The Role of Academic Health Centers and Their Partners in Reconfiguring and Retooling the Existing Workforce to Practice in a Transformed Health System

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Abstract

Inspired by the Affordable Care Act and health care payment models that reward value over volume, health care delivery systems are redefining the work of the health professionals they employ. Existing workers are taking on new roles, new types of health professionals are emerging, and the health workforce is shifting from practicing in higher-cost acute settings to lower-cost community settings, including patients' homes. The authors believe that although the pace of health system transformation has accelerated, a shortage of workers trained to function in the new models of care is hampering progress. In this Perspective, they argue that urgent attention must be paid to retraining the 18 million workers already employed in the system who will actually implement system change.

Their view is shaped by work they have conducted in helping practices transform care, by extensive consultations with stakeholders attempting to understand the workforce implications of health system redesign, and by a thorough review of the peer-reviewed and gray literature. Through this work, the authors have become increasingly convinced that academic health centers (AHCs)—organizations at the forefront of innovations in health care delivery and health workforce training—are uniquely situated to proactively lead efforts to retrain the existing workforce. They recommend a set of specific actions (i.e., discovering and disseminating best practices; developing new partnerships; focusing on systems engineering approaches; planning for sustainability; and revising credentialing, accreditation, and continuing education) that AHC leaders can undertake to develop a more coherent workforce development strategy that supports practice transformation.

Inspired by the Affordable Care Act (ACA) and fueled by economic stresses, public and private payers are increasingly transitioning to payment models that reward value over volume. These changes provide a strong incentive for leaders of health care delivery systems, including academic health centers (AHCs), to rethink how to use their workforce to deliver care effectively in a new payment environment. Here we use the term "Academic Health Center" to mean a single institution or group of closely associated institutions that include a medical and/or other health professions school and its associated hospital(s) and ambulatory care practices. Both the delivery of health care services and the educational missions implied by this definition are important for the goal of this Perspective.

Although the pace of health system transformation is accelerating, progress is hampered by a shortage of workers trained to function in new models of care.[1–3] We believe that urgent attention must be paid to retraining the existing workforce to successfully function in a transformed health care system. Our perspective has been shaped by our work helping practices to transform care,[4–6] by extensive consultations with stakeholders attempting to understand the workforce implications of health system redesign, and by a thorough review of the peer-reviewed and gray literature. Through this work, we have become convinced that leaders of AHCs—organizations at the forefront of innovations in health care delivery and health workforce training—must take a more systematic and proactive role in identifying and developing the retraining that is needed to enable the workforce to take on new roles in redesigned models of care. What follows is a call to policy makers to focus less on the numbers of health professionals needed in the future and more on the workforce development needs that are arising as new types of health professionals emerge and existing health professionals take on new roles. First, we provide a brief overview of how health systems are already redesigning roles and shifting care to community settings, and then we outline a set of action priorities for AHC leaders to undertake to develop the workforce needed in new models of care.

The Need to Retrain the Existing Workforce

Efforts to better align health professions education with health reform have thus far generally focused on redesigning

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the curriculum for current trainees even though it is the 18 million workers already employed in the system[7] who will actually implement system change. Other countries are ahead of the United States in recognizing the importance of workforce redesign to support health system change. Before undertaking the most significant reforms in the National Health Service (NHS) since its inception in 1948, the Department of Health in England set out an ambitious agenda to reconfigure the workforce development system to better support the ongoing professional development needs of workers already employed in health care. That strategic vision, issued in 2008, posited that a more flexible workforce is needed to support transformation and suggested that the English system be redesigned to support clinicians who "want well-defined career frameworks that provide flexibility to change roles and settings, [to] develop new capabilities, and [to] alter their professional focus in response to the changing healthcare environment, the needs of patients, and their own aspirations."[8]

The task of preparing the workforce to meet the needs of a health system that is continuously evolving is easier said than done. Since 2008, England has struggled to identify the specific policy actions and organizational structures needed to ensure that "the shape and skills of the future health and public health workforce evolves to sustain high quality outcomes for patients."[9] Although England's efforts are still a work in progress, a recent policy brief issued by Health Education England—the new organization created under the most recent NHS reforms to provide national leadership on health workforce training—outlines a set of goals that may be useful for U.S. policy makers. That document, developed with extensive stakeholder consultation, suggests that workforce policy must address both the numbers and skills of workers; harvest and disseminate lessons learned from local workforce innovations; include partnerships that better link workforce training to the service delivery needs of hospitals, health systems, and patients; and provide support for the continuing professional development of workers already employed in the system.

To date, U.S. workforce policy discussions have generally focused on asking whether the United States will have the right numbers of individual types of clinicians to meet the demands of health reform.[10,11] Not enough attention has been paid to whether health workers already in the system have the skills needed to transform care. Successful implementation of health care reform will require moving "beyond simply estimating numbers of certain health professionals required" to "plan[ning] instead according to the unique mix of competencies available from the existing workforce."[12] As previous researchers have highlighted, "this kind of flexibility is particularly important in contexts where health care providers are in short supply."[12]

New Workforce Roles

The numerous practice transformation efforts under way have not been systematically connected to workforce planning efforts at the local, state, or federal levels. The Center for Medicare and Medicaid Innovation (CMMI) has called for a transformed health care workforce that is "trained in prevention, care coordination, care process reengineering, dissemination of best practices, team-based care, continuous quality improvement, and the use of data to support a transformed system."[13] Although many studies have highlighted the need to train *physicians* with skills in leadership, systems development, communication, use of electronic health records, and population health management, policy makers have given too little attention to improving the skills of other health professionals.[14–17] To be successful, practice transformation efforts will have to be explicitly tied to workforce planning strategies that focus on identifying, standardizing, and providing training for the skills required to function in new models of care and on retraining physician assistants, nurses, allied health professionals, and other types of licensed and unlicensed health care workers (too many to list).

Because of sheer numbers—the U.S. health care system employs 2.7 million registered nurses[18]—it is nurses who are arguably in the most pivotal position to drive system change. Health systems are employing nurses in a host of innovative roles that span community, ambulatory, and acute care settings. Nurses are providing patient education and care coordination, improving care transitions between community and acute care settings, conducting home visits for patients with complex chronic conditions, enhancing patient and family engagement, improving population health management, and increasing community outreach. These efforts have reduced unnecessary hospitalizations and readmissions, improved patients' experiences, increased the quality of care provided, and lowered costs.[19–22] However, to replicate these innovations on a larger scale, more attention needs to be given, first, to identifying the competencies nurses need in these new roles and, then, to providing continuing professional development opportunities for nurses who wish to undertake the new functions.

Individual practices, hospitals, and health care delivery systems are flexibly redefining the work of health professionals in ways that have blurred the lines between once-discrete professional classifications. For example, medical assistants (MAs)—one of the fastest-growing health occupations in the United States, increasing in number by 56% between 2001 and 2011[23]—are increasingly taking on administrative and clinical roles that nurses and other health professionals once performed exclusively.[24,25] Case studies of their roles in AHCs, federally qualified community health centers, integrated health systems, and medical practices reveal that MAs are acting as health coaches and motivational interviewers, screening for depression and smoking, performing diabetic foot checks, acting as interpreters, performing home visits and risk assessments, serving as patient navigators, and coordinating care and providing patient referrals.[26–28] These workforce innovations have decreased emergency room use, improved the quality of care, increased productivity, and enhanced MA retention and job satisfaction.[26,29] But practices implementing innovative roles for MAs have had to address the lack of standardization in MAs' training,[25] including both gaps in their knowledge of key patient-centered medical home functions (e.g., population management, chronic disease care, patient outreach, and care management)[27] and variability in basic clinical skills (e.g., blood pressure monitoring and administering injections).[30]

Shifting Practice Settings

These new nurse and MA roles, as well as other workforce innovations, share a common characteristic—they illustrate that the health care workforce is shifting from practicing in inpatient settings

to providing care in ambulatory and community settings, including patients' homes. Along with nurses and MAs, home health aides and personal care aides are projected to have the largest employment increases across all sectors of the economy in the next 10 years.[23] This increase will happen as the population ages and as more and more often health workers travel to the patient instead of the other way around. A review of the projects funded by a CMMI workforce challenge grant provides a compelling picture of the range and types of system-level workforce innovations under way designed to shift patient care (and therefore the health workforce) from higher-cost acute care settings to lower-cost community settings.[13] These shifts have created opportunities for new types of professionals to emerge whose roles span health and community care—Grand-Aides (see Action 4 below),[31] care transition specialists, community health navigators, patient and family activators, behavioral coaches, community outreach workers, home care coordinators, and community health workers. Often, individuals in these new roles have no more than a high school education and require additional specialized and ongoing training to successfully take on these functions. Training outside the practice, when available, often lacks standardization because as of yet there is no agreed-on set of competencies for new roles. When an individual worker takes on new functions, he or she seldom receives a pay increase; and the medical practices, hospitals, and health systems that provide training do not often receive greater remuneration for services rendered by a better-trained staff.

The addition of new roles creates challenges in redesigning how new types of health workers "fit" within existing interprofessional health care teams. Team-based models of care will have to be adapted to incorporate new members such that teams can effectively deploy the "shared knowledge and skills of different care providers … to synergistically influence the care provided."[32] To address these and other workforce challenges, the National Coordinating Center for Interprofessional Education and Collaborative Practice is working to increase employer and community engagement with educational partners so that education is driven by health care delivery and patient needs. This collaboration represents a key contribution to health care because "even in their own institutions, educators are not talking to the people responsible for the health care delivery at their university's hospital."[33]

The Role of AHCs in Transforming the Workforce

With their focus on both education and patient care, AHCs have the potential to function at the nexus of innovation in health care delivery and innovation in training. In this position, AHCs are uniquely situated to proactively lead efforts to retrain the existing workforce. There are a number of immediate and specific actions that the leaders of AHCs can undertake to develop a more coherent workforce development strategy that supports practice transformation.

1. Harvest and disseminate learning from workforce innovations

Physicians and leaders working in medical practices, hospitals, and health systems throughout the United States are actively reengineering workflows, redesigning care processes, and implementing quality improvement strategies designed to enhance productivity, lower costs, increase access, and improve the quality of care. The pace of innovation has been so swift that those engaged in redesign have not had sufficient opportunity to identify the implications of practice redesign for the workforce or to learn from one another what works and what does not. The emerging field of dissemination science suggests that a key next step for AHCs is knowledge synthesis, the process by which successful workforce innovations are harvested for learning so that the process of moving tested innovations into scalable and sustainable interventions can begin.[34]

2. Reach outside the AHC for new ideas and new partners

To harvest the learning from innovations and to develop successful workforce development strategies, AHCs will need to build relationships with partners with whom they are not accustomed to collaborating. Collaborators need to include other AHCs, health professional schools outside medicine (e.g., social work, nursing, public health, psychology), community colleges, hospitals and practices within and outside of their own systems, licensed and unlicensed professionals, insurers, and patients and families. Partnering with community colleges is especially critical because they play a significant role in supplying AHCs with their future health professions students—21% of college graduates come from community colleges.[35]

3. Focus on the medical practice, hospital, and health system—not just the clinician

To date, most policy discussion and action—including education, board certification, and regulation—have focused almost exclusively on shaping the work of individual clinicians. AHCs need to embrace a systems engineering approach to workforce development that focuses on enabling not only individual clinicians but also medical practices, hospitals, and health systems to continuously adapt their roles and functions to meet the changing needs of the health care system and patients. A systems engineering approach recognizes that patient care takes place in the context of large, complex, and evolving health care systems that encompass a wide variety of individuals and organizations with different, and sometimes conflicting, values and motivations.[36] To effectively manage this complexity and catalyze system change, AHCs need to deploy and train middle managers, practice coaches, and quality improvement consultants. These new and emerging professionals play a pivotal role in giving clinical staff the training and tools necessary to implement change, engage in team models of care, and promote cross-training and role flexibility among nurses, lab technicians, and other staff.[37–39]

4. Identify and codify emerging health professional roles and then train for them

Countless experiments, designed to advance new and more flexible health professional roles, are under way. One such innovation, the development of Grand-Aides, provides an illustrative example of how AHCs can partner with other stakeholders to identify the competencies, training, and credentialing required to support workforce development and practice transformation. Unlike the heterogeneous training for other roles such as community health workers, the Grand-Aide curriculum is standardized such that the same training is provided whether it is delivered by health care institutions or community colleges. Grand-Aides first receive a certification as a nursing

assistant, an MA, or a community health worker before completing an additional 180 hours of classroom work, protocols, simulation, and field training.[31] Grand-Aide certification is provided only after an individual passes weekly written tests, attends weekly meetings with an instructor, and successfully passes a formal evaluation of field training.

5. Plan for the spread and sustainability of innovations at the time they are initiated

Physicians and leaders working in medical practices, hospitals, and health systems often innovate without considering the broader system-wide workforce development implications of their innovations. This trend is understandable; the first question they need to answer is "Does the innovation work?" And if it does, they need to answer the next question: "How do we share and sustain the innovation?" Within the larger organizational structure—whether it is a small medical practice, a large hospital, or a complex health care system—human resource and information technology infrastructures often serve as a barrier to a more flexible and team-based deployment of the workforce. For example, rigid job descriptions may not enable individuals to take on roles that either did not exist previously or that amalgamate two or more functions that were previously in the domain of another profession. Workplace policies should address how workers will be paid, especially if there is no existing pay scale for a new job or role. The institution's information technology system should allow multiple types of health professionals to enter data. Employees should be oriented to the tasks and responsibilities expected of them in their new role, and other health professionals in the practice should learn about the new roles and the implications for their own practice. Finally, standardized training should be available either in or outside the practice to help employees meet new expectations.

6. Build evidence required to support changes in licensure, credentialing, and accreditation

A key factor in ensuring the spread and sustainability of innovations in the broader health system is encouraging consistency across medical practices, hospitals, and health systems in how new roles are defined and how the professionals in those roles are trained and recognized via certification, licensure, and credentialing systems. As innovators in clinical practice, AHCs can play a leading role in testing and evaluating the outcomes of innovative roles for existing workers, as well as in measuring the outcomes of introducing new types of health professionals into practice. As leaders in education innovation, AHCs can identify the training necessary to enable workers to successfully function in new roles and settings. These evaluation and training outcomes will build the much-needed evidence base required to support changes in existing licensure, credentialing, and accreditation systems that will allow for more flexible deployment of the existing workforce and increase the standardization of roles and training for new types of workers.

7. Lead innovation in designing mechanisms to deliver continuing education

AHCs need to engage with health employers, professional associations, area health education centers (AHECs), and other entities to determine the best mechanisms to deliver workforce training that supports currently employed health care workers who want to take on new roles and functions. AHCs should build on the substantial efforts already under way in their institutions to revamp health professions curricula, but they also need to attend to how training can be delivered through innovative modular, online, or other educational mechanisms geared toward the learning needs and schedules of actively practicing health professionals. Large-scale practice transformation efforts in North Carolina have found that AHECs are well positioned to provide training because of their experience delivering continuing education (CE), their orientation toward adult learners, and their proven success in providing CE at both the individual and practice levels.[5]

In Sum

Miller and colleagues[40] have suggested that a "post-Flexnerian revolution" is needed in which physicians and other health professionals work together to identify the continuous learning and competencies required to meet patient needs and improve health outcomes. Evidence from other countries, including the United Kingdom, suggests that concerted policy actions to promote worker flexibility can increase productivity, improve worker recruitment and retention, allow more customized and patient-centered care, promote work processes that more flexibly respond to variations in demand, and provide staff with new training opportunities that enable movement up career ladders.[41]

As organizations that provide health care services as well as train workforce professionals, AHCs are in a prime position to identify and develop the training needed to prepare the health workforce for new roles in new systems of care. AHCs are already active participants in many of the innovations inspired by the ACA, including accountable care organizations, bundled payment initiatives, projects funded by the CMMI, and ideas advanced by Innovation Challenge Awardees.[42,43]

There is much to learn from early adopters of team-based models who have successfully integrated new health professional roles into their care delivery systems, thereby achieving decreases in emergency room visits, fewer hospitalizations, improvements in quality of care, and increased patient satisfaction.[5,31,44–46] The ideal location for coalescing this learning is the AHC, where health care professionals in multiple roles and performing different functions can all receive training within the same institution.

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References

1 Bodenheimer T, Chen E, Bennett HD. Confronting the growing burden of chronic disease: Can the U.S. health care workforce do the job? Health Aff (Millwood). 2009;28:64–74.
2 Bodenheimer T. Lessons from the trenches—a high-functioning primary care clinic. N Engl J Med. 2011;365:5–8.
3 Ghorob A, Bodenheimer T. Sharing the care to improve access to primary care. N Engl J Med. 2012;366:1955–1957.
4 Denham AC, Hay SS, Steiner BD, Newton WP. Academic health centers and community health centers partnering to build a system of care for vulnerable patients: Lessons from Carolina Health Net. Acad Med. 2013;88:638–643.
5 Newton WP, Lefebvre A, Donahue KE, Bacon T, Dobson A. Infrastructure for large-scale quality-improvement projects: Early lessons from North Carolina Improving Performance in Practice. J Contin Educ Health Prof. 2010;30:106–113.
6 Steiner BD, Denham AC, Ashkin E, Newton WP, Wroth T, Dobson LA Jr. Community

care of North Carolina: Improving care through community health networks. Ann Fam Med. 2008;6:361–367.
7 Centers for Disease Control and Prevention. Workplace safety and health topics: Healthcare workers. Revised February 2012. http://www.cdc.gov/niosh/topics/healthcare. Accessed August 22, 2013.
8 UK Department of Health. A high quality workforce: NHS next stage review. Updated July 2008. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_085841.pdf. Accessed August 22, 2013.
9 Health Education England of the National Health Service. Strategic intent update: We asked—you said—we listened—what we are doing. July 2013. http://hee.nhs.uk/wp-content/blogs.dir/321/files/2013/07/Strategic_Intent_Update-FINAL-12-7-13.pdf. Accessed August 22, 2013.
10 Hofer AN, Abraham JM, Moscovice I. Expansion of coverage under the Patient Protection and Affordable Care Act and primary care utilization. Milbank Q. 2011;89:69–89.
11 Association of American Medical Colleges. The impact of health care reform on the future supply and demand for physicians updated projections through 2025. https://www.aamc.org/download/158076/data/updated_projections_through_2025.pdf. Accessed August 22, 2013.
12 Tomblin Murphy G, Mackenzie A, Alder R, Langley J, Hickey M, Cook A. Pilot-testing an applied competency-based approach to health human resources planning [published online December 18, 2012]. Health Policy Plan. doi:10.1093/heapol/czs115.
13 Center for Medicare and Medicaid Innovation, Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services. Health Care Innovation Challenge. November 2011. http://www.innovations.cms.gov/Files/x/Health-Care-Innovation-Challenge-Funding-Opportunity-Announcement.pdf. Accessed August 22, 2013.
14 Altschuler J, Margolius D, Bodenheimer T, Grumbach K. Estimating a reasonable patient panel size for primary care physicians with team-based task delegation. Ann Fam Med. 2012;10:396–400.
15 Chang A, Bowen JL, Buranosky RA, et al. Transforming primary care training—patient-centered medical home entrustable professional activities for internal medicine residents. J Gen Intern Med. 2013;28:801–809.
16 Saultz JW, O'Neill P, Gill JM, et al. Medical student exposure to components of the patient-centered medical home during required ambulatory clerkship rotations: Implications for education. Acad Med. 2010;85:965–973.
17 Kaprielian VS, Silberberg M, McDonald MA, et al. Teaching population health: A competency map approach to education. Acad Med. 2013;88:626–637.
18 Bureau of Labor Statistics, U.S. Department of Labor. Occupational Employment Statistics. April 2013. http://www.bls.gov/emp/ep_table_104.htm. Accessed August 24, 2013.
19 Naylor MD, Aiken LH, Kurtzman ET, Olds DM, Hirschman KB. The care span: The importance of transitional care in achieving health reform. Health Aff (Millwood). 2011;30:746–754.
20 Swan BA, Haas SA. Health care reform: Current updates and future initiatives for ambulatory care nursing. Nurs Econ. 2011;29:331–334.
21 Naylor MD. Advancing high value transitional care: The central role of nursing and its leadership. Nurs Adm Q. 2012;36:115–126.
22 Haas S, Swan BA, Haynes T. Developing ambulatory care registered nurse competencies for care coordination and transition management. Nurs Econ. 2013;31:44–9, 43.
23 Bureau of Labor Statistics, U.S. Department of Labor. Fastest growing occupations. February 2012. http://www.bls.gov/emp/ep_table_103.htm. Accessed August 22, 2013.
24 Taché S, Chapman S. What a medical assistant can do for your practice. Fam Pract Manag. 2005;12:51–54.
25 Taché S, Chapman S. The expanding roles and occupational characteristics of medical assistants: Overview of an emerging field in allied health. J Allied Health. 2006;35:233–237.
26 Dower C, Blash L. Innovative Workforce Models in Health Care: Utilizing Medical Assistants in Expanded Roles in Primary Care. June 2012. http://futurehealth.ucsf.edu/LinkClick.aspx?fileticket=r4krbCL%2bAtA%3d&tabid=475. Accessed August 22, 2013.
27 Naughton D, Adelman AM, Bricker P, Miller-Day M, Gabbay R. Envisioning new roles for medical assistants: Strategies from patient-centered medical homes. Fam Pract Manag. 2013;20:7–12.
28 Saba GW, Taché S, Ward L, Chen EH, Hammer H. Building teams in primary care: What do nonlicensed allied health workers want? Perm J. 2011;15:9–17.
29 Nelson K, Pitaro M, Tzellas A, Lum A. Practice profile. Transforming the role of medical assistants in chronic disease management. Health Aff (Millwood). 2010;29:963–965.
30 Hull T, Taylor P, Turo E, Kramer J, Crocetti S, McGuire M. Implementation of a training and structured skills assessment program for medical assistants in a primary care setting. J Healthc Qual. 2013;35:50–60.
31 Garson A Jr, Green DM, Rodriguez L, Beech R, Nye C. A new corps of trained Grand-Aides has the potential to extend reach of primary care workforce and save money. Health Aff (Millwood). 2012;31:1016–1021.
32 Newton C, Wood V, Nasmith L. Building capacity for interprofessional practice. Clin Teach. 2012;9:94–98.
33 Josiah Macy Jr. Foundation. Interprofessional education and practice—bridging the gap: a conversation with HRSA's Dr. Chen. November 26, 2012. http://macyfoundation.org/news/entry/frederick-chen. Accessed August 22, 2013.
34 Bowen DJ, Sorensen G, Weiner BJ, Campbell M, Emmons K, Melvin C. Dissemination research in cancer control: Where are we and where should we go? Cancer Causes Control. 2009;20:473–485.
35 Kolesnikova N. From community college to a bachelor's degree and beyond: How smooth is the road? Regional Economist. July 2009. http://www.stlouisfed.org/publications/re/articles/?id=1317. Accessed August 22, 2013.
36 Ryan JK. Systems engineering: Opportunities for health care. In: Reid PP, Compton WD, Grossman JH, Fanjing G, eds. Building a Better Delivery System: A New Engineering/Health Care Partnership. Washington, DC: National Academy of Engineering and Institute of Medicine; 2005.
37 Donahue KE, Halladay JR, Wise A, et al. Facilitators of transforming primary care: A look under the hood at practice leadership. Ann Fam Med. 2013;11(suppl 1):S27–S33.
38 Birken SA, Lee SY, Weiner BJ. Uncovering middle managers' role in healthcare innovation implementation. Implement Sci. 2012;7:28.
39 Taylor EF, Machta RM, Meyers DS, Genevro J, Peikes DN. Enhancing the primary care team to provide redesigned care: The roles of practice facilitators and care managers. Ann Fam Med. 2013;11:80–83.
40 Miller BM, Moore DE Jr, Stead WW, Balser JR. Beyond Flexner: A new model for continuous learning in the health professions. Acad Med. 2010;85:266–272.
41 Desombre T, Kelliher C, Macfarlane F, Ozbilgin M. Re-organizing work roles in health care: Evidence from the implementation of functional flexibility. Br J Manage. 2006;17:139–151.
42 Association of American Medical Colleges. Medical schools, teaching hospitals chosen for CMS bundling demonstration: New payment model will test ways to improve patient care, reduce costs. January 31, 2013. https://www.aamc.org/newsroom/newsreleases/327170/cmsbundles.html. Accessed August 22, 2013.
43 Association of American Medical Colleges. AAMC members selected for ACO program to coordinate care, reduce costs. July 10, 2012. https://www.aamc.org/newsroom/newsreleases/297642/aamcmembersselectedforacoprogramtocoordinatecarereducecosts.html. Accessed August 22, 2013.
44 Scott D. How a Minnesota county solved the Medicaid expansion problem. Governing View. December 4, 2012. http://www.governing.com/blogs/view/gov-how-a-minnesota-county-solved-the-medicaid-expansion-problem.html. Accessed August 22, 2013.
45 Raskas RS, Latts LM, Hummel JR, Wenners D, Levine H, Nussbaum SR. Early results show WellPoint's patient-centered medical home pilots have met some goals for costs, utilization, and quality. Health Aff (Millwood). 2012;31:2002–2009.
46 Rosenthal EL, Brownstein JN, Rush CH, et al. Community health workers: Part of the solution. Health Aff (Millwood). 2010;29:1338–1342.