

Ancillary Opportunities in Cardiology: Considering the Options

By Max Reiboldt, CPA, and Priscilla Moore



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INTRODUCTION

Outpatient cardiology services are under constant scrutiny and change, compelling cardiologist physicians and hospitals to consider the feasibility of various investment initiatives for delivery of their services. For example, investing in cardiac catheterization laboratories or cath labs has historically been a viable economic and patient-satisfying venture. In states where certificate of need (CON) laws are quite liberal or do not exist, many private groups have invested and initiated their own diagnostic cath labs.¹

Among the various opportunities for ancillary services, cath labs, when permissible by state CON regulations, historically have been one of the better ancillary alternatives. However, the unstable reimbursement landscape challenges the viability of cath labs and many other cardiology ancillary services investments.

To determine the feasibility of an investment in an outpatient cath lab of low-risk diagnostic catheterizations calls for a basic knowledge level of cardiology practice operations, because the cardiology practice is the cath lab's source of patients. Current volume of procedures and the overall work performed should form the assumptive basis of the analysis and feasibility study. Research tools and industry knowledge are also important.

This report takes a look at historical data and trends to aid in decision making for investment opportunities and it makes recommendations for joint venture alignment strategies.

FREE-STANDING DIAGNOSTIC CATH LAB MARKET OVERVIEW

According to the Cardiovascular Outpatient Center Alliance (COCA), the number of free-standing diagnostic cath labs currently in the United States is fewer than 100.² Changes in reimbursement are having a significant negative impact and in many cases, threatening survival of free-standing cath labs due to operational losses.

Reimbursement Trends

Table 1 illustrates what has occurred in reimbursement within the four most common diagnostic cath procedure codes. This data is selected from Washington State where CON regulations traditionally permit free-standing privately-owned cath labs. The same trend in reimbursement has occurred throughout the United States.

**Table I. State of Washington -- Common Cath Procedure Codes --
Medicare Fee Schedule 2000 Through 2009**

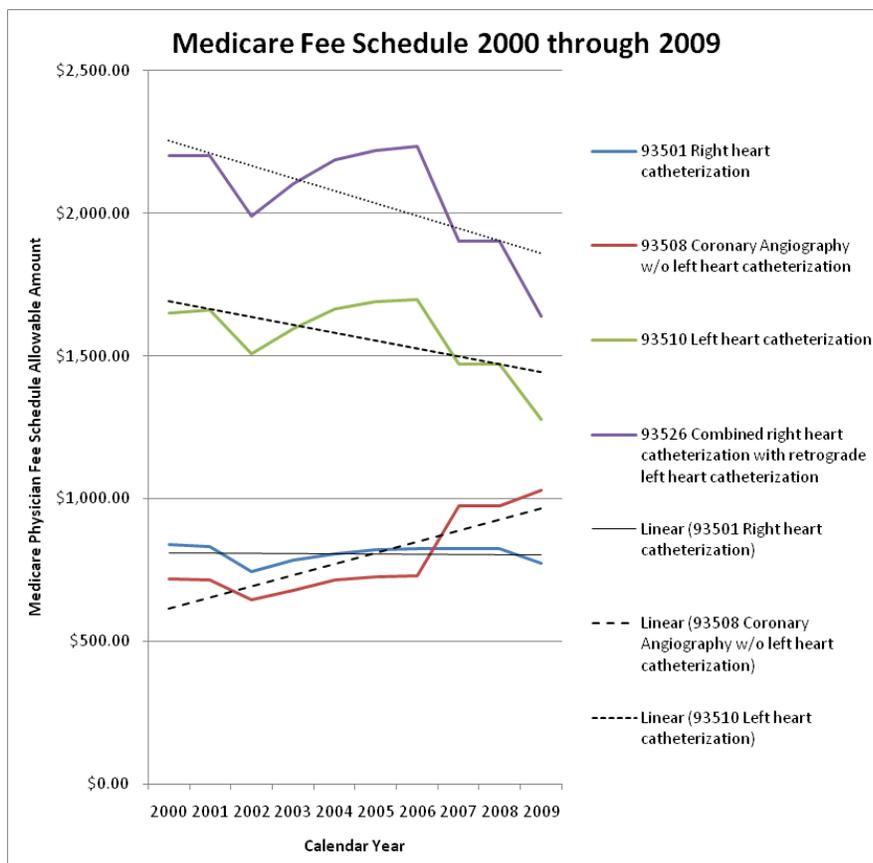
CPT	Medicare Fee Schedule- Allowable	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% Change 2009 vs. 2000
93501	Right heart catheterization	\$ 840	\$ 831	\$ 743	\$ 783	\$ 807	\$ 821	\$ 824	\$ 824	\$ 824	\$ 773	-8.01%
93508	Coronary Angiography w/o left heart catheterization	\$ 718	\$715	\$647	\$677	\$714	\$726	\$730	\$976	\$976	\$1,028	43.21%
83510	Left heart catheterization	\$1,652	\$1,661	\$1,508	\$1,596	\$1,663	\$1,690	\$1,699	\$1,473	\$1,473	\$1,277	-22.70%
93526	Combined right heart catheterization w/retrograde left heart catheterization	\$2,202	\$2,203	\$1,988	\$2,103	\$2,186	\$2,221	\$2,234	\$1,902	\$1,902	\$1,638	-25.61%

Table I notes that the trend for code 93501, Right Heart Catheterization, decreased through 2003, increased from 2004 through 2008, and decreased again in 2009. CPT code 93510, Left Heart Catheterization, shows periods of slight increase; however, overall large decreases have resulted, with a net 22.7 percent decrease from 2000 through 2009. This pattern is also reflected for CPT code 93526, Combined Right and Left Heart Catheterization, resulting in a 25.1 percent overall decrease.

Further decreases in reimbursement for these services provided in free-standing cath labs are anticipated in the soon to be released 2010 Medicare Physician Fee Schedule. Reimbursements are expected to drop below the cost of performing these procedures, forcing free-standing diagnostic cath labs to close. As a result, patients will be sent to hospital-based cath labs where they will encounter longer wait times and higher out-of-pocket costs.

Since 2006, part of the same period, hospital-based cath labs have experienced reimbursement increases of approximately 25 percent. CMS recently released information indicating that these rates will continue to climb by as much as 14 percent over the next two years.³ With the release of the CMS Final Rule for 2010, hospital-based cath labs will have had reimbursement *increases* between 2007 and 2010 of over 17 percent while free-standing diagnostic cath labs will have experienced a 76 percent *reduction* in reimbursement during the same period. Figure 1 illustrates the trends in reimbursement for specific services.

Figure I. Medicare Fee Schedule 2000 Through 2009



Source: ©2009 Coker Group

The proposed reimbursement in 2010 in the recently-published CMS Final Rule will not only affect outpatient diagnostic cath, but also a number of cardiac services offered outside of a hospital-owned facility.⁴ The subsequent outcome could be cuts of as much as 60 percent. These draconian reductions will make it almost impossible for cardiology practices to offer a number of diagnostic procedures to Medicare patients. Estimates are that these proposed reductions in reimbursement will increase Medicare costs by \$86 million when the patients are forced into the hospital environment for these services. In addition, each Medicare patient will face increased out-of-pocket costs; for example, a catheterization performed in a hospital outpatient setting is estimated to cost the patient an additional \$583.50 versus the same procedure performed in a free-standing cardiology practice.⁵

As a result of these reimbursement developments, 12 free-standing outpatient cath labs have closed or sold to hospitals over the past 12 months.⁶

Joint Venture Options

A logical and sometimes viable alternative to closing or selling a cath lab facility is to establish a joint venture with a hospital. The joint venture functions under separate tax identification from the cardiology practice and the hospital. The entity requires separate credentialing with Medicare; specifically, this comes under the auspices of an Independent Diagnostic Testing Facility (IDTF). The IDTF must meet all Medicare credentialing criteria for reimbursement to be received. Additionally, the facility should be accredited by either the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) or the Accreditation Association for Ambulatory Health Care (AAAHC).

The reimbursement and contract stipulations for non-governmental payers, both managed and non-managed care contracts, tend to be more difficult to predict. Many do not recognize an IDTF as a provider, particularly relative to state Medicaid programs. Commercial payers may also require the IDTF to submit bills on a CMS1450 (UB) rather than a CMS1500 (HCFA), a task that practice management software may not be able to accommodate or the business staff may not be comfortable performing in that UB billing differs significantly from HCFA billing.

Payer Mix and Volume

Another consideration is the payer mix for the diagnostic caths currently performed by the cardiology practice in a hospital setting or within its own free-standing cath lab. Logically, the same payer mix would be assumed for a free-standing or joint venture cath lab. Specific assumptions should be made relative to the reimbursement under the free-standing cath lab or hospital joint venture (IDTF) cath lab scenario. As an example, Table II considers the payer mix for cath procedures.

Joint Table II. Payer Mix for Cath Procedures

Medicare/Medicare Advantage	46%
Medicaid	5%
Managed Care	17%
Blue Cross/Blue Shield	22%
Commercial	1%
Champus/Tricare	3%
Workers Comp	1%
MVA	1%
Inmate	1%
Self Pay	5%

The annualized volume of diagnostic caths is 1,760. For purposes of the initial feasibility review, the following assumptions are made:⁷

- 50 percent of the procedures performed in the free-standing cath lab
- Only payers recognizing an IDTF considered
- Reimbursement based on the 2009 Medicare fee schedule for Medicare and Champus/Tricare (Washington State)
- Managed care reimbursement considered at 120 percent of the Medicare fee schedule

Total volume for the cath lab would be approximately 834 procedures. With 250 working days, three to four procedures per day would be performed in the cath lab. Assuming a two-table lab with a C-arm fluoroscopy with lateral swing between tables, capacity would be approximately five to six patients per day, resulting in an annualized volume of 1,250 to 1,500 patients. No hard and fast rule applies for the number of cardiologists that are necessary to generate sufficient volume to make an outpatient lab financially viable. In general, however, a practice with less than seven cardiologists is less likely to be able to refer a sufficient number of cases.

Table III uses the previously noted payer mix and assumed that 50 percent of the annual volume would be performed in the free-standing cath lab for those payers that recognize an IDTF. This would result in \$1,137,827 in revenue.

Table III. Projected Revenue -- Free Standing Cath Lab

Payer Mix	Diagnostic Procedures						Reimbursement				
	93501	93508	93510	93526	Total		93501	93508	93510	93526	Total
Medicare/Medicare Advantage	6	47	336	17	406		\$4,638	\$48,295	\$428,958	\$27,842	\$509,732
Medicaid											
Managed Care	2	18	128	6	154		\$1,855	\$22,195	\$196,095	\$11,792	\$231,937
Blue Cross/Blue Shield	3	22	161	8	194		\$2,783	\$27,127	\$246,651	\$15,722	\$292,283
Commercial	0	2	10	1	13		\$0	\$2,466	\$15,320	\$1,965	\$19,751
Champus/Tricare	1	3	21	1	26		\$773	\$3,083	\$26,810	\$1,638	\$32,303
Workers Comp											
MVA											
Inmate											
Self Pay	0	5	34	2	41		\$0	\$5,138	\$43,406	\$3,276	\$51,820
Total	12	97	690	35	834		\$10,049	\$108,304	\$957,240	\$62,235	\$1,137,827

Overhead Expenses

When reviewing overhead expenses of operating a cath lab, data from Medaxiom indicates, on average in 2008, 66 percent of revenue was required for expenses. From 2006 through 2008, the actual overhead expenses (in absolute dollars) probably did not increase; but with the declining reimbursement, the percent of overhead has steadily grown from the low- to mid-50 percent range to 66 percent. In terms of the overhead expense categories, payroll and benefits for laboratory staff, medical supplies, and depreciation account for more than 80 percent of the cost of operation.⁸

Space Requirements and Costs

The space in the cardiac cath suite should be sufficient to provide care comfortably to the patients scheduled on any given day. Table IV lists suggested minimal room sizes in a cardiac cath suite.⁹

Table IV. Suggested Minimal Room Sizes in a Cardiac Cath Suite

Use	Suggested Minimum Size (sq. ft.)
Procedure room	500-600
Control room	150-200
Equipment room	100-120
Scrub facility (if independent from the procedure room)	30
Holding room	120
Patient preparation room	120
Recovery room	120
Catheter and other storage room	100
Patient dressing room	70
Staff dressing room	70
Patient toilet	30
Staff toilet	30
Pharmacy space	30

Table IV. Suggested Minimal Room Sizes in a Cardiac Cath Suite (continued)

Use	Suggested Minimum Size (sq. ft.)
Blood gas analysis	20
Staff lounge	70
Reception area	70
Film viewing area	70
Archival area (film and/or computerized archival)	70
Darkroom processing (or computer management)	70
Soiled utility	70
Janitorial space	20
Offices (space per office)	70
Conference room	120
Library	70

The total cost of a free-standing diagnostic cath lab is estimated in the \$2.4 to \$3.8 million range, depending upon real estate costs and equipment selection. In a joint venture, both parties would have to participate in the investment, either through direct capital contribution or by procuring debt.

Personnel Staffing

The type and number of nursing personnel required in the cath lab depends on the laboratory caseload and mix. This may include nurse practitioners, registered nurses, licensed vocational or practical nurses, or nursing assistants. In most labs, the nursing supervisor is a registered nurse. The nurse must be familiar with the overall function of the lab, help set the tone of patient surroundings, and influence the efficiency and safety of procedures. The registered nurse may also directly participate in observation and nursing care of the patient during catheterization and be ready to respond to any emergency. The nursing supervisor should be in charge of the pre-procedure and post-procedure holding areas.

Various types of technical knowledge are required in the cardiac catheterization laboratory, although any one person may not possess all the different types of technical

expertise. At least one technologist, who may or may not be a certified radiological technologist, should be skilled in radiographic and angiographic imaging principles and techniques. The technologist should be experienced in the proper performance of x-ray generators, cine pulse systems, image intensification, automatic film-processing equipment (if used), pressure injection systems, video systems, and cine cameras. This individual, in cooperation with electronic and radiological service engineers, should be responsible for routine care and maintenance of the radiological equipment.

Laboratory technologists should be skilled in managing blood samples and performing blood gas measurements and calculations. They should be qualified to monitor and record electrocardiographic and hemodynamic data and have sufficient skill level and experience in interpreting these data to report significant changes immediately to the physician responsible for the patient.

Credentialing Requirements and Responsible Oversight

Attending physicians should be credentialed according to local standards. The laboratory director should have extensive experience; i.e., more than 500 procedures performed over his or her career. If interventional procedures are performed in the laboratory, the director should be board certified in interventional cardiology.

The patient consent form should note if any designees other than the attending physician are participating in the procedure. Cardiology trainees (fellows) may be primary operators with supervision. Physician assistants and nurse practitioners can participate in cardiac catheterization procedures along with the attending physician, but they cannot be primary operators. Further, all clinical decision making must reside with credentialed physician operators.

An invasive cardiologist must be present in the laboratory during each procedure and must be responsible for the outcome. To maintain effective and safe laboratory operation, each basic support function should be performed by adequately trained personnel who constantly maintain their skills and credentials.

Thus, the overall makeup of the diagnostic cath lab must entail adequate professional and technical expertise, and yet all of these must be structured in a way that will provide a reasonable return on investment. This is becoming more and more difficult in a free-standing privately-owned setting, especially compared to a practice/hospital joint venture setting under an IDTF structure.

CONSIDERING STRUCTURAL ALTERNATIVES

In considering the available alternatives and opportunities for cardiologists in today's reimbursement environment relative to ancillaries, and more specifically, cardiac cath labs, several conclusions can be drawn.

Most any sized practice considering the provision of additional services, both for providing the continuum of care for patients and revenue enhancement, should consider a free-standing cath facility, in compliance with applicable state regulations. The free-standing cath lab may well result in delivery of higher quality of care through shorter wait times for the procedure, resulting in earlier diagnosis and treatment. Financial considerations, however, must be addressed before a successful venture is achievable and must be a major part of the overall feasibility study. Economic realities may have to take precedence over patient satisfaction and preference.

The volume of business available exclusively for the cardiology practice to support the free-standing cath lab appears to be increasingly marginal. Achieving a breakeven to a profitable venture, as seen in the previous example analysis, requires greater volumes than most practices can generate alone. Most likely, all referrals to the private free-standing cath lab must be assumed to emanate exclusively from within that practice. The full support of all the cardiologists would be required to obtain adequate referrals to sustain the free-standing private cath lab.

The best alternative may be to consider a joint venture structured as a hospital outpatient department (HOPD), with reimbursement based upon the Ambulatory Payment Classification (APC) of the CPT code. This is opposed to a free-standing cath lab, which receives only the technical portion of the CPT code from the Medicare Physician Fee Schedule. Table V illustrates this option. The professional component for physician reimbursement remains unchanged in either scenario, but the APC payment is significantly higher than the technical component of the physician fee scale. Using the same metrics and data examples as previously used in this report, Table VI summarizes the impact of a free-standing cath lab's technical component reimbursement versus HOPD APC reimbursement.

Table V. 2009 Medicare Reimbursement -- Hospital Outpatient Department vs. Free-Standing Cath Lab

		APC	Physician	Hospital Outpatient Department	Technical	Physician	Free- Standing Cath Lab	Difference
93501	Right heart catheterization	\$2,593.88	\$166.16	\$2,760.04	\$606.82	\$166.16	\$772.98	-\$2,153.22
93508	Coronary Angiography w/o left heart catheterization	\$2,593.88	\$230.74	\$2,824.62	\$796.81	\$230.74	\$1,027.55	-\$2,027.81
93510	Left heart catheterization	\$2,593.88	\$243.40	\$2,837.28	\$1,033.27	\$243.40	\$1,276.67	-\$1,804.01
93526	Combined right heart catheterization with retrograde left heart catheterization	\$2,593.88	\$335.43	\$2,929.31	\$1,302.33	\$335.43	\$1,637.76	-\$1,626.98

Table VI. Revenue Projection Based on 50% of Practice 2009 Diagnostic Cath Volumes -- Medicare 2009 APC and Physician Fee Schedules¹⁰

Payer Mix	Diagnostic Procedure Volumes					HOPD APC Reimbursement					Free-Standing Cath Technical Component Reimbursement				
	93501	93508	93510	93526	Total	93501	93508	93510	93526	Total	93501	93508	93510	93526	Total
Medicare/ Medicare Advantage	6	47	336	17	406	\$15,563	\$121,912	\$871,544	\$44,096	\$1,053,115	\$3,641	\$37,450	\$347,179	\$22,140	\$410,409
Medicaid															
Managed Care	2	18	128	6	154	\$6,225	\$56,028	\$398,420	\$18,676	\$479,349	\$1,456	\$17,211	\$158,710	\$9,377	\$186,755
Blue Cross/Blue Shield	3	22	161	8	194	\$9,338	\$68,478	\$501,138	\$24,901	\$603,855	\$2,185	\$21,036	\$199,628	\$12,502	\$235,350
Commercial	0	2	10	1	13	\$0	\$6,225	\$31,127	\$3,113	\$40,465	\$0	\$1,912	\$12,399	\$1,563	\$15,874
Champus/ Tricare	1	3	21	1	26	\$2,594	\$7,782	\$54,471	\$2,594	\$67,441	\$607	\$2,390	\$21,699	\$1,302	\$25,998
Workers Comp															
MVA															
Inmate															
Self Pay	0	5	34	2	41	\$0	\$12,969	\$88,192	\$5,188	\$106,349	\$0	\$3,984	\$35,131	\$2,605	\$41,720
Total	12	97	690	35	834	\$33,720	\$273,395	\$1,944,891	\$98,567	\$2,456,923	\$7,889	\$83,984	\$774,746	\$49,489	\$916,107

In these examples, when structured as an HOPD, the result would be \$1.5 million additional reimbursement revenue for the facility/technical component. It should be noted, however, that while a free-standing cath lab might preclude other cardiologists from performing caths in the facility, it could increase consultative volume, in that any patient referred would first need to be evaluated by that cardiology practice's referring cardiologist. Structuring the joint venture as an HOPD would better allow for credentialing of other physicians beyond the cardiologists of the investing practice. This would increase volume and potential profitability of the joint venture, but would not contribute to increased consultative volume or revenue for the specific cardiology practice.

Reimbursement is the greatest unknown at the present time, especially with the impending healthcare reform legislation. It is apparent that reimbursement for the procedures commonly performed in a free-standing cath lab has deteriorated over recent years and this trend is expected to continue, especially in the face of the need to reduce Medicare expenditures to support the proposed reform initiatives. This is in spite of research and analysis provided by Cardiovascular Outpatient Center Alliance (COCA) to Medicare, indicating the advantages of a free-standing cath lab, and also requesting that Medicare reimburse the free-standing cath facility through the use of APCs similar to services provided in an ambulatory surgery center.¹¹

Another concern is for what part CT angiography will play in providing the diagnostic results previously obtained only through a diagnostic cath. It is possible that multislice CT angiography (CTA) will gradually replace diagnostic caths. Many variables will affect the rate of adoption of CTA into the practice of cardiology, including standardized physician training and credentialing, establishment of accepted indications and practice guidelines, development of clinical protocols, and reimbursement. Due to the uncertainty of how CTA will be deployed into practice, many groups are reluctant to embark upon the construction of a new outpatient cath lab, even though it might be convenient and profitable in the short term. This would also apply to joint venture cath lab investments.

Prior to the current healthcare reform movement, the probable scenario was that outpatient facilities would gradually transform from diagnostic cath labs to therapeutic labs wherein peripheral interventions would be performed. Many are unaware that as of January 1, 2005, Medicare began to reimburse for peripheral angioplasty in the outpatient setting. Due to the high prevalence of peripheral vascular disease, the aging of the population, and the twin epidemics of obesity and diabetes, the peripheral vascular disease market will continue to grow for the next two decades or longer and may offer additional opportunities for the free-standing cath facility.

RECOMMENDATIONS FOR ALIGNMENT STRATEGIES

As cardiology groups face all of these dynamics, most of which are shrouded with uncertainty around reimbursement from Medicare and the private insurers, what strategy should they adopt currently?

First, careful consideration should be given to the existing practice's ancillary services. In many instances, those that have been developed privately by the cardiology group should be reviewed with the possibility of being converted to a joint venture initiative. Certain diagnostic ancillaries should be considered for a sales transaction to a hospital partner; and, in turn, the physicians can be engaged by the hospital through a service line management agreement (SLMA). The SLMA is an alignment strategy in which the physicians provide a myriad of defined services to the hospital. This may also include clinical co-management. Once the services are defined and properly quantified as to time and value, normally through an independent fair market value opinion, a professional services agreement (PSA) is drafted to memorialize the terms and conditions and the compensation rate for the physician cardiologists for providing the services.

Conversely, the SLMA can also transpire without the practice's sale of its diagnostic services. However, given the current reimbursement structure, selling those diagnostic services altogether or considering them as a joint venture with the hospital may well be the best alternative.

Regardless of the ultimate decision, cardiology groups faced with these alternatives should seek assistance of a qualified expert, if unavailable within the practice, to prepare a full-fledged feasibility study, largely based upon extensive pro forma analyses. The analyses should consider all applicable forms of revenue generation. For example, in addition to primary heart cath procedure codes, there are additional codes that can and should be billed, including the radiological procedures, the supervision interpretation of the images, and others. However, the cath codes and radiological procedure codes for the technical component are also being considered in 2010 for substantial reduction in reimbursement. While this may generate additional revenue, the revenue projection is declining at the moment. Thus, the pro forma analyses should focus primarily upon the joint venture cath lab and/or selling the existing cath lab altogether and assuming the SLMA structure. With the joint venture cath lab and/or complete sellout entailing the potential advantage of HOPD rates, this option may appeal most to both the private cardiology practice and the partnering hospital.

Finally, other areas of ancillary services to patients may be considered where reimbursement is still acceptable. A financial pro forma of other services or modalities

should be considered. These may encompass CT angiography, sleep lab, dietetic/bariatric services, and other service lines supportive of better cardiac health.

SUMMARY

This report explores several areas of consideration to the practicing cardiologist, both presently and for the near future. The uncertainty of exactly what healthcare reform will do to reimbursement limits the options. Based upon recent trends, even if legislation is not passed, it is uncertain what will happen with reimbursement of cardiology services. Likely, reimbursement will continue to be stagnant, if not decreasing. Private cardiology groups will do well to consider several areas of alignment. Alignment alternatives should be with other cardiology practices through specific joint venture/merger efforts, or more likely, with other partners; namely, one or more hospital facilities within their community.

The possible alignment strategies for cardiology practices include the following, not necessarily in order of priority:

1. Partnering with other groups through mergers and/or joint ventures.
2. Partnering with hospitals through various services, such as medical directorships, pay-for-call, and other hospital responsibilities.
3. Partnering with hospitals through specific joint venture initiatives involving ancillary services, such as cardiac cath labs and diagnostic services.
4. Partnering with hospitals through service line management agreements wherein the cardiologists primarily continue to perform services, many of which they are already performing, for the hospital in exchange for a fair market value compensation stipend.
5. Employment (i.e., full integration) by a hospital.

Cardiology groups should be savvy to the current landscape, yet careful not to overreact. Simultaneously, they should consider the trends that have unfolded for the past three to four years (i.e., decreased reimbursement, lowering incentives for independent ancillary services, etc.). With this in mind, a strategy should be developed for every individual group considering its options to partner with other cardiologists as well as local or regional hospital or health systems.

For more information concerning cardiology strategies and specific initiatives discussed in this report, contact Coker Group's president/CEO, Max Reiboldt, CPA, at 678.832.2007, mreiboldt@cokergroup.com, or senior associate, Priscilla Moore at 678.280.9715, pmoore@cokergroup.com.

NOTES

¹ Note: Certificate of Need regulations differ greatly by state; therefore, these discussions can vary significantly based upon those individual state regulations. This report is generic in nature and does not address specifics. When considering investment opportunities, each situation should be reviewed within the context of state regulations and requirements.

² COCA Congressional Talking Points, Nashville TN, October 1, 2009, <http://www.cocaheart.org/uploads/File/COCAnationalrelease10-1-09.doc>, (Dec 2, 2009).

³ Steve Blades, "Outpatient Cath Labs Fight for Survival," *Cardiovascular Business*, Vol 2, No 5, 2008, 40, <http://www.cocaheart.org/uploads/File/CardiovascularBusinessOPCLArticleSeptember2008.pdf>, (Dec 9, 2009).

⁴ CMS, <http://www.cms.hhs.gov/AcuteInpatientPPS/10FR/itemdetail.asp?filterType=none&filterByDID=-99&sortByDID=1&sortOrder=ascending&itemID=CMS1227477&intNumPerPage=10>, (Dec 5, 2009).

⁵ Rosemary Plorin, "Proposed Medicare Changes Will Increase Costs to Government, Decrease Options for Patients," *COCA Congressional Talking Points*, <http://www.cocaheart.org/index.php/regulatory-issues>, Oct 1, 2009, (Dec 9, 2009).

⁶ COCA Congressional Talking Points, Nashville, TN, August 2009. Available at <http://www.cocaheart.org/index.php/regulatory-issues>, (Dec-2, 2009).

⁷ Note: These assumptions are arbitrary, but quite realistic.

⁸ Note: Medaxiom is a comprehensive subscription-based service provider and information resource exclusively for cardiology practices with a network of over 300 practices representing 5,400 physicians across the U.S.

⁹ Bashore et al, "Expert Consensus Document on Cath Lab Standards," *Journal of American College of Cardiology*, Vol 37, No 8, 2001, 2197, June 15, 2001:2170–214 ACC/SCA&I.

¹⁰ Note: Realistically, no more than half of most private practice's caths would be diverted to a new cath lab. Physician practice patterns are very slow to change; over time, this may improve, yet physicians will always deem that many procedures are best done at a hospital cath lab.

¹¹ Note: To date, CMS has not given credence to any of this information to make any changes to the method in which free-standing cath labs are reimbursed.