Cardiovascular disease is the leading cause of death in the United States and accounts for ≈17% of national health expenditures and 30% of Medicare spending. Among physician groups and professional societies, cardiologists have been among those leading efforts to create evidence-based guidelines and to measure quality of care. In the post-health reform era, national efforts have expanded beyond quality to include innovative delivery models, such as the patient-centered medical home (PCMH), the medical neighborhood, and accountable care organizations (ACOs). This next generation of care delivery models and the payment strategies that support them incentivize efficiency, patient-centeredness, and care coordination with an emphasis on primary care. We propose strategies for cardiologists to create collaborative opportunities within these new models drawing from examples from around the country within the context of a framework developed by the American College of Physicians. Pursuing these approaches or others along similar lines will enable cardiologists to lead and to be active participants in shaping delivery system transformation.

These innovative delivery models share similar features. The PCMH is a model of care that emphasizes additional support for primary care providers within a patient-centered team, whereas a medical neighborhood represents a broader collection of primary care doctors, specialists such as cardiologists, hospitals, and other stakeholders within a region that seek to reduce fragmented care by sharing accountability. The ACO, too, is a broader care delivery arrangement, but in this case, groups of providers are accountable for the quality, cost, and overall care of a particular population, typically defined by the payer. In the Medicare Shared Savings Program (MSSP), an ACO model for Medicare beneficiaries, the ACO can capture shared savings if it reduces its healthcare expenditures and meets certain quality performance standards, nearly half of which are related to cardiovascular disease. Within the ACO, the cardiologist can be identified through claims information to be the primary provider for the patient, considered the attributed provider, depending on the amount and type of primary care services given or can otherwise serve as an integral member of the care team. The American College of Physicians have proposed 3 types of general interactions between primary care physicians/providers (PCPs) and specialists within medical neighborhoods, the pre-consultant exchange, formal consultation, and co-management, based on whether a cardiologist or other specialist has had a formal consultation with a patient. In the pre-consultant phase, when the patient does not have a cardiologist, the focus would be on providing generalists ready access to cardiology expertise. For example, American College of Cardiology/American Heart Association practice guidelines could be readily available at the point of care or embedded into decision support tools within electronic order entry systems to assist with appropriateness for medications, imaging, or other management as delivered in the outpatient, inpatient, emergency department, or other care settings. In addition, an eReferral system could be established where cardiologists would screen electronic cardiology referrals for urgency, offer guidance to generalists about consultation or testing appropriateness, or request additional diagnostic testing as part of a pre-visit workup. University of California, San Francisco (UCSF) and San Francisco General Hospital developed and implemented an eReferral system, which gave PCPs from 26 city-funded and independent clinics in San Francisco easier access to specialists based at San Francisco General Hospital. They found that there were remarkable improvements in wait times for specialty appointments. For example, the median wait time for a routine rheumatology appointment decreased from 126 to 29 days. PCPs also gave the eReferral system overwhelmingly positive reviews with ≈70% noting an improvement in patient care and 90% reporting easier referral tracking.

The second interaction highlighted by the American College of Physician and the form we are all most familiar with, the formal consultation, would include a cardiologist’s evaluation of a patient in real time. Although this generally relates to traditional face-to-face office visits, it could also use innovative technologies such as telemedicine to virtually bring the cardiologist and patient together. While the patient and PCP are in the office, the cardiologist could do a consultation via videoconference. This dramatically increases the potential geographic reach for specialty services. In addition to the patient interview, data can be collected and transmitted to the cardiologist’s office via Bluetooth enabled medical devices, such as amplified stethoscopes and handheld EKG devices. Telemedicine, videoconferencing, store and forward, and home monitoring, all have the potential to impact on the quality and cost of care while broadening access. University of Pittsburgh Medical Center (UPMC) is currently using...
telehealth services in several areas of patient care such as dermatology and believes it can positively impact specialties including cardiology. Telemedicine has created cost savings for UPMC in the form of fewer admissions and better provider efficiency.\(^8\) Alternatively, the PCP can seek a curbside cardiology consultation. At Massachusetts General Hospital, a cardiology e-consult program was piloted where cardiologists electronically reviewed a patient’s data and images and were able to offer recommendations without having to see the patients in clinic.\(^8\) The primary care provider then gave the recommendations to the patient. Cardiologists were paid for their time via a fee-for-service model. Of the 67 e-consults performed, the cardiologist advised further diagnostic testing in \(≈50\)% and medication changes were made in 12%. All 27 referring providers who filled out the survey found the e-consults beneficial. Of the 30 patients surveyed, 100% were very or somewhat satisfied with the experience and \(≈97\)% were very or somewhat satisfied with their understanding of the recommendations. This type of provider-to-provider interaction has also been shown to trim costs. As an example, the US Department of Defense conducted a project called the Pacific Asynchronous Telehealth Program (PATH) where providers submitted patient information and data along with a consultation question to the PATH system.\(^9\) A case manager would review the information and forward it to the appropriate pediatrician. Approximately 90% of the teleconsultations originated from outpatient clinics, and 60% of the cases no longer required additional specialty care after the telehealth consult. Provider-to-provider communication led to a change in diagnosis/treatment plan in 74% of cases. In this cohort of \(≈1000\) cases, PATH saved the military as much as $750000 per year.

The formal consultation stage could also take the form of evaluation within specialty observation units and outpatient infusion centers. Certain cardiac conditions may be too complex or require services not able to be delivered in a typical ambulatory environment. These observation and infusion units can provide a venue for patients to receive accelerated evaluation and inpatient-like treatment directed by cardiology staff without necessarily requiring an actual hospital admission. For example, a patient with congestive heart failure who present to an outpatient clinic volume overloaded may be directed to the emergency room. Johns Hopkins Bayview Medical Center are helping to manage patients with heart failure discharged from the hospital to nearby SNFs. The goal is for SNF patients with heart failure to be monitored closely, especially in the early postdischarge stage. The cardiologists are reimbursed directly by the SNFs.

It is essential that payment mechanisms incentivize these types of interactions between primary and specialty care that are both patient-centered and allow for care in the right place at the right time. Under the current structure, the MSSP continues to pay ACO providers for services rendered to Medicare beneficiaries. The Centers for Medicare & Medicaid Services (CMS) allows organizations to choose either a shared savings (no risk) model or shared savings and losses model, and nearly all entities to date have elected to pursue the former. The ACO may be able to share in savings if quality performance targets are achieved and the cost of care is reduced versus benchmark calculations. Shared savings can be reinvested in infrastructure, such as for telemedicine or to support cardiologists’ participation in eReferrals, curbside consultation, or to support other provider incentives. Health and Human Services recently announced that Medicare plans to have 30% of Medicare payments linked to quality or value through alternative payment models such as ACOs by the end of 2016, and 50% of payments to these models by the end of 2018, which will lead to a dramatically increased prevalence of these care delivery arrangements.\(^15\) There are hundreds of commercial insurance ACOs throughout the country that are
increasingly aligning payment and incentives with high-value care and seek to reduce variability along these lines. Although relative value unit–based incentive models have typically been the norm, how an individual cardiology practice may choose to structure its compensation models to further support high-quality care and related activities could be a powerful tool to motivate behavior change moving forward.

Bundled payment models could also incentivize these types of interactions between primary care providers and cardiologists. The CMS Bundled Payments for Care Improvement initiative (BPCI) proposed several models of care that linked payments for services provided to Medicare beneficiaries during a defined clinical episode. Under the BPCI, there are 48 clinical conditions that are eligible to receive bundled payments. Examples include hospital and physician services for an implantable cardioverter-defibrillator or hospital and support services associated with the management of a patient with congestive heart failure. A bundled payment would be automatically triggered by a patient with an eligible episode of care in a participating facility. The Medicare Participating Heart Bypass Center Demonstration of 1998 showed that an all-inclusive bundled payment arrangement for CABG saved $42.3 million, or ≈10% of expected spending, on CABG surgery at the 7 participating hospitals over a 5-year period.

In the private sector, payers and health systems are applying bundled payments to cover acute medical conditions, such as acute myocardial infarction, chronic conditions such as heart failure, and procedures such as coronary revascularization. The goal was to improve quality and decrease expenditures on potentially avoidable complications. When Geisinger Health System’s bundled payment program, ProvenCare, was created, the insurance company paid a flat fee to Geisinger for nonemergency CABG surgeries. The flat fee covered the preoperative evaluation, hospital and professional fees, as well as complications within 90 days of the procedure. ProvenCare reduced average length of stay for CABG by 16% from 6.3 days in the conventional care group to 5.3 days in the ProvenCare group. Mean hospital charges also decreased by ≈5%. The change in payment was coupled with a pay-for-performance system that gave salaried doctors bonuses for following 40 best practices. Adherence to the 40 best practices was 100% within just 3 months compared with 59% at program initiation. ProvenCare has now expanded to include angioplasty, cataract surgery, and hip replacement.

PROMETHEUS (Provider Payment Reform for Outcomes, Margins, Evidence, Transparency, Hassle Reduction, Excellence, Understandability, and Sustainability) is one of the several bundled payment pilot projects being evaluated nationally. Sponsored by organizations including the Commonwealth Fund and the Robert Wood Johnson Foundation and managed by the Healthcare Incentives Improvement Institute, PROMETHEUS is being tested to determine the feasibility of bundled payments in real-world conditions. One of the first PROMETHEUS participants, Employers’ Coalition on Health (ECOH), in Rockford, IL, offers an example of how savings are produced for the payer and how it can be distributed between payers and providers. ECOH represents the collective purchasing power for a group of employers who joined together to sponsor employer health benefit plans. At the beginning of the bundled payment program pilot, ECOH convinced the area’s 3 major healthcare providers to participate, including SwedishAmerican Health System, Order of Saint Francis Saint Anthony Medical Center, and Rockford Health System. Pilot participants decided to include chronic medical conditions in their bundle, specifically diabetes mellitus, coronary artery disease, and hypertension. If potentially avoidable complications were reduced by 6% in each of these 3 categories at the end of the first live year of the pilot and the health system achieved 100% on their quality scorecard, ECOH and the health systems would share the cost savings 50/50. However, if the health system only scored 90% on the quality scorecard, for example, the health system would be eligible to receive 90% of half of the savings. ECOH would determine whether the remaining funds would go to the health system or if it would be rolled over into the following year. ECOH is still in the process of using the PROMETHEUS model to implement bundled payments.

Interactions between PCPs and specialists within medical neighborhoods currently must occur within existing insurer payment models, typically a fee-for-service model. In the future, as cardiologists and primary care providers become increasingly comfortable with managing risk, payment can be structured as alternative payment models where financial incentives are aligned for accountable care. One example of this is Blue Cross Blue Shield of Massachusetts alternative quality contract. Launched in 2009, the alternative quality contract is a 2-sided contract that gives provider groups an annual budget for meeting their patients’ healthcare needs and bonuses for meeting quality goals. An October 2014 study showed that spending was lower and quality higher in Massachusetts alternative quality contract enrollees from 2009 to 2012. The 2009, 2010, 2011, and 2012 cohorts had average savings of 6.8%, 8.8%, 9.1%, and 5.8% by the end of 2012. A collaborative approach would then need to be sought within the entity for distributing any such savings by a fair and transparent process among stakeholders, including cardiologists.

For select patients, an alternative approach to the traditional PCMH model would be a PCMH-Cardiology model (PCMH-C) highlighting the cardiologist as the quarterback working in concert with the primary care and other providers. Under limited circumstances for appropriate patients, this model could improve the delivery of cardiovascular care while reducing overall unnecessary resource utilization. The PCMH-C is most analogous to the patient-centered specialty practice concept developed by the National Committee for Quality Assurance (NCQA), the purpose of which is to highlight specialty practices that have taken steps to improve communication and care coordination for patients and can serve as a medical home or part of a medical neighborhood. In a well-integrated cardiology practice, it may be constructive for the cardiologist to be the initial point of contact for patients for whom their cardiac condition is the driver for much of their health utilization. For example, heart transplant recipients or patients with complex coronary atherosclerotic disease may benefit from the cardiologist playing a more central role in the care team. Because primary care doctors may
be less comfortable with certain advanced specialty disease processes, they may recommend the patient seek emergency room or inpatient care in circumstances where the specialty provider may have been more comfortable in managing in an outpatient setting based on their knowledge of the patient or the condition. This may lead to reductions in unnecessary testing and hospital admissions. In contrast with a traditional PCMH model, the PCMH-C model would likely require more intensive cardiologist real time evaluation and involvement. A PCMH-C could support active cardiologist comanagement of multimorbid, high-cost patients throughout the care continuum from outpatient clinics to acute rehabilitation centers and SNFs. Other nonprimary care specialties that have created PCMHs have met success. For example, a 9-physician oncology PCMH outside of Philadelphia, Consultants in Medical Oncology and Hematology (CMOH), reduced emergency visits by 68%, hospital admissions per year for patients being treated with chemotherapy by 51%, and length of stay for admitted patients by 21%. CMOH’s total economic savings was estimated to be ≈$1 million per physician per year. It became the first oncology practice recognized by the NCQA as a level III PCMH because of its ACO capabilities and strong performance in quality measures.

The financial arrangement envisioned for the PCMH-C model would be a per member per month plan (PMPM) in which the cardiologist or the PCMH-C would be given an agreed upon amount payment per month by the payer, likely supplementing existing payment, to provide additional medical and supportive care. This could help incentivize better communication between cardiologists and other physicians. Furthermore, this could lead clinicians to favor nontraditional communications on clinical matters, when possible, and improved access to care for urgent problems as opposed to sending patients directly to the emergency room or having them admitted to the hospital.

A capitation model is another financial model that could support more advanced and integrated care delivery arrangements. There are 2 primary capitation models. In global capitation or full risk capitation, an entity receives a global payment over a period of time for services ultimately rendered for a patient, including physician services, home health, laboratory tests and durable medical equipment. In a partial or blended capitation model, certain services are paid on a capitated basis, whereas others remain on a fee-for-service basis. The Pioneer ACO model is a Center for Medicare and Medicaid Innovation initiative tailored for more advanced specialty care delivery entities that are better prepared to transition to a population-based payment model. The first 2 years are marked by a shared savings payment arrangement. By year 3, the ACO can transition to a partial capitation model. Launched in 2012, data are still being collected, and it will be important to see how revenues are distributed between providers. A possible way to distribute revenues fairly in a capitated model (such as with a bundled payment) is to split the physicians into risk and nonrisk groups. For example, the risk group in a joint replacement would be orthopedic surgery and anesthesia. In this case, a fixed fee would be calculated based on the average commercial rate or a percentage of Medicare. The risk group would be paid X% of the fixed amount, and the remaining 100-X% would be withheld and paid out based on quality performance. Nonrisk physician groups such as radiology and pathology would be reimbursed at a predetermined rate. Each health system or provider group system will have to decide the best payment structure for them to ensure that physicians, such as cardiologists, are properly compensated for effort expended and that as a system, the focus is on ensuring high-quality and efficient care in appropriate care settings.

Care delivery is increasingly focused on the primary care provider as quarterback within a network of invested stakeholders and a population health framework. To be high-value partners, cardiologists will need to consider opportunities for promoting efficiency in their interactions with both primary care providers and patients and seek to provide high-quality care in lower cost settings or through lower cost interactions, when appropriate. Opportunities include deployment of decision support tools, review of referrals or testing for appropriateness, evaluation in clinical or virtual settings, as well as the construction of cardiology-focused care teams for particular patient groups. Furthermore, cardiologists can apply an evidence-based and data-driven framework to support rapid cycle evaluation, continuous quality improvement, and dissemination of the science of care delivery. While seeking to promote optimal care arrangements for their patients, cardiologists must simultaneously work with stakeholders to ensure payment opportunities within delivery systems and payer contracts are sustainable.

It is important to note that cardiologists’ participation in innovative delivery models may be more easily adapted in highly integrated systems with information technology investments, care team support, and the incentives to coordinate care. However, all types of organizations can transform themselves. For example, the MSSP does not require being an integrated delivery system for participation, and many organizations are using it as a tool to help accelerate transformation. One benefit of the MSSP is that it provides an entry point for smaller practices or physician groups to gain experience with this type of payment model before assuming greater risks. Currently proposed modifications for the MSSP offer an opportunity to continue in the no risk model for more than one 3-year period. Whether in a large integrated health system or a smaller entity, lessons can be learned to determine whether these models are effective and should be scaled. Ultimately, cardiology teams that adapt and embrace the principles of delivery system reform will be the ones that both providers and payers will wish to include in their value-driven teams and networks.

**Disclosures**

None.

**References**


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