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July 31, 2009

The Honorable Herb Kohl
Chairman
Subcommittee on Antitrust, Competition Policy and Consumer Rights
Committee on the Judiciary
United States Senate

Subject: *Private Health Insurance: Research on Competition in the Insurance Industry*

Dear Mr. Chairman:

Health care providers and members of Congress have raised concerns that consolidation in the private health insurance industry may be resulting in less competitive markets and contributing to rising health insurance rates paid by consumers and employers. However, measuring the extent of changes in market competition over time or the effects of changes is challenging. In particular, reliable, longitudinal data to measure concentration, that is, the number of competitors and their relative market share, are only available on health maintenance organizations (HMO) but not on preferred provider organizations (PPO) or other insurance products that may comprise the market.¹ Further, data on health insurers are not available at all geographic levels. Despite these challenges, researchers have used the data available to study competition in health insurance markets, typically using one of two measures of competition: (1) HMO market concentration or (2) the number of HMOs in a market.² Researchers acknowledge that market concentration and the number of competitors are not perfect measures of competition in private health insurance markets and that there

¹Health maintenance organizations (HMO) and preferred provider organizations (PPO) are insurance products that generally rely on providers to control service utilization and they provide financial incentives to encourage patients to use network providers who have agreed to accept fee discounts. Under an HMO, patients may be restricted to using only network providers, and they typically require that all specialty care be coordinated through a primary care physician. PPO enrollees face lower cost-sharing requirements when they receive care from network providers, but may choose non-network providers at a higher cost and do not typically need referrals to see a specialist. Other insurance products include, for example, point of service plans, which allow members to decide at the time medical services are needed whether they will seek care from a provider within the plan's network or seek care outside of the network.

²Greater concentration rates or fewer insurers may indicate a less competitive market, and lower concentration rates or a greater number of insurers may indicate a more competitive market.

are limits to the conclusions to be drawn from studies that rely on the available data.³ You asked us to review research completed on competition in the private health insurance industry. This report summarizes the findings of peer-reviewed research on concentration in private health insurance markets and the relationship between the level of competition and other variables, such as premium prices and provider reimbursement rates.

To identify research that examined the concentration of private health insurance markets and the relationship between the level of competition and other variables, we conducted a structured literature review, which resulted in 41 peer-reviewed articles we determined to be relevant to our objective. To conduct this review, we searched 17 reference databases, such as EconLit and Social SciSearch,⁴ for scholarly articles published between January 1990 and March 2009 using a combination of search terms, such as “health insurance” and “competition.”⁵ We made a judgment as to whether the article was directly relevant if it included empirical analyses examining either of the following: (1) the extent of market concentration or consolidation in the private health insurance industry or (2) the relationship between the level of competition and other variables. We excluded articles published prior to 1999 that relied solely on pre-1990 data. We included articles with varying scopes. For example, one article focused on a sample of HMOs in a limited geographic area while others considered data on HMOs and PPOs nationwide. Of the 41 articles, 35 relied solely on HMO data while the remaining 6 also examined data on other health insurance products. Our review focused on studies meeting our specific criteria, though there has been other research completed that relates to competition in health insurance markets.⁶ To confirm that our search captured all of the relevant peer-reviewed literature that met our criteria, we checked the bibliographies of the relevant articles to identify other potentially relevant studies. See the enclosure for a list of the 41 articles we identified through our literature review. We did not assess the methodologies of the studies identified in our review. Further, in summarizing the findings of the literature, we grouped the studies according to the topics covered and did not make judgments as to why studies may have reached different conclusions. We

³For example, one researcher noted that measuring market concentration generally does not account for the threat of entry of new competitors, which also affects the degree of competition in a market. Other researchers raised concerns that studies on HMO competition assume that HMOs constitute a separate product market though the researchers note that the market for HMO services may not be distinct from other types of non-HMO insurance products. See L. C. Baker, “Measuring Competition in Health Care Markets,” *Health Services Research*, vol. 36, no. 1 (April 2001), Part II, 223-251; T. L. Mark and R. M. Coffey, “Studying the Effects of Health Plan Competition: Are Available Data Resources Up to the Task?” *Health Services Research*, vol. 36, no. 1 (April 2001), Part II, 253-275; and D. P. Scanlon, M. Chernenow, S. Swaminathan, and W. Lee, “Competition in Health Insurance Markets: Limitations of Current Measures for Policy Analysis,” *Medical Care Research and Review*, vol. 63, no. 6 (Supplement to December 2006), 37S-55S.

⁴The 15 other databases included: MEDLINE, SciSearch: A Cited Reference Science Database, EMCare, Elsevier Biobase, EMBASE, NTIS, Dissertation Abstracts, Periodicals Abstracts, Wilson Business Abstracts, Gale Group Business A.R.T.S., ABI/INFORM, Gale Group Legal Resources Index, Wilson Social Sciences Abstracts, Employee Benefits InfoSource, and Insurance Periodicals Index.

⁵We searched the reference databases for all of the following combinations: “health insurance,” “managed care,” “health maintenance organization,” “HMO,” “preferred provider organization,” or “PPO,” and “competition,” “concentration,” “consolidation,” “merger,” “monopoly,” “monopsony,” or “antitrust.”

⁶For example, some studies examined the relationship between managed-care or HMO penetration rates, which capture the degree to which individuals are enrolled in managed care (often HMOs) relative to other types of plans, and other variables. Though these studies may provide insight on how market structure might affect, for example, premium rates, we determined that they did not meet our criteria unless the study also examined the effects of market concentration or the number of competitors.

conducted our work from May 2009 through July 2009 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions in this product. Because we did not evaluate the policies or operations of any federal agency to develop the information presented in this report, we did not seek comments from any agency.

In summary, our review found articles that measured the extent of concentration in private health insurance markets or focused on the relationship between competition in these markets and other variables, though the findings of these studies should be interpreted with caution. Several articles identified through our review examined the extent of concentration in private health insurance markets, though this research had limitations including, for example, relying on state-level data when the more appropriate geographic focus may be at a more local level. One study found that the HMO industry became more consolidated nationally from 1994 to 1997. According to the study, several national consolidations occurred during this period and contributed to the market share of the top five national firms growing from 43.2 percent in 1994 to 49.9 percent in 1997.^{7,8} The study found that the effects of these national consolidations on concentration varied significantly, with some local markets experiencing no change and others facing increases significant enough to raise antitrust concerns.⁹ While no other studies measured the extent of changes in the concentration of markets over time, several studies measured the concentration of local health insurance markets (defined as a state, metropolitan statistical area (MSA), or county depending on the study) at a point in time. For example, one study measured commercial health insurance concentration at the state level. The study reviewed data on HMO and PPO products for insured and self-insured employer funding arrangements across 48 states and the District of Columbia.¹⁰ The study found that market concentration at the state level in 2003 was relatively high by federal standards¹¹ and that the top three firms typically

⁷R. D. Feldman, D. R. Wholey, and J. B. Christianson, "HMO Consolidations: How National Mergers Affect Local Markets," *Health Affairs*, vol. 18, no. 4 (July/August 1999), 96-104.

⁸GAO work on competition in the small group health insurance market also suggests that the top carriers have increased their market share at the state level in recent years. Specifically, in surveying state insurance regulators, we found that between 2002 and 2008 the median market share of the largest small group carrier has increased to about 47 percent in 2008 from the 33 percent reported by states in 2002. Further, the number of states with a combined market share of the five largest carriers of 75 percent or more also increased during that period, from 19 of 34 states in 2002 to 34 of 39 states in 2008. See GAO, *Private Health Insurance: 2008 Survey Results on Number and Market Share of Carriers in the Small Group Health Insurance Market*, [GAO-09-363R](#) (Washington, D.C.: Feb. 27, 2009).

⁹For example, one merger would have increased the Herfindahl/Hirschman Index (HHI), an index of market concentration that accounts for the number of firms in a market and their market share, in the St. Louis metropolitan statistical area from 2,859 to 3,330. According to the study, increases of this magnitude may raise antitrust concerns.

¹⁰J. C. Robinson, "Consolidation and the Transformation of Competition in Health Insurance," *Health Affairs*, vol. 23, no. 6 (November/December 2004), 11-24.

¹¹The study used standards generally applied in the federal review of merger notifications. The Federal Trade Commission and the Department of Justice review notifications pertaining to proposed mergers exceeding a certain size and either agency can take action under the antitrust laws to stop such mergers. See 15 U.S.C. § 18a. As part of such a review, these agencies calculate pre- and post-merger market concentration using the HHI. Depending on the HHI score, the market is categorized as unconcentrated, moderately concentrated, or highly concentrated.

dominated each market. The study noted that data were available at the state level only, even though some states include multiple geographic markets and some geographic markets cross state lines, and that the study results should be interpreted with caution.

In addition to measuring concentration, research we reviewed generally focused on examining the relationship between the level of competition in private health insurance markets (or “competition”) and several variables—premium rates, rates paid to health care providers, utilization of medical services, quality of care, efficiency, and insurer profits. The results of this research should also be interpreted with caution because of data limitations and varying methodologies. For example, this research focused predominately on HMOs—and often did not include data on PPOs or other insurance products. Further, the research studies we reviewed defined geographic markets differently and controlled for different market characteristics.

Competition and premium rates

Research on the relationship between competition and premium rates generally focused on the association between the level of HMO competition and premium rates or on the effects of HMO mergers on premium rates. The studies generally found that more competitive markets were associated with lower premium rates, but that mergers have not led to sustained premium increases, though they may if the merger does not result in efficiencies. For example:

- One study that reviewed data on all HMOs operating from 1988 to 2001 found that an increase in the number of competing HMOs increased the bargaining power of employers looking to contract with HMOs and led to lower premiums, especially for for-profit HMOs.¹²
- Another study examined a sample of 40 HMO mergers that occurred between 1988 and 1994 and found that the mergers did not result in increased pricing.¹³

Competition and reimbursement rates

Studies that examined how competition in private health insurance markets was associated with provider payments focused on reimbursement rates to physicians and hospitals. The findings from these studies varied. For example:

- One study, which focused on markets in California, found that market concentration did not appear to be associated with physician rates including, for example, rates for evaluation and management, radiology, and pathology services.¹⁴

¹²R. Maude-Griffin, R. Feldman, and D. Wholey, “Nash Bargaining Model of HMO Premiums,” *Applied Economics*, vol. 36, no. 12 (July 2004), 1329-1336.

¹³R. Weech-Maldonado, “Impact of HMO Mergers and Acquisitions on Financial Performance,” *Journal of Health Care Finance*, vol. 29, no. 2 (Winter 2002), 64-77.

¹⁴J. E. Schneider, P. Li, D. G. Klesper, N. A. Peterson, T. T. Brown, and R. M. Scheffler, “The Effect of Physician and Health Plan Market Concentration on Prices in Commercial Health Insurance Markets,” *International Journal of Health Care Finance and Economics*, vol. 8, no. 1 (March 2008), 13-26.

- Another study that examined data on all HMOs operating in the United States from 1985 through 1997 found that greater HMO market concentration was associated with a reduction in hospital rates.¹⁵

Competition and utilization of medical services

Research examining the relationship between competition in private health insurance markets and utilization of medical services focused on inpatient hospital services and outpatient care. Together, the findings of these studies generally suggested that greater competition may be associated with decreased utilization of inpatient services, but the association with outpatient utilization was unclear. For example:

- One study that examined HMO and PPO data from selected metropolitan statistical areas from 2001 to 2004 found that greater HMO concentration was associated with an increased use of inpatient services.¹⁶ The study also found that higher PPO concentration was associated with more outpatient visits.
- Another study found that increasing the number of HMOs was associated with an increase in the use of both primary and specialty care physicians in highly competitive markets.¹⁷

Competition and quality of care

There was little consensus among the studies that examined the relationship between competition in private health insurance markets, predominately HMO competition, and quality of care. Some found that greater competition was associated with lower quality of care, others found an association with higher quality of care, and others found no relationship. For example:

- One study that examined HMO performance on certain quality measures in 1999 found that greater market competition was associated with inferior health plan performance on measures of quality related to women’s care, health plan service, and customer satisfaction.¹⁸
- Using 1997 data, another study found that HMO competition increased the likelihood of gatekeeping—an arrangement in which consumers select a primary care physician who authorizes referrals for other care. The study also found that gatekeeping increased the

¹⁵R. Feldman, and D. Wholey, “Do HMOs Have Monopsony Power?” *International Journal of Health Care Finance and Economics*, vol. 1, no. 1 (March 2001), 7-22.

¹⁶This study found that a 10 percent increase in HMO concentration was associated with about 1.5 to 1.9 percent more inpatient days. See L. J. Bates and R. E. Santerre, “Do Health Insurers Possess Monopsony Power in the Hospital Services Industry?” *International Journal of Health Care Finance and Economics*, vol. 8, no. 1 (March 2008), 1-11.

¹⁷D. R. Wholey, L. R. Burns, and R. Lavizzo-Mourey, “Managed Care and the Delivery of Primary Care to the Elderly and the Chronically Ill,” *Health Services Research*, vol. 33, no. 2 (June 1998), pt. II, 322-353.

¹⁸D. P. Scanlon, S. Swaminathan, M. Chernew, J.E. Bost, and J. Shevock, “Competition and Health Plan Performance: Evidence from Health Maintenance Organization Insurance Markets,” *Medical Care*, vol. 43, no. 4 (April 2005), 338-346.

probability of consumers having a usual source of care, which may improve the quality of care.¹⁹

Competition and efficiency

Studies that examined the relationship between competition in private health insurance markets and efficiency focused on the effect that different levels of competition or mergers had on costs for health insurers or hospitals. Several studies found that less competition was associated with greater cost savings for insurers or hospitals—although another study we reviewed found the opposite relationship. Other studies examining the effects of mergers found no evidence of decreasing costs as a result of consolidation. For example:

- The results from one study showed that greater HMO market concentration at the state level was positively associated with greater efficiency for hospitals, with the authors concluding that dominant insurers have the ability to promote hospital cost savings by exerting their market power to pressure hospitals to become more cost-efficient.²⁰
- Another study that looked at HMO mergers between 1985 and 1997 concluded that, on average, HMO mergers did not provide economies of scale and did not result in either short- or long-term cost savings. However, the authors allowed that certain types of mergers, for example between very small and large HMOs, may result in efficiencies.²¹

Competition and insurer profits

Finally, several studies we reviewed analyzed the relationship between HMO competition and insurer profits or the effect of HMO mergers on profits. Together, these studies suggested that greater competition was associated with lower profits but that mergers do not always result in increased profits. For example:

- One study that examined profit rates in 1994 and 1997 for all HMOs in 259 metropolitan areas found that profits were significantly lower in areas with more competition, as measured by the number of HMOs and their market concentration.²²
- Another study using 1997 data at the MSA level found that for both local and national HMOs the presence of another HMO with a comparable geographic scope was associated with lower profits while the presence of an HMO with a different scope had no effect on profits.²³

¹⁹A. R. Sommers, and D. R. Wholey, “The Effect of HMO Competition on Gatekeeping, Usual Source of Care, and Evaluations of Physician Thoroughness,” *The American Journal of Managed Care*, vol. 9, no. 9 (September 2003), 618-627.

²⁰L. J. Bates, K. Mukherjee, and R. E. Santerre, “Market Structure and Technical Efficiency in the Hospital Services Industry: A DEA Approach,” *Medical Care Research and Review*, vol. 63, no. 4 (August 2004), 499-524.

²¹J. Engberg, D. Wholey, R. Feldman, and J. B. Christianson, “The Effect of Mergers on Firms’ Costs: Evidence from the HMO Industry,” *The Quarterly Review of Economics and Finance*, vol. 44, iss. 4 (September 2004), 574-600.

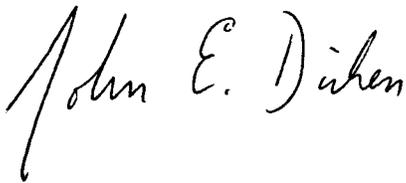
²²M. V. Pauly, A. L. Hillman, M. S. Kim, and D. R. Brown, “Competitive Behavior in the HMO Market Place,” *Health Affairs*, vol. 21, no. 1 (January/February 2002), 194-202.

²³D. Dranove, A. Gron, and M. J. Mazzeo, “Differentiation and Competition in HMO Markets,” *The Journal of Industrial Economics*, vol. 51, no. 4 (December 2003), 433-454.

- A third study that looked at the effects of a sample of 40 mergers that occurred from 1988 to 1994 on an HMO's profitability found that mergers did not improve financial performance, with no significant difference in performance between the pre- and post-merger period.²⁴

As arranged with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days after its issue date. At that time, we will send copies to other interested parties. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Please contact me at (202) 512-7114 if you have any questions. Major contributors to this report were Kristi Peterson, Assistant Director; Susan Barnidge; Krister Friday; and Nelson Olhero.

Sincerely yours,



John E. Dicken
Director, Health Care

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²⁴R. Weech-Maldonado, "The Impact of HMO Mergers and Acquisitions on Financial Performance," *Journal of Health Care Finance*, vol. 29, no. 2 (Winter 2002), 64-77.

Articles Identified through Literature Review

GAO identified 41 articles that included empirical analyses examining concentration of health insurance markets or the relationship between the level of competition in private health insurance markets and other variables, or both. Table 1 identifies articles that address these topics, with the numbers corresponding to the list of articles that follows.

Table 1: Index of Articles by Topic

Topic	Article numbers
Market concentration	2, 10, 27, 31
Relationship between competition and:	
Premium rates	11, 20, 33, 35, 36, 37, 39
Provider reimbursement	9, 31, 40, 41
Utilization of medical services	2, 9, 14, 38, 39
Quality of care	1, 4, 5, 13, 18, 19, 21, 22, 25, 26, 28, 29, 30, 32, 34
Efficiency	2, 3, 8, 11, 16, 33, 35, 37
Insurer profit	7, 20, 23, 24, 33, 35
Other	6, 12, 15, 17, 32

Source: GAO.

The 41 articles that GAO identified in the literature are as follows:

1. Baker, L. C., K. A. Phillips, J. S. Haas, S.-Y. Liang, and D. Sonneborn, "The Effect of Area HMO Market Share on Cancer Screening," *Health Services Research*, vol. 39, no. 6 (December 2004), pt. I, 1751-1772.
2. Bates, L. J., and R. E. Santerre, "Do Health Insurers Possess Monopsony Power in the Hospital Services Industry?" *International Journal of Health Care Finance and Economics*, vol. 8, iss. 1 (March 2008), 1-11.
3. Bates, L. J., K. Mukherjee, and R. E. Santerre, "Market Structure and Technical Efficiency in the Hospital Services Industry: A DEA Approach," *Medical Care Research and Review*, vol. 63, no. 4 (August 2006), 499-524.
4. Bokhari, F. A. S., "Managed Care Competition and the Adoption of Hospital Technology: The Case of Cardiac Catheterization," *International Journal of Industrial Organization*, vol. 27, iss. 2 (March 2009), 223-237.
5. Bundorf, M. K., K. A. Schulman, J. A. Stafford, D. Gaskin, J. G. Jollis, and J. J. Escarce, "Impact of Managed Care on the Treatment, Costs, and Outcomes of Fee-for-Service Medicare Patients with Acute Myocardial Infarction," *Health Services Research*, vol. 39, no. 1 (February 2004), 131-152.
6. Burns, L. R., G. J. Bazzoli, L. Dynan, and D. R. Wholey, "Impact of HMO Market Structure on Physician-Hospital Strategic Alliances," *Health Services Research*, vol. 35, no. 1, pt. 1 (April 2000), 101-132.
7. Dranove, D., A. Gron, and M. J. Mazzeo, "Differentiation and Competition in HMO Markets," *The Journal of Industrial Economics*, vol. 51, no. 4 (December 2003), 433-454.

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8. Engberg, J., D. Wholey, R. Feldman, and J. B. Christianson, "The Effect of Mergers on Firms' Costs: Evidence from the HMO Industry," *The Quarterly Review of Economics and Finance*, vol. 44, iss. 4 (September 2004), 574-600.
9. Feldman, R., and D. Wholey, "Do HMOs Have Monopsony Power?" *International Journal of Health Care Finance and Economics*, vol. 1, no. 1 (March 2001), 7-22.
10. Feldman, R. D., D. R. Wholey, and J. B. Christianson, "HMO Consolidations: How National Mergers Affect Local Markets," *Health Affairs*, vol. 18, no. 4 (July/August 1999), 96-104.
11. Feldman, R., D. Wholey, and J. Christianson, "Effect of Mergers on Health Maintenance Organization Premiums," *Health Care Financing Review*, vol. 17, no. 3 (Spring 1996), 171-189.
12. Frick, K. D., and N. R. Powe, "HMO Coverage of Cosmetic Procedures: A Response to Market Competition," *International Advances in Economic Research*, vol. 4, no. 4 (November 1998), 398-410.
13. Frick, K. D., and N. R. Powe, "Nonprice Rivalry among Health Insurers and Coverage of New Technologies," *Atlantic Economic Journal*, vol. 28, no. 4 (December 2000), 450-462.
14. Gaskin, D. J., "The Impact of Health Maintenance Organization Penetration on the Use of Hospitals that Serve Minority Communities," *Medical Care*, vol. 35, no. 12 (December 1997), 1190-1203.
15. Gaskin, D. J., J. J. Escarce, K. Schulman, and J. Hadley, "The Determinants of HMOs Contracting with Hospitals for Bypass Surgery," *Health Services Research*, vol. 37, no.4 (August 2002), 963-984.
16. Given, R. S., "Economies of Scale and Scope as an Explanation of Merger and Output Diversification Activities in the Health Maintenance Organization Industry," *Journal of Health Economics*, vol. 15, iss. 6 (December 1996), 685-713.
17. Jin, G. Z., "Competition and Disclosure Incentives: An Empirical Study of HMOs," *Rand Journal of Economics*, vol. 36, no. 1 (Spring 2005), 93-112.
18. Kirby, E. G., "The Impact of Competition on the Importance of Conforming to Social Norms: Strategies for Managed Care Organizations," *Journal of Health Organization and Management*, vol. 20, no. 2 (2006), 115-129.
19. Liu, H., and C. E. Phelps, "Nonprice Competition and Quality of Care in Managed Care: The New York SCHIP Market," *Health Services Research*, vol. 43, no. 3 (June 2008), 971-987.
20. Maude-Griffin, R., R. Feldman, and D. Wholey, "Nash Bargaining Model of HMO Premiums," *Applied Economics*, vol. 36, no. 12 (July 2004), 1329-1336.
21. Mitchell, S., and M. Schlesinger, "Managed Care and Gender Disparities in Problematic Health Care Experiences," *Health Services Research*, vol. 40, no. 5, pt. I (October 2005), 1489-1513.

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22. Mukamel, D. B., J. Zwanziger, and K. J., Tomaszewski, "HMO Penetration, Competition, and Risk-Adjusted Hospital Mortality," *Health Services Research*, vol. 36, no. 6 (December 2001), pt. 1, 1019-1035.
23. Pauly, M. V., A. L. Hillman, M. S. Kim, and D. R. Brown, "Competitive Behavior in the HMO Market Place," *Health Affairs*, vol. 21, no. 1 (January/February 2002), 194-202.
24. Pauly, M. V., A. L. Hillman, M. F. Furukawa, and J. S. McCullough, "HMO Behavior and Stock Market Valuation: What Does Wall Street Reward and Punish?" *Journal of Health Care Finance*, vol. 28, no. 1 (Fall 2001), 7-15.
25. Ponce, N. A., S. Huh, and R. Bastani, "Do HMO Market Level Factors Lead to Racial/Ethnic Disparities in Colorectal Cancer Screening," *Medical Care*, vol. 43, no. 11 (November 2005), 1101-1108.
26. Rivers, P. A., and M. D. Fottler, "Do HMO Penetration and Hospital Competition Impact Quality of Hospital Care," *Health Services Management Research*, vol. 17, no. 4 (November 2004), 237-248.
27. Robinson, J. C., "Consolidation and the Transformation of Competition in Health Insurance," *Health Affairs*, vol. 23, no. 6 (November/December 2004), 11-24.
28. Scanlon, D. P., S. Swaminathan, M. Chernew, J. E. Bost, and J. Shevock, "Competition and Health Plan Performance: Evidence from Health Maintenance Organization Insurance Markets," *Medical Care*, vol. 43, no. 4 (April 2005), 338-346.
29. Scanlon, D. P., S. Swaminathan, W. Lee, and M. Chernew, "Does Competition Improve Health Care Quality?" *Health Services Research*, vol. 43, no.6 (December 2008), 1931-1951.
30. Scanlon, D. P., S. Swaminathan, M. Chernew, and W. Lee, "Market and Plan Characteristics Related to HMO Quality and Improvement," *Medical Care Research and Review*, vol. 63, no. 6 supplement (December 2006), 56S-89S.
31. Schneider, J. E., P. Li, D. G. Klesper, N. A. Peterson, T. T. Brown, and R. M. Scheffler, "The Effect of Physician and Health Plan Market Concentration on Prices in Commercial Health Insurance Markets," *International Journal of Health Care Finance and Economics*, vol. 8, no. 1 (March 2008), 13-26.
32. Sommers, A. R., and D. R. Wholey, "The Effect of HMO Competition on Gatekeeping, Usual Source of Care, and Evaluations of Physician Thoroughness," *The American Journal of Managed Care*, vol. 9, no. 9 (September 2003), 618-627.
33. Town, R., "The Welfare Impact of HMO Mergers," *Journal of Health Economics*, vol. 20, iss. 6 (November 2001), 967-990.
34. Volpp, K. G. M., and E. Buckley, "The Effect of Increases in HMO Penetration and Changes in Payer Mix on In-Hospital Mortality and Treatment Patterns for Patients with Acute Myocardial Infarction," *The American Journal of Managed Care*, vol. 10, no. 7 (July 2004), 505-512.

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35. Weech-Maldonado, R. "The Impact of HMO Mergers and Acquisitions on Financial Performance," *Journal of Health Care Finance*, vol. 29, no. 2 (Winter 2002), 64-77.
36. Wholey, D., R. Feldman, and J. B. Christianson, "The Effect of Market Structure on HMO Premiums," *Journal of Health Economics*, vol. 14, iss. 1 (May 1995), 81-105.
37. Wholey, D., R. Feldman, J. B. Christianson, and J. Engberg, "Scale and Scope Economies among Health Maintenance Organizations," *Journal of Health Economics*, vol. 15, iss. 6 (December 1996), 657-684.
38. Wholey, D. R., L. R. Burns, and R. Lavizzo-Mourey, "Managed Care and the Delivery of Primary Care to the Elderly and the Chronically Ill," *Health Services Research*, vol. 33, no. 2 (June 1998), pt. II, 322-353.
39. Wholey, D. R., J. B. Christianson, J. Engberg, and C. Bryce, "HMO Market Structure and Performance: 1985-1995," *Health Affairs*, vol. 16, no. 6 (November/December 1997), 75-84.
40. Younis, M. Z., P. A. Rivers, and M. D. Fottler, "The Impact of HMO and Hospital Competition on Hospital Costs," *Journal of Health Care Finance*, vol. 31, no. 4 (Summer 2005), 60-74.
41. Zwanzinger, J., "Physician Fees and Managed Care Plans," *Inquiry-Excellus Health Plan*, vol. 39, no. 2 (Summer 2002), 184-193.

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