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HOSPITAL REALIGNMENT: MERGERS OFFER SIGNIFICANT PATIENT AND COMMUNITY BENEFITS

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HOSPITAL REALIGNMENT: MERGERS OFFER SIGNIFICANT PATIENT AND COMMUNITY BENEFITS

By Margaret E. Guerin-Calvert and Jen A. Maki, PhD*

Overview

Hospital mergers offer substantial benefits for patients and communities. This study provides a comprehensive review and analysis of hospital merger studies and trends that uncovers a reality rooted in research and quite different than what many people think.

Hospital consolidation has been much studied, but often on narrow issues without the comprehensive examination that provides understanding of its overall effects. The extensive review of trends and literature provided in this study illustrates this point and finds that there is not a sufficient appreciation of the positive contribution realignment makes to patients and communities.

All too frequently, conventional wisdom suggested by media coverage is that hospital realignment, mergers and consolidations systematically result in pricing power, with anticompetitively higher prices for those needing care. Yet, in terms of prices for consumers, this study's extensive review of the literature finds no consistent statistical relationship between consolidation patterns and hospital prices across the studies. What also can get lost is that these claims about hospital merger effects often rely on outdated data that do not reflect today's dynamic market conditions.

This comprehensive analysis of consolidation studies reveals hospital realignment offers benefits including improved service offerings, cost reduction, and enhanced competitiveness. Importantly, the analysis underscores that without realignment, patients and communities could face disruption and instability, hospital closures, and reduced access to care.

Under current conditions, hospitals are moving toward a new system of coordinated care as a means to maintain, improve, and expand access for patients. This trend comes as another broader trend is taking place with important implications across the economy: a spending slowdown in health care that many experts believe is structural and likely to continue. Currently, health care inflation is at record lows, as is spending growth at hospitals and other providers throughout the country.

Overall, the impact of hospital realignment – particularly in the challenging environment today – is much broader than what currently is being discussed. This study outlines and examines major systemic changes occurring across the health care system that are driven by a number of factors, such as policy, economic conditions and demographics. This analysis also highlights that many of the studies cited in recent media reports and by academia focus on hospital business transactions of the 1990s, a data set that is old and not representative of the operating environment in which hospitals compete.

KEY FINDINGS

- **Studies point to real benefits from hospital realignment – enhanced access, higher value and greater efficiency.**
- **Hospital realignment is driven by a mix of policy reforms and a changing economic landscape.**
- **Claims of negative realignment effects often cite outdated data not reflective of today's market or narrow studies not representative of most transactions.**
- **Government antitrust reviews underscore that the vast majority of mergers do not raise risks of a substantial lessening of competition.**
- **Fundamental realignment changes are underway within the context of a historic slowdown in the rate of healthcare spending.**

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Studies Point to Real Benefits of Hospital Realignment – Enhanced Access, Higher Value, Greater Efficiency

- A key driver of realignment has been the ability of hospitals to maintain services for their communities that otherwise might be reduced or eliminated through hospital downsizing or closure. Studies show that factors driving realignment include hospitals' financial circumstances, and the need to reduce redundant services, achieve efficient realignment and improve access to capital.
- The alternative to mergers or acquisitions is shown by some studies to be hospital closures, downsizing, or reduction in service mix. Hospital closures can reduce access to care and can result in negative welfare effects for the local community; literature found some negative impact on mortality rates.
- A review of literature on the benefits from mergers – including value, cost and efficiency – found that merger efficiencies can stem from:
 - Realignment of services to achieve greater scale of operations or to improve quality of care and enhance access to care. Economies of scale resulting from hospital mergers can result in sustained, measurable savings.
 - Access to capital and improved ability to make necessary investments such as upgrading technology and updating facilities or services.
 - Reduced costs or reduced rate of cost growth through improved operating efficiency, reduced administrative and overhead costs, and reduction or elimination of redundant services.
 - Reduction in excess capacity.
 - Reduction of costs through realignment, to benefit poorly performing or inefficient hospitals (hospitals with high prices and high costs).

A key driver of realignment has been the ability of hospitals to maintain services for their communities that otherwise might be reduced or eliminated through hospital downsizing or closure.

Hospital Realignment is Driven By a Mix of Policy Reforms and a Changing Economic Landscape

- Major systemic changes underway in the healthcare sector are driven by government policy changes as well as economic conditions and demographics. The challenges facing the healthcare industry include the slow economic recovery, reduced reimbursements, difficulty in obtaining capital, a changing infrastructure promoting coordination of care, and essential investments in and implementation of costly healthcare information technology (“IT”) systems. Poor occupancy rates and excess capacity are a pressing concern in many areas. A review of the economic literature reveals that these types of factors have been drivers of past mergers.
- Key factors shaping healthcare delivery and realignment are:
 - Efforts to achieve “Triple Aim” goals of enhanced patient care, improved population health, and reduction in rate of increase in per-capita costs. Achieving these goals requires a broader focus on coordinated care delivery for populations rather than episodes of care; more efficient delivery systems of integrated and coordinated care are essential.
 - Shifts from inpatient to outpatient care and excess inpatient capacity, along with improvements in technologies enabling less invasive procedures and shorter stays, have resulted in a significant increase in outpatient care and a reduction in inpatient care, both of which generally improve the quality of care and lower the cost of delivering care.
 - Integrated delivery systems (or integrated delivery networks) provide the means for systems of hospitals (community and tertiary) and physicians to deliver a full spectrum of care to a community. The development and adoption of integrated delivery systems has been accomplished by adding hospitals and/or providers to a system and by expansion of outreach efforts of health systems to serve a wider community and population.

Claims of Negative Realignment Effects Often Cite Outdated Data Not Reflective of Today's Market or Narrow Studies Not Representative of Most Transactions

Recent press and academic articles convey divergent views about hospital merger and acquisition activity, including the key drivers and the likely impact of transactions upon price, value and access. Most agree that a variety of government policy, market, and hospital-specific factors create pressures and incentives for significant realignment of healthcare delivery accomplished by the creation of integrated systems or by mergers, affiliations, or acquisitions of hospitals. These pressures are particularly pressing for smaller stand-alone

Hospital Realignment: Mergers Offer Significant Patient and Community Benefits

hospitals. These articles acknowledge, as drivers for restructuring, the increasing financial pressures currently facing hospitals, and the need to transform healthcare delivery from its current fragmented state to improve care and reduce costs. At the same time, other articles suggest trends toward consolidation lead to potential anticompetitive effects across a broad array of mergers and often reference selected academic studies of price effects of mergers in the 1990s to draw inferences about what is happening today.

- This reliance on past (and in some cases quite distant past) merger activity reveals the imperative for a more comprehensive understanding of current market conditions, current merger motivations and more rigorous examination of merger effects to evaluate the likely benefits or competitive risks of *current* and future hospital transactions. Fundamentally different market conditions mean that past research can be ill-suited to infer the impact of *current* merger transactions. Past research may not capture dramatic changes ongoing in the healthcare industry, including transformative changes on the provider and insurer side, and the pressures and results of healthcare reform – particularly requirements for new technologies, new business models, innovative payment reform, and reduced reimbursements. Most of these oft-cited studies are based on mergers or data from the 1990s which occurred under substantially different market conditions than those present today. This may lead to incorrect and even misleading inferences on the impact of mergers in today’s health care environment.

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Our comprehensive review of available studies shows:

- Many studies examine changes in concentration, not actual mergers. However, across studies, there is no consistently quantified relationship between changes in market concentration and observed hospital price increases.
- Actual merger retrospectives show common market characteristics – such as fewer competitors and higher concentration – but inconsistent results on price effects, suggesting that market share and concentration alone may be poor predictors of competitive effects. This suggests that offsetting benefits or other dynamics likely are important factors.
- It is difficult to generalize about merger effects from some studies due to methodology and approach. Several are based on simulations or models that either have not been validated against actual mergers or on assumptions that areas studied are actual markets or that no longer may be consistent with market conditions. Price predictions thus may be overstated.
- Price variation studies tend to be based on limited data and narrow samples. Empirical research demonstrates that many factors account for price variation, including cost of patient care, the severity of care, and the health of populations served. Price variation neither is necessary nor sufficient to demonstrate market power exercise in differentiated products, and differences in price levels are not indicative of market power.
- Studies reporting significant – 20% or more – price increases from mergers are specific cases involving selected transactions or data from mergers in highly concentrated markets and thus are not generalizable to all mergers and acquisitions or even to those in highly concentrated markets.

However, across studies, there is no consistently quantified relationship between changes in market concentration and observed hospital price increases.

- The majority of hospital acquisitions occur between hospitals located in different markets and would not be subject to the same market conditions that study authors hypothesize drove price increases.
- Many “in-market” mergers occur in the largest metropolitan areas with many competitors and do not involve material changes in concentration.
- Even the selected case studies show mixed results – concentrated markets alone did not yield statistically significant price increases.

Government Antitrust Reviews Underscore That the Vast Majority of Mergers Do Not Raise Risks of Substantial Lessening of Competition

- Antitrust review is a fact-intensive inquiry into whether a merger is likely substantially to lessen competition. Only a small proportion of actual hospital transactions raised significant risks of substantial lessening of competition. Only a minority of mergers involved prolonged review, and several of these were not challenged. Most involved hospitals operating in different geographies or in ones with numerous competitors. According to former FTC Chairman Jon Leibowitz, less than two percent of all hospital mergers reviewed between 2007 and 2011 were challenged in court.
- These trends are more supportive of a conclusion that the majority of transactions enhance value or are competitively benign.
- These trends also reveal high concentration, high market shares and the number of competitors are not predictive of either hospital merger challenges or of predicted or actual anticompetitive effects: Both retrospective and prospective hospital merger analyses in highly concentrated markets show that many hospital mergers, even in concentrated markets, either did not result in or were not predicted to result in substantial increases in prices.

Fundamental Realignment Changes Are Underway within the Context of A Historic Slowdown in the Rate of Healthcare Spending.

- Overall healthcare spending growth is slowing, as reflected by the hospital Producer Price Index (PPI). Some of the key factors behind this trend involve changes in the healthcare delivery system including greater provider efficiency, increased cost sharing, as well as a reduction in imaging technology proliferation, and the advent of new pharmaceuticals. This slowing in the rate of growth of healthcare spending and in hospital PPI, on balance, suggests some benefit from changes in the healthcare delivery system.

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Methodology

The Center for Healthcare Economics and Policy was commissioned by the Federation of American Hospitals (FAH) to contribute to understanding the likely benefits or competitive risks of hospital consolidation by undertaking research on trends influencing transactions and healthcare delivery, and to assess the literature on the price, value (cost and quality) and access effects of hospital merger transactions. We were tasked to evaluate these research findings for today's dynamic environment of major systemic change in healthcare delivery in the US with its increasing demands for both integrated care and reduction in healthcare costs along with fundamental changes in payment methodologies (i.e., the transition to value and risk-based from fee-for-service models). We evaluate research on the expected and actual benefits and competitive risks of hospital transactions and the circumstances in which they occur. We examine studies of price effects of mergers, and study the specifics of antitrust review of hospital mergers. We limit our analysis to focus on only those studies and articles examining US data and trends. Sources included in the study were identified based on literature searches conducted as of September 2013.

I. Introduction and Overview

A. Objectives and Approach

Recent press and academic articles convey divergent views about the key drivers and likely impact of hospital merger and acquisition activity on value (costs, quality), access and price. Most agree that government policies including healthcare reform initiatives, market conditions, and hospital-specific factors create incentives for significant realignment of healthcare delivery whether by mergers and acquisitions of hospitals – particularly smaller stand-alone hospitals – or by development and expansion of integrated delivery systems. There is little agreement, however, about both the drivers and impacts of transactions.

Most agree that government policies including healthcare reform initiatives, market conditions, and hospital-specific factors create incentives for significant realignment of healthcare delivery whether by mergers and acquisitions of hospitals – particularly smaller stand-alone hospitals – or by development and expansion of integrated delivery systems. There is little agreement, however, about both the drivers and impacts of transactions.

- A recent news article suggests dramatic consolidation yields substantial cost increases: “Hospitals across the nation are being swept up in the biggest wave of mergers since the 1990s, a development that is creating giant hospital systems that could one day dominate American health care and drive up costs.”¹
- Yet, a recent academic article views the trends as efficiency-enhancing and necessary to improve cost, quality and access: “Our healthcare system is fragmented, with a misalignment of incentives, or lack of coordination, that spawns inefficient allocation of resources. Fragmentation adversely impacts quality, cost, and outcomes. Eliminating waste from unnecessary, unsafe care is crucial for improving quality and reducing costs—and making the system financially sustainable. Many believe this can be achieved through greater integration of healthcare delivery, more specifically via integrated delivery systems (IDSs).”²

Specifically, the sharpest disagreement is over what is likely realized from hospital transactions –whether current and anticipated hospital transactions will yield important consumer and community benefits in improved value, efficiency, and access or instead result in anticompetitive pricing without offsetting benefits.³ The latter perspective often relies on selected academic studies or modeling of price effects of mergers in the 1990s or in highly concentrated markets to draw their more general inferences about market power impact and motivations for current and future transactions.⁴ Importantly, this reliance on past (and in some cases quite distant past) data or studies reveals the imperative for a more comprehensive understanding of *current* market conditions, *current* merger motivations and more rigorous examination of merger effects to evaluate the likely benefits or competitive risks of current and future hospital transactions.

Reliance on findings from past studies including ones evaluated under possibly fundamentally different market conditions points to some potentially critical gaps in and issues with using past research to inform current understanding of merger effects. In turn, this has precipitated calls for more careful review and re-focused research to better understand current merger trends and their

1 Julie Cresswell and Reed Abelson, *New Laws and Rising Costs Create a Surge of Supersizing Hospitals*, THE NEW YORK TIMES (August 12, 2013), available online at <http://www.nytimes.com/2013/08/13/business/bigger-hospitals-may-lead-to-bigger-bills-for-patients.html?pagewanted=all&r=0>. See also: Anemona Hartocollis, *2 Hospital Networks Agree to Merge, Raising Specter of Costlier Care*, THE NEW YORK TIMES (July 16, 2013), available online at <http://www.nytimes.com/2013/07/17/nyregion/2-hospital-networks-agree-to-merge-raising-specter-of-costlier-care.html>, and Eduardo Porter, *Health Care’s Overlooked Cost Factor*, THE NEW YORK TIMES (June 11, 2013), available online at http://www.nytimes.com/2013/06/12/business/examinations-of-health-costs-overlook-mergers.html?_r=1&.

2 Alain C. Enthoven, *Integrated Delivery Systems: The Cure for Fragmentation*, 15 AMERICAN JOURNAL OF MANAGED CARE 10S (2009): S284-S290 at S284.

3 Recent Congressional testimony highlights these different perspectives. For example: “The health care field is undergoing a period of fundamental transformation in which the very model of health care delivery is being changed in order to improve quality and lower costs. The reasons for such change are varied; but chief among them are expectations [for]... greater value. Meeting these expectations requires building a continuum of care to replace the current fragmented system of health care. In addition, hospitals are facing enormous pressure to raise capital to invest in new technologies and facility upgrades. Mergers or acquisitions are often essential to make these goals a reality.” Sharis Pozen, *The Patient Protection and Affordable Care Act, Consolidation, and the Consequent Impact on Competition in Healthcare*, Statement of the American Hospital Association, U.S. CONGRESS, HOUSE JUDICIARY COMMITTEE, SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL AND ANTITRUST LAW (September 19, 2013). Testimony indicating concerns about mergers includes: Joe Miller, *Competition and Consolidation in the U.S. Health Care System*, U.S. CONGRESS, HOUSE JUDICIARY COMMITTEE, SUBCOMMITTEE ON REGULATORY REFORM, COMMERCIAL AND ANTITRUST LAW (September 19, 2013). Several news article reference economist statements on inferences drawn from prior studies on merger price effects or price variation such as Martin Gaynor: Hartocollis (2013); and Paul Ginsburg: Robert Weisman, *Hospital Mergers May Drive up Costs*, THE BOSTON GLOBE (October 3, 2013), available online at <http://www.bostonglobe.com/business/2013/10/02/health-care-leaders-warn-that-hospital-consolidation-could-drive-costs/ZAg3WY0tomHOPK3UNiHw0J/story.html> and articles such as: Robert A. Berenson, Paul B. Ginsburg and Nicole Kemper, *Unchecked Provider Clout in California Foreshadows Challenges to Health Reform*, 29 HEALTH AFFAIRS 4 (2010): 699-70 [The latter is critiqued in Margaret E. Guerin-Calvert and Guillermo Israilevich, *Assessment of Cost Trends and Price Differences for U.S. Hospitals* (March 2011)]. These same press articles, however, highlight the many pressures facing hospitals and the benefits from acquisitions or system affiliation and potential gains from transactions [See, Weisman (2013)].

4 As noted in the discussion below of antitrust review of hospital mergers, concentration alone is not predictive of anticompetitive effects or challenge to a merger. While hospital mergers have been challenged, these represent a small proportion of those subject to review and scrutiny by the antitrust agencies. Martin Gaynor and Robert Town, *The Impact of Hospital Consolidation – Update*, THE SYNTHESIS PROJECT (June 2012), available online at <http://www.rwjf.org/en/research-publications/find-rwjf-research/2012/06/the-impact-of-hospital-consolidation.html> or David M. Cutler and Fiona Scott Morton, *Hospitals, Market Share, and Consolidation* 310 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 18 (2013): 1964-1970

impacts and implications for future mergers, and to take into consideration the dynamic effects and impacts of mergers on non-price competition. For example: “There is disagreement about whether the current trend toward provider consolidation is a desirable development, but many think continued horizontal and vertical integration based around hospitals is inevitable... Whatever the merits of consolidation, *there is a need to understand the effect of that consolidation on prices, service use, access and quality...*” (Emphasis added.)⁵

The Federation of American Hospitals (FAH) commissioned The Center for Healthcare Economics and Policy to contribute to this understanding by undertaking research on trends influencing transactions and healthcare delivery and to assess the literature and empirical studies on the price, value (cost and quality) and access effects of hospital merger transactions. We were tasked to evaluate these research findings for today’s dynamic environment of major systemic change in healthcare delivery in the US.

In this study, we examine the role played by and the effects of hospital realignment. Specifically, we seek to identify and evaluate research on the factors that lead to hospital transactions and examine studies on the attributes and realization of expected benefits. We also document current merger and acquisition activity and other marketplace changes. To do so, we perform a comprehensive assessment of the literature and review 75 studies and 36 primary sources.

In reaching the findings presented in this report and summarized in the Overview, we examined studies about hospital realignment to identify how it may provide a means for hospitals to adapt to changes in the industry as well as to address current challenges (Sections I and II). **For example, acquisitions or system affiliation can facilitate access to needed capital and speedier implementation of essential technology (such as electronic medical records).**

To understand the effects of hospital realignment, we turn to an extensive review of the existing literature on access, cost and efficiency, and quality (Section III). We also provide a review of key factors and trends facing healthcare delivery today to provide context.

As much of the discussion surrounding hospital mergers and acquisitions pertains to expected price effects, we conduct an exhaustive survey and analysis of pricing studies. In addition, we report and discuss findings from antitrust reviews and retrospectives to put mergers that may pose significant competitive risks (e.g., those receiving close scrutiny or challenge) into context (Section IV). We end our analysis with a review of macro developments and cover, in particular, recent healthcare expenditure and price growth trends (Section V).

Importantly, this reliance on past (and in some cases quite distant past) data or studies reveals the imperative for a more comprehensive understanding of current market conditions, current merger motivations and more rigorous examination of merger effects to evaluate the likely benefits or competitive risks of current and future hospital transactions.

Consolidation can lead to better coordinated care and enhance delivery points of care to patients. Mergers can also reduce operating costs or improve outcomes through economies of scale, realignment, or expansion of services.

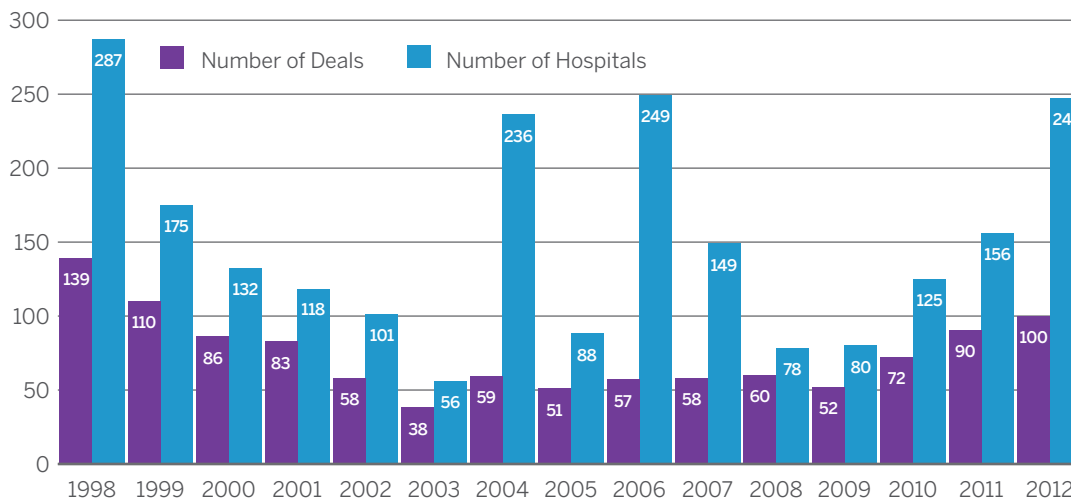
In today’s challenging environment, mergers provide an opportunity to realign the healthcare delivery system to the benefit of patients and communities. Consolidation can lead to better coordinated care and enhance delivery points of care to patients. Mergers can also reduce operating costs or improve outcomes through economies of scale, realignment, or expansion of services.

5 Co-Chair G. William Hoagland quoted in a press release for a National Academy of Social Insurance project evaluating policy options that address the trend towards provider consolidation and its impact on health care spending, *Study Panel Announced for NASI Project to Address Pricing Power in Health Care Markets*, NATIONAL ACADEMY OF SOCIAL INSURANCE (July 18, 2013), available online at <http://www.nasi.org/press/releases/2013/07/press-release-study-panel-announced-project-address-prici>. Quoted in another press release on this project, he states that the study will “...explore the role of health plan consolidation on prices and quality and consider the role of factors besides consolidation on prices and quality.” *NASI Announces New Project on Addressing Pricing Power in Health Care Markets*, NATIONAL ACADEMY OF SOCIAL INSURANCE (August 8, 2013), available online at <http://www.nasi.org/press/releases/2013/06/press-release-announces-new-project-addressing-pricing-po>.

B. Review of Hospital Merger and Acquisition Trends During the Past 20 Years

Facts about hospital consolidation activity over the last 20 years show some activity in each year—mergers are not uncommon but economic and financial factors likely play an important role in overall transaction activity. Figure 1 shows a steady baseline of mergers in each year; there have been 50 or more deals in every year but one (2003) since 1998. The graphic shows some variation in number of transactions and acquired hospitals per year – there generally have been more transactions in years of economic and financial pressures (e.g., after 2008); these factors are also relevant in the mid-to-late 1990s. For example, the number of hospitals involved in transactions has increased in the last 3 years relative to the preceding years – similar trends are found leading up to 1998. Data on individual transactions reveals that more than half of acquired hospitals in recent years had fewer than 150 beds, suggesting financial and economic pressures and/or effects of healthcare reform may be significant factors for this category of hospitals.⁶

Figure 1: Announced Hospital Mergers and Acquisitions, 1998 – 2012



Source: AHA TrendWatch Chartbook 2013, Chart 2.9: Announced Hospital Mergers and Acquisitions, 1998 – 2012

In fact, merger activity is characterized largely by single firm acquisition rather than “mega-mergers” – the majority of hospitals involved in transactions since 2007 were stand-alone hospitals; and many of these combined via mergers or acquisitions with just one or two other hospitals.⁷ System acquisitions tended to involve expansion into new geographies and acquisitions of stand-alone hospitals, whether in the same or different geographies.⁸ While the number of hospitals in systems has increased over time, there remain a very large number (almost 2,000) of independent hospitals (Figure 2) – many of which are smaller hospitals in rural or smaller urban areas.⁹

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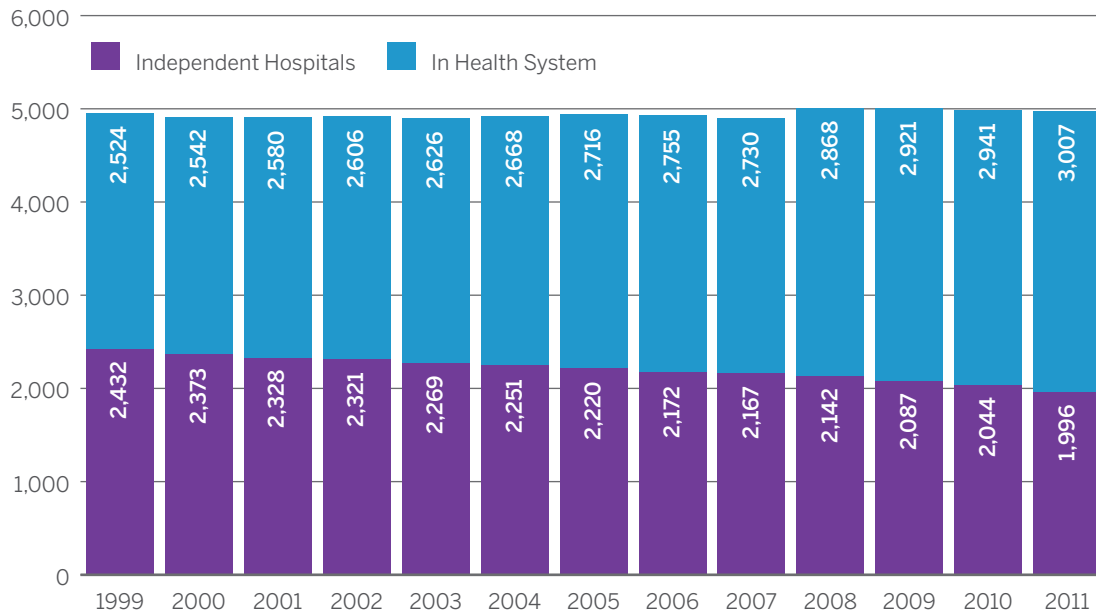
6 AHA TrendWatch Chartbook 2013, AMERICAN HOSPITAL ASSOCIATION (2013) Chart 2.9: Announced Hospital Mergers and Acquisitions, 1998 – 2012, available online at <http://www.aha.org/research/reports/tw/chartbook/ch2.shtml>. See also, *The Health Care Acquisition Report: Eighteenth Edition*, IRVING LEVIN ASSOCIATES, INC. (2012) at 3. The number of hospitals involved in mergers and number of transactions is affected by individual large transactions, such as HCA in 2006. Data from the mid-1990s also showed an increasing number of transactions and associated hospitals in the years leading up to 1998. For transactions before 1998 see AHA data reported in Allison E. Cuellar and Paul J. Gertler, *Trends in Hospital Consolidation: the Formation of Local Systems*, 22 HEALTH AFFAIRS 6 (2003): 677-687.

7 The Center for Healthcare Economics and Policy conducted an extensive study of hospital merger and acquisition activity for the period 2007 through June 2013; the study was commissioned by AHA. The study found that the average transaction size was small (on average one or two acquired hospitals), and a large proportion involved acquired hospitals with 150 or fewer beds, many of which were not previously affiliated with systems. The study also found that about half of all transactions involved hospitals in separate geographies (e.g., non-overlapping) and overlap transactions predominantly occurred in metropolitan areas with 5 or more competitors. Metropolitan areas were defined using MSAs. See *How Hospital Mergers and Acquisitions Benefit Communities: Updated Study by the Center for Healthcare Economics and Policy*, CENTER FOR HEALTHCARE ECONOMICS AND POLICY AND THE AMERICAN HOSPITAL ASSOCIATION (September 2013), available online at <http://www.aha.org/content/13/13/mergebenebenefitcommnty.pdf> for detail and methodology.

8 Based on data referenced in footnote 8.

9 And, the average size of hospital systems is relatively small with just over 3 hospitals. See, Cutler and Scott Morton (2013) at 1965.

Figure 2: Number of Independent Hospitals and Hospitals in Health Systems in the US, 1999-2011



Source: AHA TrendWatch Chartbook 2013, Table 2.1: Number of Community Hospitals, 1991 – 2011

About half of transactions occurred between organizations located in separate geographies and of those that involved overlaps in the same geography, the majority occurred in metropolitan areas with five or more independent competitors. Indeed, a large proportion of transactions occurred in metropolitan areas with multiple independent competitors¹⁰ that are characterized as moderately concentrated or unconcentrated in the 2010 US Department of Justice and FTC Horizontal Merger Guidelines.¹¹ A recent study estimates concentration measures (“HHIs”) for over 300 geographies using hospital referral regions (“HRRs”) as the geographic unit in which to measure shares and 2011 data.¹² Interestingly, the study finds that *over half* of these 306 geographic areas are unconcentrated or moderately concentrated (suggesting that mergers in such areas would be less likely to raise a challenge under the 2010 Merger Guidelines on structural grounds).¹³ These areas include many of the major metropolitan areas in the country such as Boston, Chicago, Los Angeles and New York, which account for a substantial proportion of US population.¹⁴ Indeed, a population-adjusted map in the study shows that many of the moderately or low concentrated areas are geographies with larger populations and include large numbers of hospital competitors implying substantial alternatives for merging parties.¹⁵

10 See footnote 8 for detail. Competitors may also include other firms than those physically located in an area.

11 The 2010 Horizontal Merger Guidelines use the Herfindahl Hirschman Index (HHI) as a measure of concentration, and establish thresholds for unconcentrated (<1000), moderately concentrated (1000-2500) and highly concentrated (>2500) markets, and indicate the levels of HHI and change in concentration due to merger likely to precipitate more extensive scrutiny or possible challenge. See *Horizontal Merger Guidelines*, U.S. DEPARTMENT OF JUSTICE AND THE FEDERAL TRADE COMMISSION (2010) available online at <http://ftc.gov/os/2010/08/100819hmg.pdf>. Market shares and concentration involve assessment of relevant markets and are just one part of merger review, which involves substantial analyses.

12 David M. Cutler and Fiona Scott Morton, *Hospitals, Market Share, and Consolidation*. 310 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 18 (2013): 1964-70. HRRs are derived based on hospital service areas of hospitals and use methodologies based on Medicare data; these are developed by Dartmouth Atlas. *Appendix on the Geography of Health Care in the United States*, THE DARTMOUTH ATLAS OF CARE 1999, The Dartmouth Institute for Health Policy and Clinical Practice: Lebanon, New Hampshire (1999). HRRs tend to be relatively broad areas often encompassing a MSA and surrounding areas.

13 This assumes HRRs as proxies for “markets” in estimating HHIs. See Cutler and Scott Morton (2013) at 1966. The study also refers to changes in concentration from mid-1980s

14 See, e.g., HHI measures and areas from Cutler and Scott Morton (2013) measuring concentration using hospital referral regions (HRRs).

15 Cutler and Scott Morton (2013) at 1966.

II. Key Policy, Demographic and Economic Factors Shaping Healthcare Delivery and Realignment

Major systemic changes are underway in the healthcare sector driven by government policy changes as well as economic conditions and demographics. The challenges facing the healthcare industry include the slow economic recovery, reduced reimbursements, difficulty in obtaining capital, a changing infrastructure for coordination of care, and an essential investment in and implementation of costly healthcare IT systems. Lower occupancy and excess or misaligned capacity are pressing concerns in many areas. The economic literature shows that these types of factors have been drivers of past mergers and of current ones.

*Hospitals and health systems are under increasing pressure to deliver high quality, cost-effective healthcare that is integrated and coordinated across the delivery system in a community.*¹⁶

Hospitals and health systems are under increasing pressure to deliver high quality, cost-effective healthcare that is integrated and coordinated across the delivery system in a community. Pressures affect virtually all hospitals and geographies, albeit in varying degrees and have significant implications for mergers and realignment of healthcare delivery capacity. How these changes affect individual hospitals can vary considerably, depending on local market conditions, the specific situation of the hospital, and the healthcare needs of its community. Among important hospital-specific factors are: payor and service mix, age of plant and need for investments in plant or new technologies, patient volumes and occupancy rates, and financial circumstances including access to capital.¹⁶

Case in Point: *In an effort to increase efficiency and improve quality of care, the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 developed both financial incentives (and penalties) designed to encourage hospitals to implement EMR technology. However, adopting this technology requires significant investment and may be prohibitively expensive for some hospitals. Recent studies show a large proportion of hospitals, particularly smaller hospitals, face significant challenges in meeting these requirements. DesRoches et al. (2013) explores hospital EMR uptake.¹⁷ They find that while 42.2 percent of hospitals have adopted EMR in 2012, the vast majority of their systems are very basic ones.¹⁸ The authors note differences in uptake by hospital characteristics: small hospitals are much less likely to have even a basic system than large hospitals and rural hospitals were also less likely to have a system in place compared to urban hospitals.¹⁹ Both types of hospitals often face financial and human resource constraints to purchase and implement technology, and they may fall behind the more able institutions. If EMR prove not only to increase efficiency and quality of care,²⁰ but stave off penalties and garner incentives, failing to implement this technology could result in significant, long term costs and relative cost differences among hospitals, and may adversely affect a hospital's ability to compete in the future.*

These legislative and policy changes occur in the context of a broader set of economic, demographic, and patient care pressures.²¹

Key factors shaping healthcare delivery and realignment are: (1) Efforts to achieve "Triple Aim" goals of enhanced patient care, improved health of population, and reduction in rate of increase in per capita costs. These aims are accomplished by a broader

16 There are many major changes confronting hospitals including actual and expected changes in reimbursements and modes of care delivery: reduced Medicare reimbursements and new payment models (e.g., global risk and value-based reimbursement), and penalties for avoidable readmissions and hospital-acquired conditions; potential expansion of Medicaid and expanded coverage of currently uninsured, required investments in technologies such as electronic health records; and new forms of care delivery such as Accountable Care Organizations, or "ACOs." See Patient Protection and Affordable Care Act, Pub. L. No. 111-148, § 6001, 124 Stat. 119, 684-89 (2010). See also, *The Affordable Care Act Three Years Post-Enactment*, THE HENRY J. KAISER FAMILY FOUNDATION (March 2013), available online at <http://kaiserfamilyfoundation.files.wordpress.com/2013/04/84291.pdf>; and Douglas W. Elmendorf, Dir., Cong. Budget Office, *CBO's Analysis of the Major Health Care Legislation Enacted in March 2010*, US CONGRESS, COMMITTEE ON ENERGY AND COMMERCE, SUBCOMMITTEE ON HEALTH (March 30, 2011), available online at <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/121xx/doc12119/03-30-healthcarelegislation.pdf>.

17 The study uses data from the American Hospital Association (AHA) 2012 health IT supplement. Catherine DesRoches, Dustin Charles, Michael Furukawa, Maulik S. Joshi, et al., *Adoption of Electronic Health Records Grows Rapidly, But Fewer than Half of US Hospitals had at least a Basic System in 2012*, 32 HEALTH AFFAIRS 8 (2013):1-9.

18 While they are compliant with the stage 1 guidelines which require compliance as of July 1, 2014, only 5.1 percent would comply with the stage 2 federal requirements. As more advanced systems (i.e., those that meet stage 2 requirements) are thought to provide a larger benefit, there is still substantial improvement which has yet to be realized. DesRoches et al. (2013) at 1.

19 Of the 2,796 survey respondents, 483 reported having a comprehensive EMR system, 792 had a basic system, and 1,521 had no system at all. There are marked differences in system type adoption among small, medium and large hospitals. 61.7 percent of small hospitals reported having no EHR system in 2012, while 25.3 percent had a basic system and 13.0 percent had a comprehensive system. For large hospitals, 38.1 percent had no system, 33.6 percent had a basic system and 28.3 percent had a comprehensive system. There also appears to be an urban/rural divide as 66.5 percent of rural hospitals reported having no system, 23.1 percent had a basic system and 10.4 percent had a comprehensive system. Among urban hospitals, 52.3 percent reported having no system, 28.8 had a basic system, and 18.9 percent had a comprehensive system. DesRoches et al. (2013) at 4, Exhibit 2.

20 Because EMR technology is a precursor to full participation in a regional health information organization (a facilitator of information sharing among stakeholders), the disadvantage the hospitals which fail to adopt the technology may be further compounded. Similar to the findings presented for EMR adoption, Furukawa et al. (2013) studies regional health information organization activity and finds that providers in rural locations had lower levels of exchange activity than did their urban counterparts. Michael F. Furukawa, Vaishali Patel, Dustin Charles, Matthew Swain and Farzad Mostashari, *Hospital Electronic Health Information Exchange Grew Substantially in 2008-12*, 32 HEALTH AFFAIRS 8 (2013):1346-1354.

21 Hospitals in the US have experienced a decline in inpatient admissions over the past several years, due in part to shifts to outpatient care (discussed in more detail below) as well as economic conditions. *AHA TrendWatch Chartbook 2013*, AMERICAN HOSPITAL ASSOCIATION, (2013) Table 3.1, available online at <http://www.aha.org/research/reports/tw/chartbook/2013/table3-1.pdf>. and Moody's Investor Services, *U.S. NOT-FOR-PROFIT HEALTHCARE OUTLOOK REMAINS NEGATIVE FOR 2012*, OUTLOOK (2012).

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focus on coordinated care delivery for populations rather than episodes of care, and through more efficient delivery systems of integrated and coordinated care.²² Shifting from individual patient episodes and fee-for-service to managing population health effectively requires significant movement from unaligned and fragmented entities toward systems of healthcare providers.²³ In turn, this may result in increased restructuring of care delivery with increased coordination or ownership change, and is likely to implicate more transactions involving hospitals given the large number of hospitals that are stand-alone facilities.²⁴ (2) Shifts from inpatient to outpatient care and excess inpatient capacity. Improvements in technologies enabling less invasive procedures and shorter stays have resulted in a significant increase in outpatient care and a reduction in inpatient care. Outpatient care now accounts for about 60 percent of patient care, and an increasing proportion of that care is delivered in free standing facilities rather than in hospital-owned facilities.²⁵ The number of such facilities has increased significantly in the last decade.²⁶

Key factors shaping healthcare delivery and realignment are ...Efforts to achieve “Triple Aim” goals of enhanced patient care, improved health of population, and reduction in rate of increase in per capita costs.

And (3) Development of integrated delivery systems or integrated delivery networks (IDS or IDN) is expanding considerably with systems of hospitals (community and tertiary) and physicians, and in some cases with insurance plans, to deliver a full spectrum of care to a community. This has been accomplished by adding hospitals or providers to a system, or by expansion and outreach efforts of a health system to serve a wider community and population with outpatient or physician offices.²⁷

The net effect of economic factors (including decline in employment, shifts of industries from one area to another) and population shifts, along with the shift in location of care from inpatient to outpatient already has resulted in significant under-utilized inpatient capacity at many hospitals and financial pressures.²⁸ We turn to these factors specifically in the following and examine in detail the implications for access to capital and hospital executive perceptions of the impact of economic and financial conditions, as well as the impact of capacity on costs.

Financial trends and implications for hospitals’ operations, access to and cost of capital in 2013 and beyond: Reductions in the healthcare spending trend along with other factors exert pressure on hospital profit margins. Moody’s Investors Service (2012) revised its not-for-profit hospital industry outlook to negative (from stable) in 2008 and reports in 2012 that the outlook is expected to remain negative for the foreseeable future.²⁹ The slow economic recovery has resulted in a reduction in inpatient volume and a weakening in payor mix (i.e., there is an increased proportion of revenue derived from Medicaid and Medicare which offer less generous reimbursement than do commercial payors), both of which lead to increased financial pressures.³⁰ Moody’s

22 See, Atul Gawande, *The Cost Conundrum*, THE NEW YORKER (June 1, 2009), available online at http://www.newyorker.com/reporting/2009/06/01/090601fa_fact_gawande.and Donald M. Berwick, Thomas W. Nolan and John Whittington, *The Triple Aim: Care, Health, And Cost*, 27 HEALTH AFFAIRS 759 (2008): 759-769.

23 See, Berwick (2008) at 763-64 (noting that the integrator has the ability to take a defined population and coordinate services to address care, health, and costs).

24 As shown in Figure 2 above, about 1,900 hospitals in the US are stand-alone hospitals. This number is down by about 450 since 2010 due to affiliations with systems or formation of systems, as well as some closures. *AHA TrendWatch Chartbook 2013* at Table 2.1, available online at <http://www.aha.org/research/reports/tw/chartbook/2013/table2-1.pdf>. Many are smaller hospitals. See, *Hospital Statistics by State*, AMERICAN HOSPITAL DIRECTORY (2012), available online at http://www.ahd.com/state_statistics.html.

25 For statistics on inpatient care changes including decline in rate of admissions as well as change in acuity of care provided at hospitals see, *Report to the Congress: Medicare Payment Policy*, MEDICARE PAYMENT ADVISORY COMMISSION (March 2013); *Ambulatory Surgery in US Hospitals*, U.S. DEP’T OF HEALTH & HUMAN SERV., AGENCY FOR HEALTHCARE RESEARCH & QUALITY, AHRQ Publication No. 07-0007 (2007): 26-40 available online at <http://archive.ahrq.gov/data/hcup/factbk9/factbk9.pdf>; and Beth Kutscher, *Outpatient Care Takes the Inside Track*, MODERNHEALTHCARE.COM (AUG. 4, 2012) available online at <http://www.modernhealthcare.com/article/20120804/MAGAZINE/308049929>. There are also significant changes in payment methodologies and contracting. See, e.g., Zirui Song, Dana G. Safran, Bruce E. Landon, Mary Beth Landrum, et al., “The Alternative Quality Contract,” *Based on a Global Budget, Lowered Medical Spending and Improved Quality* 31 Health Affairs 9 (2012):1:10.

26 Between 2006-2008 the number of Medicare approved Ambulatory Surgical Centers increased at an average rate of 5.1 percent per year. *Report to the Congress: Medicare Payment Policy*, MEDICARE PAYMENT ADVISORY COMMISSION (March 2013) at 111.

27 See, Emily R. Carrier, Marisa Dowling and Robert A. Berenson, *Hospitals’ Geographic Expansion In Quest Of Well-Insured Patients: Will The Outcome Be Better Care, More Cost, Or Both?*, 31 HEALTH AFFAIRS 827 (2012):827-835; Douglas McCarthy, and Kimberly Mueller, *Organizing for Higher Performance: Case Studies of Organized Delivery Systems*, THE COMMONWEALTH FUND (2009); McCarthy, Douglas, Kimberly Mueller and Ingrid Tillmann, *HealthPartners: Consumer-Focused Mission and Collaborative Approach Support Ambitious Performance Improvement Agenda*, THE COMMONWEALTH FUND (2009); Douglas McCarthy, Kimberly Mueller, and Jennifer Wrenn, *Geisinger Health System: Achieving the Potential of System Integration through Innovation, Leadership, Measurement, and Incentives*, THE COMMONWEALTH FUND (2009); and Kathleen H. McCarthy and Alan M. Zuckerman, *Realizing the Full Financial Benefits of True Integration*, 64 HEALTHCARE FINANCIAL MANAGEMENT 11 (Nov 2010): 78-82, 84, 86 passim, available online at <http://www.hfma.org/Content.aspx?id=2740>.

28 Trends in occupancy rates are provided in *Health, United States, 2010*, U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES, CENTERS FOR DISEASE CONTROL & PREVENTION, (2010) available online at <http://www.cdc.gov/nchs/data/hus/10/10.pdf> (listing trends in occupancy). Significant excess capacity can result in higher operating costs per patient; reduction or elimination of excess capacity may be difficult to achieve absent mergers or consolidation. See, e.g., Kathleen Carey, *Stochastic Demand for Hospitals and Optimizing “Excess” Bed Capacity*, 14 JOURNAL OF REGULATORY ECONOMICS 2 (1998):165-187; and Esther Gal-Or, *Excessive Investment in Hospital Capacities*, 3 JOURNAL OF ECONOMICS & MANAGEMENT STRATEGY 1 (1994):53-70.

29 Moody’s Investor Services, *U.S. Not-for-Profit Healthcare Outlook Remains Negative for 2012*, OUTLOOK (2012). Hospital credit ratings by state are listed on pages 18-32.

30 In part, revenue growth reduction can be attributed to reductions in reimbursement in Medicare and Medicaid which represent 43 percent and 11 percent of a hospital’s net revenue, respectively. For the federal fiscal years 2011 and 2012, Medicare payments were reduced by 2.9 percent per year, for a total reduction of 5.8 percent, and a number of states are implementing reductions in Medicaid reimbursement. *Ibid.*, at 4.

notes: **“Hospitals are faced with an unprecedented threat to revenues...we expect revenue growth to continue to be weak and not able to keep pace with normal spending inflation.”³¹**

A second 2012 Moody’s report states that: “Consolidation offers the promise of greater operating efficiency and risk diversification across larger organizations, likely leading to stronger and more stable bond ratings for affected hospitals.”³² The economic logic underlying these statements is that size and scale can play a role in spreading semi-fixed and fixed costs, a significant portion of overall hospital costs, over a greater volume of business, as well as in providing variable cost efficiencies.³³ Transactions or affiliations with systems can provide access to capital that may otherwise be unavailable or prohibitively expensive.³⁴ A recent study estimates that less than 20 percent of almost 500 hospitals’ debt rated by Moody’s had a high bond rating, implying higher costs of capital or greater difficulty in accessing capital.³⁵

Perspectives from hospital executives: Surveys of industry executives provide perspectives on the implications of these financial, regulatory and economic trends. A recent survey about capital constraints fielded to non-federal hospital CEOs revealed that nearly half of the hospitals surveyed reported putting capital projects on hold (including stopping ones currently in progress).³⁶ Projects included facility upgrades, acquisition of clinical technology and the acquisition of health information technology. Various surveys of hospital executives echo these concerns and indicate that the current healthcare environment is exceptionally challenging, with pressure coming from all angles.³⁷ A Deloitte (2011) study reported that many hospital CEOs believe that navigating the current healthcare environment poses the biggest challenge of their professional careers. Their responses suggest that significant realignment may be necessary for long-term survival.³⁸ Mergers may provide a means to address these concerns as transactions can include cash transfusions to the acquired party, allowing stalled projects to continue. In addition, mergers allow the potential for realignment which can lead to decreased costs. This reduction in cost would ameliorate some of the financial pressures these firms currently face.

Utilization Trends and “Excess” Capacity: Analyses of bed capacity for U.S. major metropolitan areas show that potentially higher available capacity at the MSA level is a widespread phenomenon: Many cities have above average bed capacity – and in some cases substantial capacity relative to expected usage.³⁹ Statistics on inpatient utilization trends show an overall decline in inpatient utilization which are likely to be exacerbated where Triple Aim efforts succeed in shifting more patients to preventive care or reduce inpatient

31 *Ibid.*, at 2.

32 Moody’s Investor Services, *New Forces Driving Rise in Not-for-Profit Hospital Consolidation*, OUTLOOK (2012) at 1.

33 John Commins, *Pace of Hospital M&As Likely to Accelerate*, HEALTHLEADERS MEDIA (March 19, 2012) available online at <http://www.healthleadersmedia.com/print/FIN-277847/Pace-of-Hospita>.

34 Capital and scale issues have a disproportionate effect on smaller hospitals. Smaller stand-alone hospitals are more vulnerable to changes and may struggle to cope with new regulations stemming from the ACA. They may find implementing IT features such as electronic medical records (EMR) would create excessive financial burden. See, *US Hospital M&A Generally Positive for Bondholders*, FITCHRATINGS (July 2012) available online at http://www.fitchratings.com/gws/en/fitchwire/fitchwirearticle/US-Hospital-M%26A?pr_id=754425; Ryan S. Gish and Kit A. Kamholz, *To Stand Alone or to Seek a Partner: A question...or an imperative?* TRUSTEE (September 2009): 23-26; Daniel M. Grauman, John M. Harris and Christine Martin, *Access to Capital: Implications for Hospital Consolidation*, 65 HEALTHCARE FINANCIAL MANAGEMENT 4 (April 2010)57-66; Frederick A. Hessler, *The Capital Challenge: Think Outside the Box*, HEALTH AND HEALTH NETWORKS DAILY (May 2012); and *Financing the Future II: Report 6: The Outlook for Capital Access and Spending*, 60 HEALTHCARE FINANCIAL MANAGEMENT 8 (2006):40-41.

35 Cutler and Scott Morton (2013) at 1965.

36 *AHA Report on the Capital Crisis: Impact on Hospitals*, AMERICAN HOSPITAL ASSOCIATION (January 2009) at 3, available online at www.aha.org/content/00-10/090122capitalcrisisreport.pdf. Specifically, 82 percent report putting facilities projects on hold, 65 percent have put clinical technology projects on hold and 62 percent have put information technology projects on hold.

37 Collectively, the survey responses indicate that the current healthcare environment presents significant challenges and that the business model hospitals employed in the past is no longer relevant. Many of the respondents plan to explore consolidation possibilities within the near future (one study found that half of respondents believed that it was extremely likely that their organization would be absorbed or be absorbed by another hospital system [U.S. News, 2011]). Findings from a Huron Healthcare (2013) report highlight the perceived benefits from consolidation. Specifically: “CEOs recognize that spreading fixed costs through consolidation or collaboration is one way to create efficiencies in process and pricing. This approach can also help organizations quickly acquire new capabilities at a lower cost structure. In the long term, CEOs are considering how consolidation may help provide more effective population health management.” *Inventing the Future of Healthcare: Top CEOs on the Real Work of Transforming the Healthcare Industry*, HURON HEALTHCARE (2013) at11-12, available online at <http://healthcareforum.com/report/>. See, *Issue Brief: A look Around the Corner: Healthcare CEO’s Perspective’s on the Future*, DELOITTE (June 2012), available online at http://www.deloitte.com/view/en_US/us/Industries/life-sciences/28714218f4f08310VgnVCM2000001b56f00aRCRD.htm#; *Annual Executive Survey*, CRANEWARE (February 2012), available online at <http://www.craneware.com/stoptheleakage/blog/post/The-results-are-in-Cranewares-Annual-Executive-Industry-Survey.aspx>; *Top Issues Confronting Hospitals: 2012*, AMERICAN COLLEGE OF HEALTHCARE EXECUTIVES (January 2013), available online at <http://www.ache.org/PUBS/research/coissues.cfm>; *Eighty-Eight Percent of Healthcare Services Execs Will Pursue M&A in the Next Year, Shows GE Capital Healthcare Survey*, GE CAPITAL (September 2013), available online at <http://www.genewcenter.com/Press-Releases/Eighty-Eight-Percent-of-Healthcare-Services-Execs-Will-Pursue-M-A-in-the-Next-Year-Shows-GE-Capital-42b5.aspx#downloads>; *Hospital Executives Survey*, U.S. NEWS (July 2011), available online at <http://health.usnews.com/health-news/best-practices-in-health/articles/2011/07/18/healthsurveytables>; and *CEO Report: Optimism on the Upswing*, HEALTHLEADERS MEDIA, 2013, available online at http://www.healthleadersmedia.com/intelligence/detail.cfm?content_id=287883&year=2013.

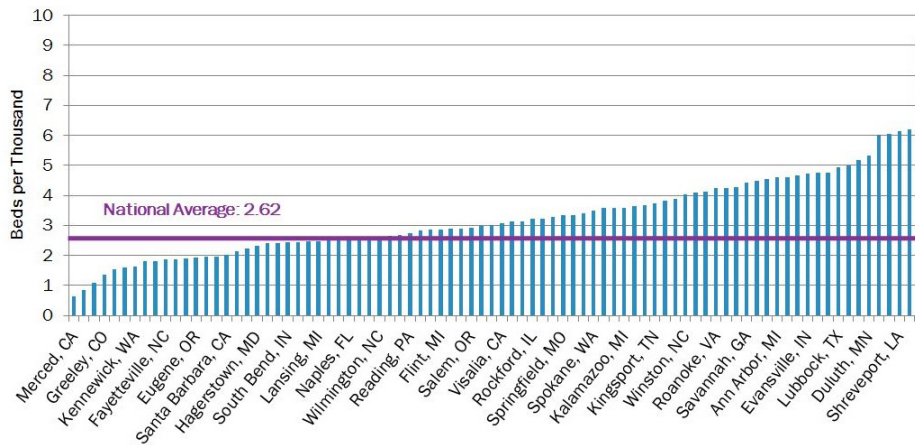
38 “The bottom line: Many hospital CEOs stated that the new normal represents the biggest test thus far in their professional career. They anticipate two eventualities for their organization: it will be paid less for the entirety of services provided; and its portfolio of acute clinical services is likely to become a cost center in a bigger, more complex organization that is focused on care for the healthy, not just the sick.” Deloitte (2012) at 2.

39 Bed capacity per capita serves as a rough proxy for available capacity (total bed capacity may also be a useful measure). Above average bed capacity is determined by using the average number of hospital beds per thousand population for MSAs in the country. Other capacity or available capacity measures used include utilization or occupancy rates.

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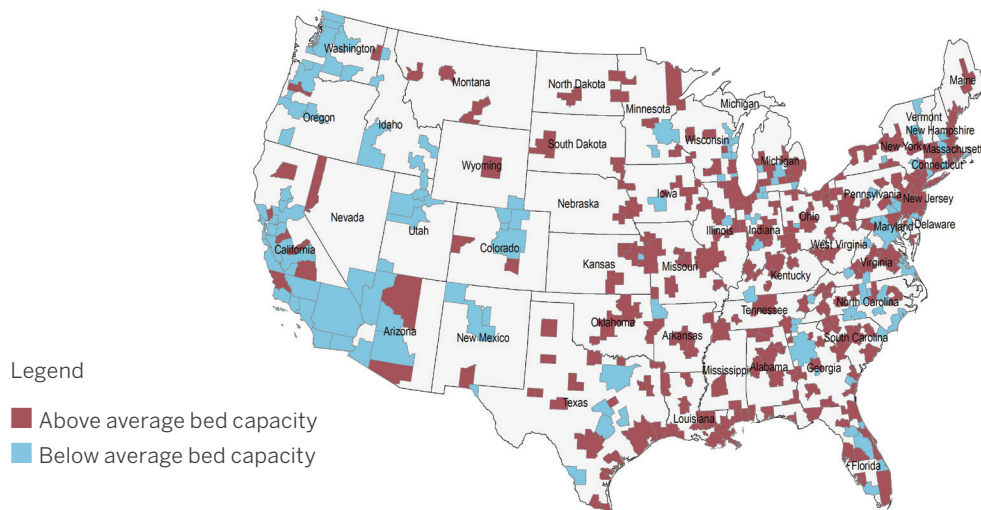
utilization, or where there are increased pressures to reduce readmissions.⁴⁰ The following graphics (Figures 3 and 4) depict estimates of bed capacity by MSA. The first graphic presents bed-capacity for small to medium-sized MSAs and demonstrates that many of these areas are likely to have excess bed capacity at least as measured by this proxy of beds per thousand. Our focus on smaller cities comes from the fact that these include cities with a number of stand-alone hospitals.⁴¹ To get a national perspective, the map depicts MSAs (regardless of population size) with above or below average capacity across the US. This provides a perspective on the location of geographies where *current* configuration of capacity may well exceed needed capacity in the future. These figures present geographies where consolidation or realignment may be relevant as a means to improve costs and quality of care.⁴²

Figure 3: Estimated Bed Capacity by Metropolitan Statistical Area (MSA) for Selected MSAs
(Limited to MSAs with a population of 250,000 to 500,000)



Source: Author's Calculations using 2011 AHA Survey data.
Notes: Bed count presented in this graph is not limited to general acute care (GAC) facilities only but represents beds in all hospital facilities located within the specified MSA.

Figure 4: Estimated Bed Capacity by Metropolitan Statistical Area (Map)



Dartmouth Atlas of Health Care, DARTMOUTH INST. FOR HEALTH POLICY & CLINICAL PRACTICES (2009) at 2-3. The map and graphic show regional variation at the MSA level in capacity per capita; above average capacity per capita may be indicative of overall potential excess of capacity relative to demand at the MSA level; individual hospitals within an MSA may have higher utilization.

40 Over the past two decades there has been a shift from inpatient to outpatient care. Inpatient admissions per 1,000 have declined since 1991 from 123.2 to 111.8 in 2011. Inpatient Days per 1,000 have similarly declined from 883.9 in 1991 to 600.4 in 2011. From 1991-2011, the average length of stay has declined from 7.2 to 5.4 days. Conversely, outpatient visits per 1,000 have risen from 1,273.4 to 2,105.6 over that time period. The change is more pronounced in recent years. From 2006 – 2011, inpatient admissions have declined by 5.4 percent while outpatient visits have risen by 5.2 percent. *AHA TrendWatch Chartbook 2013*, AMERICAN HOSPITAL ASSOCIATION (2013): Table 3.1 Trends in Inpatient Utilization in Community Hospitals, 1991 – 2011, available online at <http://www.aha.org/research/reports/tw/chartbook/2013/table3-1.pdf>. *AHA TrendWatch Chartbook 2013*, AMERICAN HOSPITAL ASSOCIATION (2013): Table 3.4, Outpatient Utilization in Community Hospitals available online at <http://www.aha.org/research/reports/tw/chartbook/2013/table3-4.pdf>.

41 The table depicts hospital bed capacity per capita for those 83 MSAs with a population between 250,000 and 500,000 as of 2011.

42 Average bed capacity is about 2.6 beds per thousand people for metro MSA areas in the US. See also, David C. Goodman, Elliott S. Fisher, and Kristen K. Bronner, *Hospital and Physician Capacity Update: A Brief Report from the Dartmouth Atlas of Health Care*, DARTMOUTH INST. FOR HEALTH POLICY & CLINICAL PRACTICES (2009) at 2-3. The map and graphic show regional variation at the MSA level in capacity per capita; above average capacity per capita may be indicative of overall potential excess of capacity relative to demand at the MSA level; individual hospitals within an MSA may have higher utilization.

Reduction in *actual* excess capacity at the hospital level or at the city level could result in significant operational cost savings; realignment and restructuring through mergers may provide a means to accomplish cost reduction. A study of capacity utilization by US hospitals determined there was potentially significant excess capacity measured at the hospital level. Where substantial excess capacity was present and could be reduced, it has been estimated that operating costs could be reduced.⁴³ Restructuring (i.e., turning general acute care beds into other uses) that can be accomplished by merger may be an effective tool to address excess capacity. Mergers and acquisitions may provide an effective market mechanism to yield better alignment of capacity with demand. Studies of hospital decision-making suggest that independent decision-making, while beneficial in many respects, can lead to over-investment and excess capacity relative to market demand, and that mechanisms for joint investments or decision making may lead to closer alignment of capacity with market demand.⁴⁴ Taking unnecessary costs out of a hospital system frees up funds to invest in unmet healthcare needs or to use in reducing overall healthcare costs.

Reduction in actual excess capacity at the hospital level or at the city level could result in significant operational cost savings; realignment and restructuring through mergers may provide a means to accomplish cost reduction.

III. Review of Literature on Merger Rationale and Effects: Value (Cost, Quality) and Access

A. Overview

In this section, we review the economic literature regarding the role that mergers and acquisitions play in responding to financial and policy pressures, changing demographic and economic conditions, and changes in demand or supply conditions in healthcare. One key driver of mergers has been the ability to maintain services in a community that might otherwise be reduced or eliminated through downsizing or closure of hospitals.⁴⁵ Studies show that financial circumstances, reduction in redundant services, efficient realignment

and improved access to capital have all contributed to the trend. Many hospitals anticipated and made significant changes in service offerings post-merger, including re-organization. The alternative to merger or acquisitions is shown by some studies to be hospital closures, downsizing, or reduction in service mix such as elimination of maternity services or lower volume tertiary services. Hospital closures can reduce access to care and can result in substantial welfare effects for the local community; the literature shows some impact on mortality rates.

The literature identifies a number of potential benefits from mergers that fall into the categories of value (cost, quality) and access. Among the benefits identified in the literature are:

One key driver of mergers has been the ability to maintain services in a community that might otherwise be reduced or eliminated through downsizing or closure of hospitals.... Hospital closures can reduce access to care and can result in substantial welfare effects for the local community....

- Administrative and overhead savings
- Reduced costs or reduced rate of cost/expense growth through improved operating efficiency or reduction/elimination of redundant services
- Improved overall operations and efficiency
- Realignment of services to achieve greater scale of operations or to improve quality of care delivered
- Reduction of excess capacity
- Access to capital and improved ability to make necessary investments such as technology and update facilities or services
- Ability to maintain or expand services in a community (and thereby maintain quality of services or care and/or access to care)

⁴³ Carey (1998) uses data from the AHA and the Hospital Cost Reporting Information System (HCRIS) for the period 1987-1992 in order to determine the optimal number of excess beds a facility should hold. Carey defines the optimal level of bed capacity as occurring "where the ratio of the hospital's cost of staffing the last bed to the cost of not having the bed available is equal to the probability that the hospital is full." Carey (1998) at 179.

⁴⁴ Gal-Or (1994).

⁴⁵ Realignment resulting from a merger may reduce service line duplication which could have a negative impact on access.

These benefits provide the ability to respond to the pressures and challenges facing stand-alone hospitals.

In the following section, we examine the literature on price effects of mergers. The majority of this empirical literature on hospital transactions is based on studies of mergers from the 1990s and early 2000s. We start our review by examining the economic literature on both the drivers and consequences of hospital mergers. For comparative purposes, we also survey the literature on outcomes for hospitals that faced comparable challenges but did not merge. We review numerous studies addressing a very diverse set of market conditions, transactions, and sources of benefits. Many studies involve large numbers of transactions as well as hospitals (including those not involved in transactions) from the 1990s; many are recent studies and trends. This review spans decades of data and information on transactions often not studied in detail—predominantly because the vast majority of mergers raise no significant competitive risks, and their benefits may not be scrutinized or quantified expressly. We are not predicting that specific benefits found in studies from the 1990s will be replicated in each merger in the future, but believe they are informative of the types of benefits achievable by many mergers in the future, particularly where assessment of the current environment suggests increased demand for improvements in quality, access, and costs. Moreover, these studies provide insight into the gains from addressing those contemporaneous challenges.

B. The Role of Mergers and Acquisitions in Realigning the Healthcare Delivery System

As in any industry, a firm will remain viable in the long run only if it is able to adapt to changes in both supply and demand as well as adjust to overall changes in the environment. The hospital industry, in particular, currently faces many challenges that adversely impact hospitals' operations and ability to operate in their original configuration and capacity. The previous section enumerated myriad challenges facing the healthcare industry including slow economic recovery, reduced reimbursements, difficulty in obtaining capital, and a changing infrastructure that stresses the coordination of care and requires the use and implementation of expensive healthcare IT systems. In addition to these challenges, lower occupancy and excess capacity remain pressing concerns. These environmental factors and trends can drive consolidation activity.

Studies on restructuring through consolidation show that mergers and acquisitions can prove an effective means to deal with excess capacity/lower occupancy and financial pressures. **Bazzoli et al. (2002)** examine reasons for hospital restructuring and reorganization during 1989-1996.⁴⁶ In comparing the acquired and acquiring hospitals, the authors found that the acquired hospitals had lower occupancy rates, on average, than did the acquiring hospitals.⁴⁷ Self-reported reasons for merging demonstrate the importance of several factors, among which the desire to improve operating efficiency emerges as a primary objective.⁴⁸ Expansion was also indicated as an important reason to merge. 54.4 percent stated that the desire to expand market share was an important consideration, as was the desire to expand access to care (53.2 percent), and to expand the scope of services provided (44.3 percent).⁴⁹

The hospital industry, in particular, faces many challenges that adversely impact operations and the organization's ability to operate in its original configuration and capacity... Studies on restructuring through consolidation show that mergers and acquisitions can prove an effective means to deal with excess capacity/lower occupancy and financial pressures.

The reasons that motivate consolidation indicate that hospitals perceive growth through merger as an effective way to meet current demand and adjust to the changing healthcare environment. Realignment of services can lead to an organization that is better able to meet the needs of the community and maintain service offerings in challenging times – factors which contribute to hospital survival. Review of the literature suggests that many transactions in the 1990s actually resulted in significant realignment and provides some evidence of administrative and other savings due to consolidation. Bazzoli et al. (2002) explore actual changes in service mix among hospitals both pre and post-merger and provide useful insights into what many mergers actually accomplished in

46 Gloria J. Bazzoli, Anthony LoSasso, Richard Arnould and Madeline Shalowitz, *Hospital Reorganization and Restructuring Achieved through Merger*, 27 HEALTH CARE MANAGEMENT REVIEW 1 (Winter 2002): 7-20. Using AHA annual hospital survey data, they identified mergers occurring during the specified time period. They further limited their sample to those mergers which involved only two hospitals. Of the 153 mergers which met their selection criteria, 80 (52.3 percent) responded to a survey developed by the study authors.

47 The reported average occupancy rate of the acquired hospitals during the 1989-1996 period was 57.3 percent while the occupancy rate of the acquirer during this same time period averaged 62.5 percent. Occupancy rates post-transaction were not reported. *Ibid.*, at 11.

48 Respondents were asked to rate a given set of reasons in matter of importance using a Likert-type scale, where 1 indicates "not important" and 7 indicates "very important." The top three reasons were to strengthen financial performance (83.5 percent), to achieve operating economies (79.7%) and to consolidate services (70.9). *Ibid.*, at 11.

49 Less commonly reported reasons include expanding the size of the system (22.8 percent), reducing bed capacity (17.7 percent), and expanding bed capacity (8.9 percent). *Ibid.*

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terms of reorganization during the 1990s.⁵⁰ The results they present suggest significant realignment of services occurred, primarily through reduction in service duplication.

To explore the magnitude of realignment resulting from mergers, the study reports the percentage of hospitals where both hospitals offered a service prior to merger and the percentage where both offered that same service post-merger. During the period 1989-1996 (the pre-merger period), 82.7 percent of hospitals offered both inpatient medical service and emergency care. Post-merger, only 42.7 percent of the pairs both retained inpatient medical services and 49.3 percent retained emergency medical care at both facilities.⁵¹ Bazzoli notes that the significant reduction is likely related to the fact that many hospitals were located nearby one another.⁵² Nearby hospitals that consolidate provide a greater opportunity for service realignment and repurposing.

In addition to service mix realignment, the authors note that many of the merging pairs report administrative downsizing. The parties reported significant reductions in CEO/COO staffing as well as reductions in order of 12 to 37 percent of general administrative staff. The declines highlight the potential for economies of scale and the associated reduction in cost which may result from a merger.

These savings are particularly relevant as labor comprises a significant portion of a hospital's operating costs.⁵³

...hospitals perceive growth through merger as an effective way to meet current demand and adjust to the changing healthcare environment (Bazzoli et al. (2002)). Realignment of services can lead to an organization that is better able to meet the needs of the community and maintain service offerings in challenging times — factors which contribute to hospital survival.

Spetz et al. (1999) studied hospitals in California to examine the characteristics of merging hospitals.⁵⁴ Of 296 ownership changes between 1986 and 1996, 13 included conversions from not-for-profit to for-profit, and 12 switched from for-profit to nonprofit. Approximately 80 percent of the changes did not include any changes in profit status. Most of the ownership changes during this time were the result of consolidations and mergers between hospital corporations. Multi-hospital systems grew during the period under review with more than half of all hospitals in California affiliated with multi-site hospital corporations. Less than 10% of merger activity during this period occurred in rural areas.

Mergers can be an effective tool in responding to marketplace needs and can help ameliorate resource constraints. Benefits from affiliations include gaining access to personnel, expertise, and/or capital. **Bazzoli et al. (2006)** employs a case study design to explore both the reason for and response to demand and supply conditions in local healthcare geographies.⁵⁵ Hospital executives reported that expected population growth or changes in insurance coverage lead to an increase in perceived demand and estimates of the required level of capacity to meet future needs.⁵⁶ However, results suggest that there may be several constraints facing hospitals in their ability to respond to marketplace conditions, including physical space, regulation, capital, and personnel. Merger and acquisitions may provide a means for hospitals to overcome these constraints.

50 This and related studies provide insights into the role that realignment plays in the hospital sector both in form and in the types of benefits, suggesting benefits that likely occurred during the period under their study that may not be captured in other studies.

51 Changes among other service lines were reported as well. Pre-merger, 40.0 percent of the hospital pairs had inpatient OB-GYN, 38.7 had inpatient pediatrics, and 23.0 percent had inpatient rehabilitation. In the post-merger period, the percentage in which both hospitals offered the service line dropped with 8.0 percent retaining inpatient OB-GYN, 9.3 retaining inpatient pediatric services, and 12.2 percent retaining inpatient rehabilitation at both facilities. The authors find that consolidation of departments was a very common occurrence. Among similar hospitals (those having common services), 96.4 percent report consolidating or merging two or more departments or programs compared with 86.1 percent at dissimilar hospitals. Similar hospitals as defined as those hospitals that offered 50 percent or more of the same major services. *Ibid.*, at 15.

52 The merging hospitals tended to be located near to one another. The average distance between urban hospital merging pairs was 4.91 miles, while the distance between rural hospital merger pairs was 11.14 miles (Bazzoli 2002, page 11). Among the hospitals in the sample, 5 percent of rural hospitals and 8 percent of urban hospitals closed. 52 percent of rural hospitals retained acute care services as did 61 percent of urban hospitals. Significant realignment occurred as a result of the merger as 43 percent of rural and 31 percent of urban hospitals were converted to other uses. *Ibid.*, at 14.

53 The study did not report changes in outcome measures or improvements resulting from realignment/consolidation or staffing changes.

54 Joanne Spetz, Jean Ann Seago and Shannon Mitchell, *Changes in Hospital Ownership in California*, PUBLIC POLICY INSTITUTE OF CALIFORNIA (1999).

55 The study uses data collected during 1995-2003 for the Community Tracking Study (CTS), a study which collects data on health system change for a randomly selected, nationally representative sample of 60 communities. The CTS is a study directed by the Center for Studying Health System Change. The randomly selected communities are defined as MSAs with populations of 200,000 or more. Although the CTS includes in-depth interviews in 12 of the 60 sites, four cities (Boston, Cleveland, Miami, and Phoenix) were selected for inclusion in the study as they are located in major metropolitan areas and had diverse hospital resources. The survey questions developed to elicit information regarding capacity constraints are as follows: To what extent has your hospital (or the hospitals in your system) experienced capacity constraints in the past year? In what specific service lines, units, or patient care departments has your hospital (or hospitals in your system) experienced capacity problems? What are the major factors that have caused capacity problems in your hospital (or hospitals in your system)? How is your hospital currently responding to capacity problems? Have there been any community-led efforts to address capacity problems? Gloria J. Bazzoli, Linda R. Brewster, Jessica H. May and Sylvia Kyo, *The Transition from Excess Capacity to Strained Capacity in U.S. Hospitals*, 84 THE MILBANK QUARTERLY 2 (2006): 273-304.

56 However, estimated service demand may not be well aligned with actual future demand.

In the sections below, we highlight findings from key studies that contribute significantly to the literature on access, efficiency, and value (quality).⁵⁷

C. Evaluation of Outcome Measures from Mergers and Acquisitions

1. Access

Studies of hospital mergers generally explore mergers' impact on cost, efficiency, quality, and price. These outcomes focus on what happens in the event of a merger. However, it is as useful to consider what might happen if a merger does not take place since the status quo often is not an alternative, e.g., a merger may prevent a hospital from entering into bankruptcy.

Becker and Dunn (2010) note that during 2000-2010, there were approximately 70 hospital bankruptcies.⁵⁸ They identify seven factors that drive bankruptcy including high levels of competition, an aging physical plant, poor physician alignment (resulting in low patient referrals), coping with a dominant commercial payor or an especially large percentage of Medicare/Medicaid reimbursement, poor cost structure, poor management, and poor quality. **Yarbrough and Landry (2009)** explore the precursors to poor financial performance and identify factors related to bankruptcy.⁵⁹ They investigate the 36 urban bankruptcies that occurred during 2000-2006. They find that reimbursement challenges including reductions in Medicare and Medicaid payments led to poor financial performance. In exploring characteristics of those firms that file for bankruptcy, they find that both smaller hospitals and independent hospitals are more vulnerable.⁶⁰

Unstable or poor financial health are often times precursors to merger activity as the firm may need financial assistance and merging with another firm provides a means to access that capital and cash flow. Actual merger activity bears this theory out as many mergers and acquisitions result in a cash infusion for the target. If not for the financial support, many of these institutions would be at risk of bankruptcy and closure. Many studies indicate that hospital closure can have disruptive effects on the local community. Hospital closure potentially reduces access to care at least in the short to medium term and vulnerable populations (e.g., the elderly or those with low-income) are more likely to be adversely impacted. Not only can a closure negatively impact access, it may influence health outcomes as well; with literature suggesting a link between hospital closure and increased mortality.⁶¹ Although cost savings may occur from a closure, the savings are not shared equally by stakeholders. The literature suggests that the local community loses while government parties and the payors absorb gains.⁶²

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Kirby et al. (2005) analyze the hospital industry in California, uncovering trends that highlight challenges facing hospitals and their responses to these challenges.⁶³ The hospital industry in California has faced both income reductions and increased expenses.⁶⁴

57 We note that this listing is not exhaustive; several of the reviewed studies have extensive bibliographies of related research.

58 Scott Becker and Lindsey Dunn, *7 Factors to Assess the Sustainability of a Hospital: Assessing a Hospital's Viability, Its Financial Situation and the Severity of the Threats it Faces*, BECKER'S HOSPITAL REVIEW (September 30, 2013), available online at <http://www.beckershospitalreview.com/hospital-management-administration/7-factors-to-assess-the-sustainability-of-a-hospital-assessing-a-hospital-s-viability-its-financial-situation-and-the-severity-of-the-threats-it-faces.html>.

59 Amy Yarbrough and Robert J. Landry III, *Factors Associated with Hospital Bankruptcies: A Political and Economic Framework* 54 JOURNAL OF HEALTHCARE MANAGEMENT 4 (2009): 252-272

60 The mean bed size of the filing hospitals was 148 compared to 226 for the non-filing hospitals. Only 14 percent of filing hospitals were part of a system. *Ibid.*, at 263.

61 Thomas C. Buchmueller, Mireille Jacobson and Cheryl Wold, *How Far to the Hospital? The Effect of Hospital Closures on Access to Care*, 25 JOURNAL OF HEALTH ECONOMICS 4 (Jul 2006): 740-761.

62 See, Corey Capps, David Dranove and Richard Lindrooth, *Hospital Closure and Economic Efficiency* 29 JOURNAL OF HEALTH ECONOMICS 1 (Jan 2010): 87-109.

63 Paul B. Kirby, Joanne Spetz, Lisa S. Maiuro and Richard M. Scheffler, *Hospital Service Changes in California: Trends, Community Impacts and Implications for Policy*, THE NICHOLAS C. PETRIS CENTER ON HEALTH CARE MARKETS AND CONSUMER WELFARE (2005).

64 Reimbursement rates from public sector payors such as Medi-Cal and Medicare have declined and the high managed care penetration and cost containment practices they employ (i.e., utilization management such as restrictions on covered procedures, etc.) further reduce revenue from these payors. Meanwhile, operating expenses are high as California hospitals have to contend with some of the highest wages in the country, comply with nurse-to-patient staffing requirement, and implement seismic retrofitting for hospital buildings. *Ibid.*, at 10.

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The authors find that in an effort to re-align and improve financial performance, struggling hospitals eliminate unprofitable service lines. During the 1995-2002 study period, approximately half of all hospitals made a change in their service offerings and one-fourth dropped one or more services.⁶⁵ Hospitals that closed four or more services tended to be financially troubled, rural, and small. Hospitals that closed completely tended to be small and less efficient. Scott-Morton and Cutler (2013) note that about 15% of hospitals in the US closed over the period 1981 to 2011.⁶⁶

Hospital closure would reduce access and may negatively impact local community-level health and wellbeing. Studies that explore the relationship between reduced access and health highlight the impact hospital closure may have on community welfare.

Buchmueller et al. (2006) explore the impact of urban hospital closure on healthcare access and outcomes.⁶⁷ The impact of a hospital closure increases not just travel time for those residents located near the closed facility, but may increase demand at remaining hospitals and result in reduced access to care. Waiting time may increase and this may cause some to delay receiving care initially (when more easily treatable), and instead seek care once the illness is more severe. The authors explore a rash of hospitals closures in LA County during the late 1980's and early 1990's. Due to financial pressures, 10 percent of the total 131 LA county hospitals were closed between 1997 and 2002.⁶⁸ To explore the impact of hospital closure, the authors use Los Angeles County Health Surveys (LACHS) for the period 1997-2003 and California's Department of Health Services cause-specific mortality data for the period 1997-2001. Hospital closures do appear to increase utilization of usual source of care for some populations.⁶⁹ However, for those individuals over age 65, a one-mile increase in the distance to the hospital reduces perceived ease of access by four percentage points. This may lead some individuals to postpone preventative care.

As hospital closure without offsetting changes in the existing healthcare infrastructure could increase the distance some residents will have to travel to obtain care, the authors focus on events for which timely treatment is crucial to achieving positive outcomes. Specifically, they examine death from heart attack (AMI) and unintentional injury sustained from home.⁷⁰ They find that a one-mile increase in distance to the nearest hospital leads to a 6.5 percent increase in AMI deaths. For unintentional injuries, the effect of an increase in distance is even more extreme. A one-mile increase in distance to the nearest hospital leads to an 11-20 percent increase in deaths due to unintentional injuries. The results presented in this paper provide evidence that hospital closures can have significant negative social welfare effects.

Capps et al. (2010) explore the change in social welfare due to a local hospital closing.⁷¹ Using data from the State Inpatient Database of Healthcare Cost and Utilization for two states in the mid- to late-1990s,⁷² they study five hospital closures. Their findings suggest that the local community experiences large losses from a hospital closure and that the equivalent utility of the loss ranges from \$270,000 to \$3.9 million.⁷³ However, if it is the inefficient hospitals that close, their closure would result in cost savings to payors (Medicaid, Medicare, and commercial payors). The authors find that at the national level, these cost savings overwhelm the decline in local level utility.

The set of available studies, while informative, is based on historical data and has a narrow geographic focus. Expanding the sample size and using current data especially on service offerings and impacts would prove to be directly relevant to the current discussion regarding the cost and benefits of some proposed hospital mergers and acquisitions. Changes in the healthcare environment in which hospitals operate today is significantly more challenging than in the period when the vast majority of these studies took place.

65 The most common type of service closure was for those lines related to labor and delivery. Surprisingly, the authors note that there was little negative impact resulting from the closure of obstetrics services as the average incremental increase in travel time to the next nearest hospital was a only two-tenths of a mile. However low-income expectant mothers may have been adversely impacted by increased travel time. *Ibid.*, at 8-9.

66 Cutler and Scott Morton (2013) at 1965.

67 Thomas C. Buchmueller, Mireille Jacobson and Cheryl Wold, *How Far to the Hospital? The Effect of Hospital Closures on Access to Care*, 25 JOURNAL OF HEALTH ECONOMICS 4 (Jul 2006): 740-761

68 The authors include three Orange County hospitals in the analysis as they were the closest general acute care facility for some LA County residents. Four hospitals closed in 1998, eight in 1999, one in 2000, and two in 2002. Of the 15 hospitals that closed, 12 hospitals were for-profit and all but five had an emergency department. *Ibid.*, at 742.

69 This may be through redirecting individuals from the local emergency room to their primary care provider.

70 As a specification check, the authors test the relationship between deaths from two causes which should not be influenced by an increase in travel time: cancer and chronic ischemic heart disease. Their findings show that the mortality rate for either of these conditions does not appear to be sensitive to changes in distance. Buchmueller et al. (2006) at 744.

71 Corey Capps, David Dranove and Richard Lindrooth, *Hospital Closure and Economic Efficiency* 29 JOURNAL OF HEALTH ECONOMICS 1 (Jan 2010): 87-109

72 The authors study the Tampa market in 1995 and 1996, the Tucson market in 1998, and the Phoenix market in 1997. They narrow their analysis to focus on the data required for the analysis is available from HCUP and because each area has a well-defined geographic market and contains small to medium sized MSAs. Reasons for each of the hospital closures are not provided.

73 The loss is measured using a consumer discrete choice model that captures the extra distance an individual will have to drive when his "first choice" hospital is no longer an option. The model measures willingness to pay (WTP) and the authors convert this to dollars using two estimates of the average value of travel time (low end: \$16/hour, high end: \$20/hour). Travel time is calculated not as actual travel time but effective travel time (this is the calculated as expected length of stay times actual travel time). Assuming that only one person travels round trip to the hospital per day, and time is valued at \$16.00 per hour, the low end estimate of the utility loss from closure is \$270,000. The high end estimate, \$3.9 million is calculated assuming that travel time is valued at \$20 per hour and two people visit the patient each day. Capps et al. (2010) at 94.

As noted elsewhere in this report, significant differences in the operating environment include technology advances, different reimbursement frameworks and payor mix, technological changes such as the drive to increase adoption of electronic medical records, and a shift from inpatient to outpatient care. As access to care is a fundamental component of achieving the Triple Aim, more studies along these lines of those presented here should be undertaken that consider the challenges of today's hospital operating environment, including financial challenges, and the impact of hospital transaction activity.

2. Cost and Efficiency

As evidenced in studies about views of hospital industry executives and financial experts, many believe consolidation can lead to substantial value creation. Consolidation provides the opportunity to realize operating efficiencies, including consolidation of operations, and operating expense reductions. Studies find that consolidation may lead to realignment of services and a reduction in excess capacity as well as slower cost growth and increases in economies of scale and scope.⁷⁴

Studies find that consolidation may lead to realignment of services and a reduction in excess capacity as well as slower cost growth and increases in economies of scale and scope.

Alexander et al. (1996) analyze 92 hospital mergers that occurred between 1982 and 1989 to explore the short-term effects of a merger on scale of activity, staffing, and operating efficiency.⁷⁵ Their empirical findings indicate that although the occupancy rate declines during the study period, the decline is significantly less drastic among the merging sample than among those in the control group of non-merging hospitals. A similar result emerges in cost growth. Costs increased for both merging and non-merging hospitals, but the observed increases were more modest among the former. The study finds evidence of reorganization and realignment as a result of mergers with changes occurring primarily within operating areas. However, these changes are not equally distributed among all hospitals within the sample and are instead a function of the characteristics of the merging organizations and conditions of the respective transaction. For example, mergers that occurred later in the period tended to have larger efficiency impacts than did those occurring earlier. Mergers between similarly sized hospitals resulted in the largest change in operating characteristics.

“...merging hospitals experience significantly lower cost growth, 10.1 percentage points lower than that of non-merging hospitals. They find similar results for price growth and noted that it was 7.9 percentage points lower than among non-merging hospitals. Spang et al. (2001).

Several studies find that consolidation leads to significantly slower cost growth. **Spang et al. (2001)** explore this topic by examining how cost and price growth over an extended period of time differ between firms that merge and those that do not.⁷⁶ They find that merging hospitals experience significantly lower cost growth, 10.1 percentage points lower than that of non-merging hospitals. They find similar results for price growth and noted that it was 7.9 percentage points lower than among non-merging hospitals.⁷⁷ **Dranove and Lindrooth (2003)** undertake a study to determine if hospital consolidation leads to cost savings.⁷⁸ The analysis includes both hospital mergers and system consolidation and compares the estimated differential effects between the two.

The results suggest that the median hospital merger resulted in a cost reduction of 14 percent and that these cost savings persist. The savings were evident in the follow-up period extending two, three, and four years following the consummation of the transaction. They note that having significant service overlap appears to be a driver of the observed cost reduction. However, among the system acquisition sample, they do not find statistically significant cost reductions during the four-year period following the merger event.⁷⁹

74 For example, a recent study by Cutler and Scott Morton reference “robust” findings of studies with regard to benefits such as the ability of larger health systems to undertake more costly investments; while noting that empirical findings on other benefits are mixed, the authors note the prospect of improved efficiency from more efficient care coordination, citing this as one of the rationales for ACOs. Cutler and Scott Morton (2013). In a 2009 study, Fisher et al. examine opportunities for cost savings and note that increases in efficiency and reductions in cost may be possible through coordinated/integrated care. Eliot S. Fisher, Mark B. McClellan, John Bertko et al., *Fostering Accountable Health Care: Moving Forward in Medicare* 28 HEALTH AFFAIRS 2 (2009):w219-w231.

75 Jeffrey Alexander, Michael T. Halpern and Shouu-Yih D. Lee, *The Short-Term Effects of Merger on Hospital Operations* 30 HSR: HEALTH SERVICES RESEARCH 6 (February 1996):827-847.

76 Heather R. Spang, Richard J. Amould and Gloria J. Bazzoli, *The Effect of Non-Rural Hospital Mergers and Acquisitions: An Examination of Cost and Price Outcomes*, 49 QUARTERLY REVIEW OF ECONOMICS & FINANCE 2 (2009): 323-342

77 Spang et al. (2001) at 154.

78 David Dranove and Richard Lindrooth, *Hospital Consolidation and Costs: Another Look at the Evidence*, 22 JOURNAL OF HEALTH ECONOMICS 6 (2003):983-97

79 *Ibid.*, at 991-993.

Contrary to the findings of Dranove and Lindrooth (2003), **Spang et al. (2009)** do find significant cost savings resulting from system acquisition.⁸⁰ Their results suggest that pre-consolidation, hospitals in their sample had both higher costs and higher prices than the average hospital in the comparison group. They postulate that these factors may have driven these firms toward consolidation in an effort to become more efficient and competitive by reducing costs and lowering price. In testing for differential effects by ownership status, the authors find that the observed cost and price savings which resulted from the merger were present for for-profit hospitals only.

Economies of scale are one vehicle through which consolidation may lead to efficiency gains. **Harrison (2011)** employs a novel approach that disentangles cost savings occurring from changes in output mix with savings that occur from actual economies of scale.⁸¹ She finds that cost savings due to achieving economies of scale amount to a two percent reduction in pre-merger costs and that hospitals experience these costs savings almost immediately. However, Harrison notes that savings due to economies of scale may not persist over time. Long term cost saving is likely due to changes in output levels.

Available empirical evidence on recent mergers supports findings of improvement in performance (e.g. patient volumes) for merged hospitals. Although the vast majority of studies focus on merger activity during the mid-1990s, **Deloitte (2013)** recently released a study analyzing a set of transactions occurring in 2007-2008.⁸² The report provides some useful basic insights about the outcomes of more recent hospital transactions. Analyzing 101 hospital transactions consummated during this time period, the study evaluates basic performance measures of merging hospitals over time, and relative to a comparison group. Although the report finds that the hospitals involved in a transaction typically track below those in the comparison group on some measures, they find that over the 2008-2010 period, acquired hospitals, as a group, realized substantial increases in patient volumes. This is a significant finding suggesting that these hospitals not only remained in operation, but may have improved quality or altered service mix to attract these higher volumes. More comprehensive controls and econometric estimation of these and other metrics for acquired and control hospitals could provide greater insights into benefits for consolidation generally and as compared to the status quo of no transaction.

The literature reviewed in this section presents strong evidence that hospital mergers can lead to increased efficiency and reduced cost, particularly where they permit economies of scale or realignment of services. The costs savings that result from mergers appear to be persistent and are not limited to a level drop, but produce slower cost growth overtime. Economies of scale resulting from hospital mergers could amount to a cost savings of two percent operating expenses. Another benefit is that merging hospitals have improved occupancy rates compared to non-merging hospitals. In addition, poor performing or inefficient hospitals (hospitals with high price and high costs) are able to benefit from consolidation by reducing costs and prices, becoming more competitive. The findings from these studies combine to provide strong evidence that hospital mergers and acquisitions result in significant efficiency improvements and cost declines.

3. Quality

Mergers and system acquisitions have the potential to impact quality through many different mechanisms. Consolidated operations may be able to increase the volume of certain types of procedures, thereby increasing the experience level (and performance) of the physicians as well as increase utilization of other hospital resources and technologies.⁸³ This is an important consideration as seemingly modest improvements in hospital quality can have a significant effect on patient welfare. As Section III points out, access to capital is a growing concern as many planned or in-progress projects are forced to be put on hold for lack of funds. An acquired struggling hospital may benefit from a capital infusion which permits increased investment in staff, technology, or facilities, all of which may lead to increased quality of service. **Another benefit of consolidation is that successful operating practices and procedures established at one location may be adopted by the other party in the transaction, thereby offering an opportunity for improvement.**

Cuellar and Gertler (2005) explore the effects of system consolidation on quality as measured by inpatient mortality, overuse of procedures, and patient safety indicators.⁸⁴ They find that the rate of overused procedures declines by 1.2 percent following a system consolidation, but that this finding applies to managed care patients only. They fail to find any other change among the quality

80 Heather R. Spang, Richard J. Amould and Gloria J. Bazzoli, *The Effect of Non-Rural Hospital Mergers and Acquisitions: An Examination of Cost and Price Outcomes*, 49 QUARTERLY REVIEW OF ECONOMICS & FINANCE 2 (2009):323-342

81 Theresa D. Harrison, *Do Mergers Really Reduce Costs? Evidence from Hospitals*, 49 ECONOMIC INQUIRY 4 (2011):1054-1069

82 *Hospital Consolidation: Analysis of Acute Sector M&A Activity*, DELOITTE (2013), available online at http://www.deloitte.com/view/en_US/us/Insights/centers/center-for-health-solutions/3db1433c081de310VgnVCM1000003256f70aRCRD.htm?id=us_furl_hosconsol_052413

83 Volume impacts are recognized for example in a recent study on mergers by Cutler and Scott Morton (2013) at 1967 citing to Birkmeyer et al. (2002 and 2003).

84 Allison E. Cuellar and Paul J. Gertler, *How the Expansion of Hospital Systems Has Affected Consumers* 24 HEALTH AFFAIRS 1 (Jan-Feb 2005): 213-219 [2]. They restrict their analysis to hospitals in four states: Arizona, Florida, Massachusetts, and Wisconsin. They utilize patient-level discharge data, hospital financial data (obtained from the state), and AHA survey data for period 1995-2000.

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measures selected for the analysis and conclude that there is little effect from system acquisition on quality. In interpreting these results, it is important to note that their study has several limitations. The authors note that the effects of implementing change that will materially improve hospital level quality takes time to show up in quality metrics. The relatively short duration of the observation period may not have allowed enough time for meaningful change to be observed. They also note that it may be that some changes which impact quality had been successfully implemented, but these factors may not have been captured by the outcome measures investigated in the study. In addition, the study focuses only on four states and the results presented may not be representative of transactions occurring in other states.

Mutter et al. (2011) perform a pre-post analysis of hospital consolidations in 16 states that occurred in 1999 and 2000.⁸⁵ Their findings indicate that evaluating the quality effects of a merger or acquisition is complex and that the results vary depending upon the entities' role in the transaction (acquirer or target) and the type of transaction (system acquisition or two-to-one merger). The authors find that hospital consolidation is associated with some increases in quality measures as well as some that suggest decreased quality.⁸⁶ In comparing the difference in quality effects between the target and acquirer, the authors find that acquiring hospitals experience some improvement for procedures with a likely volume-outcome relationship. However they note that overall, hospital consolidation did not appear to have a significant effect on the vast majority of quality indicators considered in the study.⁸⁷ General literature also addresses the volume-quality relationship and finds some strong relationships.⁸⁸ **Town (2011)** raises important considerations regarding Mutter's (2011) paper.⁸⁹ He notes that although Mutter concludes that there is no consistent impact on quality due to mergers, an alternative interpretation of his findings is that there was no observed impact for the *average* hospital in the sample. As the ability to improve quality depends upon many factors (market structure and patient characteristics, etc.), the effect of mergers on quality is expected to be heterogeneous. As such, the impact may not be detected using a linear framework.⁹⁰ In addition, Town points out that even relatively small changes in a quality measure could have a significant effect on patient welfare.⁹¹

Romano and Balan (2010) measure quality changes due to a merger by using Inpatient Quality Indicators (IQIs) and Patient Safety Indicators (PSIs) as well as risk-adjusted mortality for heart attacks, neonatal mortality, and obstetric trauma.⁹² This study differs from those presented in this section as it focuses on a single transaction (the acquisition of Highland Park by Evanston Northwestern Healthcare) and attempts to identify changes that occurred in patient quality as a result of acquisition.⁹³ The results from these analyses do find some improvements at both Highland Park and Evanston. Several nursing sensitive PSIs at Highland Park Hospital indicate statistically significant improvements, however, risk adjusted obstetric PSI measures show some deteriorations post-merger. At Evanston, the authors find a post-merger decreased risk of adjusted pneumonia and stroke mortality. All other indicators are of mixed sign and are statistically insignificant.⁹⁴

85 Ryan L. Mutter, Patrick S Romano and Herbert S Wong, *The Effects of Us Hospital Consolidations on Hospital Quality* 18 INTERNATIONAL JOURNAL OF THE ECONOMICS OF BUSINESS 1 (2011): 109-26. They employ the use of Healthcare Cost and Utilization Project (HCUP) data and measure patient quality using 25 of the Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators (IQIs) and Patient Safety Indicators (PSIs).

86 The authors find that hospital consolidation is associated with decreased rates of failure to rescue and in-hospital mortality for pneumonia, increased rates of incidental appendectomy (for the elderly only), and increased rates of bloodstream infections. *Ibid.*, at 119.

87 The research design the authors implement presents advancement over the methodology used in many other studies as it considers both parties separately, and specifically seeks to find the ways in which the acquirer may itself individually benefit. This is an important consideration as consolidating services may result in one party experiencing improvement in a selected outcome because they are able to benefit from the volume-outcome relationship. However, if quality measures selected for analysis in studies are those for which volume is not an influencing factor: the studies may not detect actual improvements in quality.

88 Birkmeyer et al. (2002) find an inverse relationship between hospital surgical volume and mortality (operative death) for each of the 14 inpatient procedures (six types of cardiovascular procedures and eight types of major cancer resections) they investigate. They note that the relative importance of surgical volume varies depending on procedure type and ranges between a difference of 12 percent (for pancreatic resection) at the high end of the range and a difference of 0.2 percent (for carotid endarterectomy) at the low end of the range. John D. Birkmeyer, Andrea E. Siewers, Emily V.A. Finlayson, et al., *Hospital Volume and Surgical Mortality in the United States*, 346 NEW ENGLAND JOURNAL OF MEDICINE 15 (2002):1128-1137. Birkmeyer et al. (2003) find that surgeon volume and operative mortality are inversely related for each of the eight procedures they investigate (cardiovascular procedures and cancer resections). They note that although hospital volume appears initially to be the driver of this volume-outcome relationship, surgeon volume that accounts for a large proportion of the effect they identify. For aortic-valve replacement, surgeon volume accounts for 100 percent of the effect (the high end of the range), while 24 percent of the effect (the low end of the range) is due to surgeon volume for lung resection. John D. Birkmeyer, Therese A. Stukel, Andrea E. Siewers et al., *Surgeon Volume and Operative Mortality in the United States*, 349 NEW ENGLAND JOURNAL OF MEDICINE 2 (2003): 2117-2127.

89 Robert Town, *The Effects of Us Hospital Consolidations on Hospital Quality: A Comment*, 18 INTERNATIONAL JOURNAL OF THE ECONOMICS OF BUSINESS 1 (2011): 127-131.

90 A linear framework refers to the commonly utilized methodology relied upon to test for the effect of a merger by comparing observed rates pre-merger with observed rates post-merger for the sample under review.

91 Town presents a simple calculation under which a five percent decline in in-patient mortality would save 255 lives at a hypothetical hospital, representing an increase in consumer benefit of \$127.5 million. Town (2011) at 128.

92 Patrick S. Romano and David J. Balan., *A Retrospective Analysis of the Clinical Quality Effects of the Acquisition of Highland Park Hospital by Evanston Northwestern Healthcare*, FTC BUREAU OF ECONOMICS WORKING PAPERS (2010).

93 The transaction of interest occurred in 2000 and the authors use data from 1998-2003.

94 Romano and Balan (2010) at 55.

Ho and Hamilton (2000) explore the quality effects of hospital mergers occurring in California.⁹⁵ Results both for patients as a whole and patients grouped by insurance type indicate that there was no change for inpatient mortality. However, patients receiving treatment in a merged hospital experienced a 1.7 percentage point increase in the probability of readmission compared to a 0.9 percentage points increase for those receiving treatment in a hospital acquired by a system. The probability of early discharge (for newborns) increased by 3.2 percentage points in those hospitals acquired by another system. Although this study is often cited when addressing the quality effects of mergers and acquisitions, it has several limitations.⁹⁶

The literature reviewed in this section demonstrates that a fairly narrow range of outcomes are generally explored when attempting to identify the quality effects of hospital mergers and acquisitions. While most studies focus on readmission and mortality, some include IQIs and PSI. Although readmission and mortality have the advantage of being discrete events that are readily identified, they can present measurement challenges. Readmission can be used as a measure of quality with the justification that if a patient receives appropriate care, the probability of readmission should be lower. However, it is unclear over what length of time readmission should be measured. Additionally, ill patients may seek care at a different facility if they perceive the quality of care at their original institution as being suboptimal. Or at the extreme, critically ill patients may experience increased mortality preventing readmission from occurring. Most quality studies suffer from a significant limitation in that they fail to identify an appropriate control group. This is important as hospitals that merge (or are acquired) may be fundamentally different from those that do not. Identifying quality effects due to consolidation is difficult as the time period under review may be too brief to detect change. A longer time span would allow for implementation/adoption of new processes and procedures that may produce meaningful improvements in quality. In general, the results presented in this section highlight the need for caution when interpreting results and demonstrate the need for more research within this area of study.⁹⁷

IV. Insights from Antitrust Review of Hospital Transactions: There is More to Hospital Merger Impact Assessment than Market Concentration and Share

A. Overview

Much of the popular press on hospital mergers and antitrust concerns focuses primarily on aggregate market share and concentration trends by city as the basis for competition concerns about future mergers – that is, that local metropolitan areas (e.g., MSAs) may have fewer competitors or have experienced increased market shares of top hospitals or concentration today as compared to some point in the past.⁹⁸ This approach, however, does not connect the dots between concentration trends and the actual merger activity that has occurred – or is likely to occur in the future. Moreover, predictions about adverse effects on competition from this “trend” toward concentration typically are not based on any specific or fact-intensive inquiry into the effects of *recent* mergers, their

Moreover, predictions about adverse effects on competition from this “trend” toward concentration typically are not based on any specific or fact-intensive inquiry into the effects of recent mergers, their effects or motivations, but largely by reference to academic research evaluating price effects or studies examining relationships between price and structure conducted predominantly on data from the 1990s.

95 Vivian Ho and Barton H. Hamilton. *Hospital Mergers and Acquisitions: Does Market Consolidation Harm Patients?* 19 JOURNAL OF HEALTH ECONOMICS 5 (2000): 767-91. To investigate the effect of hospital mergers and acquisitions on quality, they identify 21 independent hospitals involved in a merger and 54 hospitals acquired by a system in California during 1992-1995. They use patient-level data from the California Office of Statewide Health Planning and Development (OSHPD) and AHA survey data. The outcomes measures of interest are inpatient mortality for heart attack and stroke patients, 90 day readmission rates for heart attack patients, and early discharge of newborns. The authors believe that quality effects may be due to changes in market power. If mergers and acquisitions increase market power by reducing competition, the hospitals within these markets may face less pressure to maintain or improve quality in order to stay competitive. They hypothesize that since a hospital may have little opportunity to exert market power to influence price, they may instead attempt to improve their bottom line by reducing cost via offering lower quality of care. The authors note that hospitals may have very limited ability to utilize increases in market power gained via mergers or acquisitions to influence price. This is because a large proportion of the hospital's volume stems from Medicare patients and the prices Medicare offers are essentially fixed. In addition, private insurers may use Medicare prices as a benchmark, so if Medicare prices remain steady, private payer prices may remain fixed as well.

96 The most significant limitation is in the failure to identify a better matched control group as hospitals that merge (or are acquired) may be fundamentally different from those that do not. In addition, the explanation for what drives the observed outcomes is at odds with findings from many other studies. Even if the findings were accurate for transactions which occurred in the early 1990s, results may not be applicable in today's operating environment, 20 years later. Information sharing and the availability of hospital performance measures along with financial penalties for poor performance (which are based on factors such as readmission and safety indicators) would moderate any desire to cut quality in order to reduce costs. Furthermore, the authors do not attempt to explain the mechanism through which quality reduction occurs.

97 For a more detailed review of the issues associated measuring quality in the empirical literature, see Guerin-Calvert and Israilevich (2011).

98 We note that this is sometimes portrayed as the increase in *average* concentration which can obscure the many cities that have lower concentration. For example, one study cites the increase in the average MSA level HHI from 2,440 in 1992 to 3,261 in 2006. Martin Gaynor, *The Three Ws of Consolidation and Competition in US Health Care*, Presentation to BIG HEALTH: CONSOLIDATION AND COMPETITION UNDER THE AFFORDABLE CARE ACT, The American Enterprise Institute, Washington, DC (March 1, 2013), slide 10, available online at www.aei.org/files/2013/03/05/-gaynor-slides_102018805600.pptx. Other studies that show concentration measures by geography reveal that many of the largest cities in the country are unconcentrated or moderately concentrated. See, e.g., Cutler and Scott Morton (2003) who compare concentration in the mid-1980s to today (at 1966).

effects or motivations, but largely by reference to academic research evaluating price effects or studies examining relationships between price and structure conducted predominantly on data from the 1990s.⁹⁹ Few conduct systematic examination using data on actual transactions *in the past decade* or place mergers that were the subject to challenge in the context of overall merger activity.

This section provides a summary of antitrust review of hospital transactions to provide insights into whether recent transaction trends are consistent with concerns about anticompetitive effects across a large population of mergers – and also to assess the findings from the empirical literature on merger competitive effects:

- **Only a small proportion of actual hospital transactions raise significant risks of substantial lessening of competition. The vast majority of transactions occurred in separate geographies or in ones with numerous competitors. Only a minority of mergers involved prolonged review by the antitrust agencies and of those several were not challenged.**
- **These trends are more supportive of a conclusion that the majority of transactions are competitively benign or value-enhancing transactions.**
- **High concentration, high market shares and the number of competitors are not predictive of either hospital merger challenges or predicted or actual anticompetitive effects: Both retrospective and prospective hospital merger analyses in highly concentrated markets show that mergers even in concentrated markets were not predicted to bring about, nor resulted in, substantial increases in prices.**

- There were approximately 333 hospital mergers from 2007-2011
 - Approximately 111 of those were reported to the FTC under Hart-Scott-Rodino
 - Approximately less than 1/10 of these triggered Second Requests
 - Only four were challenged in court – less than two percent of all hospital mergers over the last five years
- Leibowitz (2012)

B. Summary of Recent Antitrust Review of Hospital Mergers

In evaluating the impact of hospital mergers on competition and pricing it is useful to turn first to some statistics regarding antitrust review of recent hospital mergers. Government statistics suggest that only a small proportion of actual hospital transactions raise any risk of substantial lessening of competition. This finding is consistent with overall merger review statistics, which show that the vast majority of transactions reviewed by the federal agencies are found to be unlikely to result in a substantial lessening of competition.¹⁰⁰ The FTC has handled the prospective review of the vast majority of hospital transactions in recent years.¹⁰¹ According to Former FTC Chairman Leibowitz: “Let me pause here lest you get the impression that we never see a hospital merger we like. These are rough numbers, but according to public sources, 2007 to 2011 witnessed approximately 333 hospital mergers nationwide. About one third of those, approximately 111, were reported to the FTC under Hart-Scott-Rodino. Of those, approximately one tenth triggered Second Requests. We challenged only four in court – less than two percent of all hospital mergers over the last five years.”¹⁰²

99 Moreover much of this research focuses on highly concentrated “markets” or on mergers of geographically proximate competitors with few rivals. See, e.g., William B. Vogt and Robert Town, *How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?* THE SYNTHESIS PROJECT, 9 (Feb 2006) available online at http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2006/rwjf12056/subassets/rwjf12056_1.

100 “Mergers between competing firms, i.e., “horizontal” mergers, are a significant dynamic force in the American economy. The vast majority of mergers pose no harm to consumers, and many produce efficiencies that benefit consumers in the form of lower prices, higher quality goods or services, or investments in innovation... (Forward) The core concern of the antitrust laws, including as they pertain to mergers between rivals, is the creation or enhancement of market power... Most mergers between rivals do not create or enhance market power... However, the Agencies challenge mergers that are likely to create or enhance the merged firm’s ability--either unilaterally or through coordination with rivals--to exercise market power... The Agencies focus their attention on quickly identifying those transactions that could violate the antitrust laws, subjecting those mergers to greater scrutiny... For more than 95% of the transactions reported under HSR, the Agencies promptly determine... that a substantial lessening of competition is unlikely.” US DOJ/ FTC Commentary on the Horizontal Merger Guidelines, March 2006 at Forward and Introduction. <http://www.justice.gov/atr/public/guidelines/215247.htm>.

101 The FTC reviews transactions under the Hart-Scott-Rodino Act, and has also reviewed hospital transactions that do not meet HSR criteria.

102 Jon Leibowitz, Chairman, Federal Trade Commission, *Are Titanic Health Care Costs Sinking Us? What the FTC is Doing to Keep Patients Afloat*, Remarks at the ANTITRUST IN HEALTHCARE CONFERENCE, American Bar Association/American Health Lawyers Association, Arlington, VA (May 3, 2012)(emphasis added), available online at <http://www.ftc.gov/speeches/leibowitz/120503antitrusthealthcare.pdf>. This speech and Maureen Ohlhausen provide a summary of the challenged transactions. Maureen K. Ohlhausen, *Protecting Consumer Welfare in the U.S. Health Care Sector*, Remarks at the FORUM FOR EU-US LEGAL-ECONOMIC AFFAIRS, the Mentor Group (September 13, 2013). See also Jeffrey W. Brennan and Margaret E. Guerin-Calvert, *Assessing Hospital Mergers and Rivalry in an Era of Health Care Reform*, 27 ANTITRUST 3 (Summer 2013).

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Although about half of all transactions between 2007 and 2012 occurred within the same geography, statistics show that the vast majority of hospital merger transactions passed anti-trust review without need for extensive additional information. Moreover, not all of the healthcare transactions that triggered Second Requests led to challenges or threatened challenges (and/or abandonment) even though the alleged geographic markets were highly concentrated and had few hospital competitors in each of these transactions. This suggests other factors provided sufficient evidence of post-merger competitive discipline or consumer and community benefits from these specific transactions, including the absence of “customer complaints.”¹⁰³

...the absence of antitrust action for the vast majority of hospital transactions is inconsistent with concern that hospital mergers routinely implicate anticompetitive behavior, triggering higher prices.

While the challenges indicate that some mergers were regarded as posing significant risks to competition, the absence of antitrust action for the vast majority of hospital transactions is inconsistent with concern that hospital mergers *routinely* implicate anticompetitive behavior, triggering higher prices. First, the statistics suggest that the market structure in which many of the mergers occurred were not likely to raise competitive concerns. As noted previously, a large proportion of the acquisitions in the last six years did not involve overlapping geographies or, where there was an overlap, involved hospitals in areas with numerous competitors.¹⁰⁴ The transactions data also confirm that system acquisitions or formations infrequently have resulted in antitrust challenges, even though there have been a number of such transactions in the past two decades. Many of the larger healthcare systems in the US have facilities in a number of states, and acquisitions often have involved geographic expansion into new areas or states.¹⁰⁵

The transactions data also confirm that system acquisitions or formations infrequently have resulted in antitrust challenges, even though there have been a number of such transactions in the past two decades.

Second, the overview of hospital antitrust review highlights the fact-intensive nature of the inquiry involved in assessing the likely competitive effects and expected benefits of transactions. Merger review in the hospital sector as in other industries examines whether the specific transaction is likely to result in a substantial lessening of competition, or alternatively be pro-competitive with benefits manifested in efficiencies or quality.¹⁰⁶ The record from antitrust review and merger retrospectives (discussed below) makes clear that market structure alone is not a sufficient basis

from which to infer competitive effects. In assessing the relative merit of a merger transaction, several factors are considered including:

- The sufficiency of competitive alternatives (hospital rivals for the merging firms) and rivalry among hospitals
- The factors that promote or limit the ability of payors to negotiate competitive rates post-merger (including the importance of payors to hospitals and mechanisms that encourage use of higher value/lower cost alternatives)
- The rationale for the transaction and its quality and access benefits in the form of improved value relative to the “status quo.”

103 See, Darren Tucker, *A Survey of Evidence Leading to Second Requests at the FTC*, 78 ANTITRUST LAW JOURNAL 3 (2013):591-617 at Table 4, which shows 11 hospital transactions received Second Requests and most were in markets that FTC staff considered to be highly concentrated with few competitors. While there were no closing statements issued, other tables in the Tucker article suggest that reasons for conclusions that the transactions would not substantially lessen competition or warrant challenge could be absence of customer complaints or other factors with offsetting benefits or lower risks of competitive concerns (such as financial condition, capacity, or efficiencies). See also, closing statement on one FTC retrospective discussed below. For a discussion of possible efficiencies or benefits from transactions that could meet staff’s concerns see, e.g., Jeffrey H. Perry and Richard H. Cunningham, *Effective Defenses of Hospital Mergers in Concentrated Markets*, 27 ANTITRUST (Spring 2013):43-47.

104 See, discussion above in Section I. See, *The Hospital Acquisition Report*, IRVING LEVIN ASSOCIATES INC. (2012) at 15-228 and *How Hospital Mergers and Acquisitions Benefit Communities: Updated Study by the Center for Healthcare Economics and Policy*, CENTER FOR HEALTHCARE ECONOMICS AND POLICY AND THE AMERICAN HOSPITAL ASSOCIATION (September 2013), available online at <http://www.aha.org/content/13/13mergebenefitcommty.pdf>. The largest cities (as measured by Metropolitan Statistical Areas or MSAs) tend to be unconcentrated; based on measures of hospital systems and bed counts. See, *AHA Hospital Statistics*, AMERICAN HOSPITAL ASSOCIATION (2013) for bed counts and hospital affiliations, and for population and definition of MSAs, *Metropolitan and Micropolitan Statistical Areas*, U.S. CENSUS BUREAU, POPULATION DIV., available online at <http://www.census.gov/popest/data/metro/totals/2011>. See also, Thomas C. Brown, Jr., et al., *Current Trends in Hospital Mergers and Acquisitions*, 66 HEALTHCARE FINANCIAL MANAGEMENT 114 (2012).

105 See, *The Hospital Acquisition Report*, IRVING LEVIN ASSOCIATES, INC. (2012) at 6 for listing of transactions involving systems. Antitrust concerns raised in system transactions are infrequent and tend to involve overlaps in specific geographies. See, e.g., In the Matter of Inova Health System Foundation, and Prince William Health System, Inc., File No.: 061 0166, which was abandoned after FTC challenge. Some of the litigated hospital cases have involved systems, such as *FTC and State of Missouri v. Tenet Healthcare Corporation and Poplar Bluff Physicians Group*, File No. 971 0090; *US v. Long Island Jewish Medical Center and North Shore Health System, Inc.*; and *California v. Sutter Health System, No. C99-03803 MMC*. These were cases where the Courts ultimately concluded that there were sufficient competitors even within the local area, and that payors had the ability to discipline pricing post-merger by making increased use of these alternatives.

106 As noted herein, there are many potential sources of pro-competitive efficiencies from mergers, including quality and cost-savings; see, Joseph Farrell, David J. Balan, Keith Brand and Brett W. Wendling, *Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets*, 39 REVIEW OF INDUSTRIAL ORGANIZATION 4 (2011): 271-296 for discussion in hospital industry. Assessment of these effects form a fundamental part of evaluating horizontal merger effects. See, Robert D. Willig, *Incremental Consumer’s Surplus and Hedonic Price Adjustment*, 17 JOURNAL OF ECONOMIC THEORY 2 (1978):227-253 and *Unilateral Competitive Effects of Mergers: Upward Pricing Pressure, Product Quality, and Other Extensions* 39 REVIEW OF INDUSTRIAL ORGANIZATION 1 (2011):19-38. For examples in other industries see, Hoyer, Ken, Carl Shapiro and Jeffrey Wilder, *The Year in Review: Economics at the Antitrust Division, 2008–2009*, 35 REVIEW OF INDUSTRIAL ORGANIZATION 4 (2009):349-367 and Mark, Israel, Bryan Keating, Daniel Rubinfeld and Robert Willig, *Airline Network Effects and Consumer Welfare: A Preliminary Overview of Methodology and Findings*, Unpublished Working Paper (2011).

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Value and access benefits may be firm-specific – e.g., improving the operation and performance of a given hospital, or market-specific – e.g., enabling restructuring that aligns capacity more efficiently or enables hospitals and providers to better meet needs of a community in a more cost effective way. Moreover, benefits may be significant relative to what the hospital would do absent a merger; as discussed below, hospitals that do not merge may be forced to close or to downsize in staffing or in service lines.

Finally, **the statistics and review suggest that measures of share and concentration in local geographies are not necessarily a good predictor of competitive concerns in prospective merger review or indicative of anticompetitive results from actual transactions.** The variability in findings in FTC economists' studies of FTC hospital merger retrospectives provides insights. These reports are based on actual consummated mergers where the merging firms were two of relatively few competitors in what are alleged to have been highly concentrated markets. Only one of these cases (Evanston) was ultimately challenged by the FTC, and the investigation in one was actually affirmatively closed based, in part, on the majority of the Commission's assessment that the transaction had *not* resulted in significant price impact or other adverse impact for payors or consumers despite high shares and high concentration.¹⁰⁷ The other two cases examined in the FTC retrospective studies (Sutter, New Hanover) involved mixed evidence of estimated price impacts in the FTC authors' analyses, and countervailing factors or explanations such as failing firm, efficiencies, or quality effects offered by the authors or other commentators.¹⁰⁸

These retrospectives, however, are frequently cited as the primary basis for concern about the likely anticompetitive effects of hospital mergers and for the magnitude of possible price effects. For example, Cutler and Scott Morton (2013) refer to Martin Gaynor's 2011 Congressional testimony about two of these studies (on the Evanston and Sutter-Summit mergers) as a primary basis for concern about merger price effects. Gaynor and Town refer to these two retrospectives as well as one in North Carolina (Cape Fear-New Hanover) as bases for concern that hospital mergers could lead to 20-40 percent price increases.¹⁰⁹

These specific case studies and related hospital merger literature (such as that referenced in Gaynor and Town 2012) appear to have influenced perceptions of likely price impact of mergers and concerns that structural change in concentrated markets would routinely lead to higher prices. The following section provides a brief overview and assessment of these studies.

C. Review of Studies on the Estimated Price Effects from Hospital Mergers

A commonly voiced concern about hospital consolidation is that it leads to higher prices. Mergers and acquisitions are thought to increase market concentration by reducing alternatives available to payors. Fewer competitors, it is argued, equates to increased bargaining power for both the newly consolidated firm and those within the same market. This change in market concentration may ultimately influence price negotiations. Support for the assessment that mergers are likely to result in enhanced market power reference selected academic studies of price effects of mergers in the 1990s or early 2000s to draw inferences about market power impact and motivations for current and future transactions. As discussed below, some of the studies rely on payor negotiation models based on conditions more prevalent in the late 1990s – namely, broad and all inclusive networks where bargaining tended to be characterized as inclusion (or exclusion) of hospitals from a network.

A commonly voiced concern about hospital consolidation is that it leads to higher prices.... Many studies examine changes in concentration over time – not discrete events (i.e. merger transactions). No consistent quantified relationship is found, however, between changes in market concentration and observed hospital price increases across studies.

107 Statement of the Federal Trade Commission in re: Victory Memorial Hospital/Provena St. Therese Medical Center. File No. 011 0225. FTC economists conducted a retrospective analysis of the pricing impact of this transaction using a difference-in-difference (DID) approach, and concluded that the transaction did not result in statistically significant increases in prices to payors relative to chosen cohorts. See, Deborah Haas-Wilson and Christopher Garmon, *Hospital Mergers and Competitive Effects: Two Retrospective Analyses*, 18 INTERNATIONAL JOURNAL OF THE ECONOMICS OF BUSINESS 17 (2011):17-32.

108 While the methodology used to estimate relative price increases at merged hospitals relative to cohorts has been critiqued, these studies show mixed results about the effects of transactions in seemingly similar market structures. In the Cape Fear-New Hanover merger (Thompson), for example, there are mixed findings for three payors studied; in Sutter-Summit (Tenn), there was no finding of statistically significant increase for the acquiring firm (Sutter Alta Bates) but only for the acquired firm (which may be explained by adjustments due to its financial condition, or as suggested by Gowrisankaran in his comment due to quality increases). The Vista transaction found little evidence of significant increases instead finding statistically significant decreases for some payors. See, Haas-Wilson and Garmon (2011) for an overview. See also, Steven Tenn, *The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction*, 18 INTERNATIONAL JOURNAL OF THE ECONOMICS OF BUSINESS 17 (2011): 65-82; Gautam Gowrisankaran, *Evaluating the Impact of a Hospital Merger Using the Difference-in-Difference of Prices (Comment on article by Steven Tenn.)* (October 2010); Aileen Thompson, *The Effect of Hospital Mergers on Inpatient Prices: A Case Study of the New Hanover-Cape Fear Transaction*, 18 INTERNATIONAL JOURNAL OF THE ECONOMICS OF BUSINESS (2011):91-101, and Decision, California v. Sutter Health System, No. C99-03803 MMC for discussion of the financial condition of Summit and the finding that Summit met the failing firm defense.

109 See, e.g., Martin Gaynor, *Health Care Industry Consolidation*, Statement before THE U.S. CONGRESS, HOUSE COMMITTEE ON WAYS AND MEANS HEALTH SUBCOMMITTEE Congress, (September 9, 2011). Gaynor references other studies based on simulations, price-concentration studies, and other methodologies, which are discussed below.

Importantly, this reliance on past (and in some cases quite distant past) merger activity and assumptions reveals the imperative for a more comprehensive understanding of *current* market conditions, *current* merger motivations and more rigorous examination of merger effects to evaluate the likely benefits or competitive risks of current and future hospital transactions. Fundamentally different market conditions could imply that this past research is ill-suited – if not misleading – to inform current understanding of likely merger effects. Past research may not capture dramatic changes ongoing in the healthcare industry, including transformative changes on

Fundamentally different market conditions could imply that this past research is ill-suited – if not misleading – to inform current understanding of likely merger effects. Past research may not capture dramatic changes ongoing in the healthcare industry....

the provider and insurer side, and the pressures and results of healthcare reform – particularly requirements for new technologies, new business models, and reduced reimbursements. **Most of the oft-cited studies are based on mergers or data from the 1990s, under substantially different market conditions than current conditions.** As importantly, the studies should be kept in perspective as to their ability to inform prospective merger review across all mergers and for likely price impacts of actual mergers.

In an effort to consolidate the many pricing studies and draw together common themes and findings, Gaynor and Town (2012) and Vogt and Town (2006) prepared synthesis reports on effects of hospital consolidation.¹¹⁰ They summarize the findings of a number of studies examining merger effects and changes in concentration, including price-concentration studies, merger retrospectives, studies assessing specific mergers or sets of mergers and merger simulations using hypothetical mergers or actual mergers and specific econometric models.

They conclude from their review of selected merger retrospectives and a study by Leemore Dafny (addressed below) that “price increases exceeded 20% when mergers occurred in concentrated markets” (Gaynor and Town, 2012). As a starting point, it is important to note that the studies they reference are *specific cases* involving selected transactions or data from mergers in highly concentrated markets and thus are not generalizable to all mergers and acquisitions or even to *all* mergers in highly concentrated markets: (1) The majority of hospital acquisitions occur between firms located in different markets and would not be subject to the same market forces that study authors hypothesize drove price increases. (2) Many “in-market” mergers occur in the largest metropolitan areas with many competitors and do not involve material changes in concentration. (3) Even the selected case studies show mixed results – concentrated markets alone did not yield significant price increases.

- **Many studies examine changes in concentration over time – not discrete events (i.e., merger transactions). No consistent quantified relationship is found, however, between changes in market concentration and observed hospital price increases across studies.**¹¹¹

We review here some of the most frequently cited concentration studies and their findings. The studies attempt not only to determine if a relationship exists, but to quantify the impact increases in market concentration may have on the price level. **Vogt and Town (2006)** provide a summary of many of these studies and, importantly, report mixed findings. According to the authors, Structure-Conduct-Performance Studies find estimated price effects with findings ranging from negative to positive (a price change of *negative* three percent to positive 17 percent) while selected event studies also find price increases, including one study which finds increases of 40 percent.¹¹² These studies they review are based on data from the late 1980s and 1990s and utilize a range of methodologies.

Additional studies that are somewhat more current but largely based on historical data include **Antwi et al. (2009)**. They explore price and market concentration changes in California during the period 1992-2006.¹¹³ They find that hospital prices almost doubled¹¹⁴ and market concentration increased significantly during this period.¹¹⁵ However, when disaggregating by market area, they do not find any correlation between the rate of hospital price growth and HHI. This result suggests that changes in market concentration did *not* cause

¹¹⁰ William B. Vogt and Robert Town, *How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?* THE SYNTHESIS PROJECT, 9 (Feb 2006) available online at http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2006/rwjf12056/subassets/rwjf12056_1; Martin Gaynor and Robert Town, *The Impact of Hospital Consolidation – Update*, THE SYNTHESIS PROJECT (June 2012), available online at <http://www.rwjf.org/en/research-publications/find-rwjf-research/2012/06/the-impact-of-hospital-consolidation.html>. Gaynor’s 2011 Congressional testimony refers to eight of these studies, and summarizes additional literature on price variation and simulations.

¹¹¹ See, Gaynor and Town (2012) at Table 1 for a summary of results.

¹¹² See, Vogt and Town (2006) at 6-8 for a detailed summary of several structure-performance studies, and their review and critique of them.

¹¹³ Yaa Akosa Antwi, Martin Gaynor and William Vogt, *A Bargain at Twice the Price? California Hospital Prices in the New Millenium*, 12 FORUM FOR HEALTH ECONOMICS AND POLICY 1 (2009).

¹¹⁴ Price is measured by net revenue per discharge.

¹¹⁵ During 1992-2003, market concentration in the average county in California increased from 2,046 to 2,824. This change is consistent with the nationwide increase in HHI during this period. Antwi et al. (2009) at 8.

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increases in hospital price. The authors mention increased costs¹¹⁶ and HMO backlash as potential contributing factors, but are not able to identify the cause of the price increases they find. **Moriya et al. (2010)** analyze the relationship between insurer and hospital market concentration and hospital prices.¹¹⁷ Using commercial claims data covering 11 million commercially insured lives during 2001-2003, their findings suggest that hospital concentration is *not* significantly associated with price increases.¹¹⁸ However, the authors do find that insurer market concentration is associated with a statistically significant reduction in hospital prices.¹¹⁹ **Dranove et al. (2008)** examine whether the market concentration-hospital price relationship began to weaken during the 1990's through early 2000's.¹²⁰ To do so, they use data from California and Florida for the years 1990-2003.¹²¹ This study presents results about the hospital price-market concentration relationship; review of the study suggests that it declined and possibly reversed after peaking in 2001.¹²² Although not specifically addressed in their study, it may be that the recent shift in payor concentration and changes in payment mechanisms may have played a role in the results they find. Payment mechanisms that encourage consumers or physicians to take relative costs of care into account may increase the ability of payors to discipline pricing in geographies.¹²³

- **It is difficult to generalize about merger effects from some studies due to methodology and approach; several are based on simulations or models that either have not been validated against actual mergers or whose key assumptions may no longer be consistent with market realities. Price predictions may thus be overstated – possibly substantially.**

One frequently cited study regarding the price effects of hospital mergers is the 2009 study by **Dafny**.¹²⁴ This study is characterized as an “event study” by Town and Vogt. To address the concern of selection, namely that firms that merge tend to be different than firms that do not, Dafny instruments for rival mergers using rival co-located pairs.¹²⁵ The author’s main results are based on the particular estimation technique used, *i.e.*, instrumental variable analysis.¹²⁶ The author compares the results obtained using the instrumental variable approach with the results obtained from using actual mergers.¹²⁷ While the former indicate large and statistically significant price changes, the latter, *finds no price increase*. This highlights the fact that the results presented as main findings are highly sensitive to the methodology employed.¹²⁸ Finally, the analysis focuses only on markets with co-located merging hospital pairs and may have limited external validity. The author notes “Caution must be exercised, however, when extrapolating these conclusions to hospital mergers in general. The estimates I obtain rely on responses to mergers of co-located hospitals, which likely enjoy especially strong post-merger increases in market power.”

116 Two items which could have contributed to cost increases during this time are the newly adopted mandatory nurse-patient staffing levels and the seismic retrofitting mandate for hospital buildings.

117 Asako Moriya, William Vogt and Martin Gaynor, *Hospital Prices and Market Structure in the Hospital and Insurance Industries* 5 HEALTH ECONOMICS, POLICY AND LAW 4 (2010): 459-479.

118 Price is measured by actual transaction price. Although the coefficient on hospital concentration was positive, it was imprecisely measured as evidenced by the large standard errors. In a sensitivity test using different subset of states, the correlation between prices and hospital HHI remained statistically insignificant in every specification and was of varying sign. The hospital market was defined using Hospital Services Areas which consists of several counties.

119 It is unclear whether this is associated with monopsony power or other effects.

120 David Dranove, Richard Lindrooth, William White and Jack Zwanziger, *Is the Impact of Managed Care on Hospital Prices Decreasing?* 27 JOURNAL OF HEALTH ECONOMICS 2 (2008): 362-367.

121 Hospital financial data and patient-level discharger from California Office of State Health Planning and Development (OSHPD) and Florida State Center for health Statistics (SCHS) was obtained for: 1990, 1995, 1999, 2001, and 2003. Price is the weighted average of the net revenues received by the hospital for 10 common DRGs.

122 Both OLS and IV estimates demonstrate a statistically significant negative relationship between market concentration and hospital price. However, in estimating the relationship for each year individually, the estimates are positive, statistically significant, and increase through 2001, after which point they decline. Dranove et al. (2008) at Table 2.

123 See discussion below with regard to changes in marketplace changes.

124 Leemore Dafny, *Estimation and Identification of Merger Effects: An Application to Hospital Mergers*, 52 JOURNAL OF LAW AND ECONOMICS 3 (August 2009): 523-550.

125 The instrument, co-located pairs, is defined as hospitals located within 0.3 miles from each other and no more than 5 blocks apart. This produces a set of 191 pairs, of which 10 actually merged during the period under review. AHA annual survey and Medicare Cost Reports data are used in the analysis. Dafny used data for the time period 1989-1996 and limited her analysis to MSAs or counties with populations greater than 100,000. As there are factors that influence both the probability of merging and outcome measures, failing to control for these factors introduces bias. For example, a hospital suffering from poor management may be financially distressed and not able to maintain adequate staffing levels. This may lead to both sub-optimal outcomes as insufficient staff reduces the quality of care, as well as an increase in the probability of a merger since financially distressed firms may be more inclined to merge than healthy, self-sustaining organizations. However, since poor management (an unobservable factor) affects both the probability of merging and the quality of care (the outcome of interest), conventional techniques would produce biased estimates. In general, bias estimates result whenever an omitted factor is correlated with both the outcome of interest and the probability of merging. The author justifies the use of co-located pairs as an appropriate instrument because she reasons that the number of co-located pairs should be correlated with the probability of merging but should not influence any outcome measure. While the author does test the first assumption and finds that it holds, the second assumption, that the number of co-located pairs should not influence the outcome measure, is more suspect (especially since concerns regarding market concentration and price are so prevalent). To further address the concern of selection, Dafny looks not at the effect of a merger on the firm’s own price, but on that of rival firms located within the same market.

126 As the number of co-located pairs likely experiences little variation over time, her identification is primarily based upon cross-market variation. This approach implicitly assumes that different geographic markets are very similar and remain so over an extended period of time. The main results are based on a ratio of estimates. This calculation is based on the first stage estimation of the relationship between the number of co-located pairs and number of rival mergers: 0.119 (this value is presented in Table 2, column 3, row 2) and the relationship between price growth and rival colocation: 0.045 (this value is presented in Table 3, column 3, row 1). The resulting IV value is obtained by dividing the two estimates and can be interpreted as representing a 46% increase ($0.045/0.119 = 0.376$; $e.376 = 1.46$).

127 Table 4 in the paper compares the value obtained using the instrumental variable (columns 1 and 2) with those obtained using actual mergers (columns 3 and 4).

128 In specific, the estimated effect found relies heavily on the validity of the instrument.

Hospital Realignment: Mergers Offer Significant Patient and Community Benefits

Several studies rely on merger simulation or similar methodologies to test the likely impact of mergers. The economic models of hospital mergers that are referenced in the "simulation" or "event" studies cited by Town and Gaynor, Town and Vogt, and Cutler and Scott Morton and that suggest significant price predictions for mergers do not take into account current realities of new network structures and benefit designs.¹²⁹ These new network structures involve greater cost accountability by consumers (higher co-pays, deductibles, co-insurance, or premiums for choices involving broader networks or use of specific providers) that can influence consumer choice and are increasingly prevalent even in marketplaces with relatively few hospital systems, but especially in larger cities with substantial hospital alternatives. These networks provide increased flexibility for insurers to make use of alternatives and to respond to pricing or other conditions by changes in offerings – whether benefit or tier design.

An increasing proportion of consumers with private insurance are enrolled in plans with higher deductibles and co-pays, as well as in narrower or tiered networks.¹³⁰ Narrower or tiered networks typically provide lower premiums than broader or more inclusive networks at time of choosing plans and offer lower co-pays, deductibles or co-insurance for choice of specific providers by consumers. Narrow or limited networks are those that include a subset of hospitals offering the full range of hospital services while tiered networks are those that place hospitals on lower tiers based on meeting quality standards at lower relative "cost" to consumers in the form of out-of-pocket costs, and typically lower costs for services. These provide the ability to use out-of-pocket costs or premiums to encourage consumers to choose specific plans, or once a plan is chosen to motivate use of lower cost providers.

The omission of these important current real-world market facts that differ substantially from the all-inclusive networks prevalent in the late 1990s after backlash from HMOs means that critical elements of current competitive dynamics are not well accounted for in reported merger simulations based on older models. These network and benefit designs change a key assumption in prior models, which largely assumed all-inclusive networks. The omission is critical not just for the potential disconnect with real world conditions but for the impact on price predictions: models that do not take into account these realities may overstate predicted price increases from mergers where the ability of insurers to be responsive to pricing by use of new tools for network reconfiguration and for enhanced in-network steering impacts model predictions.¹³¹

This section has focused primarily on the price effects of mergers. Antitrust review of mergers, however, consider the impact on both price and non-price competition, and attempts to take into account many dynamic factors including entry and reposition, customer alternatives and potential benefits such as discussed above with regard to access, value and efficiency. As noted above, a comprehensive evaluation of the welfare effects of mergers takes these into account.¹³² Current simulation models for hospitals do not take into account these more dynamic factors and benefits.

Despite the role market concentration is thought to play in price increases, transactions between firms in disparate markets may also be subject to claims that such a transaction will result

The omission of these important current real-world market facts that differ substantially from the all-inclusive networks prevalent in the late 1990s after backlash from HMOs means that critical elements of current competitive dynamics are not well accounted for in reported merger simulations based on older models...The omission is critical not just for the potential disconnect with real world conditions but for the impact on price predictions....

129 For convenience, we summarize from Gaynor Congressional testimony the most frequently cited studies, which are based on econometric models based on specific assumptions: "Last, a few research papers have estimated the impacts of hospital mergers using simulation. These papers estimate models of hospital competition, then use the estimated parameters of those models to simulate the impacts of mergers (Town and Vistnes, 2001; Capps *et al.*, 2003; Gaynor and Vogt, 2003; Brand *et al.*, 2011). These papers find estimated impacts of mergers ranging from 5 to 53 percent increases in price. Town and Vistnes (2001) examine mergers among hospitals in Los Angeles and Orange Counties, California, where there are more than 120 hospitals between the two counties. They find that many of the mergers they examine would result in price increases of 5 percent or greater, in spite of the large number of hospitals in these counties. Capps *et al.* (2003) examine a three hospital merger in the southern suburbs of San Diego County, California, and find a price increase due to the merger of over 10 percent. Gaynor and Vogt (2003) find that a three-to-two hospital merger in San Luis Obispo, California (which was attempted, but blocked by the FTC) would have raised prices by over 50 percent. Brand *et al.* (2011) consider the recent proposed acquisition of Prince William hospital in Manassas, Virginia by Inova health system in Northern Virginia. They estimate that the acquisition would have led to price increases at Prince William hospital of anywhere from 19 to 33 percent." At 7.

130 *Employer Health Benefits: 2013 Annual Survey*, THE KAISER FAMILY FOUNDATION AND HEALTH RESEARCH AND EDUCATIONAL TRUST (2013).

131 Authors and reviewers of simulation studies note the assumptions made in many models and possible impact: For example "The exclusion of any hospital from the [managed care organization] MCO may lead to changes in the negotiated prices and/or network inclusion status of other hospitals." Farrell *et al.* (2011) at note 10; "[T]he [FTC] model does not take into account the sophisticated bargaining strategies and contractual solutions often adopted by MCOs and hospitals. These bargaining strategies may (and increasingly do) include an MCO's *ex ante* commitment to limited or tiered networks in order to extract better terms from hospitals by inducing them to compete for membership in the network or for placement in the most attractive network tiers, both of which are likely to bring a larger volume of patients to hospitals in the network by restricting the number of other, competing hospitals in the network." See Bryan Keating, Paolo Ramezzana, Robert Willig, Margaret Guerin-Calvert and Nauman Ilias, *Comment on Farrell, Balan, Brand and Wendling (2011), 'Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets'* (2012) at 4-5; See, also: Kate Ho and Robin S. Lee, *Insurer Competition and Negotiated Hospital Prices*, NBER Working Paper 19401 (2013) at 7; Robert Town and Gregory Vistnes, *Hospital Competition in HMO Networks*, 20 *Journal of Health Economics* 5 (2001): 733-753 at 734; and Gautam Gowrisankaran, Aviv Nevo and Robert Town, *Mergers When Prices Are Negotiated: Evidence from the Hospital Industry*, National Bureau of Economic Research, Working Paper No. 18875 (2013).

132 See, Robert D. Willig, *Incremental Consumer's Surplus and Hedonic Price Adjustment*, 17 *JOURNAL OF ECONOMIC THEORY* 2 (1978):227-253 and *Unilateral Competitive Effects of Mergers: Upward Pricing Pressure, Product Quality, and Other Extensions* 39 *REVIEW OF INDUSTRIAL ORGANIZATION* 1 (2011):19-38.

in price increases. This bias is particularly troubling as the majority of merger and acquisition transactions that take place occur in different markets and have no direct impact on market concentration.¹³³ **Melnick and Keeler (2007)** undertake a study to investigate whether system affiliation alone can influence hospital price.¹³⁴ Using financial data and patient-level discharge data from California Office of State Health Planning and Development (OSHPD) for the years 1998-2003, they find that hospitals in large systems appear to be able to increase prices significantly more than those in small systems.¹³⁵ These differential price increases hold for both system-affiliated hospitals with and without local hospitals in the same system. The authors hypothesize that systems obtain this favorable pricing through their ability to negotiate. Specifically, they theorize a multi-hospital system could exert leverage even if they have only one hospital in a local market by threatening to pull out all member hospitals from the insurer's plan. Alternatively, the authors note that it may be that system affiliated hospitals provide greater quality and observed differential pricing is a reflection of the quality differences, which would be a more pro-competitive explanation. Either explanation would be consistent with their reported results.

The Wall Street Journal notes that medical prices are rising at the lowest rate of the past half century. According to the Altarum Institute's Health Care Price Index, the rate of health care price growth is at an all-time low.

- **Price variation studies tend to be based on limited data or methodology. Empirical research demonstrates many factors account for price variation, including cost of patient care, severity of care, and health of populations served. Price variation is neither necessary nor sufficient to demonstrate market power exercise in differentiated products industries such as healthcare and differences in price levels are not indicative of market power.**

Moreover, empirical research demonstrates that a wide variety of factors account for price variation, including cost of patient care, the severity of illness, and the health of the populations served. ...price variation in and of itself is neither necessary nor sufficient to demonstrate market power exercise in differentiated products – indeed, FTC economists have noted that price levels and comparisons of levels are not indicative of market power in hospital services.

Price variation studies that address concerns about market power or anticompetitive pricing by payors are another relevant subsection of the pricing literature. These studies attempt to reconcile observed geographic variation in prices paid by private insurers or Medicare and often attribute any residual or unexplained portion as indicative of market power. For example, economists Paul Ginsburg and Robert Berenson have conducted interviews of executives or examine price variation across geographic markets and concluded that there is substantial price variation among hospitals. They conclude that such price variation is supportive of market power concerns, but they do not control for factors that could explain price variation.¹³⁶ Taking a more rigorous approach, **Guerin-Calvert and Israilevich (2011)**¹³⁷ explore geographic variation in hospital prices across the US and find that 72 percent of the observed difference can be explained by regional costs, case mix, hospital investments in capital, and other factors. They find that the remaining differ-

ence is likely due to differences in quality of care, cost due to complying with state regulations, and errors in the data. Based on their study findings, they conclude that there is no basis to assume that price variation is due to provider market power.

Some price variation studies estimate the variation in prices for private insurers versus Medicare. **White et al. (2013)**¹³⁸ compare an estimated actual price paid for medical services by private insurers to an estimate of what Medicare would have paid for a comparable service in order to assess the magnitude of geographic variation in price. The study authors assume that Medicare represents an

133 *How Hospital Mergers and Acquisitions Benefit Communities: Updated Study by the Center for Healthcare Economics and Policy*, CENTER FOR HEALTHCARE ECONOMICS AND POLICY AND THE AMERICAN HOSPITAL ASSOCIATION (September 2013), available online at <http://www.aha.org/content/13/13mergebenefitcommty.pdf>.

134 Price is measured as average net price index per inpatient day for private pay patients. Multi-system hospitals referenced in the study include affiliated hospitals with and without local hospitals in the same system. Glenn Melnick and Emmett Keeler, *The Effects of Multi-Hospital Systems on Hospital Prices* 26 JOURNAL OF HEALTH ECONOMICS 2 (2007): 400-413.

135 The authors report a 34 percent increase in price growth for large systems and 17 percent for small systems. Market concentration was not correlated with the effect of hospital system affiliation on price. *Ibid.*, at 400.

136 See, e.g., Berenson et al. (2010).

137 Margaret E. Guerin-Calvert and Guillermo Israilevich, *Assessment of Cost Trends and Price Differences for U.S. Hospitals* (March 2011).

138 Chapin White, Amelia M. Bond and James D. Reschovsky, *High and Varying Prices for Privately Insured Patients Underscore Hospital Market Power*, RESEARCH BRIEF: FINDINGS FROM HSC 27 (September 2013).

appropriate benchmark for evaluation of commercial reimbursements and can be used as an indicator of competitive “price.” The study concludes that market power, leverage, and “must-have hospital status” are responsible for estimated high prices and/or observed price variation. However, this conclusion is not supported by any standard economic analysis that relates “price” or “price”

As market conditions including financial pressures, excess capacity, the nature of hospital-insurer bargaining, the types of payment systems including shifts from fee-for-service, and other healthcare reform are changing over time, findings from these studies are ill-suited for inferring likely price impacts of transactions in 2013.

variation to market structure or competitive conditions (concentration, number of competitors, share, etc.). The paper excludes critical details that would allow for a thorough assessment of the methodological approach employed. The authors do not disclose sample size or service mix in any city included in their analysis. Nor do they account for the fact that the variation present could be due to comparing different types of physicians and hospitals with potentially widely varying services within and across cities. In addition, the policy recommendations presented in the study concerning price caps (such as setting commercial rates to be equal to Medicare) are unsupported by any analyses of whether medical services and access are sustainable at those rates.

While the recent focus in price variation is attracting attention, studies that attempt to explain the source of the variation tend to be suggestive at best and do not provide conclusive evidence to support their findings. Moreover, empirical research demonstrates that a wide variety of factors account for price variation, including cost of patient care, the severity of illness, and the health of the populations served. Finally, price variation in and of itself is neither necessary nor sufficient to demonstrate market power exercise in differentiated products – indeed, FTC economists have noted that price levels and comparisons of levels are not indicative of market power in hospital services.¹³⁹

The articles presented in this section highlight the fact that the relationship between market concentration and price is complex. **Mergers and acquisitions are thought to increase hospital prices through gains in market power (evidenced by increased concentration), but review of recent studies finds no consistent quantified statistical relationship between concentration and price.** Academic studies cited as supporting the concern that consolidation leads to increased prices tend to examine specific subsamples of hospitals. As such, the findings in these studies are not necessarily applicable or relevant for the broader sample of hospital mergers and acquisitions. Finally, many studies are based on transactions that occurred in the 1990s. As market conditions including financial pressures, excess capacity, the nature of hospital-insurer bargaining, the types of payment systems including shifts from fee-for-service, and other healthcare reform are changing over time, findings from these studies are ill-suited for inferring likely price impacts of transactions in 2013. These results suggest that the ultimate impact of consolidation on hospital prices is far from established and that the discussion would benefit from additional research on this topic.

V. “Price” Trends and Slowing of Rate of Growth

Changes in health care costs and prices attract significant attention and are among the most highly scrutinized trends in the health-care industry. Recent data indicate that increases in the price of health care are at record lows.¹⁴⁰ *The Wall Street Journal* notes that medical prices are rising at the lowest rate of the past half century. According to the Altarum Institute’s Health Care Price Index,¹⁴¹ the rate of health care price growth is at an all-time low.¹⁴² Hospital prices, a key driver of the index, experienced 1.5 percent year over year growth. This growth rate held steady from the August levels and is the lowest since 1998. Prices for physician and clinical services grew by only 0.2 percent while home health care prices fell by 0.4 percent. Data from the Bureau of Labor and Statistics tell a similar story. The September 2013 hospital Producer Price Index (PPI) increased 0.1 percent from the previous month.¹⁴³ For the 12-month period ending September 2013, annual hospital PPI increased 1.5 percent, significantly less than the 2.4 percent increase

139 See, Haas-Wilson and Garmon (2011).

140 Eric Morath and Louise Radnofsky, *Medical-Price Inflation is at Slowest Pace in 50 Years*, THE WALL STREET JOURNAL (September 17, 2013).

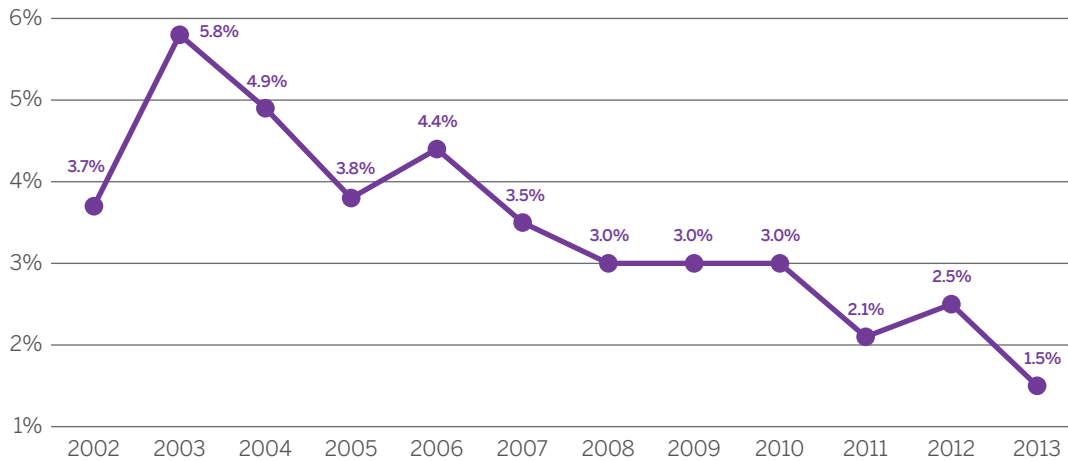
141 *Health Sector Economic Indicators: Insights from Monthly Price Indices through October 2013*, 13 ALTARUM INSTITUTE PRICE BRIEF 11 (November 13, 2013).

142 This represents a 23 year low as the data have been tracked since January of 1990.

143 The PPI is an industry-specific index that tracks price growth for that sector over time by measuring changes in price. The Consumer Price Index (CPI) calculates price growth for all items and is used as a measure of general inflation. Both measures are calculated by the Bureau of Labor Statistics (BLS). <http://www.bls.gov/home.htm>. The American Hospital Association routinely issues briefs reporting changes in hospital price growth. http://www.ahanews.com/ahanews/jsp/display.jsp?dcrpath=AHANews/AHANewsNowArticle/data/ann_103013_PPI&domain=AHANews

observed in the preceding 12 month period. This trend can have a significant impact on the government’s finances as healthcare represents one of the biggest components of the federal deficit. Figure 5 presents the change in hospital PPI for 2002-2012 and depicts a downward trend in rate of change hospital prices over time a sustained period of time.

Figure 5: Annual Percent Change in Hospital Prices



Source: Bureau of Labor Statistics, Producer Price Index data, 2002-2012 for Hospitals

In a recent paper, Cutler and Shani (2013) indicate that overall healthcare spending growth is slowing and identify several reasons including improved efficiency in the delivery of healthcare. Both the Centers for Medicare & Medicaid Services (CMS) and the Congressional Budget Offices (CBO) have reduced their spending forecasts as projected healthcare spending exceeded actual spending by a large margin. The CMS budget for the period 2003-2012 projected an annual per capita health care spending increase of 3.9 percent. However, real per capita health care spending increased 1.9 percent, on average during this period. Accordingly, CMS reduced its 2018 forecast by eight percent and the CBO reduced its 2020 forecast by seven percent.¹⁴⁴

Although the 2007 – 2009 recession is credited with a one-time decrease in the spending growth rate, Cutler and Shani find that this accounted for only 37 percent of the overall reduction in healthcare spending observed during the 2003-2012 period. A reduction in Medicare payment rates and a decline in commercial insurance coverage account for another eight percent of the observed decline.

They estimate that the remaining 55 percent of the reduction in spending is due to changes in the healthcare delivery system including greater provider efficiency and increased cost sharing, as well as a reduction in imaging technology proliferation and the advent of new pharmaceuticals.¹⁴⁵ **This slowing in the rate of growth of healthcare spending and in hospital PPI, on balance, suggests some benefit from changes in the health-care delivery system.**

Both the Centers for Medicare & Medicaid Services (CMS) and the Congressional Budget Offices (CBO) have reduced their spending forecasts as projected healthcare spending exceeded actual spending by a large margin.

VI. Conclusions

To contribute to the understanding of the likely effects of hospital mergers, we surveyed the literature (including both studies and articles in the press) to assess the competitive risks and benefits of consolidation. We focused on trends influencing transactions and healthcare delivery as well as literature on price, value, and quality effects. We find that the effects and in particular the benefits

¹⁴⁴ David M. Cutler and Nikhil R. Sahni, *If Slow Rate of Health Care Spending Growth Persists, Projections may be off by \$770 Billion*, 32 HEALTH AFFAIRS 5 (2013): 841-850. Slowdown in the rate of growth of healthcare spend is a positive development; the imperatives to strive for “Triple Aim” goals of enhanced patient care, improved population health, and reduction in rate of increase in per-capita costs in healthcare remain strong.

¹⁴⁵ Efficiency gains refer to the reduction in hospital acquired infections and reduced readmissions. The percentage of workers with high deductible health insurance plans has increased by 24 percentage points since 2006 and copayments for doctors office visits have increased 1.9 percent annually (in real terms) between 2006-2012. Magnetic resonance imaging and computed tomography use growth rate leveled off in 2006 after growing rapidly during 1996-2005. Prescription drug spending growth was 10.1 percent annually during 1993-2003, but slowed to an annual rate 2.3 percent during 2003-2012. *Ibid.*, at 845-846. For an additional empirical analysis of factors accounting for these trends, see: Henry J. Kaiser Family Foundation, *Assessing the Effects of the Economy on the Recent Slowdown in Health Spending* (Apr 22, 2013) available online at <http://kff.org/health-costs/issue-brief/assessing-the-effects-of-the-economy-on-the-recent-slowdown-in-health-spending>.

of hospital mergers are identifiable but broad-based current studies demonstrating these benefits are lacking. Academic studies and retrospective reviews, especially on price effects, present conflicting evidence and often rely on outdated data or assumptions about market realities. **There is considerable misinformation regarding the drivers of consolidation and the benefits due to realignment which include improvements in access, value, and efficiency. Despite significant concern that most mergers can unilaterally result in increased prices, FTC/DOJ reviews and enforcement actions suggest otherwise.** In addition, hospital price growth has been slowing and is at a record low, a fact that suggests that healthcare system redesign and realignment is yielding some benefits.

Realignment of services can achieve economies of scale and scope, improve quality of care and maintain or enhance access to care. Access to capital made possible by consolidation can enable facility and/or technology upgrades and investments.

Economic conditions and major systematic changes including the slow economic recovery, reduced reimbursements, increased demand for coordinated delivery of care, and implementation of costly healthcare IT systems (i.e., electronic medical records) present significant challenges to the hospital industry as a whole. Mergers provide a means to face these challenges and adapt to the changing landscape. Consolidation allows for realignment of services which can be used to address issues of excess capacity and may lead to cost savings and increases in efficiency. Realignment of services can achieve

economies of scale and scope, improve quality of care and maintain or enhance access to care. Access to capital made possible by consolidation can enable facility and/or technology upgrades and investments.

Despite concerns that mergers lead to anti-competitive pricing, FTC/DOJ reviews suggest that the risk of a substantial lessening of competition is not pervasive as only a handful of hospital mergers were actually challenged. High concentration or market share alone do not equate to anticompetitive effects. Prospective and retrospective merger analysis show that even in highly concentrated markets, the estimated effects on price often is mixed. In addition, although hospital mergers and acquisitions have not slowed, spending and price measures for the hospital industry indicate that price growth is slowing. The reliance on past (and in some cases quite distant past) merger activity and assumptions about market conditions to inform current policy reveals the imperative for a more comprehensive understanding of *current* market conditions, *current* merger motivations and more rigorous examination of merger effects to evaluate the likely benefits or competitive risks of current and future hospital transactions. **Fundamentally different market conditions could and do imply that past research is ill-suited – if not misleading – to inform current understanding of likely merger effects.** Past research may not capture dramatic changes ongoing in the healthcare industry, including pressures and results of healthcare reform – particularly requirements for new technologies, new business models, new benefit and network designs, and reduced reimbursements. Moreover, most of the oft-cited price-effect studies are based on mergers or data from the 1990s, under substantially different market conditions than current conditions, and using models that do not fully capture current conditions, thereby overstating merger effects potentially significantly. Further empirical study would be constructive to assess more fully the relevance of prior findings for today – such as the benefits from sustained operations and avoidance of service disruption or closure, and also to assess more completely the effects of mergers in this more complex environment.

...although hospital mergers and acquisitions have not slowed, spending and price measures for the hospital industry indicate that price growth is slowing.

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