

**An Economic Analysis of the
Certificate of Public Advantage (COPA) Agreement
Between the State of North Carolina and Mission Health**

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I. EXECUTIVE SUMMARY

In late 1995, the only two acute-care hospitals in Asheville, North Carolina, merged to form Mission Hospital, an entity owned and operated by Mission Health Systems ("MHS").¹ Due to concerns that the merger would significantly increase Mission Hospital's market power in one or more markets in Western North Carolina ("WNC"),² the State of North Carolina entered into a Certificate of Public Advantage ("COPA") agreement with the hospitals as a condition for allowing the merger to go forward.³ The regulatory requirements embodied in the COPA were designed to provide an offset to the competitive discipline being eliminated by the merger, thus helping to ensure that consumers would not face higher prices or reduced quality of care as a result of the merger.

In the years since the initial COPA agreement was entered into, health care markets have changed considerably. In recognition of this, the State of North Carolina commissioned this economic study to assess whether the existing Second Amended COPA (hereafter, simply "the COPA") should be modified in any way to better protect consumers against the loss of competition that resulted from the 1995 merger.⁴ In assessing whether such modifications were warranted, I was asked to focus solely on competitive issues, and not to consider whether the COPA should be modified to better address policy issues such as access to care, the financial impact of the COPA on MHS or other entities, or the COPA's impact on physicians' incentives to practice in the WNC region.

The assessment of what, if any, modifications to the COPA are warranted is a very fact-specific one. In conducting this study, I collected and assessed information from a variety of sources, including interviews (both in-person and over the telephone) with individuals at MHS and other area hospitals, with health insurance plans operating in the WNC region, and with local physicians. I also reviewed and analyzed regulatory filings and data, public documents relating to competition in the WNC region, public data relating to physician admitting practices and

¹ Memorial Mission Hospital and St. Joseph's Hospital signed a cooperative agreement in December 1995 to manage and operate the two hospitals as an integrated entity. Three years later, Memorial Mission Hospital acquired St. Joseph's Hospital under the ownership of Mission-St. Joseph's Health System, Inc. In December 2003, Mission-St. Joseph's Health System, Inc. was renamed Mission Health, Inc. and the merged hospitals were renamed Mission Hospital. In the remainder of this report I refer to the initial integration of the two hospitals, and their subsequent merger, simply as the 1995 merger. See the Second Amended Certificate of Public Advantage at pages 1 and 2.

² For the purposes of this report, I define the WNC region as the Service Area defined under the COPA (Section I Definitions): the 17 county region consisting of Buncombe, Burke, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, and Yancey. For the purposes of this report, I define MHS's Primary Service Area ("PSA") as Buncombe and Madison counties.

³ See the initial COPA agreement dated December 21, 1995. The COPA agreement was subsequently amended on October 8, 1998 to account for the formal merger of the two hospitals and again in June 2005 "to reflect changes in facts and circumstances, including the accomplishment or expiration of certain provisions of the COPA, and to provide better tools and mechanisms for oversight by the State." See Second Amended COPA at page 1.

⁴ The two entities within the State that commissioned this study were the North Carolina Department of Health and Human Services and the Office of the Attorney General for North Carolina.

patient hospital choice, and confidential business data and documents. More generally, I drew upon my experience conducting similar types of economic analyses, especially in the area of hospital mergers, over the last 20 years as a private economic consultant at Charles River Associates and while serving in senior positions at the Antitrust Division of the U.S. Department of Justice and at the Federal Trade Commission's Bureau of Economics.

In assessing whether modifications to the COPA are warranted, I have adopted the following critical assumption: that the regulatory scope of the COPA should be limited to addressing competitive problems that arose as a result of the 1995 merger, and that the COPA should not seek to regulate conduct or markets that were unlikely to have been impacted by that merger. Rather, any problems that exist but that are unrelated to the 1995 merger should instead be addressed through other means such as existing state or federal antitrust laws, or existing Certificate of Need laws.

The motivating justification for the COPA's restrictions likely remains valid today: the 1995 merger likely resulted in a significant and enduring reduction in competition in one or more markets. Thus, the COPA's regulatory restrictions to replace that lost competitive discipline remain appropriate. Certain modifications of those regulations, however, are warranted as a means of increasing the regulatory protection that the COPA offers while simultaneously ensuring that the COPA is targeted solely on those areas where the merger likely reduced competition.

The four principal conclusions and recommendations from this study are summarized below.

1. ***The COPA's Margin Cap creates an incentive and opportunity for MHS to evade the intent of the COPA: by expanding into other markets (with respect to either geography or service), MHS can increase prices and realize higher margins than the COPA seeks to allow.***

The COPA regulates MHS's average margin across all services and geographies. By expanding into lower-margin markets, MHS can reduce its average margin, thus allowing MHS to raise price without violating the Margin Cap. MHS can also lower its average margin, thus allow it to increase price, by incurring additional expenses that are not covered by the COPA's Cost Cap. Finally, although the Margin Cap is intended to protect commercial payers from incurring excessive rate increases, by looking at MHS's margin across both commercial and government payers, MHS may be able to impose excessive rate increases.

To address these problems, I recommend that:

- The existing Margin Cap should be replaced with a Price Cap so that MHS cannot meet its margin cap by incurring additional costs relating to services outside the scope of the Cost Cap.
- The Price Cap should only be applied to those markets originally affected by the merger, and a separate Price Cap should be calculated for each of those markets.
- The Price Cap should be limited to regulating prices to commercial payers, not to government payers or other payers for whom prices are unlikely to depend significantly on hospital competition.

2. *The COPA's Cost Cap offers only limited regulatory protection for consumers, yet it creates undesirable incentives for MHS to increase outpatient prices and volumes.*

The COPA's Cost Cap regulates Mission Hospital's inpatient and outpatient expenses, but does not prevent MHS from incurring excessive expenses relating to other markets or services (e.g., the cost of acquiring physician practices). As a result, it provides only limited protection to consumers. Moreover, if the COPA's Margin Cap is replaced by a Price Cap, then there may be little need for a Cost Cap. Finally, the methodology by which the COPA Cost Cap is calculated also creates an incentive for MHS to reduce the COPA's measure of expenses by increasing outpatient prices and, in some cases, by increasing outpatient volume.

To address these issues, I recommend that:

- The State should consider eliminating the COPA's Cost Cap. The greater the State's confidence in the effectiveness of a new Price Cap (to replace the existing Margin Cap), the greater the justification for eliminating that Cost Cap.
- If the State retains the Cost Cap, then the COPA should address incentive problems relating to the Cost Cap methodology by adopting a separate Cost Cap for inpatient services and for outpatient services, and change the methodology by which "Equivalent Outpatient Discharges" are calculated.

3. ***The COPA creates an incentive and opportunity for MHS to engage in "Regulatory Evasion" by which MHS can evade price (or margin) regulation in one market by instead imposing price increases in a related, but unregulated, market.***

MHS has an incentive to evade price (or margin) caps by tying the sale of its regulated services to other unregulated services, and then raising the price of that unregulated service. Although the COPA currently prevents MHS from tying with respect to physician services, I recommend that the scope of the COPA's restrictions on tying be expanded to also cover any other services that MHS offers.

The State may also wish to also provide additional protection against Regulatory Evasion by requiring MHS to adopt contracting firewalls requiring MHS to contract separately, and with distinct contracting teams, for services in markets affected by the 1995 merger and for services in all other markets. In determining whether contracting firewalls are warranted, the State should balance what may be limited incremental benefits from these contracting firewalls with possible costs associated with impeding legitimate efforts by MHS to more fully integrate the provision of care between distinct contracting entities, and thus lower costs and improve quality.

4. ***The COPA's Physician Employment Cap may be unnecessary to address competitive concerns attributable to the 1995 merger.***

The 1995 merger did not result in any significant reduction in competition between the two Asheville hospitals with respect to physician services, and thus the COPA's Physician Employment Cap is unnecessary to counter any merger-related increase in MHS's market power associated with physician services.

An alternative merger-related justification for the COPA's physician restrictions is that the merger may have increased the risk that MHS could foreclose competition with rival hospitals by employing physicians that might otherwise split their practice between MHS and those rival hospitals. The evidence suggests, however, that the COPA's Physician Employment Cap may have limited value in preventing such a problem. On the other hand, the Physician Employment Cap may cause harm by preventing MHS from pursuing legitimate efforts to integrate care, and thus lower costs and improve quality. Thus, the State should consider dropping the COPA's restrictions on MHS's employment of physicians and instead let MHS's acquisitions of physician practices be governed by the same laws and regulations that govern other hospitals.

II. QUALIFICATIONS

I am an economist with a specialty in the fields of industrial organization and the economics of competition. I hold a Ph.D. in economics from Stanford University and a B.A. in economics from the University of California at Berkeley. I have published, made professional presentations, testified, and consulted in the areas of industrial organization, competition, and antitrust economics for approximately 20 years. A copy of my curriculum vitae is provided in Appendix 1.

During my professional career, I served as Deputy Director for Antitrust in the U.S. Federal Trade Commission's ("FTC's") Bureau of Economics. In that position, I was responsible for directing the economic analysis of all antitrust matters before the FTC and overseeing its staff of approximately 40 Ph.D. economists. Prior to that, I held several positions in the Economic Analysis Group of the U.S. Department of Justice's ("DOJ's") Antitrust Division, including Assistant Chief of the Economic Regulatory Section. In all of these positions, my antitrust analyses have focused on assessing competition and evaluating the likely competitive effects of firms' conduct.

I am currently a Vice President in the Washington, DC office of Charles River Associates ("CRA"), an economics and business consulting firm. At CRA, my work has focused almost exclusively on issues relating to competition, with a substantial portion of that work relating to both merger and non-merger matters before the FTC and the Antitrust Division of the DOJ, including matters in which I have been retained by the government to serve as an expert witness on its behalf.

Both while I was with the DOJ and FTC, and since joining CRA, I have been actively involved in analyzing competition in the healthcare industry. While at the DOJ, I was a member of the small working group that wrote, and subsequently updated, the DOJ/FTC *Statements of Antitrust Enforcement Policy in Health Care*. I also served during that period as a member of President Clinton's Health Care Task Force, and as a member of President Bush's Interagency Task Force on Information in the Health Care Industry. Since joining CRA, I have testified at the Federal Trade Commission/Department of Justice *Joint Hearings on Health Care and Competition Law and Policy*, and have been retained by private parties, and both state and federal antitrust agencies, to provide analysis and expert testimony regarding competitive issues in the health care sector. Finally, I have made presentations and published articles in peer-reviewed journals regarding competition in the health care industry.

III. BACKGROUND

The 1995 merger likely provided Mission Hospital with substantial market power with respect to inpatient services and possibly with respect to outpatient services.⁵ The COPA addresses that market power through three principal regulatory constraints: a Cost Cap; a Price Cap; and a Physician Employment Cap.

A. Regulatory scope of the COPA

When analyzing competition, economists typically consider whether a firm enjoys significant market power, where market power can be thought of as a firm's ability to increase price above competitive levels. Here, the relevant question is whether the 1995 merger of Memorial Mission and St. Joseph in Asheville, the event which led to the original COPA agreement between the State and the hospitals, likely created significant market power in any relevant market. If so, then regulatory efforts to offset or reverse the effects of that increased market power may be appropriate.

However tempting it may be, the COPA should not be viewed as a vehicle for addressing competitive problems or healthcare policy issues that are unrelated to the merger. Rather, the regulatory scope of the COPA should be limited to addressing competitive problems that can be attributed to the 1995 merger.⁶ Problems unrelated to the 1995 merger, to the extent they exist, should instead be addressed through existing state or federal antitrust laws and regulations (e.g., North Carolina's Certificate of Need laws).

B. The impact of the 1995 merger

The proper scope of the COPA depends on an assessment of where the merger likely created substantial market power. As discussed below, the 1995 merger likely only created significant market power regarding inpatient, and possibly outpatient, services.

1. Merger-related market power in inpatient hospital services

In assessing what, if any, modifications to the COPA are warranted, I have not been asked to address whether the 1995 merger resulted in substantially increased market power with respect to inpatient hospital services, and thus warranted regulatory restrictions: such an inquiry would go well beyond the scope of this study and require a much more fact-intensive inquiry. Instead, I

⁵ References to inpatient and outpatient services in this report should be understood to refer to acute care and related medical services, not psychiatric, rehabilitation, substance abuse or other types of services.

⁶ Regardless of any philosophical considerations about the proper scope for regulation, this limitation on the scope of the COPA is necessary purely from a practical perspective: unless the scope of the COPA is limited to merger-related issues, there is no clear boundary for how far-reaching the COPA's regulations should be. Absent those boundaries, there is no way in which to assess whether further modifications to the COPA are warranted so as to achieve those broader (but undefined) goals.

have assessed the COPA given the assumption of a merger-related increase in inpatient hospital services market power.

Yet, while I do not independently seek to assess whether Mission Hospital has market power relating to inpatient hospital services that stems from the 1995 merger, the evidence I have seen is fully consistent with that assumption. Prior to the merger, Memorial Mission and St. Joseph likely provided significant competition to each other. These two hospitals were located only blocks away from each other, and were both viewed as large, full-service hospitals. Consistent with what I have learned from health insurers operating in the area, those two hospitals appear to have provided important competitive discipline to each other. In contrast, other hospitals in the WNC region appear to have provided, and continue to provide, substantially less competitive discipline to the Asheville hospitals. Thus, by merging Memorial Mission and St. Joseph, the most important competitive discipline facing these hospitals appears to have been lost, thereby creating substantial market power.

The facts are generally consistent with this assumption that Mission Hospital realized significant market power from the merger. While potentially a very imperfect proxy for market power, Mission Hospital's share of inpatient discharges in several counties in WNC is consistent with the assumption that Mission Hospital enjoys substantial market power with respect to inpatient hospital services. As shown in Table 1, Mission Hospital's share of discharges from several counties in WNC is not only quite high (e.g., Mission Hospital accounts for approximately 90 percent of all hospitalizations of patients living in Buncombe County), it has been growing over time.

Mission Hospital is also significantly different in several regards from neighboring hospitals, thus likely reducing payers' willingness to substitute from Mission Hospital to those other hospitals. As shown in Table 2, Mission Hospital is substantially larger than other hospitals, both in terms of bed capacity and patient census. For example, Mission Hospital averaged approximately 522 patients/day in 2009, with the next largest hospital in WNC (Pardee Memorial Hospital in Henderson County) averaging only 72 patients/day. Mission Hospital is also substantially larger than other area hospitals in terms of the number of physicians actively admitting to the hospital: Mission has over 300 actively admitting physicians on its staff, while the next largest hospital in WNC has only 58.⁷

Mission Hospital also offers a broader, and more specialized, scope of services than do the other hospitals in WNC. For example, Mission Hospital is the only hospital in the WNC region offering Level II trauma care and is the recognized center for specialized care in the region. Consistent with this, other hospitals in the area generally recognize that Mission Hospital is an

⁷ For the purposes of counting actively admitting physicians, I considered physicians with at least 12 admissions in the 12 month period ending June 30, 2010 (based on the State Inpatient data provided by Thompson Reuters). Alternative means of counting physicians (including counting only physicians that are not employed by a hospital) would not affect the conclusion that MHS has a much larger physician staff than any other local hospital.

important partner in providing healthcare services to the local community by offering services that those smaller hospitals cannot provide themselves. This difference in scope of services would make it difficult for payers to substitute away from Mission Hospital to those other hospitals in the region.

Geographic location also matters. In contrast to the two merging hospitals that now make up Mission Hospital and which were located only blocks away from each other, other hospitals in the WNC region are located many miles away from Asheville where managed care plans seek hospital coverage. The largest neighboring hospital (Pardee Memorial Hospital) that competes with Mission Hospital is approximately 25 miles away, while other hospitals in the WNC region are 15 to 110 miles away.

These data, as well as the information that I learned while interviewing physicians, health insurance providers and hospitals, are all consistent with the premise that Mission Hospital continues to enjoy substantial market power with respect to inpatient hospital services, and that this market power likely increased significantly as a result of the 1995 merger.

2. Merger-related market power in outpatient hospital services

I understand that both Memorial Mission and St. Joseph offered competing outpatient services at the time of the merger. Thus, the merger would have eliminated any competition between those two providers with respect to outpatient hospital services.

I have not sought to determine the extent to which Mission Hospital faces significant competition in the provision of those services. This competition could have come from physician clinics and offices, outpatient clinics or facilities, or other hospitals' outpatient facilities. Thus, I do not have a basis to conclude whether the merger likely created significant market power with respect to outpatient hospital services at the time of the merger or whether any such increased market power in outpatient hospital services remains today. Inasmuch as the COPA regulatory restrictions do cover outpatient services provided by Mission Hospital, however, I assume for the purposes of my study that the merger did create significant market power that endures today.⁸

3. Merger-related market power and physician services

I have seen no evidence suggesting that the creation of Mission Health resulted in a significant increase in market power with respect to physician services. In particular, I understand that neither of the merged hospitals employed any significant number of physicians prior to the

⁸ If this assumption can be shown invalid, it may be appropriate to drop regulations in the COPA that relate to those outpatient services.

merger. Thus, the 1995 merger does not appear to have resulted in a significant increase in physician market power that warrants offsetting regulatory restrictions.⁹

C. The COPA imposes three principal regulatory constraints

I focus on three key regulations in the COPA: a Cost Cap; a Margin Cap; and a Physician Employment Cap.¹⁰ A general description of those constraints is provided below.

1. The COPA's Cost Cap

Under the COPA, the rate at which Mission Hospital's "cost per adjusted patient discharge" ("CAPD") increases must not exceed the rate of increase in the producer price index for general medical and surgical hospitals in the U.S.¹¹

The CAPD as defined by the COPA measures MHS's costs over both inpatient and outpatient operations, but only for the two merged Asheville hospitals. Thus, the scope of the COPA's Cost Cap regulation is appropriately limited to just those services and geographies for which the 1995 merger likely significantly increased MHS's market power.

2. The COPA's Margin Cap

Under the COPA, the operating margin of MHS over any three-year period shall not exceed by more than one percent the mean of the median operating margin of comparable hospitals (provided that this cap will not fall below three percent).¹²

The COPA's Margin Cap covers MHS's margins across its entire scope of operations: inpatient and outpatient, hospital and physician services, and all the geographic regions in which MHS operates. Thus, the scope of this regulation extends well beyond those services and geographies in which the 1995 merger likely significantly increased MHS's market power.

3. The COPA's Physician Employment Cap

Under the COPA, MHS is not permitted to employ, or enter into exclusive contracts with, more than 20 percent of the physicians practicing in Buncombe and Madison counties. This restriction

⁹ As discussed below, I have also considered whether the 1995 merger was likely to have increased concerns that MHS could engage in a vertical foreclosure strategy that might warrant regulatory restrictions relating to physician services.

¹⁰ Although the COPA also includes other regulatory restrictions, I have seen no evidence suggesting that modifications to any of those restrictions is warranted.

¹¹ See Section 4.1 of the COPA.

¹² See Section 4.2 of the COPA.

applies to primary care physicians in each of the three following areas: family practice/internal medicine; general pediatrics; and obstetrics/gynecology.

D. The interplay between cost and margin caps

There exists an important interplay between the COPA's Cost and Margin caps in preventing problems that might otherwise emerge following the creation of significant market power following the 1995 merger. This interplay means that changes to one aspect of the COPA's regulatory structure cannot necessarily be done without regard to how, or whether, other aspects of the COPA's regulatory structure is changed.

The COPA's margin cap helps prevent post-merger price increases that might otherwise result from increased market power. Regulators often use margin caps, rather than price caps, in situations where the regulated firm's costs are likely to change over time in ways that the regulator cannot readily observe: since changes in costs normally warrant changes in a regulated price cap, the lack of cost observability can make a price cap difficult to implement. A margin cap, however, offers the promise of automatically compensating for changes in costs: higher costs allow the regulated firm to impose a comparable price increase while leaving margins unchanged.

A margin cap by itself, however, can be of limited effectiveness in regulating a monopolist. Absent additional regulation, a monopolist can meet its margin cap by simultaneously increasing both prices and costs. Moreover, while this strategy of spending any merger-related revenue increase may at first seem unattractive, in fact such a strategy may be quite attractive – especially for non-profit firms such as Mission Hospital.¹³ For example, a non-profit hospital might have an incentive to increase post-merger prices to fund extensive architectural renovations that have little impact on quality of care, increased salaries that may (or may not) allow the hospitals to attract higher-quality employees, or investments in new medical technologies that yield significant consumer benefits (e.g., new operating rooms or new capital equipment). A regulated monopolist hospital may also respond to increased market power by raising prices so that it can fund an expanded scope of services (e.g., expanded outpatient services, offering a new transplant program, or acquiring physician practices) or to extend the geographic region in which it operates.

This incentive for a regulated monopolist to increase costs as a way of relaxing a margin cap can be addressed by imposing a cost cap along with the margin cap. Note, however, that in order to be fully effective, the cost cap needs to be broad enough in scope that it covers all areas that are covered by the margin cap. For example, if the margin cap covers all geographies and services

¹³While I use the economic terminology "monopolist" throughout this report to describe certain economic phenomenon that are relevant to understanding MHS's incentives and the COPA, and while I believe that MHS likely enjoys substantial market power in certain markets, I do *not* mean to suggest that MHS is a monopolist facing absolutely no competition.

(as is the case with the COPA Margin Cap), then a cost cap that is limited to costs relating to inpatient and outpatient services in a particular geography (as is the case with the COPA Cost Cap) will still allow the monopolist to increase inpatient and outpatient prices, yet still meet the margin cap by increasing expenditures relating to physician services or by opening or acquiring facilities in other geographies outside the scope of the Cost Cap.

IV. INCENTIVE PROBLEMS UNDER THE EXISTING COPA REGULATIONS

Economists have long recognized the difficulties of regulating monopolists and how regulation, no matter how carefully crafted and implemented, can inadvertently create undesirable incentive problems. Not surprisingly, some of these incentive problems emerge with respect to the COPA's regulation of MHS.¹⁴ These problems are described below, with recommendations on how the COPA can be modified to address those problems provided in the next section.

A. Incentive problems created by the Cost Cap

The COPA's Cost Cap suffers from two problems. First, the mechanics of how Mission Hospital's costs are calculated creates an incentive (whether or not it is acted upon) for MHS to game the system: by increasing outpatient prices, MHS makes it easier to meet its Cost Cap. Second, the scope of the Cost Cap is too narrow to adequately prevent MHS from raising prices with respect to inpatient or outpatient services at Mission Hospital, and then using those merger-related revenues to expand into other services or geographies.

1. Incentives to raise outpatient prices and expand outpatient services

The COPA's Cost Cap limits Mission Hospital's "cost per adjusted patient discharge" ("CAPD"). The manner in which the COPA defines the CAPD, however, has the effect that Mission Hospital can increase its number of effective calculated outpatient discharges, thus lower the CAPD, by increasing outpatient prices. This can be seen by looking at the specifics by which the CAPD is calculated.¹⁵

- 1) Calculate Mission Hospital's "case mix adjusted discharges" by multiplying its inpatient discharges by its case mix index.
- 2) Calculate Mission Hospital's "revenue per inpatient discharge" by dividing its inpatient revenue by its case mix adjusted discharges (as calculated in (1) above).

¹⁴ It should be stressed that although some of MHS's conduct appears to be consistent with the incentive problems I identify below, I offer no opinion as to whether MHS has actually acted on those incentives. Addressing that question would likely require an extremely fact-intensive investigation.

¹⁵ See Section 4.1 of the COPA.

- 3) Calculate Mission Hospital's "equivalent outpatient discharges" by dividing its outpatient revenue by its revenue per inpatient discharge (as calculated in (2) above).
- 4) Calculate Mission Hospital's "total adjusted discharges" by adding its case mix adjusted discharges and its equivalent outpatient discharges (as calculated in (3) above).
- 5) Calculate Mission Hospital's "cost per adjusted patient discharge " (CAPD) by dividing its operating expenses by total adjusted discharges (as calculated in (4) above).

In essence, the COPA calculates the CAPD by first defining a common measure of volume across both inpatient and outpatient services. The COPA does this by defining a unit of outpatient service (the "equivalent outpatient discharges") as the volume of outpatient services that ends up equalizing inpatient revenue per unit and outpatient revenue per unit. This is illustrated in the Base Case in Table 3 which provides a hypothetical example in which the hospital is assumed to do 1,200 inpatient procedures at a price of \$1,000/procedure, and 800 outpatient procedures at a price of \$800/procedure. Here, the "equivalent outpatient discharges" is calculated so that the price per procedure is equalized at \$1,000 for both inpatient and outpatient procedures. Once outpatient volume is calculated in this way, Table 3 shows how it is straightforward to then calculate the hospital's "cost per adjusted patient discharge" (based on the hospital's assumed costs).

Calculating Mission Hospital's CAPD in this way, however, creates a serious incentive problem. As illustrated in the middle block of Table 3, Mission Hospital can increase outpatient revenue by increasing outpatient prices. That increased outpatient revenue in turn increases the number of "equivalent outpatient discharges" that are calculated according to the COPA methodology.¹⁶ That increased number of equivalent outpatient discharges will, in turn, increase total adjusted discharges, and thus reduce the calculated CAPD: as illustrated in Table 3, the assumed 20 percent outpatient price increase lowers the CAPD from \$800 to \$762, a reduction of almost 5 percent. Thus, the COPA creates an incentive for Mission Hospital to lower its CAPD, and make it easier to meet the Cost Cap, by raising outpatient prices.¹⁷

The COPA Cost Cap may also create an incentive for Mission Hospital to increase outpatient volume as a means of lowering the calculated CAPD. Just like an increase in outpatient prices, increased outpatient volumes increase equivalent outpatient discharges. Increased outpatient volume, however, will also increase Mission Hospital's operating expenses. Whether that increase in outpatient volume increases, or reduces, the CAPD will depend how much the increase in outpatient volume increases total expenses. This effect is illustrated in the bottom

¹⁶ In essence, the COPA defines a unit of outpatient services to be equal to \$1,000 worth of outpatient services. If the prices for all individual outpatient services increase, then the actual volume of outpatient services associated with that \$1,000 of outpatient care has to fall. Thus, even with no change in the actual amount of outpatient care, the measured volume of outpatient care (i.e., a package of \$1,000 of outpatient care) will increase.

¹⁷ As discussed in more detail below, the COPA's Margin Cap cannot be relied upon to prevent this increase in outpatient prices.

block of Table 3 which shows how increasing outpatient volume by 20 percent in addition to increasing outpatient prices by 20 percent can further reduce the CAPD.¹⁸

2. Differing scope of the Cost Cap and the Margin Cap

The principal purpose of the Cost Cap is to prevent MHS from meeting its Margin Cap by pairing price increases with an accompanying increase in costs, and thus keeping margins unchanged. Yet, the Cost Cap can only prevent this form of regulatory evasion if the scope of the Cost Cap is as broad as the scope of the Margin Cap.

The COPA's Cost Cap, however, only covers inpatient and outpatient services provided by MHS's Mission Hospital. Thus, while the Cost Cap prevents MHS from spending money relating to post-merger price increases on inpatient and outpatient services in Asheville, the Cost Cap does not prevent MHS from satisfying the Margin Cap by spending merger-related revenues in other areas, e.g., expanding its geographic reach outside Mission Hospital's PSA, or expanding the scope of services it provides in Mission Hospital's PSA.

B. Incentive problems created by the Margin Cap

The COPA's Margin Cap creates several undesirable incentives that should be addressed.

1. The COPA creates incentives for MHS to increase its costs

As discussed, MHS has an incentive to evade the Margin Cap by pairing price increases in markets where it enjoys market power with accompanying cost increases. Moreover, the COPA's Cost Cap cannot be relied upon to prevent these cost increases since the Cost Cap does not cover all services or geographies.

2. The COPA may create an unfair competitive advantage for MHS

The COPA's Margin Cap creates an incentive for MHS to engage in cross-subsidization across markets whereby it raises price in those markets where it has market power, and uses those revenues to subsidize its operations in other more competitive markets. Thus, the Margin Cap creates an incentive for MHS to offer particularly low prices when expanding into new geographic regions (e.g., offering outpatient services in counties other than its PSA) or offering new services. This willingness to offer particularly low prices, while benefitting consumers in the short run, could lead to market distortions and create what might be viewed as an unfair advantage for MHS relative to other competitors.

¹⁸ Mission Hospital has, in fact, been increasing its outpatient revenues more rapidly over time than its inpatient revenues. From 2004 to 2009, Mission Hospital's inpatient gross revenues increased by approximately 57 percent, while its outpatient gross revenues increased by approximately 77 percent. As a result, outpatient services increased from approximately 30 percent of Mission Hospital's gross revenue to 33 percent.

The Margin Cap also creates an incentive for MHS to lower its margin by paying higher-than-normal prices for certain inputs. This might take the form of MHS being willing to pay more than others in competitive bidding for hospitals, for empty land on which to build new facilities, or to outbid rivals when purchasing physician practices.

3. The COPA creates incentives for MHS to expand into low margin markets

The COPA's Margin Cap requires that MHS's average margin across all services and all geographies not exceed a specified margin. MHS, however, can reduce its average margin, and thus make it easier to meet the Margin Cap, by expanding into new services and geographies in which MHS anticipates realizing a lower-than-average margin.¹⁹

The incentive for MHS to expand operations to lower-margin markets is consistent with the observation that, by adding McDowell Hospital and Blue Ridge Hospital to its system, MHS has reduced its average margin subject to the COPA's Margin CAP: as shown in Table 4, by expanding its scope of operations beyond just Mission Hospital, MHS's operating margin falls from approximately 5.1 percent to 4.5 percent.²⁰ Similarly, the margins at two other hospitals with which MHS is in the process of affiliating (Transylvania Community Hospital and Angel Medical Center) are also likely to be lower than the margin at Mission Hospital.²¹ Thus, if either of those two hospitals were eventually acquired by MHS it would likely further reduce the average margin that is currently subject to the Margin Cap.

4. The Margin Cap may provide limited relief for commercial payers

Because Medicare and Medicaid payments to hospitals are largely unaffected by competition, the principal category of payers requiring protection from the reduced competition resulting from the 1995 merger are commercial health plans and their enrollees. The COPA Margin Cap, however, does not distinguish between MHS's margin on commercial accounts versus its margin relating to other patients (e.g., Medicare, Medicaid and self-pay/uninsured). To the extent that Medicare and Medicaid patients represent lower margin business (as generally believed to be the case), then MHS's margin on commercial patients can exceed the Margin Cap, even though MHS's average margin will still meet that Margin Cap.

¹⁹ The COPA's Cost Cap cannot be relied upon to prevent this type of expansion into low-margin services and geographies: as noted above, the COPA's Cost Cap only covers Mission Hospital's inpatient and outpatient services, and would not prevent MHS from expanding into other services (e.g., employing more physicians) or into other geographies.

²⁰ I do not address whether MHS's expansion into these low-margin markets serves some other important public policy goal, e.g. the infusion of necessary capital or helping to ensure that a hospital can remain open.

²¹ Although I do not have data confirming these relative margins, small rural hospitals such as Transylvania Community Hospital and Angel Medical Center frequently face significant financial difficulties, with those financial difficulties oftentimes a reason for why those hospitals seek a relationship with a financially stronger partner.

The greater MHS's share of Medicare and Medicaid patients (or more generally, the greater the share of non-commercial pay patients with low margins), the more that MHS's margin on commercial patients can exceed the regulated Margin Cap. With the COPA's regulated margin cap based on margins at comparable hospitals,²² then if MHS's payer mix becomes more heavily weighted towards Medicare and Medicaid than those comparable hospitals, MHS will be able to increase prices to commercial payers without exceeding the regulated Margin Cap.²³

C. The COPA creates incentives for Regulatory Evasion

The COPA creates an incentive for MHS to engage in what economists often refer to as "Regulatory Evasion," a situation in which a regulated monopolist responds to price regulation in one market by instead raising prices in a second unregulated market.²⁴ In the context of the COPA, this evasion can arise if MHS, unable to increase inpatient or outpatient prices because of regulation, instead increases the price it charges for unregulated services such as physician services or services at another facility. If MHS can condition the sale of its regulated inpatient or outpatient services (where it likely has significant market power) on a health insurers' willingness to also purchase its higher-priced unregulated service, then MHS essentially "shifts" the market in which it extracts its higher price.²⁵

The traditional approach to preventing Regulatory Evasion is to attempt to prevent the monopolist from tying its regulated product to some other unregulated product. If those ties can be prevented, then the monopolist can no longer impose a price increase in the secondary market since consumers no longer need to purchase that higher-priced product as a condition to purchasing the regulated product.

The COPA currently incorporates language that limits MHS's ability to engage in a tie by requiring that MHS "shall not require managed-care plans to contract with its employed doctors

²² See Section 4.2 of the COPA.

²³ According to data provided by MHS, Medicare and Medicaid accounted for approximately 63 percent of its gross revenue in 2008 (increasing slightly to 65 percent in 2010). This is slightly higher than the nationwide average across community hospitals in which Medicare and Medicaid accounted for approximately 56 percent of gross revenue in 2007. (See "The Economic Downturn and Its Impact on Hospitals," The American Hospital Association, January 2009, page 4). It is also higher than the average for hospitals rated by Moody's Investors Service as Aa2 and Aa3 in which Medicare and Medicaid accounted for approximately 48 percent and 50 percent of gross revenue, respectively. These Moody's credit rated hospitals are particularly relevant because the operating margins at these hospitals are used in part to determine the operating margin benchmark specified by Section 4.2 of the COPA. (See "Moody's U.S. Public Finance – Not-for-Profit Hospital Medians for Fiscal Year 2008," Moody's Investors Service, August 2009, page 21).

²⁴ Regulatory evasion can also occur when the second market is regulated, as long as the second market is somehow "less" regulated.

²⁵ It may seem that the solution to Regulatory Evasion is to expand the scope of regulation by extending price (or margin) caps to those secondary markets. Expanding the scope of regulation, however, can create a slippery slope of increased regulatory entanglement in which price (or margin) caps end up being applied to an increasing number of otherwise competitive secondary markets in an effort to prevent the monopolist from finding a market in which it can shift its price increase.

as a precondition to contracting with it or its constituent hospitals."²⁶ This language, however, only succeeds in preventing MHS from tying physician services to its sale of hospital services, while failing to prevent possible ties between Mission Hospital and other MHS services such as outpatient services in other geographies, or inpatient services provided at other MHS hospitals.

D. MHS conduct appears to be consistent with incentive problems

The incentive problems associated with the COPA regulation appear to be consistent with MHS's observed conduct and complaints about MHS's conduct that have been voiced by certain parties.²⁷

1. MHS expansion into other geographies and services

The COPA creates a variety of incentives for MHS to expand its operations into other services and into new geographies. These incentives are consistent with MHS's historical conduct, as well as its possible plans for the future:

- MHS historically expanded its hospital network with the acquisition of Blue Ridge Regional Hospital in Mitchell county and the McDowell Hospital in McDowell county;
- MHS further expanded its hospital network by recently agreeing to manage the operations of Transylvania Community Hospital in Transylvania county;²⁸
- MHS has plans to further expand its hospital network to include Angel Medical Center in Macon county;²⁹
- MHS attempted to expand its scope of hospital operations by bidding to manage the operations of Haywood Regional Medical Center in Haywood county and the WestCare Health System with hospitals in Swain and Jackson counties;³⁰

²⁶ See Section 5.2 of the COPA.

²⁷ It is worth repeating that, while the above-mentioned conduct is consistent with the previously discussed incentive problems created by the COPA, I have not sought to determine the extent to which the COPA likely caused any of that conduct. Yet, even without showing that MHS is necessarily acting on these incentives to any significant degree, it would be prudent to seek to reduce or eliminate those incentive problems.

²⁸ MHS recently announced that it will manage Transylvania Community Hospital and its affiliates as of January 1, 2010. See Mission Health System press release dated December 27, 2010.

²⁹ According to a recent publication, "[o]n May 13, Angel Medical Center's Board of Trustees decided to actively begin exploring a potential partnership with the Asheville-based Mission Health System." See "Angel Medical Center and Mission Health System consider partnership," The Macon County News, May 27, 2010.

³⁰ Press release: "HRMC, WestCare move forward together with Carolinas HealthCare System," Haywood Regional Medical Center (<http://www.haymed.org/about/news-and-events/43-main-news/63-hrhc-westcare-move-forward-together-with-carolinas-healthcare-system.html>).

- Concerns have been expressed that MHS plans to further expand its scope of employed physicians;
- MHS has plans to engage in a joint venture with Pardee Hospital to construct a new outpatient facility on the Buncombe/Henderson county line;³¹

2. MHS expansion into lower margin services

Consistent with MHS's incentive to expand into lower margin services as a means of lowering its average margin and thus relaxing the margin constraint, MHS continues to expand its relationships with rural hospitals that enjoy lower margins than the rest of MHS's operations.³² This comparison of margins is shown in Table 4.

3. Joint contracting across services and geographies

Regulatory Evasion could be achieved by MHS tying the sale of Mission Hospital's inpatient and outpatient services to the sale of some other more competitively provided service. This is consistent with what I understand MHS's contracting practice to be. In particular, I understand that, while MHS typically enters into separate contracts at separate rates for its different services (e.g., it does not charge the same rates for Mission Hospital as it does for its Blue Ridge hospital), there is at least some degree of informal linkage between these contracts. I also understand that the contracting personnel at MHS and at the managed care plans are generally the same individuals, and the contracts for MHS's different hospitals and services are generally negotiated concurrently.

4. Concerns about "unfair competition"

In the course of my interviews, some providers have expressed concerns that, as MHS has expanded the geographic scope of the services it offers, those providers will be at a competitive disadvantage. To some extent, this concern may simply reflect a competitor's normal concern that, as a new rival comes to town, there will be some loss of business.³³

Concerns about MHS's entry into new geographic or service markets, however, are also consistent with the fear that MHS is competing on an unequal competitive footing. In particular, concerns about competing with MHS may stem from MHS's potential incentive to cross-

³¹ Press release: "Mission and Pardee Announce Collaboration to Expand Healthcare Services," Mission News, July 1, 2010 (<http://www.missionhospitals.org/body.cfm?id=111&action=detail&ref=141>).

³² Policymakers will have to decide whether they view this incentive effect of the COPA as a good, or a bad, thing. While MHS's incentive to acquire those hospitals may reflect a market distortion caused by the COPA, policymakers may ultimately conclude that the benefits of the financial support that MHS provides those hospitals outweighs any harm from that market distortion.

³³ This concern would be heightened if the entrant came to town with a reputation for high quality service and the ability to offer certain services that the incumbent was less capable of offering.

subsidize services and offer lower-than-normal prices on new services so as to avoid exceeding the Margin Cap, or to offer higher-than-normal prices when competing to acquire physician practices or existing healthcare facilities.

V. ADDRESSING THE INCENTIVE PROBLEMS CREATED BY THE COPA

To address the previously discussed incentive problems, I recommend several modifications to the COPA.

A. Changing the Margin Cap to a market-specific Price Cap

I recommend that the COPA replace its existing Margin Cap with a Price Cap that limits the annual amount by which an aggregated measure of price can increase. Perhaps the most important reason for recommending this change is that the usual reasons for relying on a margin cap rather than a price cap do not apply here. As previously discussed, economists typically rely on margin caps when a price cap is not workable. This is most often the case when there are likely to be significant unobservable cost changes over time that would otherwise necessitate changes in the price cap. Absent a means to either observe underlying cost changes, or to observe how prices should be changing by looking at other (competitive) markets, a price cap may be impractical. Those impediments to a price cap, however, do not exist here. In particular, price changes over time can be regulated to ensure they do not exceed price increases at comparable hospitals in competitive markets.

Switching from a margin cap to a price cap should improve regulation in several ways. First, a price growth cap is a more direct means of addressing the concern that the 1995 merger created market power that allows MHS to raise price. Second, a price cap eliminates MHS's ability to evade the margin cap by inflating expenses along with prices. Third, a price cap eliminates the incentives that a margin cap can create for cross-subsidization, creating unfair competition, and creating distorting incentives by promoting MHS entry into low-margin markets. Fourth, switching from the Margin Cap to a price cap will make it easier for regulators to focus the regulation on those markets originally affected by the 1995 merger: inpatient and outpatient services at Mission Hospital.³⁴

In designing a new Price Cap for the COPA, the following considerations should apply:

- The Price Cap should regulate rates of change over time, not absolute levels.³⁵
- There should be separate Price Caps that apply to inpatient and to outpatient services.

³⁴ This focus would be much more difficult to achieve with a Margin Cap given the difficulties that would arise in allocating costs that were common across a variety of services or different geographies.

³⁵ This approach, unfortunately, locks in any excessive rates that Mission Hospital may already be charging.

- The Price Cap should apply only to those markets originally affected by the merger: inpatient and outpatient services in Mission Hospital's PSA.
- The Price Cap should only apply to, and be calculated with respect to, commercial payers.³⁶ This focus on commercial payers is consistent with the view that the original merger only affected competition for commercial contracts, and thus the regulation should only be directed at controlling price increases to that payer segment.

Calculating Mission Hospital's price for use in a price cap will involve three steps. First, a measure of Mission Hospital's case-weighted output should be defined, separately for inpatient and for outpatient services.³⁷ Second, Mission Hospital's net patient revenue should be determined, separately for inpatient and for outpatient services. Third, net patient revenue should be divided by case-weighted output to obtain an average case-mix adjusted price across all inpatient services, and across all outpatient services. Increases in these case-mix adjusted prices can then be restricted to not exceed increases of a suitably defined index.³⁸

Should the State replace the Margin Cap with a Price Cap, the State needs to decide whether that Price Cap should encompass the services that MHS hopes to offer at its proposed joint venture facility to be located on the Buncombe/Henderson county line.³⁹ As discussed below, a decision not to extend the Price Cap to cover those joint venture services may create strong incentives for MHS to engage in regulatory evasion whereby it seeks to force payers to purchase services from the joint venture but pay prices that exceed competitive levels. Thus, the State's decision not to extend the Price Cap to those services should depend on its comfort that it can prevent such Regulatory Evasion. Ultimately, however, I believe that the State can sufficiently limit concerns regarding Regulatory Evasion so that it is *not* necessary to extend the Price Cap to cover the joint venture's services.

³⁶ I recommend that the Price Cap apply to MHS's net revenues across all commercial payers rather than having the cap apply to each individual payer. A payer-specific Price Cap may be impractical and undesirable for several reasons. First, a payer-specific cap would leave open the question of how much MHS could charge a new payer. If no restrictions applied, the MHS would have strong incentives to charge a very high initial price so that subsequent growth would leave the Price Cap at a very high level. Such incentives would also reduce the likelihood that new payers would seek to enter the Asheville area, an undesirable outcome given the apparently very high payer concentration in the Asheville region. Second, a payer-specific cap would be more difficult to practically implement given that hospital rates to payers typically depend significantly on payer volume.

³⁷ For inpatient services, this can be done in the same way that case-mix adjusted discharges are calculated for purposes of the COPA's Cost Cap (see Section 4.1 of the COPA). For outpatient services, a comparable approach can be used; such approaches are used, for example, by the Centers for Medicare and Medicaid Services for use in the Outpatient Prospective Payment System.

³⁸ The COPA already uses a Producer Price Index for general medical and surgical hospitals, as well as an index of comparable hospitals (see Section 4.1 of the COPA) in calculating acceptable cost changes.

³⁹ See note 31.

B. Dropping, or revising, the Cost Cap

The principal motivation for the COPA's Cost Cap is to prevent MHS from increasing expenditures as a means of satisfying the Margin Cap. Once the Margin Cap is replaced by a Price Cap, however, the Cost Cap is largely relegated to providing "backup regulation" in the event that the Price Cap is imperfect. Accordingly, as long as the State replaces the COPA's Margin Cap with a Price Cap, the State should consider dropping the COPA's Cost Cap entirely.

Should the State choose to retain the Cost Cap as a type of regulatory backup to the Price Cap, that Cost Cap should be revised to eliminate the incentive that it currently gives Mission Hospital to increase outpatient prices, and possibly expand outpatient volume, as a means of reducing the estimated cost per adjusted patient discharge. As previously noted, this problem stems from how the COPA calculates equivalent outpatient discharges, and it can be addressed by adopting the following two changes.

- ***Adopt a separate Cost Cap for inpatient services and for outpatient services.*** Separating the Cost Cap for inpatient and outpatient services means that it is no longer necessary to find a common output measure for both inpatient and outpatient procedures.⁴⁰ As previously discussed, this need to find a common measure of output created the incentive for MHS to increase outpatient prices and possibly outpatient volumes.
- ***Calculate Case-Weighted Outpatient Discharges.*** Case-weighted outpatient discharges should be calculated in the same way that outpatient volume is calculated when estimating an average outpatient price for use in a new Price Cap.⁴¹

C. Reducing Regulatory Evasion concerns

Replacing the Margin Cap with a Price Cap, and then limiting that Price Cap to just Mission Hospital's inpatient and outpatient services, increases incentives for MHS to engage in Regulatory Evasion in which it would instead raise prices in unregulated secondary markets such as physician services. As mentioned above, this concern may be particularly acute with respect to MHS's proposed joint venture with Pardee Memorial Hospital.

The cleanest means of preventing Regulatory Evasion is to prevent tying, explicit or otherwise. Accordingly, the COPA's existing language prohibiting tying of physician services should be extended to prevent MHS from requiring managed care plans to contract with any of its

⁴⁰ This may, however, create certain problems relating to allocation of costs that are common to both inpatient and outpatient services, e.g., certain corporate costs, certain facilities costs, and certain capital costs associated with technology that is used for both inpatient and outpatient procedures.

⁴¹ See note 37 above.

employed physicians *or any other MHS service provider* as a precondition to contracting with Mission Hospital.⁴²

Imposing a regulatory prohibition on tying, however, may be insufficient to completely solve the Regulatory Evasion problem: firms often have a variety of ways of imposing ties that are not clearly in violation of regulatory language.⁴³ Accordingly, the State should be vigilant in guarding against such tying, whether explicit or implicit, and particularly with respect to the proposed joint venture with Pardee Memorial Hospital where incentives to engage in Regulatory Evasion might be particularly strong.

Should the State become concerned that that a "no tying" restriction will be insufficient to protect against Regulatory Evasion, the State may wish to add language in the COPA that gives the State the option of making such tying more difficult by requiring a contracting firewall between MHS's inpatient and outpatient services at Mission Hospital and the other services it provides. This contracting firewall could include the following elements:

- That the COPA require MHS to establish distinct contracting teams: one of which focuses on MHS's contracts relating to Mission Hospital in Asheville and its operations, the other of which focuses on all other services and geographies (including all physician-related contracts and contracts with McDowell Hospital and Blue Ridge Regional Hospital);
- That the two MHS contracting teams maintain an information firewall to prevent communications or coordination across contracting;
- That MHS does not engage in simultaneous contracting for Mission Hospital and any other MHS service provider (e.g., McDowell Hospital).

⁴² The joint venture may also create strong incentives to engage in another form of Regulatory Evasion: substitution of where MHS offers its services: if services offered at Mission Hospital are covered by the price cap, but similar services offered at the joint venture are not covered by the price cap, then MHS has incentives to shift patients from the regulated Mission Hospital to the unregulated joint venture (presuming that MHS can tie the sale of those joint venture services in a way that allows it to realize higher-than-competitive prices at the joint venture). In fact, I understand that an express goal of MHS is to shift the location where it treats many of its patients from Mission Hospital to the new joint venture facility. I note, however, that Mission Hospital argues that such shifting is an important means of improving healthcare quality and access to care given its concern that Mission Hospital has little slack capacity. Thus, by shifting patients, MHS has indicated that it hopes to better serve the community by focusing on more complex care at Mission Hospital while shifting less complex care to other sites that may be closer to where patients actually live. If, however, tying between Mission Hospital and the joint venture can be prevented, then MHS can pursue its goal of shifting patients, and thus benefitting consumers, without raising any concomitant concerns about Regulatory Evasion.

⁴³ The alternative regulatory approach of trying to prevent regulatory evasion by extending price (or margin) regulation into otherwise unregulated secondary markets, however, seems even less attractive and less beneficial to consumers.

The value of a contracting firewall, however, is unclear. In particular, a contracting firewall is a cumbersome regulatory obligation that may create inefficiencies for both payers and MHS.⁴⁴ Moreover, even contracting firewalls often fail to operate as cleanly and as effectively as might be wished. As a result, I recommend that, even if the State opts to include language in the COPA regarding contracting firewalls, those firewalls only be imposed if the State concludes that tying is occurring in a way that cannot otherwise be prevented through the "no tying" language of the COPA.

VI. THE COPA'S RESTRICTIONS ON PHYSICIAN EMPLOYMENT

The COPA's restrictions on physician employment do not appear necessary to address concerns that the 1995 merger reduced competition relating to physician services. Those restrictions also appear to be of limited value in preventing a merger-related problem associated with MHS foreclosing competition with rival hospitals by restricting those rival hospitals' access to physicians. As a result, I recommend that the State consider dropping the COPA's Physician Employment Cap, and instead let MHS's acquisitions of physician practices be governed by the same laws and regulations that govern other hospitals.

A. The 1995 merger did not significantly reduce physician competition

At the time of the 1995 merger, neither of the merging Asheville hospitals employed a significant number of physicians. As a result, the merger did not significantly increase Mission Hospital's market power with respect to physician services. It follows that COPA regulation of physician services is not necessary to counter any merger-related creation of market power.⁴⁵

B. The 1995 merger and foreclosure concerns

Physician employment by MHS creates a potential foreclosure concern involving MHS employing physicians as a means of harming rival hospitals. To the extent such foreclosure is deemed possible, and that the 1995 merger increased the either likelihood of, or effects from, such foreclosure, the COPA's Physician Employment Cap may be warranted. As discussed below, however, I have seen little evidence that such foreclosure concerns are sufficiently likely to warrant restrictions on how many physicians MHS can employ.

⁴⁴ My discussions with payers, however, indicate that, despite the inefficiencies that firewalls and sequential contracting will likely create, they tend to either support, or be neutral towards, requiring such a firewall.

⁴⁵ I have also considered whether the merger might have resulted in buy-side market power (typically referred to by economists as "monopsony power"). Yet, even if the merger had created buy-side market power (a supposition for which I have seen no evidence), a cap on physician employment would not be the proper regulatory solution.

1. Foreclosure concerns and rationale for a Physician Employment Cap

In the course of my interviews with different health care providers in WNC, several MHS rivals have expressed a variant of the following type of foreclosure concern. By employing physicians, MHS may be able to cause those physicians to shift their admissions from rival hospitals to MHS (their new employer). By employing enough physicians, MHS might reduce admissions at rival hospitals by so much that those rival hospitals become financially, and thus compressively, weakened.⁴⁶ In addition, by employing enough physicians who previously admitted at rival hospitals, MHS might increase the importance of MHS, and reduce the importance of those rival hospitals, to managed care plans. This, in turn, would make it more difficult for those managed care plans to drop MHS hospitals from their network, and thus result in reduced competition. Thus, a cap on the number of physicians that MHS can employ might be necessary to prevent such foreclosure.

The foregoing foreclosure concern is also generally consistent with the COPA's existing Nondiscrimination restrictions.⁴⁷ Those restrictions prevent MHS from requiring physicians to render services only at MHS hospitals, consistent with an underlying foreclosure concern. The COPA's nondiscrimination restrictions do not, however, apply to MHS's employed physicians. Thus, the COPA's Physician Employment Cap can be viewed as a complement to the Nondiscrimination restriction by helping to ensure that MHS does not control too many physicians' admitting decisions, and thus cannot put rival hospitals at too much at risk of having MHS cut off their access to the physicians that they rely upon for patients.

2. The likelihood of successful foreclosure by MHS

In order for the foreclosure concern to be appropriately addressed by the COPA (rather than other antitrust or competition laws that address foreclosure concerns), the foreclosure concern should be related to the 1995 merger. The evidence, however, provides little support for the belief that the 1995 merger increased the likelihood that such a foreclosure by MHS would be successful.

The most likely means by which the 1995 merger might have increased foreclosure concerns is that the merger may have given MHS the ability to "force" physicians into employment contracts that they otherwise would rejected.⁴⁸ The evidence, however, suggests that MHS is not in a position where it can force such employment contracts on physicians.

⁴⁶ Whether or not this shift in admitting patterns would occur in reality is unclear. I understand that MHS claims that, for physicians located outside of Buncombe County, it does not necessarily seek to change that physician's admitting patterns. At this point, the empirical evidence relating to such practice acquisitions is too sparse to properly evaluate this issue.

⁴⁷ See Section 6.1 of the COPA.

⁴⁸ Perhaps the only other possible linkage between the 1995 merger and the foreclosure concern is that the 1995 merger likely increased the harm that would likely result from foreclosure (if, in fact, MHS successfully engaged in

- MHS's employment of a physician will have the greatest impact on a rival hospital when that physician admits a significant number of patients to the rival hospital.⁴⁹ Yet physicians that already rely heavily on a rival hospital would be the least vulnerable to pressure from MHS. Conversely, those physicians that are most vulnerable to MHS pressure would be the ones that admit most of their patients to Mission Hospital, meaning that rival hospitals would lose little if those physicians began admitting exclusively to Mission Hospital.⁵⁰
- There have been instances in which MHS has sought to employ a physician, yet that physician has turned down MHS's offer and instead remained unaffiliated or else affiliated with a different organization.
- One of the factors behind the recent departure of MHS's CEO is that local physicians were unhappy with what they perceived to be excessive pressure from MHS regarding the nature of their affiliation with MHS.⁵¹ Thus, MHS's ability to force employment contracts on local physicians appears quite limited.

C. Restrictions on physician employment may harm consumers

In assessing whether to eliminate the COPA's restrictions on physician employment, the State should consider what, if any, consumer harm may result from those restrictions. Such harm should be balanced against what the previous discussion suggests are limited benefits from those restrictions.

The Physician Employment Cap may cause harm in several ways. First, unnecessarily regulating MHS with respect to physician services may effectively handicap MHS in its ability to compete

a foreclosure strategy). The 1995 merger increases the harm from foreclosure since, by significantly reducing competition for inpatient hospital services, further reductions in competition due to foreclosure would likely be even more problematic. This linkage between the 1995 merger and the foreclosure concern, however, appears to be a relatively tenuous basis for using the COPA to guard against foreclosure rather than existing antitrust laws that would also prohibit such conduct.

⁴⁹ This suggests, however, that the COPA's Physician Employment Cap may be targeting the wrong physicians: rather than limit MHS's employment of primary care physicians in Buncombe and Madison counties – physicians that are already typically admitting almost exclusively to Mission Hospital – the cap should perhaps apply instead to physicians in the outlying counties that are more likely to otherwise be admitting to Mission Hospital's rival hospitals.

⁵⁰ Consider, for example, data on the admitting patterns for the top 50 physicians at one of Mission Hospital's local hospital rivals. These physicians, who collectively accounted for approximately 99 percent of all inpatient admissions at that hospital, made *no* admissions to Mission Hospital. Absent admissions to Mission Hospital, MHS is unlikely to have significant leverage over those physicians.

⁵¹ See “Trauma Center,” *Business North Carolina*, April 2010 and “Mission Exit Reflects Trend,” *Asheville Citizen-Times*, November 1, 2009.

with other health care providers.⁵² At least one payer I spoke to indicated that many physician practices in the WNC region were likely to be acquired in the future – either by a larger physician group, another hospital, or another health system (e.g., Novant Health or the Carolinas Healthcare System). A view was expressed that, of all these possible suitors for a physician practice, MHS might be the most desirable.

Second, preventing MHS from acquiring certain physician practices will reduce physicians' options. In some cases, this may mean that physicians leave the region (or decide not to come to the region in the first place). For physicians intent on selling their practice, the elimination of MHS as a potential bidder for that practice may significantly reduce the value that physicians receive for their practice.

Third, the Physician Employment Cap may preclude MHS from bringing new physicians to town. Bringing new physicians to town, however, is the type of output expansion that is likely to be procompetitive. The current Physician Employment Cap, however, would prohibit such recruitment of new physicians if it ended up pushing MHS over the 20 percent cap.⁵³

Perhaps most important, to the extent that MHS can successfully integrate its acquired physicians in a way that will lower overall healthcare costs and increase quality, then preventing MHS from acquiring those physician practices could end up denying consumers the benefits of lower prices and better outcomes.⁵⁴

D. Balancing likely benefits and harm from the Physician Employment Cap

Balancing the potentially significant downsides to the Physician Employment Cap against the weak merger-related justifications, I recommend that the Physician Employment Cap be dropped from the COPA.

⁵² According to the American Hospital Association, 65 percent of community hospitals are making efforts to increase the number of employed physicians. See “The State of America’s Hospitals – Taking the Pulse, Results of AHA Survey of Hospital Leaders,” March/April 2010, The American Hospital Association.

⁵³ The COPA contains provisions by which MHS can appeal the cap (see Section 8.3 of the COPA). Yet, even if an appeal were possible, the need to go through the appeal process likely constitutes a significant disincentive to pursue such physician recruitment.

⁵⁴ See, for example, articles co-authored by MHS's new CEO, Ronald A. Paulus, M.D., that describe benefits that he helped to achieve at the Geisenger Clinic which pursued an active strategy of physician integration (“Continuous Innovation In Health Care: Implications Of The Geisinger Experience,” Ronald A. Paulus, Karen Davis, and Glenn D. Steele, *Health Affairs*, Volume 27, Number 5, September/October 2008, pages 1235 to 1245; “How Geisinger’s Advanced Medical Home Model Argues The Case For Rapid-Cycle Innovation,” Ronald A. Paulus et al., *Health Affairs*, November 2009, pages 2047 to 2053; “ProvenCare - A Provider-Driven Pay-for-Performance Program for Acute Episodic Cardiac Surgical Care,” Ronald A. Paulus et al., *Annals of Surgery*, Volume 246, Number 4, October 2007, pages 613 to 623; “The Electronic Health Record and Care Reengineering: Performance Improvement Redefined, Ronald A. Paulus et al., Redesigning the Clinical Effectiveness Research Paradigm: Innovation and Practice-Based Approaches: Workshop Summary, National Academy of Sciences, 2010, pages 221 to 265; “Value and the Medical Home: Effects of Transformed Primary Care,” Ronald A. Paulus et al., *The American Journal of Managed Care*, Volume 16, Number 8, August 2010, pages 607 to 615.).

Should the Physician Employment Cap be retained, however, the State should consider adjusting that cap in a number of regards, including expanding the scope (both with respect to covered specialties and covered geographies), and allowing for exceptions relating to single-practice physician groups or for physicians that move into the Asheville area. The State should also require additional documentation by which MHS demonstrates its compliance with this aspect of the COPA regulation.

E. Other laws limit hospitals' ability to employ physicians

Dropping the Physician Employment Cap from the COPA will not leave MHS free to acquire as many physician practices as it likes. Rather, even though no longer subject to the COPA's restrictions, MHS will be subject to the same regulatory and legal constraints facing any other party with respect to acquiring competing physician practices.⁵⁵

The extent to which MHS can acquire more physician practices without running afoul of existing antitrust laws will depend on the extent to which MHS can show that the likely benefits of such acquisitions will outweigh the likely competitive harm.⁵⁶ MHS can then decide for itself whether to increase its share of physicians above 20 percent of the market, with that decision based in part on whether it believes such acquisitions will prompt an antitrust investigation and its expectations about the likely outcome of any such investigation.

⁵⁵ I assume that MHS will not be able to avoid such constraints by claiming some type of State Action exemption.

⁵⁶ See, for example, The U.S. Department of Justice/Federal Trade Commission 1996 *Statements of Antitrust Enforcement Policy in Health Care*. The potential costs and benefits of allowing greater physician concentration are also actively being debated in the context of policy discussions about Accountable Care Organizations ("ACOs") See, for example, the October, 2010 volume of *Competition Policy International*, including the following articles: Braun, C., "Clinical Integration: The Balancing of Competition and Health Care Policies;" Fischer, A. and Marx, D., "Antitrust Implications of Clinically-Integrated Managed Care Contracting Networks and Accountable Care Organizations;" and Vistnes, G., "The Interplay Between Competition and Clinical Integration: Why the Antitrust Agencies Care About Medical Care."

Table 1: Mission Hospital County-Level Market Shares Over Time in Western North Carolina

	Total Patient Count in 2009*	Mission Hospital's Share of Patients					
		2005	2006	2007	2008	2009	1st Half 2010
Buncombe	26,045	86.3%	86.9%	87.3%	87.8%	89.6%	90.5%
Henderson	12,740	22.1%	22.7%	23.8%	25.3%	29.6%	36.4%
Burke	10,548	5.3%	5.7%	5.8%	6.1%	5.8%	5.8%
Rutherford	8,613	5.9%	6.3%	6.7%	8.0%	7.2%	7.2%
Haywood	8,298	28.7%	27.2%	28.4%	35.9%	33.5%	32.8%
McDowell	5,131	31.5%	33.3%	32.9%	34.4%	37.8%	35.8%
Jackson	3,807	17.5%	21.1%	21.5%	24.5%	27.3%	28.8%
Macon	3,734	27.5%	31.0%	27.8%	31.0%	29.3%	29.6%
Transylvania	3,523	32.1%	32.4%	32.0%	35.4%	34.6%	35.8%
Cherokee	2,671	18.8%	17.9%	20.0%	19.2%	18.5%	19.8%
Swain	2,494	22.7%	21.6%	24.4%	26.2%	26.8%	23.7%
Yancey	2,329	45.5%	49.4%	48.6%	47.5%	50.2%	49.5%
Madison	2,172	88.9%	89.9%	88.5%	89.7%	90.8%	91.2%
Mitchell	2,138	27.4%	29.1%	28.0%	25.7%	28.1%	29.6%
Polk	1,790	11.9%	15.7%	14.5%	17.2%	16.6%	18.0%
Graham	1,116	22.3%	26.6%	24.4%	26.4%	27.5%	29.2%
Clay	916	20.8%	20.4%	20.2%	19.7%	21.4%	21.6%

Note:

* Total Patient Count represents the number of patients that reside in the county.

Sources:

Patient Shares 2005 to 2008: Second Amended and Restated Certificate of Public Advantage Periodic Report, September 30, 2009, Mission Hospital, Inc.

Patient Shares 2009 to June 2010: Thompson Reuters, Inpatient Data for North Carolina.

Table 2: Short-Term Acute Care and Critical Access Hospitals In Western North Carolina

Hospital Name	County	City	Hospital Type	Beds	Average Patients Per Day	# of Physicians Actively Admitting Patients*	Distance in Miles from Mission Hospital
Mission Hospital	Buncombe	Asheville	Acute Care	728	522	342	0
The McDowell Hospital	McDowell	Marion	Acute Care	49	16	16	35
Blue Ridge Regional Hospital	Mitchell	Spruce Pine	Acute Care	49	22	28	51
Transylvania Community Hospital	Transylvania	Brevard	Critical Access	35	17	22	29
Pardee Hospital	Henderson	Hendersonville	Acute Care	216	72	58	27
Murphy Medical Center	Cherokee	Murphy	Acute Care	190	27	22	111
Grace Hospital	Burk	Morganton	Acute Care	184	59	56	58
Rutherford Hospital	Rutherford	Rutherfordton	Acute Care	143	53	42	57
Valdese Hospital	Burk	Connellys Springs	Acute Care	131	27	26	65
Haywood Regional Medical Center	Haywood	Cylde	Acute Care	121	62	37	27
Highlands-Cashiers Hospital	Macon	Highlands	Critical Access	104	7	7	67
Park Ridge Hospital	Henderson	Hendersonville	Acute Care	98	43	42	15
Harris Regional Hospital	Jackson	Sylva	Acute Care	86	43	33	47
Saint Luke's Hospital	Polk	Columbus	Critical Access	35	15	5	39
Angel Medical Center	Macon	Franklin	Critical Access	25	17	16	69
Swain County Hospital	Swain	Bryson City	Critical Access	24	6	6	66

Notes:

* An active physician is defined as any physician with at least 12 admissions in the 12-month period ending June 30, 2010 based on State Inpatient data provided by Thompson Reuters.

The Asheville VA Medical Center and the Cherokee Indian Hospital have been excluded from the table because these facilities are primarily government funded.

Sources:

American Hospital Directory (ahd.com), November 8, 2010.

Thompson Reuters, Inpatient Data for North Carolina.

Table 3: The COPA's Cost Cap Methodology - Illustrative Example

Base Case					
	Volume	"Price" per procedure	Total Revenue	Cost per Procedure	Total Cost
Inpatient Procedures	1,200	1,000	1,200,000	800	960,000
Outpatient Procedures	800	500	400,000	400	320,000
TOTAL			1,600,000		1,280,000
<i>"Equivalent Outpatient Discharges"</i>	400	1,000			
<i>"Total Adjusted Discharges"</i>	1,600				
<i>"Cost/Adjusted Patient Discharge"</i>	800				
20% Increase in Outpatient Price					
	Volume	"Price" per procedure	Total Revenue	Cost per Procedure	Total Cost
Inpatient Procedures	1,200	1,000	1,200,000	800	960,000
Outpatient Procedures	800	600	480,000	400	320,000
TOTAL			1,680,000		1,280,000
<i>"Equivalent Outpatient Discharges"</i>	480	1,000			
<i>"Total Adjusted Discharges"</i>	1,680				
<i>"Cost/Adjusted Patient Discharge"</i>	762				
20% Increase in Outpatient Price and Volume					
	Volume	"Price" per procedure	Total Revenue	Cost per Procedure	Total Cost
Inpatient Procedures	1,200	1,000	1,200,000	800	960,000
Outpatient Procedures	960	600	576,000	400	384,000
TOTAL			1,776,000		1,344,000
<i>"Equivalent Outpatient Discharges"</i>	576	1,000			
<i>"Total Adjusted Discharges"</i>	1,776				
<i>"Cost/Adjusted Patient Discharge"</i>	757				

Table 4: Mission Health System Operating Income

For the year ending September 30, 2009

	Total Revenue	Operating Income	Operating Income Margin
	(\$000)	(\$000)	
Mission Health Inc.	897,742	40,391	4.5%
Individual Components of Mission Health Inc.:			
Mission Hospital, Inc.	805,191	41,281	5.1%
McDowell Hospital, Inc.	33,980	(2,080)	(6.1%)
Blue Ridge Regional Hospital, Inc.	39,410	530	1.3%
Other	19,161	660	3.4%

Source:

Mission Health System, Inc. and Affiliates, Combined Financial Statements and Schedules, September 30, 2009 and 2008, KPMG, page 32.

Appendix

GREGORY S. VISTNES

Vice President

Ph.D. Economics,
Stanford University

M.A. Economics,
Stanford University

B.A. Economics,
University of California at
Berkeley (with High Honors)

Dr. Vistnes is an antitrust and industrial organization economist who works in a broad array of industries, including financial services, insurance, defense and aerospace, medical equipment, chemicals, software, energy, pharmaceuticals, steel, and various retail and industrial products. Dr. Vistnes is also an expert in the healthcare industry where he has frequently testified, published, and spoken at professional conferences.

In the course of his work, Dr. Vistnes regularly presents his analyses to the U.S. Department of Justice (DOJ) and the U.S. Federal Trade Commission (FTC). He also provides economic analyses for clients involved in private antitrust litigation, for clients involved in matters before state attorney generals, and for firms interested in anticipating the competitive implications of alternative strategies. Dr. Vistnes has also provided expert testimony in a variety of antitrust matters, both on behalf of private sector firms and government antitrust agencies.

Prior to joining CRA International, Dr. Vistnes was the Deputy Director for Antitrust in the Federal Trade Commission's Bureau of Economics. In that position, he supervised the FTC's staff of approximately 40 Ph.D.-level antitrust economists and directed the economic analysis of all antitrust matters before the FTC. Before that, he served as an Assistant Chief in the Antitrust Division of the U.S. Department of Justice. At both the FTC and DOJ, Dr. Vistnes headed analytical teams responsible for investigating pending mergers and acquisitions or alleged anticompetitive behavior. As part of his duties, he regularly advised key agency decision makers, including FTC commissioners and the Assistant Attorney General for Antitrust.

REPRESENTATIVE PROJECTS AND INDUSTRY EXPERTISE

- *Real Estate.* Dr. Vistnes served as the testifying expert for the DOJ in their multi-year litigation *U.S. v. National Association of Realtors* (NAR) regarding NAR's rules on how real estate brokers could use the Internet to compete. Dr. Vistnes has also testified before several states regarding competition in the title insurance industry, and worked on several mergers (e.g., *Fidelity/LandAmerica*) involving title insurance providers.
- *Aftermarkets.* Dr. Vistnes testified before a jury in the *Static Control Components v. Lexmark International* litigation relating to replacement toner cartridges for laser printers. The jury agreed with Dr. Vistnes' opinion that the evidence showed that the aftermarket of replacement toner cartridges was the appropriate relevant market.

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- *Insurance and Financial Services.* Dr. Vistnes has testified and provided analyses to both state and federal competition authorities regarding mergers of both insurance carriers (e.g., *MetLife/Travelers*) and insurance brokers (e.g., *Aon/Benfield*). Dr. Vistnes has also analyzed price fixing claims regarding initial public offerings (IPOs) and private equity firms.
 - *Healthcare and Medical Products and Equipment.* Dr. Vistnes has provided court testimony and economic analyses relating to hospital mergers, hospital certificate of need applications, health plan mergers, and physician conduct. He has also provided analyses and testimony related to mergers and conduct issues relating to MRI providers, medical products and equipment, and medical technology.
 - *Computer Software and Technology.* Dr. Vistnes has provided economic analyses in several software mergers that helped the merging parties avoid a second request by the government. Examples include matters involving software that provides security for internet websites; billing software used by large health plans; and the provision of electronic business-to-business services between trading partners.
 - *Energy.* Dr. Vistnes has provided economic analyses of several antitrust matters in different sectors of the energy industry, including the oil, electricity, gas pipelines and gas storage sectors. In addition to overseeing the FTC's economic analyses of mergers such as *BP/Arco* and *Mobil/Exxon*, Dr. Vistnes has also presented his analyses to the Department of Justice regarding price fixing claims in this industry.
 - *Price Fixing Cases.* Dr. Vistnes has provided analyses and reports regarding price fixing cases in the chemicals industry. Dr. Vistnes' work in these matters helped to determine the relevant scope of products affected by the alleged conspiracy, the time periods over which price effects may have arisen, and the magnitude of any damages associated with the conspiracy. Dr. Vistnes' work in this area has been used both in presentations to the Department of Justice and in private litigation.

PROFESSIONAL EXPERIENCE

2000–Present *Vice President*, CRA International, Washington, D.C.

Dr. Vistnes' work focuses on analyzing antitrust and competition issues such as:

- Horizontal and vertical mergers;
- Contractual provisions such as exclusivity provisions, most favored customer clauses, bundling provisions, and price discount schedules;
- Intellectual property and antitrust;
- Price fixing and conspiracy allegations;
- Class action litigation.

-
- 1997–2000 *Deputy Director for Antitrust*, Bureau of Economics, U.S. Federal Trade Commission, Washington, D.C.
- Directed the economic analyses of all antitrust matters before the Commission.
 - Briefed Commissioners and the Director of the Bureau of Economics regarding all antitrust matters before the Commission, including mergers, vertical restraints, and joint ventures.
 - Advised the Commission on whether to challenge mergers or other anticompetitive activities.
 - Developed strategies for the investigation and litigation of antitrust matters before the Commission.
 - Directed the FTC's antitrust staff of 55 Ph.D. economists, managers, and support staff.
- 1996–1997 *Assistant Chief*, Economic Regulatory Section, Antitrust Division, U.S. Department of Justice, Washington, DC.
- Directed economic analyses at the Antitrust Division in the health care and telecommunications industries;
 - Briefed the Assistant Attorney General and Deputies on the economic aspects of health care and telecommunications matters;
 - Played a key role in writing the 1996 Department of Justice/Federal Trade Commission's Statements of Antitrust Enforcement Policy in the Health Care Area;
 - Led the Antitrust Division's economic analyses of hospital and HMO mergers and/or joint ventures in the health care industry;
 - Directed the economic analyses of Bell Operating Company mergers;
 - Headed DOJ's economic assessment of the conditions under which Bell Operating Companies should be allowed to enter into long-distance markets;
 - Directed the economic analyses of the wave of radio station mergers following passage of the 1996 Telecommunications Act.

-
- 1995–1996 *Manager*, Health Care Issues Antitrust Division, U.S. Department of Justice, Washington, DC.
- Directed the economic analyses of all health care matters at the Division.
- 1990–1995 *Staff Economist*, Antitrust Division, U.S. Department of Justice, Washington, DC.
- Analyzed antitrust and competition-related matters in the health care, entertainment, natural resources, and industrial machinery industries;
 - Designated as the Antitrust Division’s economic testifying expert in numerous hospital mergers;
 - Analyzed hospital and HMO mergers, physician joint ventures, healthcare information exchanges, and physician/hospital affiliations and mergers;
 - Played a key role in writing the 1993 and 1994 Department of Justice/Federal Trade Commission’s *Statements of Antitrust Enforcement Policy in the Health Care Area*;
 - Designated as DOJ’s Economic Representative to President Clinton’s 1993 White House Task Force on Health Care Reform.
- 1988–1990 *Economic Consultant*, Putnam, Hayes and Bartlett, Washington, DC.
- Analyzed health care matters;
 - Wrote strategy reports for clients interested in directing the course of health care reform at the local and federal levels;
 - Developed pricing methodologies to promote competition in the electric utility industry.
- 1987–1988 *Visiting Professor*, Department of Economics, University of Washington, Seattle.
- Taught graduate and undergraduate health care economics, industrial organization & strategic firm behavior, and intermediate price theory.

SELECTED INDUSTRY EXPERTISE

- Healthcare
- Chemicals
- Insurance
- Software
- Financial Markets
- Pharmaceuticals
- Supermarkets
- Aerospace and Defense
- Medical Equipment and Services
- Energy

ORAL TESTIMONY

Wendy Fleischman, et al. v. Albany Medical Center, et al., U.S. District Court, Northern District of New York (Case No. 06-CV-0765/TJM/DRH), July 2009 and January 2010. [Deposition testimony on behalf of plaintiff class]

Pat Cason-Merenda et al. v. Detroit Medical Center, et al., Eastern District of Michigan, Southern Division (Case No. 06-15601), April 2009. [Deposition testimony on behalf of plaintiff class]

Munich Reinsurance Group Application for the Acquisition of Control of Hartford Steam Boiler. Testimony before the Commissioner of Insurance of the State of Connecticut, March 2009. [Oral hearing testimony on behalf of Munich Reinsurance Group]

United States of America v. National Association of Realtors. U.S. District Court (Northern District of Illinois – Eastern Division), July 2007 and December 2007. [Deposition testimony on behalf of the U.S. Department of Justice]

Funeral Consumers Alliance, Inc., et al. v. Service Corporation International, et al. U.S. District Court (Southern District of Texas), Civil Action 3H-05-3394, July 2007. [Deposition testimony on behalf of Funeral Consumers Alliance, Inc.]

Static Control Components v. Lexmark International. U.S. District Court (Eastern District of Kentucky at Lexington), June 2007. [Trial and deposition testimony on behalf of Static Control Components, Wazana Brothers International and Pendl Companies]

Saint Alphonsus Diversified Care, Inc. v. MRI Associates, LLP; and MRI Associates, LLP v. Saint Alphonsus Diversified Care, Inc. and Saint Alphonsus Regional Medical Center. District Court for the Fourth Judicial District of the State of Idaho, May 2007. [Deposition testimony on behalf of Saint Alphonsus Regional Medical Center]

Louisiana Municipal Police Employees' Retirement System, et al., v. Crawford, et al., and Express Scripts, Inc. v. Crawford, et al. Del. Ch., C.A., No. 2635-N and 2663-N, February 2007. [Deposition testimony on behalf of Caremark Rx, Inc.]

MetLife, Inc. Application for the Acquisition of Control of The Travelers Insurance Company. Testimony before the Commissioner of Insurance of the State of Connecticut, June 2005. [Oral hearing testimony on behalf of MetLife]

Group Hospitalization and Medical Services, Inc. (GHMSI)/CareFirst Hearing. Testimony before the Department of Insurance, Securities and Banking, Washington, DC, March 2005. [Oral hearing testimony and written report on behalf of GHMSI]

Holmes Regional Medical Center, Inc. v. Agency for Health Care Administration and Wuesthoff Memorial Hospital, Inc., State of Florida Division of Administrative Hearings, Tallahassee, FL, December 2004. [Trial and deposition testimony on behalf of Holmes Regional Medical Center]

Application of The St. Paul Companies for the Acquisition of Control of Travelers Property and Casualty Corp. Testimony before the Commissioner of Insurance of the State of Connecticut, February 2004. [Oral hearing testimony on behalf of The St. Paul Companies and Travelers]

Anheuser-Busch Companies, Inc. Metal Container Corporation, and Anheuser-Busch, Inc. v. Crown Cork & Seal Technologies Corporation. U.S. District Court (Western District of Wisconsin), October 2003. [Deposition testimony on behalf of Crown Cork & Seal]

Wal-Mart Stores v. the Secretary of Justice of the Commonwealth of Puerto Rico. U.S. District Court (District of Puerto Rico), December 2002. [Trial testimony on behalf of Wal-Mart]

United States v. North Shore Health System and Long Island Jewish Medical Center. U.S. District Court (Eastern District of New York), August 1997. [Trial and deposition testimony on behalf of the U.S. Department of Justice]

SELECTED EXPERT REPORTS AND WRITTEN TESTIMONY

Yakima Valley Memorial Hospital v. Washington State Department of Health, U.S. District Court, Eastern District of Washington (Case CV-09-3032-EFS). Expert report submitted on behalf of Yakima Valley Memorial Hospitals, April 2010.

DAW Industries, Inc. v. Hanger Orthopedic Group and Otto Bock Healthcare, U.S. District Court, Southern District of California (Case 06-CV-1222 JAH (NLS)). Expert report submitted on behalf of Otto Bock Healthcare, May 2009.

Hometown Health Plan, et al., vs. Aultman Health Foundation, et al., Court of Common Pleas, Tuscarawas County, OH (Case No. 2006 CV 06 0350). Expert report submitted on behalf of Hometown Health Plan, March 2008.

Texas Title Insurance Biennial Hearing, Docket Nos. 2668 and 2669. Pre-filed direct testimony on behalf of Fidelity National Financial, Inc., January 2, 2008.

An Economic Analysis of Competition in the Title Insurance Industry. Report on behalf of Fidelity National Financial, Inc., submitted to the US GAO, March 20, 2006.

The St. Paul Companies/Travelers Property and Casualty Corp Merger. Expert report on behalf of St. Paul and Travelers, submitted to the California Department of Insurance, February 2004.

Granite Stone Business International (aka Eurimex) v. Rock of Ages Corporation. International Court of Arbitration, ICC Arbitration No. 11502/KGA/MS. Expert reports submitted on behalf of Granite Stone Business International, October 2002 and March 2003.

General Electric/Honeywell Merger. Expert reports (co-authored with Carl Shapiro and Patrick Rey) on behalf of General Electric, submitted to the U.S. Department of Justice and the European Commission, 2001.

United States and State of Florida v. Morton Plant Health System, Inc., and Trustees of Mease Hospital. U.S. District Court (Middle District of Florida – Tampa Division). Expert report on behalf of the U.S. Department of Justice, May 1994.

SELECTED PRESENTATIONS

“Interpreting Evidence Regarding Price Effects in Consummated Mergers,” ABA Spring Meetings, Washington, DC, April 2010.

“Are There Different Rule of Reason Tests for Vertical and Horizontal Conduct?” ABA Joint Conduct Committee, teleconference presentation, June 2009.

“The Economics of Information Sharing and Competition,” ABA Section on Business Law, Vancouver, BC, April 2009.

“United States versus the National Association of Realtors: The Economic Arguments and Implications for Trade Associations,” ABA Spring Meetings, Washington, DC, March 2009.

“The Use of Price Effects Evidence in Consummated Merger Analysis,” ABA Section of Antitrust Law, teleconference presentation, February 2009.

“Competition in the Title Insurance Industry – An Economic Analysis.” National Association of Insurance Commissioners, Washington, DC, June 2006.

“Antitrust Issues in the BioTech Industry.” Biotech Industry Organization BIO 2005 International Meetings, Philadelphia, June 2005.

“Cartels and Price Fixing – Ensuring Consistency Between Theory and the Facts.” The Use of Economics in Competition Law, Brussels, January 2005.

“Intellectual Property and Antitrust in High-Tech Industries.” ABA Section on Business Law, Atlanta, August 2004.

“Antitrust, Intellectual Property and Innovation.” Biotech Industry Organization BIO 2004 International Meetings, San Francisco, June 2004.

“Quality, Healthcare and Antitrust.” Petris Center/UC Berkeley Conference on Antitrust and Healthcare, University of California at Berkeley, April 2004.

“Unilateral Effects - Be Careful What You Wish For.” Second Annual Merger Control Conference, The British Institute of International and Comparative Law, London, December 2003.

“Geographic Market Definition in Hospital Antitrust Analysis – Theory and Empirical Evidence.” Federal Trade Commission/Department of Justice Joint Hearings on Health Care and Competition Law and Policy, Washington, DC, March 2003.

“Trade Barriers and Antitrust: Foreign Firms – Down But Not Out.” Antitrust Issues in Today’s Economy, The Conference Board, New York City, March 2003.

“Bundling and Tying: Antitrust Analyses in Markets with Intellectual Property.” Department of Justice/Federal Trade Commission Joint Hearings on Intellectual Property and Antitrust, Washington, DC, May 2002.

“Practical Issues in Intellectual Property Investigations: Balancing Rules versus Discretion.” Department of Justice/Federal Trade Commission Joint Hearings on Intellectual Property and Antitrust, Washington, DC, May 2002.

“Bundling and Tying: Recent Theories and Applications.” Antitrust Section of the American Bar Association Meeting, Washington, DC, April 2002.

“Antitrust Issues in the Pharmaceutical Industry: The Hatch-Waxman Cases.” ABA Healthcare and Intellectual Property Sections Brownbag, Washington, DC, February 2002.

“The GE/Honeywell Deal: Is Europe Raising the Yellow Flag on Efficiencies?” CRA Conference on Current Topics in Merger and Antitrust Enforcement, Washington, DC, October 2001.

“Marching to the Sounds of the Cannon: Antitrust Battlegrounds of the Future.” National Association of Attorneys General Conference, San Diego, October 2000.

“The Joint Venture Guidelines: Navigating Outside the Safety Zones.” The 8th Annual Golden State Antitrust and Unfair Competition Law Institute, Los Angeles, October 2000.

“Strategic Behavior in the Pharmaceutical Industry: The Hatch-Waxman Act and Blockading Entry.” Antitrust Section of the American Bar Association Meeting, Washington, DC, April 2000.

“Working With Economic Experts.” Antitrust Common Ground Conference, Chicago, IL, December 1999.

“Merger Enforcement Trends.” CRA Conference on Current Topics in Merger and Antitrust Enforcement, Washington, DC, December 1998.

“Hot Topics in Health Care Antitrust.” Antitrust Fundamentals for the Health Care Provider, Sponsored by the Wisconsin Field Office of the Federal Trade Commission, the US Department of Justice, and Marquette University Law School, Milwaukee, WI, December 1998.

“Federal Antitrust Enforcement in the Health Care Industry: New Directions.” Fourth Annual Health Care Antitrust Forum, Northwestern University, September 1998.

“Hospital Competition in HMO Networks.” American Economic Association Meetings, San Francisco (1996) and Chicago (1998).

“Creating Competitive Markets Amidst Barriers to Entry.” Weeklong Presentation to the Russian State Committee of Antimonopoly Policy, Volgograd, Russia, January 1997.

“The Economics of Antitrust Law.” Maine Bar Association, January 1995.

“The Competitive Impact of Differentiation Across Hospitals.” Fourth Annual Health Economics Conference, Chicago, 1993.

“Multi-Firm Systems, Strategic Alliances, and Provider Integration.” Pennsylvania State University, the University of California at Santa Barbara, and the Johns Hopkins School of Public Health, 1992 and 1993.

PUBLICATIONS

“Presumptions, Assumptions and the Evolution of U.S. Antitrust Policy.” With Andrew Dick. *Trade Practices Law Journal*, December 2005.

“Commentary: Is Managed Care Leading to Consolidation in Health Care Markets?” *Health Services Research*, June 2002.

“Employer Contribution Methods and Health Insurance Premiums: Does Managed Competition Work?” With Jessica Vistnes and Phillip Cooper. *The International Journal of Health Care Finance and Economics*, 2001.

“Hospital Competition in HMO Networks: An Empirical Analysis of Hospital Pricing Behavior.” With Robert Town. *The Journal of Health Economics*, September 2001.

“Hospitals, Mergers, and Two-Stage Competition.” *The Antitrust Law Journal*, January 2000.

“Defining Geographic Markets for Hospital Mergers.” *Antitrust*, Spring 1999.

“The Role of Third Party Views in Antitrust Analysis: Trust But Verify.” *Government Antitrust Litigation Advisory*, American Bar Association, July 1998.

“Hospital Mergers and Antitrust Enforcement.” *The Journal of Health Politics, Policy and Law*, Spring 1995.

“An Empirical Investigation of Procurement Contract Structures.” *The Rand Journal of Economics*, Summer 1994.

PROFESSIONAL ACTIVITIES

Referee for:

- *The American Economic Review*
- *The Antitrust Law Journal*
- *Health Services Research*
- *Inquiry*
- *The Journal of Industrial Economics*
- *The Rand Journal of Economics*
- *The Review of Industrial Organization*

Grant Reviewer for:

- Robert Wood Johnson Foundation/Academy Health
- The Alpha Center
- Agency for Health Care Policy and Research

HONORS AND AWARDS

- Named one of *Global Competition Review's* 2006 "Top Young Economists" (identifying the top 22 antitrust economists in the U.S. and Europe under the age of 45)
- Assistant Attorney General's Merit Award (1994), Antitrust Division, U.S. Department of Justice
- Distinguished Teaching Fellowship (1986), Department of Economics, Stanford University
- Academic Fellowship (1983–1984), Department of Economics, Stanford University
- Phi Beta Kappa (1983)