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The Veterans Health Administration: Implementing Patient-Centered Medical Homes in the Nation's Largest Integrated Delivery System

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ABSTRACT: In April 2010, the U.S. Veterans Health Administration (VA) embarked on an ambitious three-year plan to build patient-centered medical homes in more than 900 primary care clinics across the nation. Its model organizes care around an interdisciplinary team of providers who work together to increase access and clinical effectiveness by identifying and removing barriers to high-quality care. To build the teams, the VA allocated more than $227 million to hire additional clinical staff and instituted a nationwide training program that is supplemented by provider participation in regional learning collaboratives. The program has in one clinic shortened the waiting time for appointments from as long as 90 days to same-day access, reduced the percentage of inappropriate emergency department visits from 52 percent to 12 percent, and in just three months reduced hemoglobin A1c scores by at least one point in 33 percent of patients with poorly controlled diabetes.

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OVERVIEW

In 2010, the U.S. Veterans Health Administration (VA) launched a program to create patient-centered medical homes in more than 900 primary care clinics over a three-year period. In addition to improving chronic disease management, the VA initiative aims to increase access to care, intensify preventive health services, and improve coordination of care as patients move from primary care to specialty care providers and between the VA and private health care systems, which are used by a high percentage of VA patients. This case study examines the VA's initiative and profiles implementation efforts in two clinics, one in Memphis, Tennessee, and another in Lincoln, Nebraska.

In the VA's medical home model, care is delivered by teams of medical professionals, including a primary care provider (either a physician, nurse practitioner, or physician's assistant), a registered nurse, a licensed practical nurse (LPN) or equivalent, and a medical clerk. Together they share responsibility for

managing patients, with support provided by pharmacists, social workers, nutritionists, psychologists, and disease management coaches. The teams are encouraged to test and spread new approaches, especially those that increase access and efficiency, while improving transitions between inpatient and outpatient care settings and patient hand-offs to providers.

Creating the capacity to intensify services and bridge gaps between institutions and providers has required the VA to extensively redesign care delivery to become less reliant on traditional face-to-face visits and more focused on convenient forms of communication, including telephone visits and secure e-mail messaging. The VA has further increased capacity by having team physicians and nurse practitioners take a consultative and supervisory role—overseeing the care delivered by other team members—so they can spend more time providing intensive services to their most clinically complex patients. Extensive trust-building exercises have been required to help physicians relinquish some control over patient care, as have new methods for monitoring quality and efficiency to ensure that the sharing of responsibility for care does not imperil patients.

While implementation is still in its early phases, the experience highlights a number of steps that are often critical in establishing a successful medical home, whether in the public or private sector. These include:

- hiring of new staff for care teams;
- engaging patients and other key stakeholders in redesigning care processes;
- providing teams with intensive training, financial support, and tools;
- building trust among team members;
- aligning program goals with performance incentives;
- managing expectations of management and staff; and
- recognizing the different preferences of staff for training and implementation strategies.

Early results indicate that the VA's program is already producing dramatic benefits in some locations. In one clinic, appointment waiting times that were once as long as 90 days have given way to same-day access; the percentage of inappropriate emergency department visits has fallen from 52 percent to 12 percent; and in just three months, hemoglobin A1c scores have been reduced by at least one point in 33 percent of patients with poorly controlled diabetes. Moreover, patient and clinic staff satisfaction has grown substantially. If it can build on this initial success, the VA's program might well encourage commercial insurers, government payers, and employers in the private sector to invest in medical homes and a stronger primary care system.

About the Patient-Centered Medical Home

The patient-centered medical home is designed to increase the quality and efficiency of primary care, particularly for patients with chronic illnesses. By providing enhanced access to a multidisciplinary team of providers that identifies and removes barriers to quality, the model fosters stronger relationships between patients and providers and helps to reduce the need for more intensive medical services, including costly emergency department care. Early demonstrations suggest the medical home is a promising means of not only achieving better health outcomes and increasing patient satisfaction, but also lowering per capita health care costs.[1]

To establish medical homes, primary care providers must significantly restructure their practices to ensure care is offered in the most convenient and efficient way possible. Instituting new scheduling procedures, training staff for team-based roles, and engaging patients in a new paradigm of care are but a few of the challenges. Many practices must also hire new personnel and invest in health information technology that supports a longitudinal approach to care.

THE VA: ORGANIZATIONAL CONTEXT

The Veterans Health Administration operates the nation's largest integrated delivery system, providing care to 5.8 million patients annually in more than 900 sites, including 152 medical centers and more than 700 community-based outpatient clinics. Annually, it provides primary care to more than 5 million patients.

Its hospitals, health care centers, ambulatory care centers, and community-based outpatient clinics are organized into 21 regional networks, known as VA Integrated Services Networks, or VISNs, which control the management and funding of local hospitals and clinics. Many of the VA's tertiary care centers are affiliated with academic medical centers, which, according to VA estimates, enables the health system to train at least 75 percent of the nation's physicians—either as medical students or residents.

The VA's patient population is overwhelming male (93.5% male vs. 6.5% female), though that is slowly changing as more women join the military. Veterans who rely on the VA for care also tend to be sicker, older, and have lower incomes than the population generally.[2] More than 44 percent of the VA's patient population is age 65 or older. Within the system, the prevalence of chronic conditions such as diabetes, hypertension, and hyperlipidemia is high (Exhibit 1). The VA also estimates 21 percent of its patients have had at least one encounter with a mental health professional, which makes its integration of physical and mental health services critically important.

The VA's funding is appropriated every two years by Congress as a global budget, which is distributed to the VA's regional networks via a form of capitation that factors in patient demographics, disease severity, and utilization patterns. Network management

Exhibit 1. Prevalence of Chronic Conditions in VA Primary Care Patients, January 2011

Chronic condition	VA primary care patients (a)	National average of all U.S. patients
Hypertension	52.3%	26.0% (c)
Obesity	36.5%	26.9% (c)
Diabetes mellitus	24.4%	8.3% (c)
Depression	18.5%	6.8% (b)
Ischemic heart disease	16.1%	12.0% (c)
Gastroesophogeal reflux disease	14.0%	20.0% (e)
Post-traumatic stress disorder	10.4%	3.5% (f)
Enlarged prostate	10.3%	—
Chronic obstructive pulmonary disease	8.4%	6.0% (c)
Anemia	6.0%	—
Chronic renal failure	4.1%	15.1% (b)
Congestive heart failure	3.1%	2.5% (g)
Asthma	2.9%	9.9% (d)
Peripheral artery disease	2.7%	—
Osteoarthritis	1.2%	5.9% (b)

Sources: (a) VA.
(b) http://healthypeople.gov/2020/default.aspx.
(c) http://apps.nccd.cdc.gov/cdi/Default.aspx.
(d) Medical Expenditure Panel Survey.
(e) http://digestive.niddk.nih.gov/statistics/statistics.aspx.
(f) http://www.nimh.nih.gov/statistics/1AD_PTSD_ADULT.shtml.
(g) http://www.usrds.org/2010/pdf/v1_01.pdf.

allocates this funding within the region to pay for staff, facilities, and other resources and is held accountable for performance, as determined by measures that assess quality-of-care, patient satisfaction, and financial efficiency. The incentives to improve care are both financial and nonfinancial; network leaders and physicians receive performance-based pay and network performance is widely publicized within the system.[3]

MEDICAL HOME EFFORTS IN THE VA: THE PACT MODEL

The VA's approach to the medical home is modeled on those developed in other integrated health care delivery systems, including Kaiser Permanente, Geisinger Health System, and Duke University Medical Center. Its Patient Aligned Care Teams, or PACTs, are composed of four medical professionals—a primary care provider (either a physician, nurse practitioner, or physician's assistant), a registered nurse, an LPN or equivalent, and a medical clerk—who are supported by pharmacists, social workers, nutritionists, psychologists, and disease management coaches (Exhibit 2). Together these providers share responsibility for improving acute care, chronic disease management, health promotion, and disease prevention services.

In some locations, this has meant medical assistants have become responsible for lab draws, foot exams, and previsit screening calls to determine whether patients need to see a physician, a nurse practitioner, or a physician's assistant, or would be better served by meeting with a registered nurse, a pharmacist, or a health coach. In other locations, registered nurses take a more active role in patient education and chronic disease management. At the same time, pharmacists have expanded the range of diseases for which they provide medication management, while psychologists and social workers have been assigned responsibility for improving communication among team members and assessing any mental health issues in patients that hinder patients' ability to adhere to or benefit from recommended treatment plans.

Reassigning some tasks to ancillary providers enables primary care teams to intensify the management of complex patients and increase preventive health services for all. Much of the time needed for the expanded range of services is derived by reducing face-to-face visits with patients when the purpose of

Exhibit 2. Staffing Ratios in the VA's Medical Home Model

Care team assigned to 1 panel of ± 1,200 patients	Additional team members at each primary care facility	Additional team members assigned to multiple panels of patients
Provider: 1 FTE	Health promotion/disease prevention manager: 1 FTE	Clinical pharmacy specialist: ± 3 panels
RN care manager: 1 FTE	Health behavior coordinator: 1 FTE	Clinical pharmacy anticoagulation: ± 5 panels
Clinical associate (LPN, MA, or health tech): 1 FTE	My HealtheVet coordinator: 1 FTE	Social work: ± 2 panels
Clerk: 1 FTE		Integrated behavioral health:
		• Psychologist (± 3 panels)
		• Social worker (± 5 panels)
		• Care manager (± 5 panels)
		• Psychiatrist (± 10 panels)
		Case managers
		Trainees

Note: FTE = full-time equivalent.
Source: J. M. Shear, "Federal Initiatives: Extending the PCMH Community," presentation to the Patient-Centered Primary Care Collaborative Stakeholders' Working Group Meeting, "The Patient Care Medical Home in the Community," Washington, D.C., July 22, 2010.

the visit may be effectively and efficiently met with a phone call from a physician or other team member, or in a face-to-face visit with a nonphysician team member. Shared medical appointments (group visits) are also encouraged. These practices also increase same-day access for patients who need to see a team member in person.

By assigning patients to a dedicated primary care team that works collaboratively, the model also improves communication among its members and across the continuum of care to ensure that critical patient information—such as medication changes and discharge orders—is not lost during transitions of care. (This is especially important in the VA system, where roughly 80 percent of patients have private insurance—or are covered through Medicare and Medicaid—and are thus able to seek care from private sector physicians and hospitals.)

The PACTs use a variety of methods to improve transitions. Within the system, providers have increased communication between the emergency department (ED) and the primary care clinic to ensure that patients who are more appropriately treated in the clinic setting are referred there by ED staff. Other teams have established close relationships with discharge planners at private hospitals to ensure information about medication changes and needed follow-up care is both recorded in VA records and acted upon.

In the VA model, each care team is expected to provide care to a dedicated panel of about 1,200 patients per full-time primary care physician, a total that may increase to 1,500 or decrease to 900 depending on the disease severity of patients in the panel and availability of local resources to meet patients' needs. Though the panel size is significantly smaller than that of most physicians in private practice, it includes a higher-than-average percentage of elderly patients with multiple chronic conditions including diabetes, hypertension, and hyperlipidemia and relatively fewer young and healthy individuals (Exhibit 1).

THE VA'S IMPLEMENTATION STRATEGY

Since its launch in April 2010, the program has proceeded along two parallel tracks:

1. The development of PACTs in every outpatient clinic within three years, a process that is being accomplished by training a core group of providers to implement structural changes to their practices and test approaches to improve the quality and efficiency of care and increase patient satisfaction. These early adopters serve as coaches for other teams within each clinic.
2. The establishment of five regional demonstration laboratories to evaluate the impact of the program and test methods of improvement. The five sites are evaluating innovative interventions for self-management and treatment of rural populations, among others, with the expectation that successful approaches will be spread either regionally or nationally.

The PACTs are encouraged to test and develop interventions for spread based on a local assessment of results, provided the innovations accomplish at least one of the objectives outlined in the program's statement of principles (Exhibit 3), which emphasizes the importance of delivering care that is patient-centered, efficient, and well coordinated.

MONITORING PERFORMANCE

Prior to implementation, the Veterans Health Administration reached a consensus on a core set of metrics to monitor the progress of primary care sites as they migrated to the PACT model. These measures (Exhibit 4) are designed to assess the program's impact on access, continuity of care, patient engagement and satisfaction, panel management, coordination of care, and clinical improvement. The VA purposefully did not set benchmarks or target rates, but rather agreed that benchmarks would be established by top performers. Thus, while scores on the measures are made visible to teams around the country, they are designed and promoted as a means of evaluation,

rather than as a mechanism for imposing accountability.

Significantly, the measures place an emphasis on the patient experience as opposed to cost savings. "We didn't sell it as a cost-saving plan," said Joanne Shear, R.N., F.N.P., the VA's primary care clinical program manager. This is partially because the program's leaders were uncertain when, if ever, it would break even. "We sold it more as, 'This is the right thing to do for our patients, for the quality of care, and for patient and employee satisfaction,'" said Richard Stark, M.D., director of primary care clinic operations for the VA. Nonetheless, the VA is evaluating the impact of the medical home on admissions and ED use, both of which may serve as proxies for cost.

These measures are expected to play a significant role in determining not only future funding for VA sites, but also financial incentives for VA management. While this expectation provides a powerful incentive for clinical sites to improve care using innovative methods, it also introduces a challenge for network-level management, which is now rewarded on other measures, including productivity as assessed by the volume of face-to-face visits, a measure the PACTs are expected to decrease. Because the new measures are still being refined and have not yet been linked to funding changes and/or management incentives, there will be lag between improvement on the new metrics and the financial reward for that improvement. This has created concern among leaders who anticipate cuts in congressional funding and fear that without ongoing support from the VA, they may not be able to sustain the program.

Demonstrating cost savings or cost neutrality will also be important when, after the implementation phase ends in September 2014, local networks no longer receive subsidies from the national office for increased staffing and must fund the new staff positions themselves.

PLANNING FOR IMPLEMENTATION: READINESS ASSESSMENT

To assess the clinic sites' readiness to achieve the program's objectives, 850 primary care clinics were asked to complete the American College of Physicians' Medical Home Builder tool (ACP Medical Home Builder), a survey that gauges a practice's ability to deliver immediate access, coordination of care among

Exhibit 3. Principles of the VA's Patient Aligned Care Teams

Patient-driven
- The primary care team is focused on the whole person.
- Patient preferences guide the care provided to the patient.

Team-based
- Primary care is delivered by an interdisciplinary team led by a primary care provider using facilitative leadership skills.

Efficient
- Patients receive the care they need at the time they need it from an interdisciplinary team functioning at the highest level of their competency.

Comprehensive
- Primary care is the point of first contact for a range of medical, behavioral, and psychosocial needs, and is fully integrated with other VA health services and community resources.

Continuous
- Every patient has an established and continuous relationship with a personal primary care provider.

Communication
- The communication between the patient and other team members is honest, respectful, reliable, and culturally sensitive.

Coordinated
- The PACT coordinates care for the patient across and between the health care system including the private sector.

providers, communication through various forms of technology, and population health management, among other capabilities.

The results of the survey, conducted in October 2009, revealed certain strengths, including the VA's electronic medical record system, which not only enables providers across the vast system to rely on a single medical record for each patient, but also serves as a tool to reinforce best practices and measure performance on critical quality-of-care measures. Scores for quality improvement and performance measurement were also strong (Exhibit 5), reflecting the VA's emphasis on evidence-based medicine and preventive health services, which have resulted in generally better performance on process-of-care measures as compared with non-VA settings.[4]

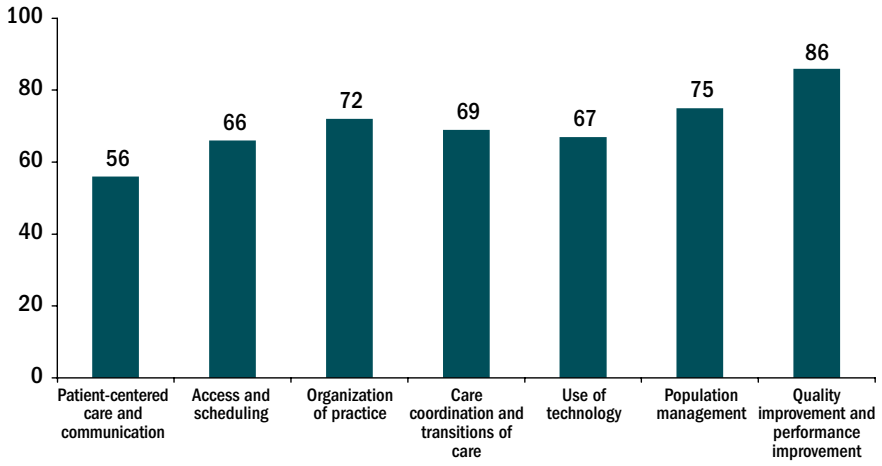
The survey also showed the need for improvement in effective patient-centered care and communication, access and scheduling, care coordination and transitions of care, and use of technology. In this respect, the VA was like many private health care systems that struggle to provide immediate access to patients and identify and act upon patient preferences. To receive same-day service, many patients turned to the VA's EDs and urgent care centers, or sought care from private hospitals and clinics, a practice

Exhibit 4. Metrics to Monitor Progress of the VA's Medical Home Model

Continuity of care	**Access**
Provider: % visits with assigned PCP	Desired-date appointments
Emergency department visit rate	Same-day appointments
Team: % visits with team	Appointments within 7 days
	Appointments within 14 days
Patient engagement and satisfaction	3rd next available appointment
All-employee survey PC satisfaction scores	Group clinic encounters
Patient satisfaction survey results	Telephone clinic encounters
Patient complaints	No-show rate
My HealtheVet enrollment	Telephone access data
Percentage of patients with in-person authentication, a requirement for secure messaging	Secure messaging data
Panel management	**Coordination of care**
Panel size	Admission rate
Panel capacity	Patient contacted within 2 days of discharge
DCG, a measure of patient complexity	Patient contacted within 7 days of discharge
Teamlet staff FTE	CCHT enrollment
Staffing ratio	Consult tracking
Revisit rate	Specialty referral rates
Number of new patients	
Clinical improvement	
Admission rates	
Emergency department visit rates	
Panel case mix	
Readmission rates	
Ambulatory care–sensitive admissions	
Mortality	

Notes: PCP = primary care physician; PC = primary care; DCG = diagnostic code group; CCHT = care coordination/home telehealth services.
The time to the third next available appointment is a standard measure of access to medical care. It is considered more a reliable indicator of how long a patient might wait than the time to the next available appointment, which may be affected by last-minute cancellations and other chance occurrences.

Exhibit 5. Results of Medical Home Builder Survey for Primary Care Practices, 2009



Note: n=850 (Oct. 2009).
Source: Veterans Health Administration.

that further fragmented care and led to problems with medication reconciliation and lapses in communication at critical transitions in care. In many instances, the VA expected veterans to bridge these gaps. Yet patient engagement was lacking, as patients were not always informed of tests results or involved in medical decision-making, practices that contributed to lower marks on measures of patient satisfaction.

In addition, the VA measured whether its clinics had sufficient staff to create medical homes. Its survey found 81 percent of its primary care sites fell below the VA's target ratio of three support staff per physician per medical home, a ratio the health system set after consulting with experts on medical homes and reviewing the literature on them (Exhibit 3). To address this, the VA allocated $227.7 million to hire and train new staff, funding that had a rapid effect on staffing levels. Within nine months, the ratio of support staff to primary care physician/nurse practitioner/physician assistant increased 18 percent, from 2.27 in March 2010 to 2.67 in December 2010.

GEARING UP FOR NATIONAL SPREAD: THE VA'S TRAINING PROGRAM

Implementing the medical home initiative required the VA to provide intensive training to staff on the core principles of medical homes. For logistical and financial reasons, the VA elected to train a core group of medical home teams, all of which were invited to the "VA Patient-Centered Medical Home Summit" in April 2010. The four-day session drew 3,500 attendees (two-thirds frontline providers and one-third administrative leaders).

With faculty that included VA leaders and outside experts in the medical home model, such as Thomas Bodenheimer, M.D., M.P.H., and J. Lloyd Michener, M.D., the summit was designed to provide a rapid immersion to concepts of practice redesign, population management, and team communication and thus focused on:

- staff development;
- measurement techniques;
- methods of integrating mental health providers and ancillary clinicians such as pharmacists into the primary care team;

- use of technology (such as secure messaging and telemedicine) to enhance non–face-to-face communication with patients;
- coordination of care with the private sector;
- use of health coaching and motivational interviewing to enhance patient engagement;
- best practices for treating specific conditions such as breast cancer and hyperlipidemia; and
- methods of incorporating students of the health professions into the medical home.

A month after the summit, 250 medical home teams were assigned to one of five regional learning collaboratives, known as National PACT Collaborative Learning Sessions, which meet once every three months for weeklong meetings at which participants learn of new methods of practice redesign and performance improvement, and share lessons from their own implementations. The teams are expected to share those lessons with colleagues at their respective clinics.

To provide education and training to the medical teams that would not participate in these collaboratives, the VA in September 2010 created the PACT Transformational Initiatives Learning Centers, which offered three-day intensive training programs on patient-centered care, care coordination, care management, and team dynamics. There are five such centers across the country. They are expected to train roughly 1,250 primary care providers each year for three years. "The strength of that is that we can reach a lot of people with the same message. The downside is that it is just a three-day didactic session," said Michael S. Hein, M.D., M.S., medical director of the primary and specialty medicine service line for the VA Midwest Health Care Network.

To reinforce and expand on this education, the VA hosts a once-a-week webinar that features presentations by faculty with expertise on integrated post-combat care and medical visits via telephone, among other topics. The VA estimates these "Fireside Chats" draw approximately 200 or so participants. Finally, the VA uses its intranet to record and report on the performance of all teams around the country. Each team is required to post the interventions it uses, as well as its results, so that other medical teams can quickly identify and learn about the most successful approaches to practice redesign.

"Our basic philosophy with the training and education was to use any and all modalities, because what we are trying to do is basically change the culture of a huge organization. And different people learn differently at different rates in different ways," Stark said.

Recognizing that some sites may still struggle with the implementation, the VA in December 2010 deployed five teams of consultants (one per region, each including a primary care physician, nurse, and administrator) to serve as troubleshooters for sites that may be struggling with a lack of leadership buy-in and/or insufficient resources of staff and space.

PROFILES OF LOCAL IMPLEMENTATION

This case study describes the implementation of the program in two locations: Memphis, Tennessee, and Lincoln, Nebraska, which were selected by the Veterans Health Administration because they were early adopters of the program and are representative of two distinct types of VA sites.

The clinics in both locations differ in patient demographics, clinic size, and organizational structure. The Memphis site is larger and has a more racially diverse patient population that is generally poorer than the patient population in Lincoln. The Lincoln clinic provides only outpatient services, referring patients in need of inpatient services to the VA Medical Center in Omaha or to one of 10 private hospitals in the area.

The clinics also differed from one another in the pace of implementation. The Memphis site opted to appoint a single team, which would serve as a beta test of the model, with the expectation that that team would train 31 other teams to use its most successful strategies by September 2011. In contrast to Memphis, the Lincoln facility engaged all of its primary care providers (including six physicians) in the launch of the three medical home teams, over a 10-month period that began in February 2010. The latter approach led to

more variation and less standardization as each team tested different interventions.

Despite their differences, both clinics focused on similar objectives: increasing continuity; enhancing patient engagement and satisfaction; improving panel management, access, and coordination; and advancing clinical improvement. Both also emphasized the importance of reassigning tasks normally handled by physicians to supporting team members.

"The whole concept is that though the patients are seeing the physician less, they're being managed better. They're being looked at more by more eyes and really more frequently and in different ways. And by doing this you keep the patient healthier," said Janet Vawter, R.N., M.B.A., the nurse manager for the clinic in Memphis.

Memphis, Tennessee

The VA Medical Center in Memphis, Tennessee (VAMC Memphis), provides inpatient and outpatient care to 196,000 veterans living in a 53-county area that straddles three states: Tennessee, Arkansas, and Mississippi. The medical center also draws patients from parts of Missouri and Kentucky. Its network, which provides approximately 400,000 outpatient visits annually, is composed of six community-based outpatient clinics that admit patients to a Memphis-based teaching hospital. The medical center's services include primary care and specialty care including comprehensive mental health, women's health, and spinal cord injury care.

Supported by a pharmacist, social worker, nutritionist, and psychologist, the core of the PACT in Memphis sought to identify areas where patient-centeredness was lacking by mapping the sequence of events and steps followed by patients and providers during a visit. This process revealed dramatic inefficiencies and inconveniences for patients:

- Wait times for appointments were on average four to six weeks long, and in some cases reached 90 days.
- When scheduling an appointment, some patients waited between one and two hours on the phone.
- Having blood drawn in the laboratory took as long as three hours, a delay that extended visit times to four or five hours. Because of these types of delays, many patients sought care from private sector providers.
- Patients relied on the ED for basic primary care needs. The medical home team calculated 52 percent of its patients' ED visits were inappropriate and would have been better handled in the clinic setting.
- Many patients did not know why they were coming for an appointment or failed to realize in advance—as did the provider—that the visit was an unnecessary duplication.

The inefficiencies in the clinic's operations were perhaps best illustrated by its scheduling system, which facilitated unnecessary visits by automatically sending notices to patients urging them to set up return visits. When the patient received the card, he or she would call a central scheduling unit, which would schedule the appointment without any input from the patient about the need for the visit. "Nobody would investigate what it was the patient needed," said Chandra O'Brien, R.N., M.S.N., a care coordinator.

The interventions the Memphis site employed were designed to decrease these inefficiencies by improving communication among providers and patients to ensure that visits were appropriate and handled expeditiously. The clinic also sought to improve and intensify its delivery of preventive health services and chronic care management. Improving coordination of inpatient and outpatient care was also a priority.

While the results of the team's interventions are still being evaluated, early analysis demonstrates an increase in same-day access, as well as a reduction in ED visits and no-show rates, results that are described in more detail below (Exhibit 6).

Lincoln, Nebraska

The VA Nebraska–Western Iowa Health Care System—Lincoln Division (Lincoln Division) is one of seven community-based outpatient clinics in the VA Nebraska–Western Iowa Health Care System (NWI). The Lincoln Division provides outpatient care to 9,272 veterans in Nebraska, Western Iowa, and portions of Kansas and Missouri.[5] In 2010, it provided 127,233 outpatient visits. For inpatient services, the Lincoln Division refers its patients to the VA's regional teaching hospital in Omaha or to one of 10 private sector hospitals in the region.

The Lincoln Division had the advantage of belonging to the NWI network, which had piloted the medical home model in a small clinic from September 2008 to August 2009. That pilot, which evolved from the clinic's extensive work on chronic disease management, used the team-based model to implement process improvement projects that ultimately increased patient access by lowering the length of time to the third next available appointment[6] from 26 days to 6 days over 15 months, improved aggregate Healthcare Effectiveness Data and Information Set (HEDIS) scores from 72 percent to 85 percent over nine months, and increased the number of patients with controlled diabetes and hypertension by more than 4 percentage points over 13 months. The Lincoln Division drew upon the lessons of this pilot, which included the importance of leadership engagement, the involvement of patients in the redesign of care, and team-building exercises.

To implement the PACT model, the primary care providers in Lincoln completed the American College of Physicians' Medical Home Builder survey, which demonstrated that while the clinic excelled at providing patient-centered care, access and scheduling, and organization of practice, it stood to improve its performance on coordination of care measures. On

Exhibit 6. Interventions Employed by the Memphis PACT

	Intervention	Impact
Previsit screening	At least one day before the appointment, the team's medical assistant calls the patient to confirm the purpose of the visit and address any outstanding issues such as the need for blood work or medication refills.	Reduced rate of no-shows to 1 percent, a rate substantially lower than that in non–medical home clinics, where no-show rates range from 8 percent to 11 percent.
Reduction in face-to-face visits	A team member confirms whether a scheduled face-to-face visit with the physician is essential or whether the visit would be better handled by telephone. Team physician increased telephone visits.	Prescheduled face-to-face appointments with the physician declined from 62 percent of all visits in June 2010 to 21 percent in December 2010. Half of the clinic's work was conducted by telephone in December 2010, compared with 2 percent in June 2010, shortly after the implementation of the program.
Role expansion and reassignment	When appropriate, physician visits are reassigned to nurses, pharmacists, and disease management coaches. The clinical pharmacist who once focused solely on managing anticoagulation medication now prescribes medicines for diabetes, hypertension, and hyperlipidemia, and monitors blood levels following VA guidelines. The role of the medical assistant was expanded to increase efficiency. The medical assistant now draws blood from patients in the clinic, follows up on the laboratory results for providers, and provides patient counseling.	Appointments with the registered nurse increased from 11 percent of clinic visits in June 2010 to 19 percent in December 2010. Role expansion, together with a reduction in face-to-face visits, reduced wait times for patients seeking an appointment. Same-day appointments, which were previously nonexistent for nonurgent cases, increased to roughly 25 percent of the schedule.

Exhibit 6. Interventions Employed by the Memphis PACT (continued)

	Intervention	Impact
Care coordination	The team improved communication with the medical center's emergency department (ED) to ensure that the department referred the team's patients back to the clinic whenever possible for nonurgent care. At the team's request, the ED also changed its discharge procedures so that patients were not automatically scheduled for a physician visit, but were rather contacted by the team to discuss the appropriate next steps, which might include obtaining laboratory tests or scheduling specialty care visits.	The percentage of inappropriate ED visits dropped from 52 percent in June 2010 to 12 percent in April 2011.
	To further reduce inappropriate ED utilization, the team runs reports of patients who visited the ED, reviews their charts, and calls them to remind them that the team is available for same-day visits for non–life-threatening treatment and that these visits can often be completed long before a patient would be seen in the ED.	
	Team members regularly follow up with patients who miss appointments, visit the ED, or have a recent hospital stay.	Impact of increased attention to follow-up procedures not yet determined.
	Team members visit patients who are admitted to the medical center's hospital to reinforce the importance of follow-up visits and post-discharge communication with the primary care team.	
	To further enhance communication between patients and providers, every patient is given a card with the direct telephone line for each member of the team.	Anecdotal evidence suggests an increase in patient satisfaction.
Increasing the intensity of services and patient engagement	To increase management of patients with chronic conditions, such as diabetes, the team has scheduled additional physician visits for complex patients and increased patient education, relying heavily on the team's pharmacist, nutritionist, and nurses to provide this service. It plans to expand this service to patients with hypertension, high cholesterol, heart failure, and other high-risk conditions.	Since January 2011, the clinic has identified 48 patients with hemoglobin A1c levels greater than 9%. By scheduling them for more frequents visits with the team's registered nurse, disease management coordinator, clinical pharmacist, and/or team physician, it has lowered this number by 33%, to 32. The remaining 16 patients now have a hemoglobin A1c level of less than 8%. Eighty-one percent of the total (39 of 48) have improved their score since the PACT introduced more intensive monitoring and patient education.
	The team gave each patient "a next step in care" document (Appendix A) to record what was discussed during the visit, critical next steps (including referrals to specialists), and procedures for following up if there is a lapse in the plan of care.	
	The services of pharmacists specializing in pain management were incorporated into the PACT as needed.	

this measure, the clinic scored 33.33 percent versus 68.75 for all of the VA's primary care practices. The low score reflected weaknesses in the following: the clinic's review of charts in advance of visits (including those for patients who require support for chronic conditions); its writing of individualized care plans and treatment goals with input from patients; its assessment of patient progress toward treatment and self-management goals; and its review of information received from other facilities to support patients and identify the follow-up support a patient needs.

The Lincoln Division also had lower scores than VA primary care practices nationwide on the use of population management techniques. This score reflects how the clinic performs at identifying patients in need of preventive care, those that need previsit laboratory tests or other procedures, and those that have not received necessary follow-up.

The survey also revealed problems with internal communication, which were not a surprise to staff. Physicians and nurses had not met as a group for more than five years; instead, they had conducted their own meetings, which exacerbated tensions between the two groups as each tended to blame problems in care on the other, said A. Christine Emler, M.D., the Lincoln Division's associate chief of medicine.

In Lincoln, the core members of the PACTs were supported by a psychologist, a clinical pharmacist, and chronic disease managers. All members of the team were co-located. To reach this staffing level, the clinic hired four new nurses as well as ancillary staff. The clinic then used team-building exercises—facilitated by a staff psychologist—to encourage respect among team members.

Each of the three teams was given latitude to design interventions, but each was expected to evaluate the effectiveness of its approach and present lessons from its work to all primary care staff in regularly scheduled meetings (Exhibit 7).

As in Memphis, the interventions the Lincoln site employed were designed to improve communication among staff, while intensifying the services that patients received by enhancing the role of nonphysician staff, including chronic disease management nurses, dieticians, and pharmacists. "I think the whole campus was on some level trying to move towards a more patient-centric approach," said Kim Shambaugh-Miller, the clinic manager.

The program dramatically increased the clinic's overall score on the ACP survey, which is a self-assessment. When the clinic repeated the survey in June 2011, its score increased from 62 percent to 98 percent. Lincoln Division clinic leaders believe the program has also increased patient and provider satisfaction. In 2009, employees only slightly agreed with the statement, "The person to whom I report encourages me to express ideas for improving current practices and problems." The average score in 2009 was 2.5 on a five-point scale in 2009. In 2010, the result was 4.2.[7] The change has been observed by patients. "The employees seem to be happier. They get along. They try to help the patient. It's kind of like we are a family and we're trying to accomplish something," said Terry Gillispie, a Vietnam War veteran who has been receiving care at the Lincoln clinic for four decades. His own visit times have dropped from full-day events to 45 minutes, he said, a change he attributes to the clinic's emphasis on providing timely appointments and enhancing communication among departments.

DEMONSTRATION LABORATORIES

At the same time that the PACT program is being implemented at clinic sites around the country, five regional demonstration laboratories are evaluating the program to determine whether it has improved processes and outcomes, saved money, and improved patient satisfaction, among other measures. While each laboratory focuses on different facets of the program, the demonstration laboratories as a group are trying to determine:

- how PACTs are being defined and implemented in different sites;
- what facilitates or impedes that implementation;
- how the PACT affects work roles of team members;
- what the relationship is between key attributes of the PACT model and quality of care; and
- how to improve best practices through PACTs.

The five regional centers are also testing new innovations for possible spread to clinic sites regionally and nationally. Among the innovations being tested are a CarePartner program that seeks to engage informal caregivers in supporting patients with heart failure and diabetes, a navigator system to ensure that treatment is driven by patient preferences, and the use of pain care management services in the medical home.

Exhibit 7. Interventions Employed by the Lincoln PACT

	Intervention	Impact
Previsit screening	To ensure the effectiveness of face-to-face visits, nurses perform previsit screening to identify and schedule overdue services such as foot exams and flu shots.	
Reduction in face-to-face visits	The teams increased the frequency of telephone visits and/or secure messaging to communicate with patients. One team reduced face-to-face visits by having its physician provide personalized advice about medication, prescription refills, and answers to general questions using a secure messaging service.*	One team increased the number of non–face-to-face visits by 30 percent, from 235 non–face-to-face encounters in July 2010 to 305 in December 2010. Shifting patients to telephone visits increased access to face-to-face appointments across the clinic. The length of time to the third next available appointment dropped from 10.90 days in January 2010 to 9.09 in December 2010 across all three teams.
Role expansion and reassignment	Clinical pharmacists see new patients and provide them with an overview of the patient-centered medical home during those appointments. The pharmacists also provide more medication therapy management to patients than before and have increased telehealth visits to provide disease-state management, review tests results, and make drug therapy adjustments. Registered nurses often refer medication-related questions to the pharmacist rather than the physician.	Since the program began, the number of medication management visits has increased from 23 per month in January 2010 to 81 in January 2011, with an average monthly increase during this period of 131 percent. The wait time for new appointments fell from 24 days to 10 days in six weeks by reapportioning work across the care team and shifting patients to telephone visits when appropriate.

Exhibit 7. Interventions Employed by the Lincoln PACT (continued)

Care coordination	The clinic increased its contact with patients who were discharged from the hospital. Clinical pharmacists conduct medication reconciliation visits with patients after discharge from the hospital in either a face-to-face visit or via telephone. During previsit screening calls, nurses inquire and record whether the patient has seen an outside provider, has been admitted to a hospital, and/or had any changes in medication since his or her last visit. To improve care coordination with private sector hospitals, the clinic obtained a cell phone and limited the distribution of the number to discharge planners at local hospitals. With encouragement from the assistant medical director, two local hospitals now phone in discharge instructions for VA patients, with information on needed follow-up tests, medications, or other services. The clinic plans to expand the program to all of the hospitals in its region. The clinic hosted a "Meet the Neighbors" party to open a dialogue among primary care teams and laboratory and radiology staff, as well as the clinic's specialty care physicians, to discuss problems each identified.	The percentage of patients who have been contacted within seven days rose from 22.58 in January 2010 to 39.22 in November 2010.
Increasing the intensity of services and patient engagement	To increase health coaching and patient engagement, the chronic disease nurses review the records of patients scheduled for physician visits to see if the patients would benefit from such services. They also allow drop-in visits from patients. In the past, a physician would need to make a referral for such services. The clinic relied on a patient advisory committee to solicit input and feedback on practice redesign. The clinic plans to post outcome measures for each individual PACT in patient lobbies to encourage transparency and patient engagement.	Anecdotal evidence suggests patients with chronic conditions prefer to receive advice from the chronic disease nurses rather than the doctors. The patient advisory committee discouraged the clinic from expanding clinic hours, arguing that doing so would diminish the quality of services overall because the clinic would be spreading its resources too thin.

* Secure messaging is being rolled out across the VA through its HealtheVet portal.

Note: The time to the third next available appointment is a standard measure of access to medical care. It is considered more a reliable indicator of how long a patient might wait than the time to the next available appointment, which may be affected by last-minute cancellations and other chance occurrences.

LESSONS

Early results from the implementation of medical homes in Memphis and Lincoln suggest that building teams that work collaboratively to improve chronic care management and facilitate patient access can lead to an increased focus on patients' needs and, with that, a new awareness of the challenges some patients face in establishing a consistent and continuous relationship with a primary care provider.

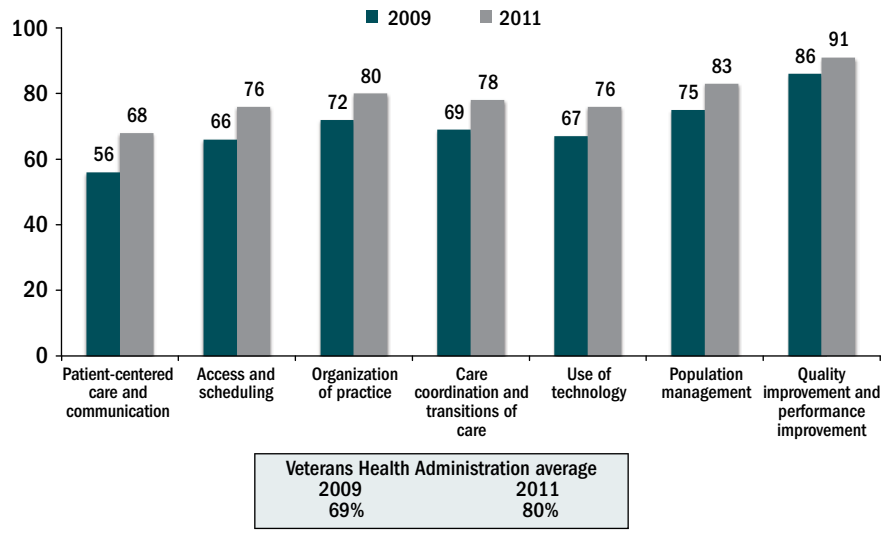
The work of the two clinics profiled in this case study also demonstrates how swiftly interventions to improve care, access, efficiency, and staff engagement can be developed and implemented when providers are given the time and training necessary to focus on process improvement.

While these efforts have benefited veterans significantly by reducing barriers to care and improving transitions between inpatient and outpatient services and among primary care and specialty care providers, the program has also benefited staff, who report a renewed interest in their work and a sense of satisfaction from recommending methods of improving care and seeing them put to use.

This case study examined only two clinics, and results may vary significantly across the country. However, the results of a second ACP Medical Home Builder survey, conducted in July 2011, suggest the program's impact has been more widespread. The VA saw dramatic improvement in its composite score (69% in Oct. 2009 versus 80% in July 2011). The greatest improvement in the clinics' scores was on a measure of patient-centered care and communication (Exhibit 8). Further evidence of such improvement may help demonstrate to health care organizations nationally the impact of medical home programs on quality of care, access, and patient satisfaction, among other measures, as well as identify best practices. If the VA achieves a broad and positive impact, commercial insurers, government payers, and employers may well be encouraged to invest in medical homes in private primary care settings. The program may even spur improvements, in much the same way the VA's primary care initiative did in the 1990s by encouraging teams to compete to demonstrate high performance.

Although the VA program is still in its early stages, the first phase of the implementation has also yielded important lessons for health care organizations here and abroad, including those that do not rely as heavily on a single source of funding and those that operate on a smaller scale. These lessons, which

Exhibit 8. Results of Medical Home Builder Survey for Primary Care Practices, 2009 and 2011



Note: n=850 (Oct. 2009); n=846 (July 2011).
Source: Veterans Health Administration.

include the importance of training, team-building exercises, supportive leadership, engagement of nonclinic partners including unions, and effective monitoring of quality and efficiency, are described in more detail below.

The need for effective monitoring of quality and efficiency to ensure staff competence. Changing provider roles raises the risk that care will not be delivered in a consistent manner or that lapses will occur as team members practice new skills. At the VA, team physicians and nurse practitioners review care decisions either during the patient visit or soon after through a review of medical notes, but competency testing, which clinics are implementing, is also crucial to lowering this risk.

The importance of collaboration at all levels of the organization. Team-based models of care require a shift in a medical hierarchy that places physician opinion above all others. Physicians must be encouraged to solicit the opinion of team members. Team members must also be encouraged to speak up and not be discouraged from taking resistance or pushback personally. Hiring staff who are comfortable with teamwork is critically important to the success of such programs.

The importance of involving key stakeholders early. Although the VA has signed memoranda of understanding with all of the VA's employee unions, some local union leadership has resisted the program because it requires a dramatic change in working conditions. To overcome this, national and local leaders stress the importance of involving unions early in the planning process. "If the union doesn't understand what you're doing, they're going to want to stall," said Michael Harper, executive assistant to the VAMC Memphis' medical center director. Soliciting feedback from patients is equally important.

The importance of bridging gaps between providers and among health care institutions. Because a large percentage of veterans rely on physicians and hospitals in the private sector, coordination among providers is critically important to achieving and measuring PACT objectives, such as reduced hospitalizations and ED use. VA leaders believe that health information exchanges, now being tested in Northern California, will facilitate the prompt transfer of information. But until that technology becomes widely available to physicians in the private sector, the VA must depend on personal relationships with community providers to achieve its aims. The development and use of standardized forms and protocols for information-sharing would benefit patients in the VA system, as well as patients in other systems.

The importance of aligning program goals with performance incentives. To ensure leadership support, the performance measures that determine network funding and management rewards must be closely linked to team goals, including reductions in face-to-face visits and increases in electronic communication. Having new measures in place at the outset of the program may motivate leaders to rally behind the program.

Ensuring sustainability. While the VA's medical home initiative was not launched as a cost-saving tool, demonstrating such savings may be critically important to ensuring the program's survival. In the absence of such evidence, local networks, which operate on fixed budgets, may have difficulty funding the new staff positions and training the program requires. Evidence of the program's impact on quality-of-care and patient satisfaction measures may help to justify any increased cost and will also serve to raise the profile and importance of the program both locally and nationally.

Using partnerships to overcome workforce shortages and other challenges. The VA allocated more than $200 million for additional hires, but nationwide limits on the supply of primary care physicians and nurses may threaten the program's ability to expand. The VA believes its partnerships with educational institutions will help alleviate this pressure by producing graduates who are informed and interested in the patient-centered medical home model. Partnerships with educational institutions may also yield a solution to the problems of incorporating medical residents and staff into the medical home in such a

way that the rotation of residents does not disrupt patient–provider continuity.

IMPLICATIONS FOR NATIONAL DISSEMINATION

Recognizing different preferences for training and implementation strategies. The VA faced the challenge of balancing the need to encourage innovation with requests from some teams for explicit guidance. "Half the country was saying, 'Don't be prescriptive. Just give us the end points,' and other half said, 'Tell us what to do,'" Shear said. To accommodate both, institutions that are developing medical homes may need to provide very specific technical assistance to some employees, while allowing others the room to innovate or improvise ways to achieve the program's goals.

Moreover, allowing sites the latitude to develop their own programs will introduce variation as teams test different interventions. This may present a challenge for clinics when selecting which interventions to standardize, especially when many successful ones exist. Greater standardization will also be important as staff move between teams to cover for employees who are on vacation.

Increasing resources and funding to support implementation. The VA's implementation of patient-centered medical homes was greatly enhanced by the scale of the VA's operations and its funding model, which ensures the benefits of such programs accrue to the institution. Private hospitals and providers are understandably disadvantaged in this regard. "This would have been a financial disaster for me when I was in private practice," Thomas Ferguson, M.D., the Memphis team's physician said. "You would have to be reimbursed or compensated in some other way. It would collapse the independent practitioners if you tried to force it on them."

Managing expectations. The VA's early adopters caution that implementing medical homes will take far longer than many expect. "We thought we would really be done in six months," Emler said. "Every team would be trained and they would all have their tools and I would no longer have to be involved other than my own teamwork and patient care. That was wrong. It's a permanent thing," Emler said.

CONCLUSION

Implementing the medical home model in the Veterans Health Administration and elsewhere introduces significant challenges for providers, as it requires instituting new scheduling procedures, training staff for team-based roles, and engaging patients in a new paradigm of care. Medical home implementation also requires physician practices to invest in personnel, physical infrastructure, and costly health information technology to facilitate proactive monitoring of patients with chronic conditions.

Despite these challenges, preliminary results of the VA's medical home implementation in Memphis and Lincoln demonstrate that significant improvement in quality and access can be accomplished in a short period.

To achieve these results, the VA invested millions of dollars in the program to hire new staff and provided intensive, ongoing training. The benefits of this investment may be substantial not only for patients but also employees, and may give the VA a competitive advantage when attracting patients and providers. Ultimately, the medical home may attract primary care providers in short supply in much the same way the American Nurses Credentialing Center's Magnet Recognition Program has attracted nurses to hospitals by indicating locations where employee satisfaction is high. "My whole job satisfaction took a complete turn with this program," Ferguson said. "There is more empowerment and you've got more control over your day."

Part of the increased satisfaction may come from the enthusiasm of patients, who VA staff say are appreciative of the increased attention to their needs. "I have not received a single complaint that I have validated as a legitimate concern or something I needed to change," Harper said. "I have overwhelmingly received calls saying, 'Why didn't you start this years ago?'" Indeed, as word spreads about the program, the

clinic has had to cope with a demand for more rapid implementation, as patients who are not part of the medical home team ask to be transferred to it. Future evidence of the program's success in the nation's largest integrated delivery system may foster the adoption of medical homes in private health systems and medical practices, provided sufficient financial support exists to facilitate their development.

Notes

1 R. J. Reid, P. A. Fishman, O. Yu et al., "Patient-Centered Medical Home Demonstration: A Prospective, Quasi-Experimental, Before and After Evaluation," *American Journal of Managed Care,* Sept. 2009 15(9):e71–e87; R. J. Reid, K. Coleman, E. A. Johnson et al., "The Group Health Medical Home at Year Two: Cost Savings, Higher Patient Satisfaction, and Less Burnout for Providers," *Health Affairs,* May 2010 29(5):835–43; and R. J. Gilfillan, J. Tomcavage, M. B. Rosenthal et al., "Value and the Medical Home: Effects of Transformed Primary Care," *American Journal of Managed Care,* Aug. 2010 16(8):607–14.

2 A. Oliver, "The Veterans Health Administration: An American Success Story?" *Milbank Quarterly,* Jan. 2007 85(1):5–35.

3 Ibid.

4 A synthesis of research on the VA suggests this focus resulted in generally better performance on process-of-care measures compared with non-VA settings, while mortality rates remained similar in both settings. See: A. N. Trivedi, S. Matula, I. Miake-Lye et al., "Systematic Review: Comparison of the Quality of Medical Care in Veterans Affairs and Non-Veterans Affairs Settings," *Medical Care,* Jan. 2011 49(1):76–88.

5 The Lincoln CBOC provides primary care services, as well as some specialty services including audiology, dental, dermatology, ophthalmology, orthopedics, podiatry, and urology. It also provides behavioral heath services, radiology, pharmacy, physical therapy, and prosthetic services.

6 The time to the third next available appointment is a standard measure of access to medical care. It is considered more a reliable indicator of how long a patient might wait than the time to the next available appointment, which may be affected by last-minute cancellations and other chance occurrences.

7 These results were confounded by a change in leadership at the clinic, which coincided with the PACT rollout.

Appendix A. "Next Steps in Care" Form Used in Memphis Clinic

VAMC Memphis Putting Veterans First

YOUR NEXT STEPS IN CARE

Name_____ Date _____

Thank you for coming to your appointment with your health care team.

Your appointment time is _____ You were seen at _____

YOUR VISIT TODAY

First Stop clerk check in : When you check for your appointment, Please make sure to update any changes in your address and phone number so that we are able to contact you for any important health and benefit issues.

Second stop health technician/medical assistant :

Blood pressure_____(goal is less than 139/89)

Heart rate _____

BMI _____ (goal is less than 25)

Audit C _____ PTSD screen____ Depression screen_____

Third stop provider :

Discussions about your health concerns and test results:

Discussions about preventive medicine (screening tests and life style practices to follow in order to improve your health AND remain healthy) :

Medication reconciliation : make sure you know what medicines you are taking. If you did not receive a printed list of your medications including the instructions for taking them and what they are for, ask for one now.

(Over)

To contact your healthcare team : please call _____during business hours or _____after business hours.

Access the myHealtheVet website to learn more about health issues, track and log vital signs, renew medications, etc.

Before leaving clinic ***TODAY*** please make the following stops:

- Nurse for :

O Vaccination : □ Flu □ Pneumovax □ Tetanus/Diphtheria
O Colonoscopy scheduling and Preparation Education
O FOBT (Hemoccult) Kit) for Colon Cancer screening
O Diabetes machine instruction
O Other _____
_____

O Eye Clinic for Diabetes Eye Photo
O Lab
O XRAY
O EKG with Medical Assistant (bring a copy back to provider)
O Pharmacy (go to Pharmacy ONLY if you plan to pick up medicines today, otherwise they will be mailed to you)
O Nutrition same day appointment
O Psychology same day appointment

FUTURE appointments :

With your Primary Care Team :

□ Nurse clinic in _____for _____

□ Health technician clinic in _____for_____

□ Primary Care Provider : if you and your provider decided you need a follow up appointment within 3 months, please see the clerk to schedule today, if greater than 3 months from now, you will receive a letter one month before you are due advising you to call to schedule your appointment.

You will be notified by mail or phone about ***Other appointments:***

□ Clinics/Consults : _____

_____

□ Tests : _____

_____

About the Author

Sarah Klein currently serves as editor of The Commonwealth Fund publication *Quality Matters*. She teaches writing as a member of the adjunct faculty at Columbia College in Chicago. Ms. Klein received a B.A. in Asian Studies from Washington University and attended the Graduate School of Journalism at the University of California, Berkeley.

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The aim of Commonwealth Fund–sponsored case studies of this type is to identify institutions that have achieved results indicating high performance in a particular area of interest, have undertaken innovations designed to reach higher performance, or exemplify attributes that can foster high performance. The studies are intended to enable other institutions to draw lessons from the studied institutions' experience that will be helpful in their own efforts to become high performers. It is important to note, however, that even the best-performing organizations may fall short in some areas; doing well in one dimension of quality does not necessarily mean that the same level of quality will be achieved in other dimensions. Similarly, performance may vary from one year to the next. Thus, it is critical to adopt systematic approaches for improving quality and preventing harm to patients and staff.