, as first described by Elzinga and Hogarty (E/H)<sup>1</sup>—for defining geographic markets. In practice, hospital markets defined based using patient flow analysis are substantially larger than those that result from applying more modern techniques. Nevertheless, patient flow analysis remains the primary technique for market definition in hospital merger cases. As a direct result, the courts in the latter two-thirds of the 1990s accepted defendant hospitals' claims that relevant geographic markets are large, often extending well beyond the bounds of

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<sup>1</sup> Kenneth G. Elzinga & Thomas F. Hogarty, *The Problem of Geographic Market Definition in Antimerger Suits*, 18 Antitrust Bulletin 45 (1973).

metropolitan areas. The result was a series of defeats suffered by the Federal Trade Commission and the Department of Justice in hospital merger cases.

In spite of these rulings there is a growing body of evidence, both formal and anecdotal, that these and other unchallenged mergers are indeed leading to significant price increases. For example, following a recent merger of two of the three hospitals in Waukegan, Illinois, the merged entity reportedly raised prices to insurers by 30%.<sup>2</sup> A similar increase apparently followed the Long Island merger. Recently in California, two systems with substantial market shares in narrow geographic areas, Sutter Health and Adventist Health, threatened to cancel their contracts with Blue Cross if they did not receive significant reimbursement increases—press reports indicate the hospitals were seeking increases of 20% to 30%.<sup>3</sup> In an October 3, 2001 press release, Tenet Health Care reported that “it continues to obtain good price increases in its managed care negotiations, with typical increases of 6% and higher. Management is confident that reimbursement trends will remain positive throughout fiscal 2002 and into fiscal 2003.”<sup>4</sup> In 1993, Massachusetts General Hospital joined forces with the teaching hospitals associated with Harvard University, including Brigham and Women’s Hospital, to form the Partners Health Care System. John McArthur, who was the Dean of the Harvard Business School and chairman of the Brigham and Women’s board, felt that the combination would increase their market power.<sup>5</sup> Indeed, Partners used its newfound power to extract price

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<sup>2</sup> These figures come from conversations between the authors’ and insurance executives; *see also* Bruce Japsen, *FTC Probes Hospital Mergers*, Chicago Tribune Oct. 27, 2002.

<sup>3</sup> *See* Kathy Robertson, *Sutter Flexes its Muscle on Blue Cross*, Sacramento Bus. J., Jan. 5, 2001, at 1, and Kathy Robertson, *Adventist is Latest to Test Blue Cross*, Sacramento Bus. J., Mar. 23, 2001, at 11.

<sup>4</sup> Press Release, Tenet Healthcare Corp., *Tenet Reports First Quarter EPS From Operations up 40 Percent* (Oct. 3, 2001), at <http://www.etenet.com/generalinfo/news/article.asp?ID=6557>.

<sup>5</sup> David Blumenthal & Nigel Edwards, *The Tale of Two Systems: The Changing Academic Health Center*, 19 Health Affairs, 87 (2000).

increases from managed care organizations that had previously negotiated discounts.<sup>6</sup> These anecdotes suggest that hospitals may possess market power, even in situations where patient flow analysis would likely conclude otherwise.

In this statement, we describe why patient flow analysis is unsuitable for defining hospital markets and we provide reasoning the agencies could apply towards convincing the courts to adopt narrower geographic markets. We also summarize the results of our recent research on this subject. Specifically, we develop a measure of hospital market power from a structural model of demand, which we use to simulate the effects of mergers on prices. We find that some mergers that would pass muster using flow analysis are predicted to lead to substantial price increases. We conclude that flow-based market definitions are unsound.

## **II. Market Definition and the Elzinga-Hogarty Criterion**

Under the Elzinga/Hogarty criterion, the geographic market is expanded until two criteria are satisfied: *Little Out From the Inside (LOFI)*, and *Little in From the Outside (LIFO)*. This process defines a market by determining the smallest geographic such that (1) the portion of patients who leave the proposed market for care (LOFI) and (2) the proportion of patients from outside the boundaries who receive care within the market (LIFO), are both below a critical threshold—usually 10% or 25%. In Rockford, the

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<sup>6</sup> For example, *see* Allison Connolly, *Harvard Pilgrim to Succumb to Partners' Power?*, Boston Bus. J., Dec. 22, 2000: “until about a year ago, insurers were in the driver's seat. Now, the big hospital networks, especially Partners, have been calling the shots. The likely outcome, say experts: significantly higher premiums for Bay State employers.”

Department of Justice successfully used patient flow data to narrowly define the market.<sup>7</sup> Following this, patient flow analysis became *de rigueur* in hospital merger cases, in spite of the criticisms of some economists.<sup>8</sup> Several years after Rockford, the FTC and DOJ began losing hospital merger cases. To date, patient flow analyses based on the original E/H methods remain the primary technique for market definition in hospital merger cases. As a direct result, starting in the mid-1990s the courts began accepting defendant hospitals' claims that the relevant geographic market was large—a change that played a significant role in most of the defeats suffered by the Federal Trade Commission and the Department of Justice in hospital merger cases.<sup>9</sup>

Intrigued by these cases, we began researching hospital pricing and market power. We were particularly interested in a several related questions:

- Do data indicating substantial patient flows support the absence of market power?
- Do mergers that easily pass muster using flow analysis also pass using the “SSNIP” criterion advocated by the DOJ and FTC?
- Do patient flow data provide an accurate view of the appropriate market boundaries?

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<sup>7</sup> *United States v. Rockford Mem. Hosp.*, 717 F.Supp. 1251 (N.D. Ill. 1989), *aff'd*, 898 F.2d 1278 (7th Cir.), *cert. denied*, 498 U.S. 920 (1990). In Rockford, both sides presented extensive flow evidence, but the court found the government's case more compelling, ruling that "the net effect of the court's analysis of patient destination and origin data results in the elimination of several areas (and consequently competitors) from the Rockford area" (717 F.Supp at 1275).

<sup>8</sup> In particular, *see* Gregory J. Werden, *The Use and Misuse of Shipments Data in Defining Geographic Markets*, 26 Antitrust Bull. 719 (1981) and Gregory J. Werden., *The Limited Relevance of Patient Migration Data in Market Delineation for Hospital Merger Cases*, 8 J. Health Econ. 363 (1989).

<sup>9</sup> The losses include *FTC v. Freeman Hospital*, 911 F.Supp. 1213 (W.D. MO. 1995), *aff'd* 69 F.3d 260 (8th Cir. 1995); *FTC, et al. v. Tenet Healthcare Corp., et al.*, 17 F.Supp. 2d 937, 943 (E.D. Mo. 1998), *rev'd* 186 F.3d 1045 (8th Cir. 1999); *Ukiah Adventist Hospital v. FTC*, No. 93-70387 (9th Cir. May 18, 1994); *United States v. Mercy Health Services et al.*, 902 F.Supp. 968 (N.D. Iowa 1995), *vacating as moot*, 107 F.3d 632 (8th Cir. 1997); and *U.S. v Long Island Jewish Medical Center*, 983 F.Supp. 121 (E.D.N.Y. 1997). The government prevailed on market definition in *FTC v. Butterworth Health Corp.*, 946 F.Supp. 1285 (W.D. Mich. 1996), *aff'd per curiam*, No. 96-2440 (6th Cir. July 8, 1997) (unpublished), but lost on other grounds.

<sup>9</sup> *U.S. v Long Island Jewish Medical Center*, 983 F.Supp. 121 (E.D.N.Y. 1997).

- If patient flows are inappropriate, what is the correct approach to defining hospital markets and predicting the effects of a hospital merger?

Based on our modeling and empirical results, we believe that the answer to the first three questions is no. To answer the last question, we develop an alternative that we call the Willingness to Pay (WTP), based on a structural model that is tailor made for analyzing demand in a managed care environment.

Using patient flow analysis to define hospital markets is incorrect on several grounds. On the theoretical side, because the E/H test was designed to define commodity markets with homogenous goods, it is inappropriate to apply it to markets like health care in which consumers are heterogeneous and hospitals are highly differentiated. One problem stands out in hospital mergers—an issue that we have elsewhere<sup>10</sup> labeled the *silent majority fallacy*: some patients will always travel for idiosyncratic reasons; the existence of such patients does not imply that market power could not be exercised against non-travelers. Non-traveling customers are a silent majority, left with fewer choices after a merger. Inferring from the observation of some degree of pre-merger travel that there would be sufficient additional travel in the event of a price increase post-merger implicitly assumes an implausible degree of patient homogeneity. Said another way, in markets with heterogeneous tastes for different services, the presence of traveling patients with one set of needs does not necessarily influence the pricing of services for non-traveling patients with other needs. Hence, merging hospitals in a local area could realize market power even in the presence of significant patient outflows.

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<sup>10</sup> Cory Capps, David Dranove, Shane Greenstein, Mark Satterthwaite, The Silent Majority Fallacy of the Elzinga-Hogarty Criteria: A Critique and New Approach to Analyzing Hospital Mergers. NBER Working Paper No. w8216, April 2001.

The use of flow data is even more questionable in a managed care setting where the *ex-ante* nature of pricing renders the connection between consumer flows and pricing power even more tenuous. Managed Care Organizations (MCOs) assemble networks of providers. They then sell health insurance products (mainly HMOs and PPOs) that essentially give enrollees the right to visit a network hospital for a nominal copayment. To be competitive, MCOs must assemble networks that meet the needs of patients.

The ideal network hospital for a given patient will depend on that patient's affliction. For most conditions, a nearby hospital is sufficient. However, for some specific conditions a more distant hospital may be particularly well-suited to the patient's needs; as a result, origin and destination data will show travel in proportion to the frequency of such conditions. Many patients may be observed to travel a considerable distance for care and yet, *at the time of choosing their insurance and before knowing what ailment they would contract*, the same patients might place a high value on having one or more local hospitals in their network.

Consider an extreme example: suppose in a given year that 20% of patients in a neighborhood will suffer a severe affliction for which they will travel any distance to the best hospital, while 80% will draw a more minor ailment for which they strongly prefer treatment at the closest hospital. Because of the 20% outflows, this neighborhood would not constitute an antitrust market under the Elzinga-Hogarty test. However, at the time of choosing their insurance, patients do not know whether they will be part of the unhappy 20% with the severe diagnosis. Indeed, *ex-ante*, 100% of patients place a high value on having access to a local hospital. If all the hospitals in the neighborhood are jointly owned, say as a result of mergers, then insurers will be unable to play them off against

each other, and high prices will result. That 20% of them will eventually travel as a result of bad luck is virtually irrelevant.

### **III. An Alternative to Flow-Based Geographic Market Definition**

We advocate replacing the use of flow data in courtroom proceedings with formal demand analysis. Demand analysis is more complex and requires more data than flow analysis, but these additional needs are not prohibitive. While flow analysis requires only data on patient origins and destinations, a more complete demand analysis requires additional data on patient and hospital characteristics. Fortunately, most states already collect rich data sets on patient clinical and demographic characteristics; detailed hospital financial data are also available, either from state agencies, Medicare Cost Reports, or the American Hospital Association. In the limited cases where data are not publicly available, they can be obtained in discovery. We now describe how to use such data to assess a merger.

The essential step is to derive a measure of market power that, unlike patient flows, is theoretically valid for differentiated goods markets and is directly related to the prices that hospitals are able to charge. With such a measure in hand, estimating how it would change after a merger and thereby obtaining predictions about the price effects of a merger is straightforward. If the predicted price effect is significant, then the burden shifts to the defendants to demonstrate that there are cognizable and merger-specific countervailing efficiencies or quality improvements. In a recent paper, *Competition and Market Power in Option Demand Markets*, we provide a step by step derivation and

empirical implementation of a market power measure that correctly incorporates the *ex-ante* nature of hospital pricing.<sup>11</sup>

In our *Option Demand* paper, we derive a formula for patients' aggregate willingness to pay (WTP) to have a particular hospital or set of hospitals included in the network of covered providers. We compute this from the point of view of a patient selecting an MCO, prior to knowing his particular medical needs. We believe that this is a reasonable depiction of how patients think about available networks when selecting their MCO.

The WTP is computed as the difference between the value of a network that includes a given hospital and the value of that network without the hospital in question. For example, suppose that an MCO has 100,000 patients who, on average, are willing to pay the MCO an additional premium of \$5.00 per month to have hospital X included in their network. By threatening to leave the network hospital X can lower the MCO's revenue by \$6 million per year.<sup>12</sup> The effect of a merger in this setting is clear: after a merger, two physically distinct but jointly controlled hospitals can threaten to *simultaneously* withdraw from a network, potentially decreasing the WTP of an MCO's members much more than would a unilateral withdrawal.

When most patients view two hospitals as close substitutes in a network, neither will have significant leverage with MCOs and neither will have a large WTP; this is a direct reflection of the fact that if one hospital leaves the network, the other remains. Should those same hospitals merge, however, then they may gain the upper hand on

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<sup>11</sup> See Cory S. Capps, David Dranove & Mark A. Satterthwaite, *Competition and Market Power in Option Demand Markets* (April 2003) (unpublished manuscript, on file with author).

<sup>12</sup> \$6m = \$5.00 \* 12 \* 100,000. Note that this leaves the MCO's costs roughly unchanged as it is still obligated to pay for its members' health care (at some other hospital).



MCOs. When they negotiate together, the MCO's patients no longer have the other hospital as an alternative. Their joint power will depend on the MCOs' WTP for inclusion of *both* hospitals in the network, relative to the alternative of having neither. If there is no third hospital that is also viewed as closely substitutable for these two hospitals, then WTP for the pair can significantly exceed the sum of WTP for each individual hospital. Conversely, if the network includes a variety of closely substitutable hospitals, or if the merging hospitals are not substitutes in the first place, the joint WTP will roughly equal the sum of individual WTPs, and mergers will lead to negligible increases in bargaining power.

In the *Option Demand* paper, we use this model to simulate the effects of possible mergers among San Diego hospitals. We were particularly interested in whether hospitals in the suburbs could increase price significantly after a merger. In the period we study, there were two independent hospitals in Chula Vista, Scripps Memorial and Community Hospital of Chula Vista (CHCV), and one hospital roughly midway between Chula Vista and downtown San Diego, Paradise Valley Hospital. Similarly, La Jolla had two independent hospitals, Scripps of La Jolla and HCA. Patient flow analysis would indicate that these suburbs are not well-defined geographic markets—outflows exceed 30 percent. But would this be the correct conclusion?

We use a multinomial Logit to estimate a hospital choice model and use the results to compute WTP for each San Diego hospital. We derive predictions about the price effects of various potential mergers by first computing the additional WTP that hospitals would have when negotiating jointly, and then mapping that additional leverage into price predictions.

The results indicate that mergers in Chula Vista could lead to significant increases in profits and prices. Should all three hospitals merge, the estimated effect on prices range from 10.5% to 14.0%, depending on the model specification. When we conduct the same exercise for the two hospitals in La Jolla, we find a predicted price increase of 6%. We conclude that both of these suburbs—particularly Chula Vista—should be considered distinct geographic markets, despite the high outflows.

#### **IV. Conclusion**

We conclude that patient flow data have little relationship to the SSNIP criteria over a wide range of situations in which patient flow data indicate a competitive market is present. In other words, merger analysis using patient flow data incorrectly finds no potential for market power when a more structured approach indicates that there may indeed be a risk of competitive harm. Therefore, patient flow data should be replaced in courtroom proceedings with formal demand analysis.

If markets are defined using the SSNIP, as outlined in the *Guidelines*, the likely result is significantly narrower market boundaries. For example, suburbs may be a market under the SSNIP criteria, even when there are significant outflows of patients from the suburban hospitals to the city. We conjecture that had such analysis been used in recent cases, smaller towns such as Joplin, Missouri; Poplar Bluff, Missouri; Ukiah, California; and Dubuque, Iowa would have been treated as distinct markets, dramatically increasing

the likelihood of the government prevailing.<sup>13</sup> The implications of our analysis for the Long Island, New York merger<sup>14</sup> remain an open empirical question.

In a recent paper, we wrote that

*...we see further need to scrutinize hospital mergers in spite of recent losses in the courts. The key factor in these losses was the use of E/H or related criteria. Looking back, we see a need to alter the arguments used against E/H analysis.*<sup>15</sup>

There is now over a decade of court precedent stretching from *Rockford* to *Tenet* that in varying degrees used flow analysis to define hospital markets. Thus, the enforcement agencies face a significant burden in trying to persuade the courts to reverse this practice. The FTC's recently announced retrospective review of selected consummated hospital mergers<sup>16</sup> is an important step. These hearings provide an excellent venue for the FTC and DOJ to revisit these issues, and the agencies are to be commended for doing so.

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<sup>13</sup> See *Supra*, n. 9.

<sup>14</sup> *U.S. v Long Island Jewish Medical Center*, 983 F.Supp. 121 (E.D.N.Y. 1997).

<sup>15</sup> Cory Capps, David Dranove, Shane Greenstein, Mark Satterthwaite, *Antitrust Policy and Hospital Mergers: Recommendations for a New Approach*, 47 *Antitrust Bull.* at 713.

<sup>16</sup> *FTC Chairman Announces Public Hearings on Health Care and Competition Law and Policy to Begin in February 2003*, at <http://www.ftc.gov/opa/2002/11/murishealthcare.htm>