Vertical Integration Likely Increases Spending, but Does It Also Improve Quality of Care?

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This decade has seen a dramatic increase in hospitals owning physician practices, with between one third and one half of all physicians' practices owned by a hospital. Research on the causes and consequences of this vertical integration—i.e., consolidation between “upstream” physicians and “downstream” hospitals—has proliferated almost as quickly as the phenomenon itself, in part because of the growing availability of commercial health insurance claims databases that are necessary to study negotiated prices and spending in privately insured patient populations [1]. Comparatively little research examines the effect of vertical integration on quality of care and what exists finds no consistent evidence that integration improves quality [2, 3]. But evidence for such improvements may exist, especially if researchers focus on measures where potential improvement means higher quality and higher revenue for the integrated system.

In this issue of *JGIM*, Ho et al. use an observational study design to compare spending and quality of care among patients treated at hospital-owned physician practices and patients treated at independent physician practices in Texas [4]. The authors improve upon the standard survey- or claims-based approaches to measuring vertical integration, instead going directly to the source and using records maintained by Blue Cross Blue Shield of Texas on the contracts negotiated with hospitals and physicians. Compared with patients of independent physicians, patients of vertically integrated physicians incurred annual spending 5.8 percentage points higher than patients of independent physicians. The authors found no consistent difference in the quality of care received by patients at either type of physician practice.

Although the strong positive association between vertical integration and spending has been documented consistently, the relationship between integration and quality of care remains understudied and unproven [5]. Despite the lack of evidence, hospitals and physical practices routinely cite quality improvements to justify integration [6–8]. The claim is certainly plausible, from a theoretical perspective. According to microeconomic theory, economies of scope exist when it is

less costly for one firm to produce two or more outputs than it would be to produce both outputs separately. In its narrowest form, theory defines these concepts purely by the production cost of a given output, but many researchers and regulators take a broader view—including cost reductions and clinical efficiencies, as they relate to changes in health care utilization and quality improvements [5].

Applying this theory in practice, proponents of vertical integration argue that hospital ownership of physician groups promotes better sharing of information, thereby reducing duplicative and low-value care, while providing more of the high-value care that requires physicians to coordinate across practice settings. Essentially, vertically integrated systems will do less of what happens too frequently and more of what too often falls through the cracks of a siloed provider landscape. To this end, there is some evidence that hospital ownership of physician practices is associated with better performance on structural quality measures like use of care management and patient-centered medical care home processes [9, 10]. But the story becomes murkier when it comes to process or outcome measures of care quality, where a handful of recent studies find little or no evidence that hospital ownership of physician groups improves care [5].

In reality, vertically integrated systems of hospitals and physicians may prioritize some quality improvements over others—and this logic can help guide future research. Take two salient facts: first, recent physician practice consolidation has been driven by small acquisitions [11]. Second, fee-for-service medicine remains the dominant payment system, and there is no evidence that hospitals purchase physician practices in order to participate in alternative payment models [12]. When a hospital acquires a practice, nothing necessarily changes about how the merged system is paid. The integrated system may still face the same payment system incentives, but it has now added another practice setting (i.e., the acquired physician practice) through which it can generate revenue. With this in mind, any quality improvement activities undertaken by the integrated system can be roughly categorized as revenue-losing, revenue-neutral, or revenue-generating.

Many of the commonly touted quality improvements generated by hospital acquisition of physician practices are likely revenue-losing for the integrated system, particularly in a fee-for-service environment. For example, successfully reducing duplicative or low-value care means foregoing revenue that would have accrued to either the hospital or physician practice.

Where a patient may have received the same imaging study in two different settings prior to integration, the post-acquisition shared record system enables all clinicians to see the results of the first study, obviating both the need for the second study and the revenue from the second study.

Other quality improvements may be revenue neutral for the vertically integrated system. This category likely includes certain types of medication management. Perhaps physicians in an integrated system are better able to identify patients for whom opioids and benzodiazepines have been co-prescribed. Since the overlapping prescriptions brought in no direct revenue for the hospital or physician practice prior to acquisition (save for reimbursement associated with the encounter), eliminating this co-prescribing would also likely not affect the integrated system's revenue.

Finally, some quality improvements also generate revenue in a fee-for-service payment system. These likely include providing recommended screenings and preventive care services, particularly if the vertically integrated system can capture revenue generated in multiple settings (e.g., the office visit that results in a mammogram referral and the imaging procedure itself). This might also include care during transitions from inpatient facilities back to the community. Since 2013, Medicare has reimbursed outpatient clinicians for their role in managing these transitions, but uptake has been slow [13]. Physicians in hospital-owned practices may be more aware of this patient population and better able to satisfy the billing requirements (contacting the beneficiary within 2 days of discharge; reviewing discharge summaries and test results; providing a face-to-face visit within 7–14 days of discharge), compared with independent physicians—resulting in a more coordinated transition of care and added revenue for the integrated system.

Within the small literature on vertical integration and quality of care, measures falling into this third category (i.e., quality-improving and potentially revenue-generating) are where researchers have documented *any* positive relationship between hospital ownership of physicians and quality of care. While Ho et al. (2019) examined a total of five outcomes related to quality, breast cancer screening was the only one more likely to occur in hospital-owned practices versus independent practices. A similar pattern emerged in a quasi-experimental study of care quality following vertical integration by Carlin, Dowd, and Feldman (2015), wherein the authors studied changes in quality measures for patients at three large, multispecialty clinics acquired by two hospital-owned vertically integrated health care delivery systems in the Twin Cities metropolitan area of Minnesota [2]. They found that vertical integration was associated with small increases in the rates of breast, colorectal, and cervical cancer screenings, in some of the acquired clinics.

Given the persistent narrative that hospital ownership of physician practices improves quality of care, and the relevance this has for policymakers and antitrust enforcers [5], it is important for the academic community to continue this

research. Studying additional quality measures in this third category (i.e., quality-improving and revenue-generating) may mean focusing on particular patient populations (e.g., patients recently discharged from inpatient settings) or treatment regimens requiring care across multiple settings (e.g., breast-conserving surgery and subsequent radiation therapy for breast cancer patients). Even doing so, it is entirely possible that a robust literature focusing on revenue-generating quality measures will continue to document an ambiguous or no relationship between hospital ownership of physician practices and quality of care. Hospital ownership of physicians raises well-documented agency concerns, potentially dampening any quality-improving effects of integration if physicians acquired by a lower-quality hospital increasingly refer patients there [14]. Additionally, the definition of quality measures that improve the hospital system's financial bottom line will likely change as providers increasingly bear risk for the total health care spending of their patient population. But surely, if hospital ownership of physician practices yields the quality improvements promised, let us focus our search on quality measures where helping the integrated system's bottom line also helps the patient.

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