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Best-Practice Strategies for Management of Chronic Conditions in Physician Organizations

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“What has remained constant over the past decade is the financial and capital constraints that physician organizations face as they attempt to implement self-management support systems and other organizational changes to improve the management of cardiovascular risks among their patients.”

—As Good As It Gets? (p. 156)



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Each of the three large teaching hospitals within the University of Pennsylvania Health System has a Professionalism Committee (PC) that reports to its respective Medical Executive Committee. The PCs integrate information from patient and staff complaints, as well as general behavioral concerns, to enable interventions to occur before they rise to disciplinary action.

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The effect of a series of quality improvement initiatives, described in a Plan-Do-Check-Act format, on patients at risk for malnutrition was assessed at National University Hospital (Singapore). The hospitalwide implementation plan entailed minimal costs; the nutrition screening trainings, audits, and feedback were carried out as part of routine care.

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In the first in-depth analysis of physicians’ attitudes toward family-activated medical emergency teams (FAMETs), interviews and surveys were conducted at The Children’s Hospital of Philadelphia. The physicians valued the input of families but had concerns that prevented them from endorsing FAMET use, including lack of evidence on effectiveness, misuse of limited ICU resources, threat to therapeutic relationships, and the burden on families. Physicians’ concerns about unintended consequences may aid decision makers in addressing potential barriers for uptake by physicians.

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Ambulatory Care

As Good As It Gets? Managing Risks of Cardiovascular Disease in California's Top-Performing Physician Organizations

Hector P. Rodriguez, PhD, MPH; Susan L. Ivey, MD, MHSA; Brian J. Raffetto, MD, MPH; Jennifer Vaughn, MPH; Margae Knox; Hattie Rees Hanley, MPP; Carol M. Mangione, MD, MSPH; Stephen M. Shortell, PhD, MBA, MPH

In spite of California's mature managed care market and multiple quality improvement (QI) initiatives aimed at improving core Healthcare Effectiveness Data Information Set (HEDIS) chronic disease care measures, California's HEDIS rankings for commercially insured patients are low compared to the best health plans in the nation.^{1,2} The California Right Care Initiative (RCI), a multistakeholder coalition of physician organizations, health plans, experts, patient advocates, and government, was established in 2007 to accelerate the adoption of evidence-based guidelines and improved care management practices for conditions for which the gap between science and practice is significant, resulting in preventable disability and death.^{2,3} Improving the management of diabetes and cardiovascular risks among patients were collectively identified by RCI stakeholders as significant opportunities for improving the overall health of Californians and for reducing racial and ethnic disparities in acute myocardial infarction and stroke outcomes.⁴⁻⁸ RCI uses diverse methods to stimulate improvement among California's physician organizations and health plans, including leading three regional QI collaboratives called the "University of Best Practices" (UBP), in which stakeholders share evidence-based approaches and innovations for managing cardiovascular risks among patients, with arranged presentations from breakthrough performers about practical implementation strategies. RCI also sets quality-of-care targets and at an annual statewide summit recognizes the "top-performing medical groups" and health plans for their achievements in managing cardiovascular risks. Participation in RCI is voluntary. For the three regions with UBP collaboratives, participation among physician organizations has increased steadily over time. The most mature regional UBP has medical director-level participation from the vast majority of delivery systems in the region, including large integrated medical groups, independent practice associations, academic medical centers, community health centers, the US Department of Veterans Affairs health care system, and the military.

Research on the effectiveness of the Chronic Care Model

Article-at-a-Glance

Background: The California Right Care Initiative (RCI) accelerates the adoption of evidence-based guidelines and improved care management practices for conditions for which the gap between science and practice is significant, resulting in preventable disability and death.

Methods: Medical directors and quality improvement leaders from 11 of the 12 physician organizations that met the 2010 national 90th percentile performance benchmarks for control of hyperlipidemia and glycated hemoglobin in 2011 were interviewed in 2012. Interviews, as well as surveys, assessed performance reporting and feedback to individual physicians; medication management protocols; team-based care management; primary care team huddles; coordination of care between primary care clinicians and specialists; implementation of shared medical appointments; and telephone visits for high-risk patients.

Results: All but 1 of 11 organizations implemented electronic health records. Electronic information exchange between primary care physicians and specialists, however, was uncommon. Few organizations routinely used interdisciplinary team approaches, shared medical appointments, or telephonic strategies for managing cardiovascular risks among patients. Implementation barriers included physicians' resistance to change, limited resources and reimbursement for team approaches, and limited organizational capacity for change. Implementation facilitators included routine use of reliable data to guide improvement, leadership facilitation of change, physician buy-in, health information technology use, and financial incentives.

Conclusion: To accelerate improvements in managing cardiovascular risks, physician organizations may need to implement strategies involving extensive practice reorganization and work flow redesign.

(CCM), which emphasizes self-management support using interprofessional teams, delivery system redesign, decision support, and clinical information systems, indicates that the implementation of CCM components in primary care can improve the management of cardiovascular risk factors among patients with diabetes.⁹⁻¹¹ More than a decade ago, Rundall et al.¹² examined the care management processes adopted by nine highly reputable physician organizations and found that evidence-based care management practices varied considerably and that there were substantial opportunities to improve the use of population management and case management for patients with diabetes, depression, congestive heart failure, and asthma. Moreover, a minority of the organizations used a wide range of electronic health record (EHR) functionalities for managing chronic conditions and had yet to adopt electronic exchange with patients and computerized entry of pharmaceutical prescriptions. Given the major changes in the health care delivery system in the United States since the managed care backlash of the late 1990s¹³ and the pending implementation of major health care reforms,¹⁴ the redesign of primary care delivery has accelerated. In the current study, we aimed to assess current care management strategies used by those physician organizations in California that were most effectively able to control diabetes and cardiovascular risks and to examine implementation facilitators and barriers.

Methods

SEMISTRUCTURED INTERVIEWS

From January through May 2012, we conducted semistructured interviews of medical directors and QI leaders from 11 of the 12 California physician organizations that scored at or better than the 90th percentile of national performance on lower density lipoprotein (LDL) and glycated hemoglobin (HbA1c) control among commercially insured health plan enrollees and received RCI top-performer awards in 2011 (for 2010 performance). Of the more than 300 physician organizations in California, groups with the capacity to report clinical performance scores in the statewide pay for performance program were compared to the national 90th percentile of HEDIS performance, and were eligible for awards based on those metrics. The 2010 HEDIS 90th percentile was 70% of heart patients with hyperlipidemia controlled (defined as LDL < 100 mg/dL), 55% of patients with diabetes with hyperlipidemia controlled (LDL < 100 mg/dL), and 70% of patients with diabetes with blood sugar controlled (HbA1c < 8.0%). The single top-performing organization (not named) that did not participate in the study indicated that lack of interest and time were the main reasons for nonparticipation.

The interview questions assessed group stakeholders' experiences of implementing organizational and financial processes, policies, and strategies to achieve high performance on cardiovascular risk factor and diabetes management indicators. We elicited the participants' perspectives about specific strategies that enabled their group to achieve high performance, including changes to data collection and reporting processes, increases in the transparency of feedback on quality of care and patient experience reports, and concrete efforts to manage the organizational changes. The use of specific cardiovascular disease prevention and management protocols and guidelines for improving performance on cardiovascular disease prevention and management outcome measures was also assessed, including use of physician-pharmacist comanagement of hypertension and/or hyperlipidemia¹⁵⁻¹⁸; structured primary care team communication ("team huddles")¹⁹; shared medical appointments²⁰; classes focused on diet, physical activity, hypertension management, and self-management of diabetes; and planned return telephone encounters. Importantly, the interview questions focused on processes and strategies for managing diabetes and cardiovascular risks irrespective of payer type (HMO [health maintenance organization] versus FFS [fee-for-service] patients).

Table 1 (page 150) lists the 11 top-performing physician organizations interviewed, location of the organization's headquarters, year founded, and number of physicians. We interviewed 24 individuals from the 11 organizations (11 medical directors and 13 QI and/or cardiovascular care management program directors). The 45- to 60-minute interviews were conducted in person, except for the two interviews that were conducted over the telephone, primarily by three of the researchers.

SURVEY

We also administered a brief survey to the QI director of each of the 11 physician organizations to assess the organization's characteristics, structural capabilities, community partnerships, and EHR functionalities. Survey questions were adapted from a patient-centered medical home readiness questionnaire focused on measuring the structural capabilities of primary care practices,^{21,22} including the availability of specially trained staff for assisting patients with self-management of cardiovascular risk factors, use of registries, clinical and patient experience performance feedback, and enhanced access to care. Because the survey questions often required the expertise of multiple informants within an organization for accurate reporting, we provided the directors with a secure postage-paid envelope to send the completed survey to the research team. This resulted in 100% of the organizations interviewed completing the survey.

Table 1. The Right Care Initiative’s Top-Performing Physician Organizations, 2011*

Organization	Number of Primary Care Physicians†	Number of Specialists†	Headquarters Location	Year Founded
Sutter Gould Medical Foundation	90	170	Modesto	1948
Arch Health Partners‡	25	14	Poway	2010
The Permanente Medical Group§	1,570	2,449	Oakland	1948
UCLA Medical Group	200	1,000	Los Angeles	1985
Palo Alto Medical Foundation	116	160	Burlingame	1930
St. Joseph Heritage Medical Group	60	10	Orange County	1964
St. Jude Heritage Medical Group	65	60	Fullerton	1929
Sharp Rees-Stealy Medical Group	105	300	San Diego	1923
Dignity Health Medical Foundation	50	65	Sacramento	1920
Scripps Clinic Medical Group	134	300	La Jolla	1924
John Muir Physician Network	266	371	Walnut Creek	1965

UCLA, University of California, Los Angeles.

* For performance in 2010.

† June 2011 figures.

‡ Formerly known as Centre for Health Care.

§ The Permanente Medical Group includes the following service areas: Redwood City, Santa Clara/Milpitas/Campbell/Mountain View, Santa Rosa, San Rafael.

ANALYSIS

To analyze the interview data, we used a combination of deductive and inductive approaches. An initial codebook was based on the key informant interview guide, which was informed by previous studies of care management implementation facilitators and barriers of chronic care management strategies,^{12,23–25} as well as independent open coding of three transcripts. Coding was compared for consistency, and after consensus was reached on the codes, the codebook was revised. Then two researchers not involved in the interviews, using qualitative data analysis software, each coded half the transcripts. The research team reviewed transcript coding, and discrepancies in coding practices across coders were identified and addressed during regular team meetings. We used the software to examine patterns of care management strategies and implementation barriers and facilitators across the physician organizations. We identified the most consistent responses and noted important variation across organizations. The 4 of the 11 top-performing organizations that best illustrated different primary improvement strategies were summarized, including lessons learned and implementation barriers. For the structural capabilities survey data, we calculated the total number of organizations implementing each EHR and structural capability. The practice survey is available in Appendix 1 (available in online article).

Results

ORGANIZATIONAL CHARACTERISTICS

The top-performing physician organizations varied in size (me-

dian, 116 primary care physicians [PCPs]; range, 25–1,570 PCPs), but all had low proportions of publicly insured patients (less than 10% Medicaid) (Table 2, page 151). Most (10 of 11) offered weekend hours for primary care, and 6 of 11 had evening hours for primary care. Many organizations (7 of 11) reported having Spanish language interpretation available for primary care patients, but only 2 offered interpreter services in other common languages spoken by patients in California health care markets, including Cantonese, Vietnamese, and Tagalog. Only a minority of organizations reported arrangements with community service agencies to enhance services (1 of 11) and referral systems for linking patients to community programs (4 of 11). Most organizations employed specially trained staff to assist patients with self-management of cardiovascular risk factors (9 of 11). Pharmacists (6 of 11) and registered nurses (7 of 11) were the most common nonphysician clinicians involved in providing patients with self-management support for managing diabetes and cardiovascular risks.

ELECTRONIC HEALTH RECORD FUNCTIONALITY

All but one organization had implemented an EHR system across practice sites (Table 3, page 152). The use of specific EHR functionalities varied; most of the organizations used electronic disease registries at the point of care. Often, registries were separate systems from the EHR used by the practice and were adopted prior to EHR implementation (known as “legacy systems”). Electronic laboratory data, electronic emergency department discharge summaries, and electronic messaging to

Table 2. Organizational Characteristics and Structural Capabilities of Top-Performing Physician Organizations

Organizational Characteristics*	Organization Median (Interquartile Range)
Number of primary care physicians (PCPs)	116 (60,134)
% PCPs accepting new patients	82.4 (62.5, 89.5)*
% Specialists in medical group	58.1 (48, 71)
Payer mix	
% Medicaid	5 (< 1, 9)*
% Medicare	25 (16, 26)*
% Commercial health plans	60 (40, 72)*
% Revenues from capitation arrangements	40 (30, 45)
Structural Capability	Number of Organizations with Capability
Specially trained staff assists in patient self-management of cardiovascular risks	9
Nurse practitioner or physician's assistant	1
Registered nurse	7
Medical assistant	4
Pharmacist	6
Disease registry for chronically ill patients	11
Physicians share a communication system to contact patients who are due for clinical preventive services	10
Electronic clinical reminders for providers	8
Individual provider and/or practice-level performance:	
Measures of clinical quality	11
Measures of patient care experiences	11
Enhanced Access	
Language interpreters available	
Spanish	7
Cantonese	2
Vietnamese	2
Tagalog	2
Practice sites regularly open to provide care on weekends	10
Practice sites regularly open to provide care during evening hours	6
Community Partnerships	
Agreements with community service agencies to enhance services	1
Referral system linking patients to community programs	4

* The Permanente Medical Group is not included for the measures noted with an asterisk. The organization participated in the interview study and survey.

and from patients were noted as important common functionalities used by organizations. Electronic information exchange with specialists (6 of 11), alerting clinicians of ordered tests not performed (3 of 11), and alerting the PCP if no note is generated from a specialist referral (1 of 11) were less common EHR functionalities. Participants from most organizations cited the importance of implementing EHRs in advancing management of cardiovascular risks among patients. EHRs were viewed as important for improving the quality of clinical data, facilitating

communication between primary care clinicians and specialists, and fostering the development of databases to monitor patients with chronic illnesses, including data warehouses and disease registries. As one director said:

[The EHR] has helped us to better manage and identify patients. Overall, [the physicians] are very happy. I think there are some obvious pockets of concern and frustration that come up from time to time. I think they do like the fact that everything is there and they don't have to hunt for it. It is integrated very well . . . and it is pretty transparent, so the physicians can see all of the data.

Table 3. Functionality of Electronic Health Record Systems Among Top-Performing Physician Organizations

Function	Number of Organizations with Function
Radiology Results Present	
Radiology reports	11
Radiology images	11
Electronic radiology test ordering	9
Laboratory Results	
Laboratory results	11
Electronic laboratory test ordering	9
Abnormal laboratory results alerts	11
Specialist Notes	
Office visit notes from clinicians at the practice site	11
Consultation notes from outside specialists	10
Electronic referrals to specialists	6
Alerts if no note from specialist referral	1
Medication List	
Patient medication lists	11
Electronic medication prescribing	10
Medication interaction or contraindication alerts	10
Patient-specific formulary information while writing prescriptions	10
Prescriptions sent electronically	10
Problem List	
Patient problem lists	11
Hospital discharge summaries	10
Emergency department discharge summaries	9
Electronic Reminders	
Alerts if ordered tests are not performed	3
Patient-Provider Communication	
Secure electronic messaging to and from patients	8

Most organizations with affiliate (independent) physicians, however, did not share common EHR systems. The absence of electronic quality of care measures for affiliate physicians was considered a challenge for the quality reporting and improving cardiovascular risks among patients receiving care in these settings. A QI director described the difficulty of improving the performance of independent physician practices, indicating the following:

With the affiliate physicians, we have to pull charts. So getting access to the information is much more difficult. . . . The employees

in the affiliate networks are employed by the affiliate doctors. The contract we have for our patients represents only a portion of all of their patients. They have contracts with all kinds of different groups out there. . . . They are getting approached by so many of them. . . . They just don't have the resources, and they're pulled in so many different directions. It's hard for them to know where their priorities are. These practices tend to need a little more help with patient outreach and education and things like that.

Physician organizations shared experiences of attempts to engage independent physicians in improving the management of cardiovascular risks among their patients. Providing affiliate physicians with performance data feedback was the most commonly described effort to better engage affiliated physicians. Another QI director highlighted physician organizations' feedback efforts and the importance of building capacity for QI for the independent physicians, indicating:

Providing the offices with current data, educating the practices of what is needed and why. . . . as well as all the patient outreach we do. When we see that there are still patients that haven't had their tests done, then, we make calls to patients and ask them to try and get those tests done. We kind of keep on them along with educating the practices so they're also doing their share as far as outreach and things like that. We try to put [the responsibility] primarily on them. Our mailings are more to assist them in getting this information out and helping them manage their populations.

The use of other engagement strategies, such as referrals to the independent physicians and peer pressure from group physicians, was not common.

IMPLEMENTATION OF CARE MANAGEMENT STRATEGIES

Table 4 (page 153) summarizes the extent of implementation of select strategies to improve management of cardiovascular risks among patients, including point-of-care disease registries, shared medical appointments, planned return telephone encounters, team huddles, pharmacist integration into care teams and other team-based care approaches across organizations. Patient outreach was among the most consistently emphasized care management strategies used by organizations. Organizations aggressively used mail and telephone outreach for patients who failed to schedule return visits or show up to their primary care visits or screenings. These population management activities were often tailored to the specific clinical needs of individual patients and included using standing orders to execute incomplete laboratory tests.²⁶⁻²⁸ Interviewees attributed increased compliance with HEDIS process measures to the aggressive patient outreach efforts.

Importantly, 6 of 11 organizations used pharmacists to some degree to improve medication management. However, interviews revealed that few organizations had integrated phar-

Table 4. Primary Care Strategies for Addressing Cardiovascular Disease Risk Factors*

Strategy	Extent of Implementation	Implementation Examples	Implementation Barriers
Point-of-care use of disease registries	HIGH. Most organization use registries to identify high-risk patients.	"Patients that fall out of a [medical] algorithm . . . see a care manager for more close partnership to support them in the self-management of their chronic condition."	"We've found that the electronic health records have a difficult time handling really complex registries and . . . calculations that need to occur to stratify the population."
Shared medical appointments	LOW. Expansion of shared medical appointments has been restricted by complex logistics and limited reimbursement.	"We've transitioned in how we marketed it [diet class]. . . . We're advertising through our health system in this magazine that gets wide distribution, and our class uptake has picked up. Not all of it is our patients. Some of it is just community education."	"It evolved into following a cohort over time. So it was a lot of resources for the same 8 to 10 patients. It didn't become a medical visit anymore, it became more like a support group. The nurse left and the value proposition from the perspective of the physicians who were doing it just didn't seem to be there."
Planned return telephone encounters	LOW. Although two organizations reported using telephone encounters in health education interventions, no medical groups reported the use of planned return phone visits.	"Typically [the health education program] is just a one-time class, and everything else is one-on-one telephone."	"Well, I mean certainly I think all of us do phone visits, we just don't call them that and, traditionally, haven't been able to really bill because you're just chatting on the phone."
Team huddles	LOW. Many noted the clinical benefit of team huddles, but scheduling meetings is a challenge.	"[The staff] huddle around operations, what's going on that day, and then they huddle around the performance board. . . . We use huddles a number of different ways and, again, some very successfully and some in other cases not consistently."	"Introducing [team huddles] is challenging because they slow things up usually in the beginning, and people don't want to go home an hour later because they're trying these new changes."
Pharmacists	MEDIUM. Although pharmacists implement medication protocols, hiring costs impede their integration onto primary care teams for most organizations.	"The pharmacist can really help because their scope is broader than an RN's. [They can] double-check . . . before a prescription is refilled and [make] suggestions (drugs to avoid in the elderly, med reconciliation, transitions of care)."	"While we see the valuable role of pharmacists, . . . our medical group does not have the scale or size to afford such services, given that they are expensive and do not generate additional revenue."
Team-based care	MEDIUM. Multiple organizations attempted to maximize nonphysician members' roles in clinical care, but limited reimbursement inhibits their ability to expand team member roles.	"[We want] patients to be treated from a team perspective . . . so that when [they are] waiting in the exam room or having a conversation with an MA . . . they feel like they're being treated by . . . the same [medical] team [and] don't feel disassociated with what the physician said."	"Staff feel the stress of having many . . . things on their plate. We're not staffed as well as we could be . . . and right now there's no real reimbursement for being a medical home [using team-based approaches for primary care], just an additional cost."

* HIGH = ≥ 9 organizations; MEDIUM = 5–8 organizations; LOW = ≤ 4 organizations; MA, medical assistant.

macists into their primary care teams. The PCP was generally described as the main clinician working with patients to manage diabetes and cardiovascular risks. Many mentioned testing pharmacist integration on a small scale or routinely using the expertise of pharmacists outside of the boundaries of the primary care team. Medical director informants were generally enthusiastic about the potential for pharmacist expertise to improve the management of hypertension and diabetes, but emphasized the limited financial resources to support expansion of the approach.

Kaiser Permanente's Preventing Heart Attacks and Strokes Everyday (PHASE) program, with its ALL medication protocol (Aspirin, Lisinoprol and Lipid Lowering Agent and/or a

beta-blocker),²⁹ which includes combination medication management and cardiovascular risk modification, was mentioned as an effective improvement strategy being considered by organizations. A minority of organizations had implemented shared medical appointments, planned return telephone encounters, and primary care team huddles for improving the management of cardiovascular risks among their patients.

THE IMPROVEMENT PROCESS

Implementing organizational changes to support care management was described as a lengthy, incremental, three-stage process of initially (1) improving the accuracy of performance data central to managing cardiovascular risks (blood pressure

Table 5. Most Frequently Cited Barriers and Facilitators for Implementing a Variety of Care Management Strategies for Managing Cardiovascular Risks Across the Organizations

	Number of Organizations Experiencing the Barrier or Facilitator	Total Mentions Across All Interviews
Barriers		
Provider resistance/push-back	9	34
Provider time constraints	7	18
Limited reimbursements from payers	8	12
Organizational capacity for change	8	19
Limited financial resources	8	21
Facilitators		
Organization supports quality improvement	10	29
Electronic health record/information system	10	47
Physician buy-in	10	42
Financial incentives for improvement	9	49
Emphasis on data accuracy and collection	11	53

control, blood sugar control, and cholesterol management), followed by (2) implementing individual physician performance feedback systems for these indicators, and then (3) engaging in changes to primary care practice that involve reorganization of roles and responsibilities for care management; for example, using team-based approaches or implementing medication management protocols. Table 5 (above) highlights the relative frequency of each common implementation facilitator and barrier described by interview participants.

IMPLEMENTATION FACILITATORS

Care management implementation facilitators included routine use of reliable data to guide improvement, leadership facilitation of change, physician buy-in, health information technology use, and financial incentives. Interviews revealed that leaders believed that their organizations placed a strong emphasis on improving the collection and quality of key performance measures, primarily the HEDIS quality of care indicators and patient experience measures.³⁰ HEDIS data were described as central to directing the organization’s foci for future improvement efforts.

Across all organizations, informants noted that providing clinical performance data that their physicians trust would motivate PCPs to engage in efforts to improve in areas where they are underperforming. Participants emphasized valid, reliable, and well-vetted performance data that can be shared broadly and transparently among primary care team members as a factor central to their top performance. One medical director noted:

Our physicians really like receiving the data. The more specific it is or personal to them . . . the better. [The physicians] like the data

because they challenge it . . . they want to make sure that the numbers are accurate. But once you convince them that it is an accurate report, they are very engaged in improving [their performance].

Multiple participants mentioned that unblinded performance comparisons of individual physicians and practice sites accelerated their efforts to more effectively manage diabetes and cardiovascular risks among patients. Data were often used to engage physicians to accelerate improvements.³¹ As a QI director noted:

We began getting people interested once there was more public awareness about performance. Once they got interested, then they were saying, “Give me the data, give me the data . . . can I have more of the data? Can I see the data more frequently? Can you refresh it differently?” Then they started getting engaged, but before [they were comfortable with the data], then it really was like moving a rock uphill.

Across all but two organization ($n = 9$), financial incentives were mentioned as a motivating factor to help physicians and staff members improve their patients’ control of cardiovascular risks and performance on other HEDIS measures. For example, one organization used financial incentives for staff, and the medical director said:

[We] engage our staff in different ways . . . we give them small financial incentives to encourage patients to come in. They respond great to that. We all see when we win these awards [referring to the Right Care Initiative’s “top-performer” award], just how good that is. Everyone can be proud when they come to work that they’re doing a good job. And it’s not just us patting them on the back. It’s somebody actually saying, “Hey, you guys are doing a pretty good job over there.”

Having physician champions for improving the management of cardiovascular risks among patients was mentioned

as essential for stimulating improvement among participants. Moreover, many attributed their success to having an organizational culture that promotes change through leadership and physician engagement. As one director indicated:

We have really strong physician engagement and leadership and so we partner with those leaders actively to . . . set the strategy and then develop the communications that go out to the local leadership. So I think a critical component to success is having those clinical leaders really engaged in QI initiatives.

IMPLEMENTATION BARRIERS

Commonly cited care management implementation barriers included physician resistance to change, limited resources and reimbursement for care team approaches, organizational capacity^{32,33} and time constraints (Table 5, page 154). Many participants indicated that their organizations ($n = 8$) did not implement care management strategies (for example, planned return telephone encounters) because of a lack of reimbursement for providing these services to patients. As one director noted after indicating that the organization had not implemented several care management strategies, “So if you ask why certain strategies are not implemented, it is because there’s no reimbursement for it. Anytime you ask ‘why’ the answer is usually money.” Another director noted:

A particular challenge that we see in implementing quality improvement strategies very broadly speaking is [the issue of] money and capital. Those products and strategies can be very expensive. At times we don’t have the capital to work with. . . . another increasing barrier is the capacity of different departments to take on multiple improvement projects.

Even when evidence-based care management strategies are seen as cost saving within a year or two, initial outlays are often problematic to improving practice.

An implementation barrier reported by more than half of the top-performing organizations ($n = 7$) was provider time constraints. As a QI director noted:

Physicians are very protective of their time and are extremely resistant when their time is allocated to something other than seeing their patients. The biggest barrier is finding that staff time to test different strategies. Some of these strategies can be very labor intensive, and some physicians will not commit to 15 to 30 minutes because this will take away time from treating patients.

In almost all organizations ($n = 9$), provider resistance presented some barriers to implementing new care management strategies for improving diabetes and cardiovascular disease risks. Physicians and administrators sometimes had different expectations of QI initiatives, resulting in disagreements. Participants often described the incremental approach many lead-

ership teams took to implementing changes to care processes. After physicians are shown the direct impacts of their involvement in improving the quality of patient care, participants described physicians as more supportive of organizational changes. As one participant noted:

I would say before implementing any new strategy there is a lot of push-back. It’s one of those things that the physician’s primary focus is getting the patient in and seen. I don’t think physicians really understand that just because you get the patient in and seen, this won’t necessarily mean that the [cardiovascular risk] measures will move. It isn’t until the performance measures raise more attention, that you start getting people interested.

CASE STUDIES

Each of the four organizations that we selected for case presentation used different primary strategies for improving its performance on measures of diabetes and cardiovascular risk over time. Appendix 2 (available in online article) includes summary details about each organization’s implementation, lessons learned, and the most significant implementation barriers it described. Arch Health Partners (San Diego) used financial incentives for individual physicians and staff to improve its performance on the diabetes and cardiovascular risk measures. The organization’s approach involved small financial incentives, such as \$5, for staff to reward them for referring patients to appropriate screening for cardiovascular risks and gave physicians referral bonuses when their patients attended wellness classes offered by the group. John Muir Physician Network (Walnut Creek) primarily used unblinded physician performance comparisons to stimulate improvement on the cardiovascular risk measures. The organization indicated that a substantial barrier to improving performance was the intensive capital investments required to conduct physician-specific quality of care reporting. It was able to overcome the challenges, however, by training staff on how to use the reports so that all members of the primary care team were aware of the performance measures. Dignity Health Medical Foundation (Sacramento) primarily used interdisciplinary care teams and collaborative practice arrangements with a centralized primarily telephonic cardiovascular disease management program to improve the reach of its care management efforts. Importantly, implementing a shared EHR system among practices was perceived to alleviate frustrations with duplicate laboratory orders that were common when EHRs were not shared. Finally, St. Joseph Heritage Medical Group (Orange County) used aggressive panel management strategies and outreach to improve its performance on measures of diabetes and cardiovascular risks over time. Its use of standing orders for diabetes care was perceived as instrumental to enabling

medical assistants to take the initiative to ensure that patients received appropriate testing. The organization emphasized that it was critically important to provide education for medical assistants so that they were knowledgeable about cardiovascular risks and were comfortable addressing questions from patients during their outreach calls.

Discussion

Physician organizations that were most effectively managing diabetes and cardiovascular disease risks among their patients consistently use aggressive patient mail and phone outreach to ensure receipt of appropriate screenings, routinely provide individual physicians with tailored reports summarizing their relative performance on the HEDIS measures central to managing cardiovascular risks, and generally have a wide range of electronic capabilities that facilitate better management of cardiovascular risks among their patients. Nevertheless, we found that top-performing organizations did not routinely use medication management protocols, shared medical appointments, telephonic care management strategies, or interdisciplinary team approaches for reducing cardiovascular risks. These strategies did not appear to play a large role in top performance on key cardiovascular risk management measures for most physician organizations.

Our study reveals that compared to the Rundall et al. study of care management in top-performing physician organizations more than a decade ago,¹² electronic information capabilities have improved, although electronic specialty interface and electronic clinician-patient communication were not yet implemented by most organizations. The California medical groups we studied had higher electronic capabilities than most physician organizations in the United States.³⁴ Most physician practices are improving in this regard,^{35,36} but still lack important electronic capabilities to effectively manage cardiovascular risks.^{37,38} More integrated implementation of EHR is a distinguishing feature of top-performing physician organizations—and is essential for clinicians to share clinical information to effectively coordinate patient care across the continuum of care.

Importantly, what has remained constant over the past decade is the financial and capital constraints that physician organizations face as they attempt to implement self-management support systems and other organizational changes to improve the management of cardiovascular risks among their patients. Interdisciplinary team approaches necessitate additional staffing and can sometimes require intensive training investments. Consequently, team-based approaches to managing diabetes and cardiovascular risks were not routinely implemented in the

primary care practices of top-performing organizations. Given that the use of financial incentives has improved EHR adoption,^{34,39,40} promoting the use of interdisciplinary primary care teams for managing diabetes and cardiovascular risks through financial incentives might accelerate the implementation of cost-effective care management strategies.

The four cases studies we presented represent the diverse range of primary care strategies used by top-performing physicians to improve their performance on measures of diabetes and cardiovascular risks. Although diverse strategies were used, stakeholders learned similar lessons about improving performance, including the importance of nonphysician staff engagement in the implementation of improvement efforts, the central role of validated clinical performance data to improve buy-in among physicians and comfort with transparent comparisons of individual physicians, and the lengthier than expected improvement processes. The case studies reveal that there are many different paths to improvement, but staff engagement and high-quality performance data appear to be central features of each improvement approach.

Our study results should be considered in the context of important limitations. Blood pressure and smoking status are major cardiovascular disease risk factors and were not considered when defining top-performing organizations because of the inconsistent availability of electronic data on these measures across physician organizations. Importantly, blood pressure control data are now available and, in October 2013, these data were used to define top performance and recognize RCI's 2013 top-performing physician organizations (for 2012 performance). Those organizations include 10 of the 12 top-performing organizations selected for inclusion in our study, indicating that if blood pressure control performance was considered in the selection of the 2011 top performers (for 2010 performance), the same organizations would have been studied. An important advantage of our research is that our definition of top-performing organizations is based on empirical data (that is, clinical performance data on HbA1c and LDL control) instead of reputation, as is the case in some studies of practice improvement initiatives.^{12,41} Our interview approach included medical directors and QI leaders, rather than frontline workers. Eliciting the perspective of primary care team members would provide additional insights into the experiences of organizations as they implemented care management strategies. The perspective of executives and directors, however, can provide an important strategic view of implementation.⁴² Finally, we did not interview lower-performing physician organizations, so we are unable to contrast the care management and EHR capabilities

with the top-performing groups. Previous studies of “positive deviance”⁴³ in health care, however, underscore the usefulness of examining the experiences of top-performing organizations to identify facilitators of evidence-based practices.

In spite of the evidence-base demonstrating the effectiveness of primary care team approaches, shared medical appointments, and telephone-based care management in improving the management of cardiovascular risks and diabetes care,^{44–46} few of the top-performing physician organizations had routinely implemented these strategies. The top performers also tend not to serve high proportions of economically vulnerable patient populations and have limited adoption of strategies that require additional staffing or significant restructuring of clinical teams. Consequently, high organizational performance on measures of cardiovascular risks may be partially a function of favorable patient case mix and/or capacity for change,^{32,33} as top-performing organizations generally did not serve socioeconomically disadvantaged communities. Importantly, we found that the routine use of several evidence-based strategies, including team-based approaches that require reorganization of roles and responsibilities among clinicians and staff and work flow redesign, is less common than the use of other care management strategies that do not necessitate major practice reorganization, such as clinical and patient experience performance feedback systems. The Permanente Medical Group improved HEDIS commercial measurement for hypertension control from 43.6% to 80.4% between 2001 and 2009.⁴⁷ During the six years of the California Right Care Initiative, few physician organizations have been able to achieve the breakthrough improvements in managing diabetes and cardiovascular risks that Kaiser Permanente has been able to achieve through the use of interdisciplinary primary care teams, medication protocols, and major practice redesign.⁴⁷ To accelerate improvements in managing cardiovascular risks, physician organizations may need to implement strategies that involve more extensive reorganization and work flow redesign. As payment for care moves away from fee-for-service towards episode-of-care based, capitated, and global risk-adjusted budgets, primary care practices will likely have incentives to innovate in how care is delivered most efficiently and effectively,⁴⁸ including using team-based approaches and providing self-management support for patients with cardiovascular risks. **■**

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Hector P. Rodriguez, PhD, MPH, is Associate Professor of Health Policy and Management, and Associate Director, Center for Health Care Organizational and Innovation Research (CHOIR), School of Public Health, University of California, Berkeley. **Susan L. Ivey, MD, MHSA**, is Associate Professor of Community Health and Human Development, and Director of Research, Health Research for Action, School of Public Health, University of California, Berkeley. **Brian J. Raffetto, MD, MPH**, is Resident Physician, Los Angeles County and University of Southern California Medical Center, Los Angeles. **Jennifer Vaughn, MPH**, is Project Manager, Kaiser Foundation Hospitals, Kaiser Permanente South Bay Medical Center, Harbor City, California. **Margae Knox** is Graduate Student Researcher, CHOIR. **Hattie Rees Hanley, MPP**, is Director, Right Care Initiative, California Department of Managed Health Care, Sacramento, and CHOIR. **Carol M. Mangione, MD, MSPH**, is Barbara A. Levey and Gerald S. Levey Endowed Chair and Professor of Medicine and Health Policy and Management, University of California, Los Angeles (UCLA) David Geffen School of Medicine and UCLA Fielding School of Public Health. **Stephen M. Shortell, PhD, MBA, MPH**, is Blue Cross of California Distinguished Professor of Health Policy and Management, School of Public Health, University of California, Berkeley, and Director, CHOIR. Please address correspondence and requests for reprints to Hector P. Rodriguez, hrod@berkeley.edu.

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Appendix 1. Medical Group Survey: Right Care Initiative—

Top-Performing Medical Groups

Appendix 2. Case Studies Highlighting How Physician Organizations Improved their Performance on Cardiovascular Risk Measures over Time

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Appendix 1. Medical Group Survey: Right Care Initiative—Top-Performing Medical Groups

Medical Group Survey: Right Care Initiative Top Performing Medical Groups

This survey focuses on your medical group: _____.

1. At your medical group is there one individual who initiates and leads most quality improvement efforts?

No	Yes	Don't know
<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

2. Does the medical group give **feedback to individual clinicians or staff** about their personal performance on...

	No	Some sites	All sites	Don't know
<i>i.</i> ...clinical quality profiles? (<i>e.g.</i> , HEDIS measures)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>ii.</i> ...patient satisfaction ratings? (<i>e.g.</i> , patient experience surveys)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>iii.</i> ...productivity? (<i>e.g.</i> , RVUs per clinical session)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>iv.</i> ...utilization or costs of care? (<i>e.g.</i> , generic drugs, imaging)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>v.</i> ...caring for chronic illness? (<i>e.g.</i> , diabetes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

3. Are clinicians and staff given **clinical site performance feedback** on...

	No	Site Specific	Medical group	Don't know
<i>i.</i> ...clinical quality profiles? (<i>e.g.</i> , HEDIS measures)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>ii.</i> ...patient satisfaction ratings? (<i>e.g.</i> , patient experience surveys)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>iii.</i> ...productivity? (<i>e.g.</i> , RVUs per clinical session)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>iv.</i> ...utilization or costs of care? (<i>e.g.</i> , generic drugs, imaging)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>vi.</i> ...caring for chronic illness? (<i>e.g.</i> , asthma or diabetes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

4. Are clinicians and staff given comparative physician or clinic team performance data?

<input type="checkbox"/> ₁ No	<input type="checkbox"/> ₂ Yes, some	<input type="checkbox"/> ₃ Yes, all
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(continued on page AP2)

Appendix 1. Medical Group Survey: Right Care Initiative—Top-Performing Medical Groups (continued)

Primary Care Practice Site Survey

5. Does your medical group have a system of **reminders** (e.g., flowsheets or checklists) that prompt clinicians at the time of a patient visit when a patient is due for...

	No / Don't know	Yes, On paper	Yes, Electronic	Yes, Both
<i>For patients with diabetes:</i>				
i. ...hemoglobin A1c testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. ...cholesterol testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. ...eye examination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. ...nephropathy monitoring?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>For patients with coronary artery disease:</i>				
v. ...cholesterol testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi. ...beta-blocker use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Does your medical group...	No / Don't know	Yes
i. ...maintain lists of patients at <u>high risk</u> of disease complications or hospitalization?	<input type="checkbox"/>	<input type="checkbox"/>
ii. ...provide care management <u>specifically for patients at high risk</u> of disease complications or hospitalization?	<input type="checkbox"/>	<input type="checkbox"/>
iii. ...routinely assess the self-management needs of your chronically ill patients? (e.g., by questionnaire)	<input type="checkbox"/>	<input type="checkbox"/>

7. Do the clinicians at your medical group use a shared communication system (e.g., letters, phone calls) to contact patients who were due for ...	No / Don't know	Yes
<i>For patients with diabetes:</i>		
i. ...hemoglobin A1c testing?	<input type="checkbox"/>	<input type="checkbox"/>
ii. ...cholesterol testing?	<input type="checkbox"/>	<input type="checkbox"/>
iii. ...eye examination?	<input type="checkbox"/>	<input type="checkbox"/>
iv. ...nephropathy monitoring?	<input type="checkbox"/>	<input type="checkbox"/>
<i>For patients with coronary artery disease:</i>		
v. ...cholesterol testing?	<input type="checkbox"/>	<input type="checkbox"/>
vi. ...beta blocker use?	<input type="checkbox"/>	<input type="checkbox"/>
<i>For all patients, was there a system to contact patients...</i>		
vii. ...after a hospitalization?	<input type="checkbox"/>	<input type="checkbox"/>
viii. ...who have not had an appointment in the practice for an extended period (longer than clinically appropriate)?	<input type="checkbox"/>	<input type="checkbox"/>

(continued on page AP3)

Appendix 1. Medical Group Survey: Right Care Initiative—Top-Performing Medical Groups (continued)

Primary Care Practice Site Survey

8. Does the medical group have a registry that creates lists of patients who are **overdue** for their... *Choose one response for each question:*

	No / Don't know	Yes, On paper	Yes, Electronic	Yes, Both
<i>i.</i> ...chronic disease services? (e.g., hemoglobin A1c in diabetes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

9. Does the medical group have a registry that creates lists of patients who are **out of the target range** for their... *Choose one response for each question:*

	No / Don't know	Yes, On paper	Yes, Electronic	Yes, Both
<i>i.</i> ...chronic disease laboratory values? (e.g., cholesterol over target)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
<i>ii.</i> ...chronic disease physical findings? (e.g., blood pressure or BMI over target)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

10. Does your medical group have specially trained **non-physician staff** who help patients better manage their... *You may choose more than one response for each question:*

	No / Don't know	Yes, NP	Yes, PA	Yes, RN	Yes, MA	Yes, other
<i>i.</i> ...diabetes	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
<i>ii.</i> ...coronary artery disease	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
<i>iii.</i> ...depression	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
<i>iv.</i> ...obesity	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
<i>v.</i> ...recent discharge from a hospital	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
<i>vi.</i> ...other conditions: _____	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

11. Does your medical group have... *No / Don't know* *Yes*

<i>i.</i> ...agreements with community service agencies (e.g., health departments) to enhance services for any of your patients?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
<i>ii.</i> ...a referral system for linking any of your patients to community programs?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂

(continued on page AP4)

Appendix 1. Medical Group Survey: Right Care Initiative—Top-Performing Medical Groups (continued)

Primary Care Practice Site Survey

12a. During a typical day in your clinic, how often do clinicians use a computer to look up information about the patients they are seeing?

- Never ₁ Rarely ₂ Sometimes ₃ Usually ₄ Always ₅

12b. **On the computer**, are the following elements present?

Electronic:

- | | No / Don't know | Yes |
|--|---------------------------------------|---------------------------------------|
| i. patient medication lists | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| ii. patient problem lists | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| iii. laboratory results | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| iv. abnormal laboratory result alerts | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| v. radiology reports | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| vi. radiology images | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| vii. office visit notes from clinicians at the practice site | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| viii. consultation notes from outside specialists | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| ix. hospital discharge summaries | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| x. emergency department discharge summaries | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xi. electronic medication prescribing | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xii. medication interaction or contraindication alerts | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xiii. patient-specific formulary information while writing prescriptions | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xiv. prescriptions sent electronically | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xv. electronic laboratory test ordering | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xvi. electronic radiology test ordering | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xvii. alerts if ordered tests are not performed | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xviii. electronic referrals to specialists | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xix. alerts if no note from specialist referral | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |
| xx. secure electronic messaging to and from patients | <input type="checkbox"/> ₁ | <input type="checkbox"/> ₂ |

Go to next page

(continued on page AP5)

Appendix 1. Medical Group Survey: Right Care Initiative—Top-Performing Medical Groups (continued)

Primary Care Practice Site Survey

Practice characteristics

13. Approximately what **percentage** of patients seen at your medical group are **younger than 18**?

- ₁ Less than 10% ₂ 10-25% ₃ 25-50% ₄ More than 50%

14a. In a typical day, how many **physicians** at your medical group provide **primary care**?

14b. How many of these physicians are taking new patients? _____

15. During a typical day, how many **non-physician clinical staff** are engaged in patient care at your medical group?

_____ _a = NP and PA FTEs

_____ _b = RN and LPN FTEs

_____ _c = Medical assistant FTEs

_____ _d = Pharmacist FTEs

_____ _e = Social worker or counselor FTEs

_____ _f = Nutritionist FTEs

_____ _g other staff FTEs: _____

16a. How many **specialist physicians** provide specialty services at your medical group (excluding OB/GYNs)? _____

16b. What specialty services do they provide? _____

17. Is your medical group regularly open to provide care **on Saturdays or Sundays**?

- ₁ No ₂ Yes, some ₃ Yes, all

18. Is your medical group open for patient visits during **extended evening hours**?

- ₁ No ₂ Some evenings ₃ All evenings

19. How many of the **primary care physicians** at your medical group **round on their patients** while they are in a hospital?

- None Some Most All
₁ ₂ ₃ ₄

(continued on page AP6)

Appendix 2. Case Studies Highlighting How Physician Organizations Improved Their Performance on Cardiovascular Risk Measures over Time*

	Arch Health Partners (San Diego)	John Muir Physician Network (Walnut Creek)	Dignity Health Medical Foundation (Sacramento)	St. Joseph Heritage Medical Group (Orange)
Primary Improvement Strategy	Financial Incentives for Physicians and Staff	Unblinded Comparison of Individual Physician Performance on Key Performance Measures	Interdisciplinary Team Care/ Collaborative Practice Agreements	Aggressive Patient Panel Management Through Outreach
Implementation Details	<ul style="list-style-type: none"> • Collect and validate measure of cardiovascular risks. • Financial incentive started small (\$500) for performance. Now, \$10,000+ of the PCP's pay is based on clinical quality, appropriate resources, and customer satisfaction. • MAs receive bonuses for patient outreach (for example, \$5 per patient per referred and screened). • Appeal to "professional pride" and competitive spirit to stimulate action. • Physicians receive referral bonuses when their patients attend wellness classes. • Quarterly medical director meeting to review scores and quality goals with physicians 	<ul style="list-style-type: none"> • Developed QI infrastructure: Pay for performance (P4P)/ quality team meets weekly, and all decisions approved by quality improvement committee that meets monthly. • For IPA practices not yet on EHR, the QI team physically went to practices to audit charts, with cardiovascular risk measures as a priority. • Physicians receive quarterly reports, sometimes more often, for particular patient cases. • Medical and QI director meet individually with lower-performing practices. • Patient outreach: Mail lab orders to patients needing LDL screening. Case managers follow up and encourage past due patients to have labs drawn. 	<p>Heart Smart Program</p> <ul style="list-style-type: none"> • Pharmacists and nurses engage and educate patients, improving lifestyle and medication use. • Intervention includes the use of Medical Staff–approved Standardized Procedure/ Protocol with algorithm that outlines nursing/pharmacy management and risk stratification. • Roll out to medical group physicians with formal CME presentation by Cardiology Service Area Medical Director. • Physicians are encouraged to refer but are not required to do so. • Whenever a new cardiologist joins, the director meets with him or her individually to ensure that he or she is aware of the vision of the program. 	<ul style="list-style-type: none"> • Improving patient outreach was a core part of their Lean process improvement plan. • QI staff provided education to MA staff and briefed supervisors/managers. • MAs used patient registries to make contact with patients once a month if they are still due for a care process.
Lessons Learned	<ul style="list-style-type: none"> • It took over three years to validate performance data and to get physicians to agree that the data were valid. • It was important to develop the incentive plan early in the year to affect performance (enough time to allow for improvement). 	<ul style="list-style-type: none"> • Work with physician leadership to develop performance plan for each measure, otherwise translating the vision would be difficult. • Important to not only send reports to physicians, but also to train staff to use the reports. 	<ul style="list-style-type: none"> • Telephone communication as a basis of the HeartSmart program allowed for broader reach (compared to in-person approaches). • Shared EHR among practices helped alleviate frustrations about duplicate lab testing and the referral processes. 	<ul style="list-style-type: none"> • Outreach is most successful when it comes from someone the patient trusts; that is, his or her physician and MA. • Make it easy for MAs by using standing orders for chronic care patients. Share results of staff efforts and thank them for their work.
Barriers	<ul style="list-style-type: none"> • Small-size organization and few resources compared to other health systems in the region 	<ul style="list-style-type: none"> • Geographically dispersed patients makes the centralized disease management services less attractive to patients. • Many capital needs to support QI. Payments from P4P incentives are not sufficient to offset the QI investments. 	<ul style="list-style-type: none"> • Patient engagement, given that cardiac disease is largely a "silent" killer. • National guidelines are old—Joint National Committee (JNC) guidelines for blood pressure, Adult Treatment Panel (ATP) guidelines for cholesterol management. 	<ul style="list-style-type: none"> • Needed manager buy-in to conduct and follow through on holding staff accountable. • Some physicians initially upset by transparency of performance reporting. • Not all MAs are comfortable making calls and answering questions from patients. It's important to establish an education series for MAs.

* PCP, primary care physician; MA, medical assistant; IPA, independent practice association; QI, quality improvement; EHR, electronic health record; LDL, lower density lipoprotein; CME, continuing medical education.