Does the Structure of Medical Practice Predict Quality of Care?

Mehrotra A, Epstein AM, Rosenthal MB. Do integrated medical groups provide higher quality medical care than individual practice associations? Ann Intern Med 2006;145:826–33.

Study Overview

Objective. To determine if type of physician organization is associated with quality of care.

Design. Cross-sectional study.

Setting and participants. The study included 119 physician groups in California that provided care for 1.7 million patients and contracted with a single health maintenance organization (PacifiCare) with a capitated payment system. Of the 119 physician groups, 19 were classified as integrated medical groups (IMGs), 61 as independent physician associations (IPAs), and 39 as "hybrids" based on the report of the organization's physician group leader. IMGs were defined as centralized organizations in which physicians are employees or participants in a partnership arrangement. IPAs were defined as decentralized groups, in which physicians have nonexclusive contractual relationships with IPAs and generally manage their own offices independently. Hybrid groups were defined as a core medical group with an IPA. The average number of physicians in IMGs, hybrids, and IPAs was 242, 318, and 390, respectively. Data from a 1999–2000 telephone survey with the organization's chief executive officer or medical director were used to determine each organization's age, proportion of board-certified physicians, use of an electronic medical record (EMR), use of pay-for-performance incentives, and use of 11 different quality improvement strategies. Patient volume for each organization was estimated. Data on quality of care were derived from existing claims-based PacifiCare report cards for care delivered in the year following the survey period.

Main outcome measure. The proportion of eligible patients in each physician group who received any of 3 measures of preventive care (mammography, Papanicolaou [Pap] smear screening, chlamydia screening) and 3 measures of chronic disease management (diabetic retinal examination, controller medication for moderate to severe asthma, β blocker after myocardial infarction [MI]).

Main results. After adjusting for use of EMRs, use of pay-for-performance incentives, proportion of board-certified physicians, the number of quality improvement strategies used, and patient volume, IMGs were associated with higher quality care than IPAs on 4 of 6 quality measures: mammography (relative risk [RR], 1.15 [95% confidence interval {CI}, 1.01–1.33]), Pap smear screening (RR, 2.29 [95% CI, 1.53–3.42]), chlamydia screening (RR, 2.17 [95% CI, 1.04–4.55]), and diabetic retinal examination (RR, 1.55 [95% CI, 1.28–1.88]). Hybrids performed better than IPAs but worse than IMGs on these quality measures. IMGs were most likely to report using EMRs and quality improvement strategies, but this did not consistently explain the association between organizational structure and quality of care. There were no associations between organizational structure

(continued on page 131)

Outcomes Research in Review SECTION EDITORS

Harvey J. Murff, MD, MPH
Vanderbilt University Medical Center
Nashville, TN

Mark S. Horng, MD, MPH
VA Greater Los Angeles Healthcare System
Los Angeles, CA

Ashish K. Jha, MD, MPH
Brigham and Women's Hospital
Boston, MA

Thomas D. Sequist, MD, MPH
Brigham and Women's Hospital
Boston, MA

Ula Hwang, MD, MPH
Mount Sinai School of Medicine
New York, NY

Lisa M. Kern, MD, MPH
Weill Medical College of Cornell University
New York, NY

Salomeh Keyhani, MD, MPH
Mount Sinai School of Medicine
New York, NY

Nirav R. Shah, MD, MPH
New York University School of Medicine
New York, NY

Robert L. Huang, MD
Vanderbilt University Medical Center
Nashville, TN

(continued from page 127)

and quality of care for asthma medication use or β-blocker use after MI.

Conclusion. Organizational structure of physician groups appeared to impact quality of care, with IMGs generally providing higher-quality care than IPAs.

Commentary

Donabedian's [1] classic paradigm suggests that 3 aspects of health systems (structure, process, and outcomes) should be considered when evaluating quality of care. Donabedian further posits that the 3 aspects are linked—"good structure increases the likelihood of good process, and good process increases the likelihood of good outcomes" [1]. Structure refers to material resources, human resources, and organizational structure, whereas process refers to the care delivered and outcomes refers to patients' health status. However, it is unclear what constitutes "good structure." Few studies have empirically explored the relationship between structure and process, and studies that have been performed have found conflicting results [2].

Mehrotra and colleagues sought to determine whether organizational structure is associated with performance on process measures. They hypothesized that IMGs would outperform hybrids and IPAs because more resources may be available to devote to improving patient care. Their finding—that IMGs were associated with higher quality of care on 4 of 6 process measures—should be interpreted with caution because the study has several important limitations. The results could be confounded by unmeasured physician characteristics, as physicians who work for IMGs may be systematically different than those who work for IPAs. Second, patient characteristics, including case mix, were not accounted for and this could have led to apparent differences in performance across organizations. Third, the 6 measures that were evaluated represent only a small subset of quality of care data, and consideration of a larger set of measures might yield different results. Fourth, organizational structure was associated with age of the physician group (with IMGs being significantly older), and the results may reflect that more experienced groups perform better rather than IMGs per se. Fifth, this study evaluated physician groups in a single California health maintenance organization that used capitated payments, and California's health care market has been shown to have limited generalizability to the rest of the country [3]. Finally, because EMRs and quality improvement initiatives did not explain the association between organizational structure and quality of care, the mechanism of the association is unclear.

This study raises important questions about the relationship between structure and process, but it does not provide definitive answers. Future studies should examine which specific organizational characteristics lead to better performance on process measures and explore whether those characteristics are intrinsic to a certain organizational type (eg, administrative structure) or whether they could be implemented in others (eg, information technology).

Applications for Clinical Practice

In California, IMGs have higher rates of screening with mammography, Pap smears, diabetic eye examinations, and tests for chlamydia compared with IPAs and hybrid groups, but there were no differences in rates of use of asthma medication or β blockers after MI. Although these results may be confounded by unmeasured variables, quality of care may indeed vary with organizational structure, and additional research is needed to identify the key organizational characteristics that lead to better quality.

—Review by Lisa M. Kern, MD, MPH

References

1. Donabedian A. The quality of care. How can it be assessed? JAMA 1988;260:1743–8.
2. Casalino LP. Which type of medical group provides higher-quality care [editorial]? Ann Intern Med 2006;145:860–1.
3. Gillies RR, Shortell SM, Casalino L, et al. How different is California? A comparison of U.S. physician organizations. Health Aff (Millwood) 2003;Suppl Web Exclusives:W3–492–502.

Copyright 2007 by Turner White Communications Inc., Wayne, PA. All rights reserved.