CHRT
CENTER FOR HEALTHCARE RESEARCH & TRANSFORMATION

Physician Ownership in Hospitals and Outpatient Facilities

July 2013

Federal law generally prohibits physicians from referring Medicare and Medicaid patients to facilities in which the physicians have financial ownership. Despite these federal restrictions and many similar state laws restricting referral of privately insured patients, physician ownership in specialty hospitals and outpatient facilities grew rapidly in the past decade. Prior to 2002 there were fewer than 50 physician-owned specialty hospitals, yet today there are perhaps as many as 235 nationwide.[1],[2] Moreover, a 2008 national survey found that one in six physicians owned or leased advanced imaging equipment, and nearly one in seven owned or leased three or more types of medical equipment.[3]

When physicians refer patients to facilities in which they have ownership ("self-referral"), the physicians receive payment for their professional services and share in the profits of the facilities they own. Those in favor of physician ownership argue that such arrangements provide financial security to facilities and physicians, and convenient access to high-quality, one-stop services for patients. They suggest that physician-owned hospitals and outpatient facilities introduce important competition into the health care market and allow for early initiation of treatment. However, many from both sides of the political aisle suggest that ownership arrangements between facilities and physicians and the resulting self-referrals create inherent conflicts of interest since physicians directly benefit financially from services provided by these facilities. This has been an issue of concern for many years and resulted in the passage of a series of laws beginning in 1989 with the "Stark Law," [4] to regulate self-referral.

More recently, passage of the Patient Protection and Affordable Care Act in March 2010 curtailed growth in physician ownership by effectively prohibiting both the creation of new and the expansion of existing physician-owned hospitals and outpatient facilities after March, 2010.[5] Not surprisingly, this new limiting provision in the law is being challenged by advocates of physician ownership, and the American Medical Association, among other groups, supports efforts to repeal the new ban.[6] The American Hospital Association and other hospital groups oppose the repeal efforts.[7]

The purpose of this paper is to review trends in physician ownership, the regulatory history related to physician ownership, and the evidence concerning the impact of physician ownership on costs, quality, and access to care.

Trends in Physician Ownership

Physician ownership is prominent primarily in specialty hospitals, ambulatory services centers, and in independent diagnostic testing facilities.

The Center for Healthcare Research & Transformation (CHRT) sponsors research and public information to promote evidence-based care delivery, improve population health, and expand access to care. Housed at the University of Michigan, CHRT is a nonprofit partnership between U-M and Blue Cross Blue Shield of Michigan to test the best ideas for improving the effectiveness and efficiency of the health care system.

www.chrt.org

Physician-Owned Specialty Hospitals

Specialty hospitals that provide primarily cardiac, orthopedic, or surgical procedures are generally partially or fully owned by physicians. In February 2003, the U.S. Government Accountability Office (GAO) estimated that specialty hospitals represented less than 2 percent of the short-term, acute care hospitals nationwide. The same report suggested that in 2000, specialty hospitals accounted for only about 1 percent of Medicare spending for inpatient services.[8]

A 2003 GAO survey found that approximately 70 percent of specialty inpatient hospitals were at least partially physician-owned,[9] and the upward trend in ownership in recent years has been dramatic. In 2002, there were a total of 46 physician-owned specialty hospitals, and by 2007 that number had more than doubled to 109.[10] Today, according to the Physician Hospitals of America, an advocacy group for physician ownership, there may be as many as 235 physician-owned specialty hospitals in the United States, although there is no clear mechanism for identifying and tracking these hospitals (see Figure 1).[11] Physician-owned hospitals are most common in areas of the country with weak or no Certificate of Need Laws (for example, Texas, Louisiana, and Oklahoma).[12]

Figure 1: Physician-Owned Specialty Hospitals in U.S., 2002 -2011

	2002	2004	2007	2013
Total	**46**	**89**	**109**	**235**
Cardiac	12	25	20	NA
Orthopedic/Surgical	34	64	89	NA

SOURCE: 2002 and 2004 data from Medpac, and 2007 data from DHHS Office of Inspector General, as published in Casalino 2008. 2013 data from Physician Hospitals of America.

Ambulatory Surgical Centers

Surgery is increasingly being conducted in ambulatory surgical centers (ASCs) that specialize in elective, same-day, or outpatient surgical procedures. Since the early 1980s Congress has authorized Medicare to cover the facility costs of certain procedures in ASCs to encourage the shift of surgical procedures from inpatient to less costly ambulatory settings. Between 2003 and 2011, the number of Medicare-certified ASCs grew from 3,779 to 5,344.[13] In 2010, approximately 90 percent of ASCs were owned by physicians alone or through a joint venture with a hospital or corporation.[14]

While total spending estimates were not available with respect to ASCs, national data for Medicare beneficiaries indicate that the volume of services provided in ASCs increased rapidly, at rates of over 10 percent per year, from 2003 to 2008. From 2006 to 2010, the volume of services grew by 5.7 percent per year, and by 1.9 percent in 2011. [15]

Medicare payments to ASCs grew an average of 6.5 percent per year from 2003 to 2010, including the implementation of a new payment system in 2008. From 2006 through 2010, Medicare payments per fee-for-service beneficiary increased at an average annual rate of 5.1 percent but slowed to 2.2 percent in 2011.[16]

Imaging in Physicians' Offices and Independent Diagnostic Testing Facilities

The volume of imaging services such as CT, MRI, and PET scans has grown in recent years more quickly than the volumes of other physician services. Medicare costs for imaging more than doubled between 1999 and 2004, and grew on average 17 percent per year from 2000 to 2006.[17] [18] Much of this increase is attributable to services that involve physician self-referral.[19] In addition, growth in volume of imaging services by non-radiologists has been particularly high. One study using Medicare Part B claims data found that from 2000 to 2005, MRI in private offices increased 83 percent for radiologists compared to 254 percent for non-radiologists (such as orthopedic surgeons).

Independent diagnostic testing facilities (IDTFs) are not affiliated with hospitals or physicians' offices, and have technicians administering imaging studies. In 2006, there were approximately 5,800 IDTFs owned by physicians and for-profit companies, nearly double the number ten years earlier.[20] Although the total proportions of imaging services conducted in physician-owned facilities is not known, one study using data from a large private insurer found that 33 percent of providers billing for MRI, 22 percent billing for CT, and 17 percent billing for PET scans were categorized as "self-referral."[21]

Legislative History

Concerns that physician ownership drives inappropriate use of services has led to several legislative efforts to restrict or regulate physician ownership, including: the "Stark Law" and subsequent amendments, which regulate physician self-referral; certificate of need laws, which limit the supply of health care; certification and/or licensing requirements; and most recently, the Patient Protection and Affordable Care Act (ACA), which further restricts new construction and expansion of physician-owned hospitals.

Regulatory policies enacted prior to the ACA to discourage inappropriate use of services

- **Anti-self-referral legislation:** In 1989, in response to research that showed physicians who owned physical therapy or laboratory facilities referred patients for these services at much higher rates than other physicians, Congress passed the "Stark Law" to regulate self-referral of Medicare beneficiaries for clinical lab services. This law, which has been amended over the years, has been expanded to cover Medicaid beneficiaries and additional services beyond lab services (for example, inpatient and outpatient hospital services, radiology services, and home health services). These laws (referred to here as the Stark Laws) do not, however, ban self-referral to ASCs or specialty hospitals, or to services provided within a physicians' practice.[22]

  The Stark laws included important exceptions to self-referral limits, including allowance for services that are provided in physicians' offices or practices, and for ownership in a whole hospital, not just a specific part of a hospital (referred to as the "Whole Hospital Exception"). In 2003, Congress passed the Medicare Prescription Drug, Improvement, and Modernization Act, which amended the Stark Law's whole hospital exception to include an 18-month moratorium on physician ownership in specialty hospitals. The moratorium continued until 2006, when the Centers for Medicare and Medicaid Services (CMS) delivered a final report detailing physician ownership in specialty hospitals.[23]

  In addition to federal regulation of self-referral for services paid by Medicare and Medicaid, about half of the states also have some type of self-referral law in place that applies restrictions similar to those in the Stark Law on physician self-referral in the privately insured population.

- **Certificate of need (CON) laws:** The purpose of CON laws is to eliminate duplication of health care resources by governing new construction and expansion of hospitals and the purchase of expensive equipment. States with weak or no CON laws (such as Texas) have many more specialty hospitals than other states. From 1990 to 2003, 96 percent of specialty hospitals that opened were in states without CON laws.[24] [25]

Federal Health Reform: The Patient Protection and Affordable Care Act (ACA)

The Stark Laws were intended to provide clear rules for limiting physician self-referral; however, the complexity of the laws, which include major exceptions, has resulted in unclear boundaries and variable interpretations, making compliance and enforcement difficult. Section 6001 of the ACA addressed some of these limitations by:

- Immediately prohibiting future physician investment and capping existing physician investment in hospitals, establishing an immediate (March 23, 2010) cap on physician ownership
- Allowing existing physician-owned hospitals to continue if they had physician investment and a Medicare provider agreement in place as of December 31, 2010
- Restricting the "Whole Hospital Exception" by excluding from the exception hospitals that were converted from ASCs after the ACA was passed
- Expanding disclosure requirements by requiring that physicians inform patients that they can obtain services (such as MRI, CT, and PET scans) from other providers and provide patients with a list of other providers in their area

The final rules for Section 6001 of the ACA were promulgated in November 2010.

Today, there are reports of physician-owned facilities finding other ways to increase their business without expanding beds, including scheduling surgeries during later and week-end hours and replacing beds with procedure rooms for imaging. Some facilities are seeking waivers from CMS to allow expansion, and some have stopped accepting Medicare payments to eliminate the restrictions on expansion.[26]

Summary of the Research

Various studies have examined the direct and indirect effects of physician-owned facilities on use of services, access, patient mix, and quality of services. While there is a substantial body of research assessing utilization of services in physician-owned facilities, less is known about the quality of services they provide.

Utilization and Costs

The system costs associated with physician ownership and self-referral are a function of the volume, price, and efficiency with which services are provided. Numerous studies have found that the volume of services provided is higher in areas with physician-owned specialty hospitals than in areas without specialty hospitals. A 2007 study by Mitchell found that rates of complex spinal fusion surgery and epidural procedures for workers with back injuries increased significantly as physician ownership increased from 1999 to 2004. The same study found that rates of complex spinal fusion surgery were higher for Medicare beneficiaries living in areas with physician-owned hospitals (Oklahoma, Kansas, South Dakota, and Arizona) compared to areas without physician ownership (northeastern states).[27] A 2006 Medpac report focusing on physician-owned specialty hospitals found that rates of coronary artery bypass graft surgery for Medicare beneficiaries grew faster in areas that gained a physician-owned cardiac hospital.[28] Two other studies in 2006 reported similar growth in utilization in areas after specialty cardiac hospitals opened compared to cardiac programs in general hospitals.[29,30]

One study by Hollingsworth et al. (2010) analyzed the volume of services provided in ambulatory surgical centers (ASCs) in Florida from 2003 to 2005. The authors reported greater use of five common outpatient procedures in physician-owned ambulatory surgical centers compared to non-physician-owned ASCs. After accounting for baseline differences in volume, surgeons that acquired ownership in ASCs increased their volume of services compared to before they held ownership.[31]

The growth in the volume of advanced imaging services is also positively associated with physician ownership. A study by Baker (2010) found that once physicians began billing for the technical component of MRI services (that is, once they purchased or leased MRI equipment), they ordered more scans for their patients than they had before they owned or leased the equipment. The study also showed that total Medicare spending per patient increased once physicians owned or leased the equipment.[32] Numerous older studies highlight the relationship between ownership of imaging equipment and increased utilization. A national random sample of physicians surveyed revealed that non-radiologists with imaging facilities on-site had rates of utilization 1.2–1.7 times as high, depending on specialty, as those without such facilities.[33] Hillman and colleagues found that doctors who owned imaging equipment ordered 4.5 times as many imaging procedures as physicians who referred their patients to radiologists and had far higher charges per episode of treatment.[34]

In addition to studies that focused on changes in the volume of services related to physician ownership, Medpac reports in 2005 and 2006 also compared discharge costs for inpatient services delivered to Medicare beneficiaries in specialty hospitals compared to those in community hospitals. While specialty cardiac hospitals had shorter lengths of stay, they did not typically have lower discharge costs than community hospitals. Specialty orthopedic hospitals had higher costs per discharge than community hospitals.[35, 36]

Access

One of the main justifications for allowing physician self-referral in certain circumstances is the expectation that referrals for services within a physician's practice or in another facility in which a physician has ownership may provide patients with convenient, same-day, or "one-stop" access to services. However, studies found that same-day referral was quite low for advanced imaging services. A 2010 study by Sunshine and Bhargavan found that Medicare beneficiaries received same-day service for 74 percent of x-rays but only 15 percent of CTs and MRIs. [37] Similarly, a 2010 Medpac report found that less than half of advanced imaging services were performed on the same day as office visits for Medicare beneficiaries.[38]

Specialty hospitals often do not have access to emergency services, a requirement in some states for all hospitals. A 2008 report by the Office of Inspector General of the U.S. Department of Health and Human Services found that just over half of physician-owned specialty hospitals had an emergency department, and more than half of those that did had only one emergency bed.[39] Similarly, a 2003 GAO report showed that specialty hospitals were much less likely to have emergency departments than community hospitals; only 45 percent of specialty hospitals had emergency departments compared to 92 percent of general community hospitals. [40]

Patient Mix, Competition, and Quality

Patients with less severe conditions are likely to recover quickly from surgeries, without complications, and are, therefore, generally more profitable for hospitals reimbursed through prospective payment systems[41]. Several studies provide evidence that more profitable patients are often referred to physician-owned specialty hospitals and ASCs, leaving less profitable patients for care in community hospitals.

A study by Hollingsworth and colleagues noted statistically significantly lower severity in patients treated in physician-owned ASCs in Florida compared to patients treated in facilities not owned by physicians, although absolute differences were small.[42] In a study of practice patterns of providers in physician-owned specialty hospitals in Arizona, physician-owners treated proportionately more "minor" surgical cases compared to non-owners, and treated fewer "moderate" or "major" surgical cases. Physician owners also, on average, treated patients with fewer comorbid conditions.[43] A 2003 GAO study compared severity of patients at specialty hospitals with patients at general hospitals providing short-term, acute care in the same urban areas. Consistent with later studies, the GAO found that specialty hospitals treated a lower percentage of patients who were severely ill than did the general hospitals.[44] A study by Winter demonstrated that more medically complex patients tended to receive treatment at hospital outpatient centers rather than ASCs.[45]

Among payers, Medicaid payment for services is generally lower than either Medicare or private insurance payments for the same services, so hospitals treating higher proportions of Medicaid patients may be at competitive disadvantages in their market areas. Gabel and colleagues found that physicians who owned ASCs were more likely to refer patients covered by Medicaid to community hospitals, and more likely to refer privately insured patients to the facilities they owned.[46] According to data in a 2005 Medpac report, Medicaid beneficiaries comprised 13 percent of a community hospital's patients, but only 2 percent of orthopedic and surgical hospital patients, and 3 percent of cardiac hospital patients.[47]

While many assume that quality of care may be improved in specialty hospitals because of the narrow focus on a limited set of procedures, few studies assess quality of care in addition to patient mix. One study by Cram and colleagues analyzed claims data to evaluate outcomes from major joint replacement surgery in specialty orthopedic hospitals and in general

hospitals. They found that patients in the specialty hospital had fewer comorbidities (such as diabetes, congestive heart failure, and renal failure) and lived in wealthier areas than those in general hospitals. After adjusting for patient characteristics and hospital volume, the study found that specialty orthopedic hospitals had better patient outcomes, as determined by claims data, than did the general hospitals.[48] Another study comparing death rates in patients receiving percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG) had more complex findings. The study showed that patients in the specialty cardiac hospitals had lower unadjusted mortality rates, but when analyses adjusted for patient characteristics, the odds of death after PCI were similar but the odds of death after CABG were significantly lower in specialty hospitals. When analyses adjusted for volume of procedures, differences in mortality were not statistically significant. More research is needed to understand the contribution of comorbidities and procedure volumes to patient outcomes vis-à-vis claims of higher quality in specialty facilities. [49]

Beginning in January 2013, CMS began adjusting payments to approximately 3,000 hospitals based on quality scores through a new Hospital Value-Based Purchasing Program. Approximately 52 percent of hospitals received a payment increase in the first year. A recent *Wall Street Journal* article noted that approximately half of the top 100 facilities receiving bonuses were physician-owned facilities.[50]

Conclusions

For decades physician ownership has caused many to worry that profit incentives could negatively affect the care patients receive. Today, a substantial body of research shows that ownership and self-referral are associated with increased utilization and higher system costs, low same-day referral, and diversion of complex patients and Medicaid beneficiaries away from physician-owned facilities. More research is needed to support the claim that specialization of hospitals and outpatient services improves quality or patient outcomes. Important provisions in the ACA substantially strengthen existing laws against physician self-referral by both deterring future growth in ownership and by providing patients with more information about options for services.

Author: Nancy Baum, PhD, MHS, with special thanks to Emily Ehrlich, MPH

---

[1] Physician Hospitals of America. May 17, 2013. Press Release: Physician Hospitals of America Visits Capitol Hill to Share Government Study supporting Physician-Owned Hospitals. Media contact: Leslie Folley.

[2] Medicare Payment Advisory Commission (MEDPAC). August 2006. *Report to the Congress*: *Physician-Owned Specialty Hospitals Revisited*. (Washington, D.C.: MEDPAC). http://www.medpac.gov/documents/Aug06_specialtyhospital_mandated_report.pdf (accessed 5/23/13).

[3] J. Reschovsky, A. Cassil, and H. Pham. December 2010. *Physician Ownership of Medical Equipment*. Data Bulletin No. 36. (Washington, D.C.: Center for Studying Health System Change). http://www.hschange.com/CONTENT/1172/ (accessed 5/23/13).

[4] The first Stark Law, 42 U.S.C. §1395nn, was introduced by former U.S. Representative Pete Stark, D-California.

[5] Patient Protection and Affordable Care Act. H.R. 3590, Section 6001, Pub. Law No. 111-148, 111th Congress, 2010.

[6] D. Glendinning. March 31, 2011. House Bills would lift ban on physician-owned hospitals. American Medical Association, American Medical News (amednews.com). http://www.ama-assn.org/amednews/2011/03/28/gvsd0331.htm (accessed 5/23/13).

[7] Federation of American Hospitals, American Hospital Association, and Coalition of Full Service Community Hospitals. April 6, 2011. Letter to House Members in opposition to H.R. 1159 and H.R. 1186. http://www.aha.org (accessed 5/23/13).

[8] U.S. General Accounting Office. April 7, 2006. *General Hospitals: Operational & Clinical Charges Largely Unaffected by Presence of Competing Specialty Hospitals*, GAO-06-520 (Washington, D.C.: GAO). http://www.gao.gov/products/GAO-06-520 (accessed 5/23/13) and April 18, 2003, *Specialty Hospitals: Information on National Market Share, Physician Ownership, and Patients Served*, GAO-03-683R (Washington, D.C.: GAO). http://www.gao.gov/products/GAO-03-683R (accessed 5/23/13).

[9] U.S. General Accounting Office. April 18, 2003. *Specialty Hospitals: Information on National Market Share, Physician Ownership and Patients Served*.

[10] L. Casalino. June 2008. *Physician Self-Referral and Physician-Owned Specialty Facilities*, Research Synthesis Report No. 15 (Princeton, N.J.: Robert Wood Johnson Foundation). http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2008/rwjf28861/subassets/rwjf28861_1 (accessed 5/23/13).

[11] Physician Hospitals of America. May 27, 2011. Press Release: Physician Hospitals of America and Texas Spine and Joint Hospital Appeal Federal Court Judgment Decision. http://www.physicianhospitals.org/ (accessed 5/23/13).

[12] American Hospital Association. April 2008. *Trendwatch: Physician Ownership and Self-Referral in Hospitals: Research on Negative Effects Grows* (Washington, D.C.: AHA). http://www.aha.org/research/reports/tw/twapr2008selfreferral.pdf (accessed 5/23/13).

[13] Medicare Payment Advisory Commission (MEDPAC). June 2011. *A Data Book: Health Care Spending and the Medicare Program* (Washington, D.C.: MEDPAC). http://www.medpac.gov/documents/Jun11DataBookEntireReport.pdf (accessed 5/23/13); March 2013. *Report to the Congress: Medicare Payment Policy* (Washington, D.C.: MEDPAC). http://www.medpac.gov/documents/Mar13_entirereport.pdf (accessed 5/23/13).

[14] Medicare Payment Advisory Commission. March 2010. *Report to the Congress: Medicare Payment Policy, Section 2C: Ambulatory Surgical Centers* (Washington, D.C.: MEDPAC). http://www.medpac.gov/chapters/Mar10_Ch02C.pdf (accessed 5/23/13).

[15] Medicare Payment Advisory Commission, March 2010; Medicare Payment Advisory Commission, March 2013.

[16] Medicare Payment Advisory Commission, June 2011; Medicare Payment Advisory Commission, March 2013.

[17] Casalino, 2008.

[18] J. Inglehart. March 5, 2009. Health Insurers and Medical-Imaging Policy – A Work in Progress. *New England Journal of Medicine* 360(10): 1030-7.

[19] W. Hendee, G. Becker, J. Borgstede, et al. October 2010. Addressing Overutilization in Medical Imaging. *Radiology* 257(1): 240-5. http://radiology.rsna.org/content/257/1/240.full.pdf (accessed 5/23/13).

[20] J. Iglehart. June 29, 2006. The New Era of Medical Imaging: Promises and Pitfalls. *New England Journal of Medicine* 354(26): 2822–8.

[21] J. Mitchell. 2007. The Prevalence of Physician Self-Referral Arrangements after Stark II: Evidence from Advanced Diagnostic Imaging. Health Affairs, web exclusive, DOI 10.1377/hlthaff .26.3w415.

[22] Casalino, 2008.

[23] C. Conway. N.d. *Physician Ownership of Hospitals Significantly Impacted by Health Care Reform Legislation* (Houston, Tex.: University of Houston Law Center). http://www.law.uh.edu/healthlaw/perspectives/2010/(CC)%20Stark.pdf (accessed 5/23/13).

[24] U.S. General Accounting Office. October 22, 2003. *Specialty Hospitals: Geographic Location, Services Provided, and Financial Performance*, GAO-04-167 (Washington, D.C.: GAO). http://www.gao.gov/products/GAO-04-167 (accessed 5/23/13).

[25] Medicare Payment Advisory Commission (MEDPAC). August 2006. *Report to the Congress*: *Physician-Owned Specialty Hospitals Revisited*.

[26] A. Mundy. May 13, 2013. Doc-Owned Hospitals Prep to Fight. *Wall Street Journal*, Business section.

[27] J. Mitchell. August 2007. Utilization Changes Following Market Entry by Physician-Owned Specialty Hospitals. *Medical Care Research and Review* 64(4): 395–415.

[28] Medicare Payment Advisory Commission (MEDPAC). August 2006. *Report to Congress: Physician-Owned Specialty Hospitals Revisited*.

[29] B. Nallamothus, M. Rogers, M. Chernew, et al. March 7, 2007. Opening of Specialty Cardiac Hospitals and Use of Coronary Revascularization in Medicare Beneficiaries. *Journal of the American Medical Association* 297(9): 962-8.

[30] J. Stensland and A. Winter. Jan-Feb 2006. Do Physician-Owned Cardiac Hospitals Increase Utilization? *Health Affairs* 25(1): 119-29.

[31] J. Hollingsworth, Z. Ye, S. Strope, et al. April 2010. Physician-Ownership of Ambulatory Surgery Centers Linked to Higher Volume of Surgeries. *Health Affairs* 29(4): 683-9.

[32] L. Baker. December 2010. Acquisition of MRI Equipment by Doctors Drives Up Imaging Use and Spending. *Health Affairs* 29(12): 2252-9.

[33] S. Radecki and J. Steele. February 1990. Effect of on-site facilities on use of diagnostic radiology by non-radiologists. Investigative Radiology 25(2): 190–193

[34] B. Hillman, G. Olson, P. Griffith, et al. October 21, 1992. Physicians' Utilization and Charges for Outpatient Diagnostic Imaging in a Medicare Population. *Journal of the American Medical Association* 268(15): 2050–4.

[35] Medicare Payment Advisory Commission (MEDPAC). August 2006. Report to Congress: Physician-Owned Specialty Hospitals Revisited

[36] Medicare Payment Advisory Commission (MEDPAC). March 2005. *Report to Congress: Physician-Owned Specialty Hospitals* (Washington, D.C.: MEDPAC). http://www.medpac.gov/documents/Mar05_SpecHospitals.pdf (accessed 5/23/13).

[37] J. Sunshine and M. Bhargavan. December 2010. The Practice of Imaging Self-Referral Doesn't Produce Much One-Stop Service. *Health Affairs* 29(12): 2237-43.

[38] Medicare Payment Advisory Commission (MEDPAC). June 2010. *Report to Congress: Aligning Incentives in Medicare* (Washington, D.C.: MEDPAC). http://www.medpac.gov/documents/jun10_entirereport.pdf(accessed 5/23/13).

[39] U.S. Department of Health and Human Services, Office of the Inspector General. January 2008. *Physician-Owned Specialty Hospitals' Ability to Manage Medicare Emergencies*, OEI-02-06-00310 (Washington, D.C.: HHS). http://oig.hhs.gov/oei/reports/oei-02-06-00310.pdf (accessed 5/23/13).

[40] U.S. General Accounting Office. October 22, 2003. *Specialty Hospitals: Geographic Location, Services Provided, and Financial Performance*.

[41] In 1983, CMS put a prospective payment system in place for inpatient hospitalizations in which all cases were categorized into diagnosis-related groups, each with an associated payment weight based on average resources used for such cases. Most insurers today have also adopted prospective payment methods. Hospitals are generally paid a predetermined amount per case, regardless of length of stay (except for particularly expensive outlier cases).

[42] Hollingsworth, et al., April 2010.

[43] J. Mitchell. October 25, 2005. Effects of Physician-Owned Limited-Service Hospitals: Evidence from Arizona. *Health Affairs*, doi:10.1377/hlthaff.w5.481

[44] U.S. General Accounting Office, 2003.

[45] A. Winter. November-December 2003. Comparing the Mix of Patients in Various Outpatient Surgery Settings. *Health Affairs* 22(6): 68-75

[46] J. Gabel, C. Fahlman, R. Kang, et al. May-June 2008. Where Do I Send Thee? Does Physician-Ownership Affect Referral Patterns to Ambulatory Surgery Centers? *Health Affairs* 27(3): w165-74

[47] Medicare Payment Advisory Commission. March 2005. *Report to the Congress: Physician-Owned Specialty Hospitals*.

[48] P. Cram, M. Vaughan-Sarrazin, B. Wolf, J. Katz, and G. Rosenthal. August 2007. Comparison of Total Hip and Knee Replacement in Specialty and General Hospitals. *The Journal of Bone and Joint Surgery, American volume* 89(8): 1675-1684

[49] P. Cram, G. Rosenthal, and M. Vaughan-Sarrazin. April 7, 2005. Cardiac Revascularization in Specialty and General Hospitals. *New England Journal of Medicine* 352: 1454-1462.

[50] Mundy, May 13, 2013.