Editorial Commentary

Physician-owned hospitals in orthopedic and spine surgery

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Introduction

Hospitals owned wholly or in part by doctors are known as physician-owned hospitals (POHs) (1). Such hospitals are full-service centers, providing both inpatient and outpatient surgical services. This is in contrast to ambulatory surgery centers (ASCs), which are free-standing facilities in which only outpatient procedures are performed (2). Surgery in the ASC setting may not be appropriate for higher risk patients who have an increased likelihood for complications necessitating postoperative inpatient monitoring and care (3). Advocates of POHs and ACSs argue that these facilities are better able to optimize quality, efficiency, and outcomes because they tend to focus on a limited number of service lines (4,5). Furthermore, by virtue of holding equity, physicians may have more power to enact the changes they deem necessary to improve clinical care. These factors are of increasing importance in the context of ballooning overhead costs, compliance requirements, and complexity of payment schemes (6,7).

Critics of POHs posit that financial conflicts of interests create perverse incentives that may negatively impact referral patterns and access to care (8-10). They contend that general hospitals, and particularly those serving a safety-net role, depend on reimbursement from caring for healthier and better-insured patients to offset losses incurred by providing uncompensated and fewer well-compensated services. Physician-owners have been accused of bringing more profitable patients to their own facilities, leaving it to general and safety net hospitals to care for the remainder (8-11).

Construction of new POHs and expansion of physician ownership in existing POHs has been restricted since 2010 by the Patient Protection and Affordable Care Act (ACA) (12). However, new physician ownership of ASCs is permitted (2). There is no consensus regarding the appropriateness or impact of the ACA's restrictions on POHs. Furthermore, as an increasing number of procedures which previously necessitated an inpatient stay are performed on an outpatient basis, the role of POHs as well as ACSs in the healthcare system may be altered going forward. The purpose of this review is to summarize the existing literature on POHs, with a focus on orthopedic and spinal surgery. Trends in regulation and the possibility of future legislation will also be discussed.

Clinical outcomes

While there is a relative paucity of clinical research focused specifically on POHs, a handful of studies were identified. Courtney *et al.* retrospectively analyzed the United States Centers for Medicare & Medicaid Services (CMS) Inpatient Charge Data for differences in outcomes between total hip and knee arthroplasty procedures performed in POHs and non-POHs (5). Using multivariate regression analysis to control for medical comorbidities, they observed a lower risk-adjusted complication rate in procedures performed in POHs ($P<0.001$) with no difference in 30-day readmission rates. Additionally, Lundgren *et al.* investigated the implications of physician ownership on patients undergoing total hip and knee arthroplasty in Pennsylvania (13). The authors analyzed the data from the CMS Medicare Cost Report and the Pennsylvania Health Care Cost Containment Council, a database of millions of procedures performed in hospitals and ASCs in the state each year. No difference in either complication or readmission rates was observed between POHs and other types of hospitals (13).

Recently, Malik *et al.* used the PearlDiver database to identify all elective one- to three-level posterior lumbar

fusion (PLF) performed on Medicare beneficiaries in the United States from 2007 through 2014 (14). Authors compared risk-adjusted 90-day complication rates between surgeries occurring at POHs versus non-POHs and found that PLFs performed in the former were associated with a lower risk of thromboembolic events (P<0.001), urinary tract infections (P=0.002), and renal complications (P<0.001). There were no significant differences in rates of other complications, post-operative emergency department visits, readmissions, or revision surgeries. Surgeries performed at POHs also had lower charges and costs during the inpatient stay and over the entire 90-day episode of care.

Patient satisfaction

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a standardized survey for collecting data on patients' experiences at hospitals in the United States (15). In an effort to increase healthcare quality and transparency, creators of the ACA tied a proportion of reimbursement to HCAHPS, which is now publicly reported (15-17). As such, healthcare organizations and payer groups are increasingly focused on patient satisfaction (16-19). Studies demonstrate that Medicare beneficiaries undergoing total joint replacement in POHs tend to report significantly higher HCAHPS patient satisfaction scores (5,13). In the Courtney *et al.* investigation referenced above, POHs outperformed the non-physician owned hospitals in the following metrics: (I) likelihood of recommending the hospital to others, (II) communication with the nursing staff and physicians, (III) staff responsiveness, and (IV) overall hospital rating (P<0.001) (5). These results are consistent with those of Greenwald *et al.* who analyzed Medicare claims and Internal Revenue Service data, made hospital site visits, and held patient focus groups (10). High levels of patient satisfaction were observed in those who received care in POHs. Patients cited staff responsiveness and the nursing and ancillary staff's specialty-specific knowledge base as the most notable aspects of care. The authors posit that the physician owners' commitment to improving care quality and patient experience has a powerful influence on satisfaction.

Practice patterns

Physician-induced demand

Critics of physician ownership express concerns regarding the financial incentives associated with POH utilization (20-23). One such concern is that physician owners will be inclined to increase the utilization of well-compensated services at their facilities (i.e., physician-induced demand). In 2008, Mitchell compared practice patterns of physician owners in Oklahoma before and after hospital ownership and compared this to a control cohort of physicians who practiced in nearby markets without physician ownership (22). Data on patients treated for back and spine disorders were obtained from Oklahoma's largest workers' compensation insurer, two private insurers, and the state hospital association. A significant increase in the number of procedures, diagnostic tests, and ancillary services was observed following the acquisition of specialty hospitals by physicians, despite the fact there was no shortage of capacity for delivering care prior to ownership.

However, other studies suggest that surgeons do not increase volume based on ownership. Schroeder *et al.* demonstrated lower likelihood of recommending surgery during the initial consultation and longer duration of non-operative treatment in patients ultimately undergoing anterior cervical discectomy and fusion (ACDF) in a physician-owned specialty hospital compared to those presenting to a university-owned tertiary care hospital despite similar patient demographics (24). The authors reported similar findings among 75 orthopaedic surgeons in a follow-up study—after investing in one specialty hospital and three ASCs, there was no increase in the number of procedures performed by physician owners (25). Woods *et al.* compared the practice data for 10 orthopaedic surgeons before and after investing in a specialty hospital (26). The authors analyzed total patient volume, the percentage of patients seen in the clinic who underwent surgery, and the rate of change in the number of surgical procedures per year. No differences were demonstrated in these three variables between the seven years prior to ownership and the eight years following acquiring hospital equity. Finally, in the setting of total joint replacement, Chen *et al.* also found that surgeons do not appear to alter treatment algorithms or surgical indications based on ownership (27).

Referral patterns

There is also concern that physician owners may alter referral patterns for economic benefit, selecting for healthier patients and those with higher-paying insurance plans. This practice, known as cherry picking, may produce damaging externalities—negatively impacting other

hospital types that depend on these patients to subsidize the expense of caring for others (9,11). As such, much interest has been generated regarding whether referral patterns change according to ownership. Chakravarty created an economic model to evaluate such claims (11). Using data from the state of Texas, he determined that selection of more profitable patients for POHs occurs, and that this exerts financial pressure on general hospitals. A separate, nationwide analysis included in the same paper suggested that the entry of POHs into markets resulted in increased consolidation among surrounding general hospitals, ostensibly in reaction to diminished margins. Similarly, Cram *et al.* reported that Medicare patients who underwent total joint replacement at POHs tended to be healthier than those whose surgeries were performed at non-POHs (28). Yet, patient safety, not individual financial gain, may explain the desire of surgeons in these studies to avoid operating on higher-risk patients at POHs, which are often specialty facilities that are less likely to have in-house intensive care units.

However, there is evidence to suggest that such referral patterns are not pervasive. Blumenthal *et al.* compared data from 219 POHs and 1,967 non-POHs (29). Authors found that while patients receiving care at POHs tended to be younger than those cared for at non-POHs by an average of one year (77.4 *vs.* 78.4, P<0.001), they otherwise had similar demographics, payer status, and comorbidity profiles (29). Similarly, Schroeder *et al.* performed a retrospective review of 115 consecutive patients undergoing one- or two-level ACDF at a POH versus 149 who had such surgery at an independent community hospital (30). Patients who had surgery at the POH were slightly younger than those who underwent surgery at the community hospital (49.7 *vs.* 50.0 years, P=0.048), but there were no differences in payer status or overall health status.

The findings call into question the notion that physician owners preferentially bring healthier and better-insured patients to their facilities. Furthermore, Schneider *et al.* demonstrated that the entry or existence of specialty hospitals in a given market had no effect on the profit margins or financial success of surrounding general, full-service hospitals (31).

Future outlook

In the summer of 2016, the then Speaker of the House, Paul Ryan, introduced a plan for reforming the federal tax system (32). Included in this proposal was a provision to repeal the moratorium on POHs. While this never became law, it did turn public attention toward the issue of appropriate (or what some deem inappropriate) regulation of POHs. The topic arose again in February of 2018 when Alex Azar, the Secretary of Health and Human Services, acknowledged the possibility of re-evaluating current POH restrictions (33). To date, no such changes have been approved.

CMS recently introduced a memorandum clarifying the requirements for being considered a hospital for the purposes of Medicare or Medicaid reimbursement (34). This is relevant because hospital-based reimbursement rates are typically higher than those of ASCs. CMS now specifically mandates that facilities maintain an average daily census of at least two inpatients and an average length of stay of at least two midnights to be eligible for Medicare and Medicaid payments. Enforcement efforts have been underway—CMS terminated payments to Blue Valley Hospital in Kansas in June of 2018 and the Ohio-based Medical Center at Elizabeth Place in January of 2019 for failing to meet the aforementioned requirements (35,36).

Therefore, the outlook for POHs is mixed as lawmakers and regulators discuss easing restrictions on ownership while concurrently making it more difficult to qualify for hospital status.

Conclusions

The literature provides little consensus regarding the effects of physician ownership of hospitals. However, existing studies suggest that clinical outcomes at POHs are at least equivalent to (and potentially exceed) those of hospitals without physician ownership, and patient satisfaction is consistently higher in physician-owned facilities. These factors, combined with superior efficiency and care processes, have allowed POHs to outperform their non-POH counterparts on value-based care metrics (37).

The majority of studies suggest that physician ownership does not result in additional resource utilization, loosened surgical indications, or increased operative volume at these facilities. The data are mixed on whether physicians cherry pick healthier or better-insured patients for treatment at POHs and what impact this has on safety-net hospitals. Certainly, with respect to patient comorbidities, there are legitimate reasons surgeons might elect to operate on sicker patients at general hospitals, where additional resources are available in the event of serious complications. For the remainder of patients, however, POHs provide appropriate

care in a setting that engenders greater patient satisfaction. It remains up for debate whether it is necessary to sacrifice such benefits to offset potential losses for general, non-physician owned hospitals.

The fate of POHs from a regulatory perspective remains unclear. While there is some discussion of lifting the moratorium on physician ownership, CMS is simultaneously increasing scrutiny and requirements for such facilities to maintain their hospital designations. Additional research is needed to better define the current and future role of POHs in the healthcare system as the emphasis on value-based care models increases. Such data could inform treatment algorithms that would provide individualized, evidence-based guidance on the optimal site of care for the spectrum of surgical procedures.

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Footnote

Conflicts of Interest: Dr. Blumenthal serves as a consultant to Aesculap, Baylis Medical, Centinel Spine, Orthofix Medical Inc., and Sites Medical. He has investments in 11A Investment, LLC, Asia Medical Investment, LLC, and International Spine & Orthopedic Institute, LLC. He sits on the Scientific Advisory Board for Fziomed and is Medical Director for VertiFlex. He has equity in a physician-owned hospital. Dr. Derman is a consultant for and obtains research support from Orthofix Medical Inc. He has equity in a physician-owned hospital. Dr. Ahn has no conflicts of interest to declare.

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