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**The Impact of Niche
Hospitals on General
Hospitals: A Review of
the Literature**

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A. POLICY CONTEXT

The recent, rapid proliferation of specialty hospitals, or “niche hospitals,” has captured the attention of both the federal government and a variety of states—especially Texas. In 2003, more than 100 niche hospitals were operating nationwide, and at least another 26 were under construction (GAO 2003).

Most niche hospitals are for-profit entities owned in whole or in part by physicians. Two-thirds of them are located in just seven states—Arizona, California, Kansas, Louisiana, Oklahoma, South Dakota, and Texas. Texas leads the nation with the highest number of niche hospitals—almost twice as many as in California, which ranks second. By February 2005, Texas had 47 physician-owned niche hospitals and 29 more under development [Texas Hospital Association (THA 2005)].

Of the more than 100 niche hospitals that GAO surveyed in 2003, 70 percent were physician-owned to some extent. Individual physicians owned relatively small shares—two percent or less of a single niche hospital for any given physician.¹ Physicians generally owned a smaller share of cardiac hospitals than orthopedic, surgical, or women’s niche hospitals. Among the 11 facilities that the Centers for Medicare and Medicaid Services (CMS) considered in-depth for their report to Congress, the total combined physician ownership level in cardiac hospitals averaged 49 percent, with the remaining interest belonging to an institutional owner (like

¹ Average ownership share of a cardiac hospital was 0.9 percent per physician and was valued between \$28,000 and \$72, 000. For the orthopedic/surgery hospitals, the average physician owned 2.2 percent, with value ranging from \$30,000 to \$120,000.

MedCath) or to nonprofit hospitals (CMS 2005).² In the orthopedic/surgery hospitals studied, the average level of physician ownership was 80 percent.³

In November 2003, Congress passed the Medicare Modernization Act (MMA) that added prescription drug coverage to Medicare (Public Law 108-173). Section 507 of the legislation called for an 18-month moratorium on physician investment in and referrals to certain niche hospitals, including facilities that specialize in cardiac or orthopedic procedures, general surgery, or other types of services designated by CMS. Although the moratorium has officially expired, CMS has continued to “scrutinize whether specialty hospitals meet the definition of a hospital” and to “carefully review [its] criteria for approving and starting to pay new specialty hospitals” (Guterman 2006).

The moratorium was a legislative response to critics who argued that referrals to physician-owned facilities create a financial conflict of interest. These hospitals, they charged, attract higher-income patients and fewer severely ill patients, admit fewer Medicaid and uninsured patients, and target patients with conditions that have traditionally cross-subsidized less profitable services (such as trauma care). Consequently, it was supposed that they undermine the financial health of competing general acute-care hospitals and their ability to provide emergency care and other unprofitable services (Iglehart 2005).

In contrast, proponents of niche hospitals argue that they are “focused factories,” delivering services more cost-effectively than other hospitals. Proponents further contend that physician-

² Based in Charlotte, NC, MedCath is a national provider of cardiovascular services that partners with physicians to deliver care to patients with cardiovascular disease.

³ CMS also investigated the hospital margins, ability to transfer ownership, and financial risk of the investment. They concluded that the limited secondary market for ownership, the restricted nature of the market, and the uncertainty of new hospitals’ earning streams make it difficult to calculate the market value of physician-owned shares accurately. This form of investment has significant financial risk for investors.

owned facilities offer a competitive substitute for “unresponsive” general hospitals, and give physicians a greater role in governance to ensure a higher standard of care.

A number of factors drive the development of niche hospitals: (1) the margin for the procedures delivered by the hospitals is relatively high, (2) physicians have more autonomy in how they practice in such hospitals, and (3) physicians are highly motivated to increase their income through hospital ownership (Casalino et al. 2003). In light of these factors, it is no accident that the federal government and the state of Texas have turned their attention to niche hospitals.

While the federal government is concerned about how niche hospitals may affect the cost and quality of care in the Medicare program, the states have a different range of concerns. In particular, Texas is concerned about the impact of niche hospitals on its general hospitals, as well as the potential for niche hospitals to exacerbate the duplication of hospital services, increase strain on the trauma system, and escalate health care costs.⁴

This report reviews the research literature that has addressed the motivations and effects of niche hospitals in their communities. This literature considers physician ownership and the financial incentives that might favor development of niche hospitals; as well as the impact of niche hospitals on patient selection, general hospitals, and the quality of care. A comparative summary of the studies that are reviewed in this report is provided as Appendix 1.

⁴ The increasing prevalence of niche hospitals and their potential impact on health care costs may put certificate of need (CON) laws and community needs-assessment programs back on the agenda of policymakers in some states where they have been repealed. Since the late 1960s, 37 states have enacted CON laws. These laws require entities to obtain approval from the State before building new health care facilities or expanding existing facilities, based on a formal assessment of community health needs. In 1985, Texas repealed its CON law, and gave the Regulatory Services Division the authority to issue licenses for new construction based only on architectural and life safety code requirements.

B. PHYSICIAN OWNERSHIP AND FINANCIAL INCENTIVES

1. Service Use and Physician-Induced Demand

A number of studies of physician behavior support the notion that service use is higher when physicians have a financial interest in the facilities or equipment used to provide care. These studies have investigated (variously) the use of laboratory services (U.S. Department of Health and Human Services 1989), MRI and nuclear medicine scans (GAO 1994), and imaging examinations (Hillman et al. 1990). Concern about the accelerating use and possible overuse of these services ultimately resulted in the passage of Stark I and II “anti-kickback” legislation, which restricts the types of facilities to which physicians can refer patients when they have an ownership stake.

Most of the research investigating whether physician-induced demand is more likely to occur in niche hospitals consists of case studies of individual hospitals or groups of specialists. In general, researchers have concluded that the potential for physician ownership of niche hospitals to prompt physician-induced demand is limited. Specifically:

- In November 1998, a partnership of MedCath and Austin cardiologists opened the Austin Heart Hospital (Goolsby 2003). By 2001, Austin Heart had become the largest provider of cardiovascular services; the other five major hospitals in Austin either maintained or lost market share. Using 2001 Medicare Provider Analysis and Review (MedPar) data, Goolsby found that the market share for major cardiovascular diagnosis-related groups (DRGs) was growing for all hospitals in Austin. Researchers attributed much of the shift in volume toward Austin Heart to a bed shortage in Austin, not to physician-induced demand for services.
- Mitchell (2005) conducted case studies of three niche hospitals in Oklahoma that specialize in orthopedic and spine surgeries. From 1999 to 2003, the number of injuries per 100 workers fell, and volume and utilization rates for complex spinal fusion surgery (DRG 496) and specific types of outpatient orthopedic procedures increased. Mitchell noted that this change in practice patterns could have been linked to the fact that physician owners had a financial incentive to deliver more of these kinds of services.
- Woods, O’Connor, and Pierce (2005) looked at the average rates of change in the number of surgical procedures performed annually by 10 orthopedic surgeons who were invested in a niche hospital in Houston. The researchers concluded that the

opening of a niche hospital had no significant effect on the growth in surgical procedures, the percentage of patients undergoing orthopedic surgery, or the average number of surgeries performed annually.

The location of the facilities observed in these studies is central to understanding their conclusions. Niche hospitals are more likely to locate in states where hospitals may add beds or build new facilities without obtaining approval, and in counties where the population is growing relatively quickly (GAO 2003). The niche hospitals studied by Goolsby (2003), Mitchell (2005) or Woods et al. (2005) all were located in Texas or Oklahoma, and in regions with relatively fast population growth. The increase in the demand for care that normally accompanies population growth and an aging population would bias these studies toward finding no effect from the development of niche hospitals.

Nevertheless, a broader study of niche hospitals that did control for these factors reached a similar conclusion. Researchers at Medicare Payment Advisory Committee (MedPAC) examined utilization from 1996 to 2002 in markets with cardiac niche hospitals (MedPAC 2005, Stensland and Winter 2006). Defining markets as health referral regions (HRRs, based on the *Dartmouth Atlas of Health Care*), they compared changes in the volume of surgeries per 1,000 beneficiaries enrolled in fee-for-service Medicare in 10 markets with physician-owned cardiac hospitals to that in 295 markets without physician-owned cardiac hospitals. The difference in the volume growth rate between markets with physician-owned cardiac hospitals (21 percent) and markets without them (16 percent) was not statistically significant overall, but it was significant for coronary artery bypass graft (CABG) surgery.

2. Physician Referrals

A number of studies have investigated whether the profit generated from facility fees plays a role in physician referral patterns:

- Using discharge data from Arizona hospitals from 1998 to 2003, Mitchell (2005b) compared physician referral patterns in four full-service hospitals in Tucson and seven hospitals in Phoenix with significant cardiac care programs with two cardiac niche hospitals, in Tucson and Phoenix, respectively. She found that physician-owners of the two cardiac niche hospitals had 3.8 times as many profitable cardiac surgical DRG cases as non-owners.⁵
- The MMA required CMS to examine the impact of niche hospitals on local markets and communities—including the impact on physician referral patterns. CMS obtained ownership information from 11 hospitals in six market areas and compared 2003 Medicare claims associated with owners to those associated with non-owners (CMS 2005, Greenwald et al. 2006). Both studies found a weak relationship between referral patterns and the level of physician ownership in niche hospitals, but they were unable to identify whether financial incentives or other factors drove that pattern.

C. IMPACT ON PATIENT SELECTION

Physician-owners have a financial incentive to refer patients with less medically complex conditions and better insurance to their own facilities. This behavior may leave general hospitals with a disproportionately high caseload of clinically complex, uninsured, or underinsured patients and undercut their ability to provide charity care.

Examining DRG-specific payment-to-cost ratios, MedPAC (2005) found that patients with minor or moderately severe cardiac conditions had a relative profitability ratio on many surgical cardiac DRGs that exceeded the average.⁶ But at the highest severity level, their relative profitability ratio fell below the average. MedPAC concluded that both physicians and hospitals

⁵ Physician owners were defined if the physician treated at least six cardiac DRG cases in a given year in any hospital in the market and the same physician treated at least 10% of their cardiac cases at the heart hospital (Mitchell 2005b).

⁶ “Relative profitability compares the national average inpatient Medicare profitability of one patient category (diagnosis-related group [DRG] or all-patient refined DRG [APR–DRG]) with the national average inpatient profitability of all Medicare discharges. The profitability of a given DRG, for example, is defined as the ratio of total payments for all Medicare patients in the category to the total costs hospitals incur in treating the same patients. A similar measure of profitability is defined for all Medicare patients whose care is paid for under the IPPS. The relative profitability of a specific DRG is defined as the profitability for that DRG divided by the overall average profitability of all IPPS patients. For example, if the average payment to-cost ratio over all IPPS patients were 1.04, and the payment-to-cost ratio for DRG 107 averaged 1.10 (payments were 10 percent above costs), then the relative profitability of DRG 107 would be 1.10/1.04, or 1.06 times the national average. The relative payment-to-cost ratio for each A P R-D R G severity class combination is computed using the same method.” (MedPAC 2005).

would have a financial incentive to control the mix of DRGs and the illness-severity of patients admitted to their facilities, although it did not investigate whether physician-owners acted on those incentives.

One study (sponsored by MedCath) that examined whether physician-owner referrals found a higher case-mix index for MedCath hospitals (1.42) compared to other hospitals performing open-heart surgery (1.18)—suggesting that MedCath treated more-complex cardiac cases (Dobson, Haught, Sen 2003). Another MedCath-sponsored study concluded that the Medicare patients treated in the Austin Heart Hospital had a similar level of medical severity as those treated in competing hospitals.⁷

Nevertheless, the weight of the evidence suggests that physician-owners do affect the mix of patients (by severity of illness and insurance status) admitted to their hospitals:

- CMS (2005) analyzed the relative severity of Medicare patients admitted to physician-owned niche hospitals compared with competitor hospitals and reported complex results. CMS concluded that orthopedic and surgical hospitals were more likely to have relatively few patients with major- or extreme-severity conditions ($p < 0.1$).⁸ Similarly, physician-owned cardiac hospitals generally admitted fewer major- or extreme-severity patients (23 percent) than did competing hospitals (29 percent). However, in some sites, both physician-owners and non-owners referred high-acuity patients to the niche facility—suggesting that as niche hospitals mature and expand their range of services, they may be able to treat more-severe cases.
- In an analysis of inpatient discharge data in Arizona from 1998 through 2003, Mitchell (2005b) found that physician-owners were more likely to treat “minor”

⁷ For the Austin Heart Hospital study, the complicated case severity index (0.9) was not significantly different from the comparison hospitals for any of the procedures examined (range 0.9 to 1.1). For CABG the Heart Hospital had a complicated case severity index of 1.9 (range 1.9 to 2.4), for interventions they had a measure of 0.7 (range 0.7 to 0.8), for inpatient catheterizations the Heart Hospital index was 0.2 (range 0.2 to 0.3), and for vascular surgery their index was at the lower end of the range of 1.3 to 2.1 (Goolsby 2003).

⁸ In an earlier study, GAO (2003b) similarly found that niche hospitals had a lower median share of patients classified as major or extreme than did comparison hospitals (GAO 2003b).

surgical cases compared with non-owner physicians. They were also more likely to treat patients with fewer comorbidities.⁹

Both CMS and MedPAC also looked at the transfer of patients from and to niche hospitals. Observing the number of patients transferred out of one heart hospital, CMS (2005) concluded that there was no significant difference between the cardiac niche and competitor hospitals in terms of either the transfer-out rate or the severity of illness of the transferred patients.¹⁰

In contrast (though based on observation of very few cases), the transfer-in rate to the cardiac niche hospital was higher and the severity of illness for the transferred patients was lower than among competitor hospitals. MedPAC (2005) reported similar results with respect to the transfer-in rate: the cardiac niche hospitals received a higher number of transferred patients per admission (25 percent) than either peer hospitals (20 percent) or general hospitals (less than 5 percent).¹¹

Niche hospitals that do not have emergency departments (EDs) may be less likely than general hospitals to admit severely ill patients. In Texas, any licensed general hospital must have an ED to receive patients, but in other states, the requirements vary. However, CMS (2005) found that orthopedic and surgical hospitals in states other than Texas operated very limited EDs, just meeting the letter of state requirements. Moreover, physician-owned cardiac hospitals were different from either orthopedic or surgical hospitals, admitting just 20 percent of patients

⁹ Mitchell (2005b) also concluded that physician owners treated a higher percentage of patients with Medicare fee-for-service commercial insurance and lower levels of patients with HMO coverage.

¹⁰ A competitor hospital was defined as being located in the same market area within 20 miles of the physician-owned hospital (CMS 2005).

¹¹ Peer hospitals were defined as specialized, not physician owned, and not necessarily located in the same market as specialty hospitals (MedPAC 2005).

through the ED compared to 50 percent at competing hospitals (CMS 2005). Niche hospitals also admitted fewer severely ill patients (27 percent) than did competing hospitals (32 percent).

Financial incentives exist related not only to patients' severity levels, but also to their insurance status. One study that looked specifically at patients' type of insurance (Mitchell 2005b) found that physician-owners treated a higher percentage of patients with Medicare fee-for-service or commercial preferred provider organization (PPO) insurance, and a lower percentage of patients with HMO-type plans.

Similarly, based on analysis of Medicare Hospital Cost Reports, MedPAC (2005) found that cardiac niche hospitals treated fewer Medicaid patients (4 percent) than general hospitals (15 percent) or peer hospitals (12 percent) in the same market. Also in physician-owned orthopedic facilities, just 1 percent of patients were Medicaid recipients, compared to 16 percent in general hospitals and 5 percent in peer hospitals—although some of this difference may reflect the exclusion of niche hospitals from Medicaid HMO contracts. Finally, based on a telephone survey of niche hospitals in the study, MedPAC researchers found that cardiac hospitals obtained 60 percent of insured payments from Medicare, while orthopedic and surgical hospitals received most of their insured payments (64 percent) from private insurers.¹²

D. IMPACT ON GENERAL HOSPITALS

Cross-subsidies between service lines are important to the financial operation of most hospitals. Whether niche hospitals draw revenue away from general hospitals and weaken their financial position is an important question for general hospitals as well as the communities they serve. However, the research in this area is largely anecdotal, and the evidence is mixed.

¹² For all types of hospitals, self-pay patients accounted for very little revenue, from 2 to 5 percent.

Two studies concluded that niche hospitals adversely affected general hospitals in their communities:

- In 2005, the American Hospital Association sponsored a series of case studies in four communities: Rapid City, South Dakota; Lincoln, Nebraska; Wichita, Kansas; and Oklahoma City, Oklahoma (Moore and Coddington 2005). In all four communities, the earnings of general hospitals fell after niche hospitals were opened. Additionally, the general hospitals reported that they reduced or eliminated programs that required cross-subsidization including, in two hospitals, emergency and trauma care.
- Researchers at the National Bureau of Economic Research (NBER) estimated an ordinary least squares regression model using MedPAR data from 1993, 1996, and 1999 to calculate the level of expenditures for patients admitted to a niche versus a general hospital (Barro et al. 2005). They found that hospital expenditures among patients in an HRR with a cardiac niche hospital grew significantly less from 1996 to 1999 than did expenditures among patients in an HRR with no niche hospital.

However, other studies have found no effect:

- MedPAC (2005) found no evidence that niche hospitals undercut the ability of general hospitals to provide essential services but noted that it might be too early to detect the impact of physician-owned niche hospitals on general hospitals.
- Similarly, Shoemaker and Schuhmann (2005) found neither a consistent relationship between a hospital's overall profitability and its degree of specialization nor any relationship between the profitability of specialty care and the hospital's location, case-mix index, or degree of specialization.¹³

In its MMA-mandated report, CMS (2005) took a different approach to the general question of niche hospitals' impact on their communities. CMS tried to understand the hospitals' relative "net community benefit"—that is, uncompensated costs net of the taxes that physician-owned niche hospitals pay (including sales tax, personal property taxes, property taxes, state and federal income tax) and the Medicare and Medicaid disproportionate share (DSH) payments that nonprofit hospitals receive. Uncompensated costs and tax payments were calculated as a

¹³ They found a positive relationship between bed size and profitability, and attributed it primarily to economies of scale available in larger facilities.

percentage of 2003 total operating revenue, allowing comparisons between different-sized facilities. CMS concluded that, while nonprofit hospitals provided more uncompensated care than cardiac and orthopedic niche hospitals, both cardiac and orthopedic hospitals provided greater net community benefit—although the taxes that for-profit hospitals paid were allocated to federal, state, and local general revenues, not to patient care.

E. IMPACT ON THE QUALITY OF CARE

After parsing industry-sponsored studies that examine specific hospitals only, the literature addressing the relative quality of care is very thin, and particularly so with respect to patients other than Medicare beneficiaries. Nevertheless, most studies indicate that the quality of care may be similar in niche hospitals and in general hospitals:

- In a MedCath-funded study, Dobson et al. (2003) compared mortality rates in seven MedCath hospitals and in 1,192 comparison hospitals that performed open-heart surgery in 2001. The researchers concluded that the MedCath hospitals had a lower mortality rate (1.9 percent) compared to the other hospitals that performed open-heart surgery (2.3 percent).
- Also funded by MedCath, Goolsby (2003) compared mortality rates at the Heart Hospital of Austin and six local competitors in Austin. The mortality rate at the Heart Hospital was lower (1.3 percent) than at competing hospitals (2.3 percent to 3.4 percent).
- Reporting to Congress, CMS (2005) and Greenwald (2006) addressed the issue of whether there were measurable differences in the quality of care between niche and competitor hospitals. Using Medicare claims data spanning January 1, 2003, through January 31, 2004; they examined mortality rates, readmission rates within 30 days of discharge, and complications during hospitalization in six study sites. They concluded that cardiac hospitals performed better on 13 of the 14 AHRQ Patient Safety Indicators (PSI) reported for cardiac niche hospitals and general hospitals, but the differences between the two types of facilities were not statistically significant on any measures. Taken as a whole, CMS found that niche hospitals provided a high quality of care.
- NBER researchers also examined the quality of medical care provided in cardiac niche hospitals compared to general hospitals (Barro et al. 2005). Using MedPAR data for 1993, 1996, and 1999 to look for one-year hospital readmissions for congestive heart failure or acute myocardial infarction and mortality rates, they found

no evidence of significant differences between HRRs with and without a cardiac hospital.

Two studies suggest that higher volume in niche hospitals may contribute to higher quality of care for some procedures and/or some patients. Comparing mortality rates for coronary artery bypass graft (CABG) and percutaneous coronary intervention (PCI) for Medicare patients in 15 cardiac niche hospitals and 82 general hospitals in 2001, Cram et al. (2005) concluded that the unadjusted mortality rates were lower for both CABG and PCI in niche hospitals. However, the differences were insignificant when the results were adjusted for patient characteristics and the higher volume of procedures in niche hospitals. The authors suggested that outcomes might be similar in either niche or general hospitals with the same volume.

Similarly, in its report to Congress, CMS (2005) found that risk-adjusted mortality rates were significantly lower in niche hospitals (both cardiac and orthopedic) compared to general hospitals. However, based on a more sensitive measure—readmission rates—CMS found evidence that the quality of care in cardiac hospitals, in particular, may be lower than that in general hospitals, especially for severely ill patients. For moderate-severity patients, readmission rates were significantly lower in orthopedic hospitals than in general hospitals, but typically higher at cardiac niche hospitals than in general hospitals. Higher rates of readmission were most pronounced for patients categorized as severe-severity.

Finally, CMS (2005) specifically addressed whether patients' perceptions of care differed with respect to care received in specialty versus general hospitals. They concluded that people generally were happy with their physician interactions and the care they received regardless of the hospitals setting. Patients said they preferred the specialty hospitals for a number of reasons: the private rooms; a quiet environment; accommodations for family members; the accessibility, attentiveness, and specialized training of the nursing staff; and the specialized procedures and

treatment offered there. Patients also understood (and thought it positive) that their physician had an ownership interest in the hospital.

F. CONCLUSIONS AND NEXT STEPS

Niche hospitals are a growing part of the American health care landscape. Since the MMA was enacted in 2003, CMS has received 40 applications from niche hospitals seeking either to be grandfathered under law or to expand their services (GAO 2005).¹⁴ Surgical hospitals account for 22 of the 40 applications.¹⁵ Three-quarters of the applications came from Texas (19), Louisiana (6), California (3), or Oklahoma (3).

The literature offers mixed evidence about the impacts of niche hospitals on general hospitals, patient selection, and quality of care:

- In general, the entry or presence of a niche hospital seems not to affect the overall number of procedures performed in a given market, but physician referral patterns may favor physician-owned niche hospitals compared to general hospitals (Goolsby 2003; Mitchell 2005a, 2005b; Woods O'Connor, and Pierce 2005; Stensland and Winter 2006; and Dobson et al. 2003).
- While physician-owners do not systematically refer less severely ill patients to niche hospitals, they may select DRGs and patients that are more profitable (Dobson et al. 2003, Goolsby 2003, CMS 2005, MedPAC 2005, Mitchell 2005b, and Greenwald et al. 2006).
- In addition, physician-owned niche hospitals may consistently treat fewer Medicaid and self-pay patients than do general hospitals (MedPAC 2005 and Mitchell 2005b).
- However, beyond anecdotal accounts, there is no strong evidence that physician-owned niche hospitals financially harm general hospitals—although the entry of niche hospitals may be too recent to observe their longer-term affects on general hospitals.
- Finally, the quality of care in physician-owned hospitals appears to be similar to that in general hospitals but may differ with respect to the volume of procedures

¹⁴ At this writing, CMS has approved 12 applications and denied two. One was withdrawn, and 25 are pending (GAO 2005).

¹⁵ In addition, five came from orthopedic hospitals, nine from cardiac facilities, and the remaining four did not indicate their specialty.

(supporting higher quality) and with respect to the most severely ill patients (for whom quality may be inadequate) (Dobson et al. 2003; Goolsby 2003; Barro et al. 2005; CMS 2005; and Cram et al. 2005).

While the studies reviewed in this report provide a reasonably good understanding of the impacts of niche hospitals to date, they are constrained in at least three ways. First, they are based on data that lack information about physicians' level of ownership and the hospitals' corporate structures. Such information could offer a much clearer understanding of the degree to which ownership status is an incentive for physician-induced demand.

Second, many of the studies depend on Medicare data for results on quality of care and patient selection. By including patients with insurance other than Medicare or Medicaid, future research could help to identify whether patterns of patient selection, in particular, are consistent regardless of payer types or severity of illness.

Finally, the research literature generally relies on blunt measures of quality—most often, case-mix adjusted mortality—even as policy interest in the quality of care continues to grow, new quality measures are developed and tested, and many hospitals report such measures routinely. Making these data on additional quality measures available to researchers will be essential to building a better understanding of whether all patients receive appropriate care, regardless of the site of care.

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APPENDIX 1

**COMPARATIVE SUMMARY OF RECENT STUDIES
OF PHYSICIAN-OWNED NICHE HOSPITALS**

Author/year	Study population/year	Measure	Outcome
Physician Ownership and Financial Incentives			
Goolsby 2003	Medicare inpatient hospital claims, 2003	Market share for various cardiovascular procedures in Austin area hospitals	Heart Hospital of Austin was the volume leader
Mitchell 2005	Oklahoma's largest workers compensation insurer, January 1, 1999 – December 31, 2004	Volume and utilization (number of procedures per 1000 workers compensation cases) rates for various spine and orthopedic procedures	Increases in market area volume and utilization for procedures studied
Woods, O'Connor and Pierce 2005	Practice data for ten orthopedic surgeons, 1988-2002	Rate of change in number of surgical procedures per year	There was no change in the number of procedures after the niche hospital opened.
Stensland and Winter 2006, MedPAC 2005	Fee-for-service Medicare beneficiaries inpatient hospital claims, 1996 and 2002 10 Health Referral Regions (HRR) with cardiac hospitals 295 HRRs without cardiac hospitals	Changes in the volume of surgeries per 1,000 Medicare beneficiaries Growth rates for all surgical cardiac discharges and three subsets of cardiac surgery: CABG, angioplasty, and ICD implantation.	A difference in volume growth between markets with physician-owned cardiac hospitals and markets without them was not statistically significant. Significant for coronary artery bypass graft (CABG) surgery.
Mitchell 2005	Inpatient discharge data from Arizona hospitals, 1998-2003 Tucson Heart Hospital and 4 full-service general hospitals with cardiac care programs Arizona Heart Hospital (Phoenix) and seven community hospitals with cardiac care programs	Cardiac surgical or medical DRGs at the niche hospitals or the competing full-service general hospitals in Tucson or Phoenix.	Physician-owners had 3.8 times as many profitable cardiac surgical DRG cases as non-owners.
CMS 2005, Greenwald et al 2006	Medicare inpatient hospital claims, 2003	Comparison of referral patterns for owner and non-owner physicians.	Weak relationship between referral patterns and level of physician ownership in a niche hospital
Impact on Patient Selection			
MedPAC 2005	Medicare hospital inpatient claims and cost reports, 2000-2002	Relative profitability	Cardiac patients with minor or moderate severity had a relative profitability quotient on many surgical cardiac DRGs greater than one, at the highest severity level they had a relative profitability level less than one.
Dobson et al. 2003	MedPAR , 2001 7 MedCath hospitals and 1192 hospitals performing open-heart surgery	Case mix complexity	MedCath treated patient with higher severity of illness levels.

Author/year	Study population/year	Measure	Outcome
Goolsby, 2003	MedPar, 2001 1 MedCath hospital and 6 Austin area competitors	Complicated Case Severity Index	All hospitals had a similar patient severity mix
CMS 2005, Greenwald et al 2006	Medicare inpatient hospital claims, 2003	APR-DRG patient severity index	Physician-owned niche hospitals generally treat less severely ill patients
GAO 2003b	Medicare inpatient hospital claims, 2000	APR-DRG patient severity index	Niche hospitals had a lower median share of patients in the major or extreme severity levels than did comparison hospitals
Mitchell 2005	Inpatient discharge data from Arizona hospitals, 1998-2003 Tucson Heart Hospital and 4 full-service general hospitals with cardiac care programs Arizona Heart Hospital (Phoenix) and seven community hospitals with cardiac care programs	APR-DRG patient severity index	Physician-owners were more likely to treat a greater number of “minor” surgical cases compared with non-owner physicians and also more likely to treat patients with fewer comorbidities.
CMS 2005	Medicare inpatient hospital claims, 2003	Transfer-in and transfer- out rate	Transfer-out rate from the niche hospital and patients’ severity of illness were not significantly different between cardiac niche and competitor hospitals. Transfer-in rate to the cardiac niche hospital was higher and the severity of illness for those patients was lower than among competitor hospitals
MedPAC 2005	Medicare inpatient hospital claims	Transfer-in rate	Cardiac niche hospitals receiving a larger share of transferred patients than either peer or general hospitals
CMS 2005	Medicare inpatient hospital claims, 2003	Emergency room based hospital admissions	Cardiac niche hospitals admit only 20 percent of patients through the ED, compared to 50 percent at competitor hospitals. Niche hospitals admitted fewer severely ill patients than the competitor hospitals
Mitchell 2005	Inpatient discharge data from Arizona hospitals, 1998-2003	Payer Mix	Physician owners treat more fee-for- service Medicare and private pay patients.
MedPAC 2005	Medicare Hospital Cost Reports	Payer Mix	Cardiac and orthopedic niche hospitals treat few Medicaid and self-pay patients than general hospitals.

Author/year	Study population/year	Measure	Outcome
Effect on General Hospitals			
Moore and Coddington, 2005	Site interviews	Financial impact on full-service hospitals	General hospitals had a decrease in earnings after niche hospitals opened in the sites. Reduction in services offered in two sites.
Barro et al, 2005	MedPAR data, 1993, 1996, and 1999	Expenditures within an HRR	Hospital expenditures among patients in an HRR with a cardiac niche hospital grew less between 1996 and 1999 than expenditures among patients in an HRR with no niche hospital.
MedPAC 2005	Medicare cost reports, 1997 and 2002.	Hospital margins	No evidence that niche hospitals undercut the ability of general hospitals to provide essential services.
Shoemaker and Schuhmann, 2005	MedPAR, federal fiscal year 2003	Hospital profitability	No consistent relationship between a hospital's overall profitability and its degree of specialization.
CMS 2005	Financial data from niche hospitals, 2003 IRS form 990 from general hospitals, 2003 Medicare cost reports, 2003	Net community benefit	Non-profit hospitals provided more uncompensated care than niche hospitals, after accounting for the DSH payments and taxes paid, both cardiac and orthopedic hospitals provided greater net community benefit.
Quality of Care			
Dobson et al. 2003	MedPAR , 2001 7 MedCath hospitals and 1192 hospitals performing open-heart surgery	Severity-adjusted mortality	Cardiac niche hospitals had a lower mortality rate compared to the other hospitals
Goolsby, 2003	MedPar, 2001 1 MedCath hospital and 6 Austin area competitors	Severity-adjusted mortality	Niche hospital had a lower mortality rate than competitor hospitals
CMS 2005	Medicare claims, January 1, 2003 – January 31, 2004	Severity adjusted mortality rates, readmission rates within 30 days of discharge and AHRQ PSI measures	Risk-adjusted mortality rates were significantly lower in niche hospitals than comparator hospitals Cardiac hospitals performed better on 13 of the 14 AHRQ PSI, but not statistically significantly Readmission rates for moderate-severity patients in orthopedic hospitals were significantly lower than in general hospitals Readmission rates at cardiac niche hospitals were typically higher than in general hospitals

Author/year	Study population/year	Measure	Outcome
Barro et al, 2005	MedPAR data, 1993, 1996, and 1999	One-year hospital readmissions for congestive heart failure or acute myocardial infarction, and severity adjusted mortality rates	No significant evidence of differences between HRRs where a cardiac hospital had entered to those without an entry
Cram et al 2005	Medicare claims, 2000-2001 n=42,737 PCI n=26,274 CABG	Mortality rate (unadjusted and adjusted)	Unadjusted mortality rates were lower for both PCI and CABG procedures in niche hospitals Adjusting for patient characteristics and higher procedural volume in niche hospitals, the differences were insignificant.
CMS 2005	Patient focus groups	Perceived patient satisfaction	Patients preferred the specialty hospitals because of the private rooms; a quiet environment; accommodations for family members; the accessibility, attentiveness, and specialized training of the nursing staff; and the specialized procedures and treatment offered there