

## ORIGINAL PAPERS

# Challenges Facing Primary Care Practices Aiming to Implement Patient-Centered Medical Homes

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**BACKGROUND:** While the potential of patient-centered medical homes (PCMH) is promising, little is known empirically about the frontline challenges that primary care (PC) leaders face before making the decision to implement PCMH, let alone in making it a reality.

**OBJECTIVE:** Prior to the design and implementation of the Veterans Health Administration's (VA) national PCMH model—Patient Aligned Care Teams (PACT)—we identified the top challenges faced by PC directors and examined the organizational and area level factors that influenced those challenges.

**DESIGN AND PARTICIPANTS:** A national cross-sectional key informant organizational survey was fielded to the census of PC directors at VA medical centers and large community-based outpatient clinics (final sample n=229 sites).

**MAIN MEASURES:** PC directors were asked to rate the degree to which they faced 48 management challenges in eight PCMH-related domains (access, preventive care, chronic diseases requiring care in PC, challenging medical conditions, mental health/substance abuse, special populations, PC coordination of care, and clinical informatics). Responses were dichotomized as moderately-to-extremely challenging versus somewhat-slightly-not at all challenging. Items were rank ordered; chi square or regression techniques were used to examine variations in facility size, type, urban/rural location, and region.

**KEY RESULTS:** On average, VA PC directors reported 16 moderate-to-extreme challenges, and the top 20 challenges spanned all eight PCMH domains. Four of the top 20 challenges, including the top two challenges, were from the clinical informatics domain. Management of chronic non-malignant pain requiring opiate therapy was the third most reported challenge nationwide. Significant organizational and area level variations in reported challenges were found especially for care coordination.

**CONCLUSIONS:** Better understanding of PC challenges ahead of PCMH implementation provides important context for strategic planning and redesign efforts. As

a national healthcare system, the VA provides a unique opportunity to examine organizational and area determinants relevant to other PCMH models.

**KEY WORDS:** primary care; patient-centered medical home; Veterans; VA healthcare system; health care management.

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## INTRODUCTION

American primary care (PC) delivery is at a crossroads. An ever-increasing proportion of medical trainees are moving into specialty care, while current PC providers are leaving practice at an increased rate in the face of dwindling reimbursements.<sup>1,2</sup> Experts point to a "perfect storm" of increased work with decreased rewards, and predict the impending "collapse of primary care" in the absence of real solutions.<sup>1,3</sup> Patient-centered medical homes (PCMH) represent an updated PC model that recognizes and rewards, through appropriate payment, the diverse but necessary activities of establishing a PC base for a population of patients.<sup>4,5</sup> Most major medical societies and healthcare funders have endorsed some version of the PCMH concept, while an array of demonstration projects are underway in public and private health care settings.<sup>6</sup> The ability of the Affordable Care Act (ACA) to improve U.S. health care delivery while reducing costs will likely rely in large part on the success of care models like the medical home as a response to the threats to PC delivery as the hub of an effective national health care system. For better or worse, already over-stretched PC physicians are the heart of these changes.<sup>7</sup>

While the promise and potential of PCMH is great, little is known empirically about the frontline challenges that PC leaders face before making the decision to implement PCMH. Early evidence from PCMH demonstrations sug-

gests that implementation is challenging at best, requiring much more than payment reform and a menu of discrete changes to be successful.<sup>8–10</sup> In fact, the complexity underlying achievement of medical homes may be out of reach of many PC practices,<sup>11</sup> especially those without electronic health records, data systems, access to care managers, structured practice facilitation, and other key elements.<sup>12–15</sup> Findings from widely publicized medical home efforts, such as those at Geisinger, Intermountain and Group Health, suggest early provider burnout and significant challenges in operationalizing the tenets of PCMH in diverse settings, yet have nonetheless managed to accomplish important process and outcome changes.<sup>16</sup> What is missing from the literature is what these PC challenges look like ahead of PCMH implementation. What are the top challenges that PC leaders face heading into PCMH? What organizational or area factors influence the challenges they face? And what are their implications for PCMH implementation?

We address these questions in the Veterans Health Administration (VA), the largest integrated healthcare delivery system in the U.S., with hospital-based and freestanding PC clinics spanning all 50 U.S. states and several territories. Prior to the design and implementation of VA's national PCMH model—Patient Aligned Care Teams (or PACTs)—VA PC leadership partnered with health services researchers to design and field a survey among the PC directors at all VA medical centers (VAMCs) and large community-based outpatient clinics (CBOCs) to gauge the challenges that frontline PC leaders were facing in delivering PC to our nation's Veterans ahead of PACT implementation.

## METHODS

### Design and Participants

This project was designed as a national cross-sectional key informant organizational survey, the National VA Primary Care Survey (2008–2009), to the census of PC directors at VAMCs and CBOCs that served 4,000 or more outpatients and delivered 20,000 or more PC visits in the previous year (N=248 geographically distinct sites).

### Survey Design and Measures

Survey content was driven by operational issues identified by national VA PC leadership, anticipating PC management challenges to better design policy and practice improvement initiatives. The team conducted interviews with PC leaders and used items from prior organizational survey instruments.<sup>17–19</sup> The survey was piloted and cognitive interviews with regional PC leaders, network leaders, and

frontline practice PC directors were conducted to review content and improve construct validity. Surveys were fielded using email contacts to PC directors with embedded links to the resulting web-based survey instrument. A two-week turnaround was requested, with email reminders and telephone follow-up as needed.<sup>20</sup>

We asked PC directors to rate the degree to which they faced each of 48 management challenges in the following domains (shown in Table 1): access (four items), preventive care (seven items), chronic diseases requiring care in PC (eight items), challenging medical conditions (three items), mental health (MH)/substance abuse (four items), special populations (four items), PC coordination of care (six items), and clinical informatics (12 items). Response options were a five-point ordinal scale of not at all challenging, slightly challenging, somewhat challenging, moderately challenging, to extremely challenging. We dichotomized responses as moderately-to-extremely challenging (1) versus somewhat-slightly-not at all challenging (0). We also created a count variable, with high values representing PC practices with more challenges.

We obtained organizational characteristics from VA administrative data sources (e.g., total number of PC patients as a proxy for facility size; VAMC versus CBOC for facility type). We obtained area characteristics from the Area Resource File (2008). We included urban/rural location (large urban as metropolitan areas with a population of 1 million or more versus small city/rural) and U.S. Census region (Northeast, Midwest, South and West).

## Statistical Analysis

Analyses were conducted at the PC site-level, consistent with the unit of analysis of the key informant surveys. We rank ordered PC challenges reported to be moderately-to-extremely challenging to identify the top 20 challenges nationwide. We examined variations by organizational and area level characteristics using chi square statistics. We used logistic regression to examine relationships of PC challenges to facility size and region, using smaller practices (<10,000 patients) and Western region as referents.

## RESULTS

### Characteristics of VA PC Practices

Of the 248 eligible primary care sites, 229 PC directors responded (92 % response rate), with 58 % representing VAMCs and 42 % CBOCs (Table 2). Practices served an average of about 27,000 PC patients, and 40 % of the sites

Table 1. Percent of Primary Care (PC) Directors Reporting Each as Moderately-to-Extremely Challenging by Site-Level Characteristics (n=229)

Challenge to primary care practice:	Total Sample n=229	Facility Type				Facility Size in Thousands				Region					p†	
		VAMC n=133		CBOC n=96		LT 10 n=43	10-20 n=61	20-30 n=39	30+ n=86	NE n=37	MW n=57	S n=88	W n=47	Urban n=92		Rural n=137
Access: Availability of																
New patient appointments	25 %	23 %	27 %	24 %	28 %	21 %	31 %	26 %	26 %	19 %	26 %	30 %	23 %	26 %		
Established patient: return appt	17 %	17 %	17 %	7 %	16 %	16 %	8 %	13 %	20 %	8 %	14 %	23 %	13 %	20 %		
Established patient: new problem	24 %	26 %	22 %	6 %	14 %	25 %	7 %	13 %	28 %	19 %	21 %	28 %	16 %	29 % *		
Access to PC team via telephone	47 %	51 %	41 %	7 %	37 %	43 %	3 %	15 %	55 %	51 %	37 %	49 %	49 %	45 %		
Preventive Care:																
Colorectal cancer screening	28 %	31 %	24 %	24 %	16 %	31 %	31 %	23 %	34 % *	27 %	28 %	30 %	24 %	31 %		
Influenza immunizations	10 %	11 %	7 %	7 %	7 %	8 %	10 %	10 %	12 %	5 %	7 %	9 %	5 %	12 %		
Pneumococcal immunizations	7 %	8 %	6 %	6 %	7 %	7 %	7 %	13 %	5 %	11 %	5 %	4 %	5 %	8 %		
Tobacco use screening	7 %	7 %	7 %	7 %	7 %	3 %	3 %	6 %	6 %	5 %	7 %	9 %	4 %	9 %		
Lipid screening	10 %	8 %	13 %	13 %	9 %	11 %	10 %	10 %	9 %	14 %	5 %	9 %	11 %	9 %		
Breast cancer screening (i.e., mammography)	18 %	19 %	17 %	17 %	19 %	21 %	18 %	15 %	15 %	35 %	9 %	26 % *	20 %	17 %		
Cervical cancer screening (i.e., paps)	15 %	16 %	15 %	15 %	19 %	18 %	13 %	13 %	13 %	19 %	12 %	23 %	13 %	17 %		
Chronic Disease Care Requiring Care in PC:																
Hypertension	25 %	25 %	25 %	25 %	21 %	26 %	26 %	33 %	22 %	27 %	18 %	38 % *	21 %	28 %		
Diabetes	38 %	41 %	32 %	32 %	28 %	43 %	33 %	41 %	33 %	43 %	28 %	45 %	41 %	35 %		
Elevated cholesterol	30 %	36 %	22 % *	22 % *	14 %	34 %	33 %	31 % *	31 % *	41 %	23 %	30 %	27 %	32 %		
Coronary artery disease	10 %	9 %	10 %	10 %	7 %	10 %	13 %	9 %	9 %	19 %	4 %	11 %	9 %	10 %		
Chronic obstructive pulmonary disease	5 %	5 %	5 %	5 %	5 %	8 %	3 %	5 %	5 %	5 %	2 %	7 %	1 %	8 % *		
Degenerative joint disease	10 %	8 %	13 %	13 %	7 %	11 %	8 %	10 %	10 %	5 %	2 %	19 % *	9 %	10 %		
Chronic kidney disease	15 %	15 %	16 %	16 %	14 %	16 %	23 %	12 %	12 %	22 %	9 %	17 %	13 %	17 %		
Peripheral vascular disease	14 %	15 %	14 %	14 %	7 %	25 %	21 %	8 % *	8 % *	19 %	5 %	21 % *	8 %	19 % *		
Challenging Medical Conditions:																
Chronic non-malignant pain	71 %	75 %	65 %	65 %	51 %	70 %	74 %	79 % **	79 % **	70 %	60 %	77 %	67 %	73 %		
w/opiate therapy																
Dementia	24 %	23 %	24 %	24 %	23 %	26 %	26 %	21 %	21 %	32 %	14 %	32 % *	25 %	23 %		
Human Immunodeficiency Virus	14 %	13 %	17 %	17 %	9 %	28 %	13 %	8 % *	8 % *	3 %	12 %	21 %	8 %	19 % *		
Mental Health/Substance Abuse:																
Depression	11 %	11 %	11 %	11 %	5 %	12 %	18 %	10 %	10 %	6 %	9 %	17 %	8 %	13 %		
Posttraumatic stress disorder	19 %	16 %	24 %	24 %	28 %	21 %	25 %	12 % *	12 % *	14 %	14 %	33 % *	13 %	23 %		
Substance abuse	51 %	52 %	51 %	51 %	43 %	57 %	50 %	52 %	52 %	54 %	44 %	69 % *	53 %	50 %		
Anxiety disorders	10 %	10 %	9 %	9 %	5 %	11 %	13 %	10 %	10 %	9 %	10 %	13 %	7 %	11 %		
Special Populations:																
Frail elderly	28 %	30 %	25 %	25 %	30 %	30 %	28 %	26 %	26 %	41 %	19 %	34 %	28 %	28 %		
Women	15 %	15 %	16 %	16 %	19 %	20 %	10 %	13 %	13 %	22 %	14 %	13 %	10 %	19 %		
OEF/OIF Veterans	23 %	26 %	20 %	20 %	19 %	31 %	18 %	22 %	22 %	30 %	18 %	34 % *	21 %	25 %		
Seriously mentally ill	52 %	53 %	51 %	51 %	53 %	54 %	51 %	50 %	50 %	46 %	51 %	72 % **	55 %	50 %		
PC Coordination of Care with:																
Medical specialty outpatient care	31 %	28 %	35 %	35 %	28 %	54 %	26 %	19 % **	19 % **	30 %	26 %	36 %	18 %	39 % **		
Surgical specialty outpatient care	36 %	32 %	41 %	41 %	28 %	61 %	36 %	22 % **	22 % **	35 %	26 %	45 %	23 %	45 % **		
Mental health outpatient specialty care	18 %	13 %	25 % *	25 % *	26 %	21 %	18 %	12 % *	12 % *	11 %	7 %	30 % **	11 %	23 % *		
Emergency Department	21 %	16 %	28 % *	28 % *	26 %	28 %	21 %	14 %	14 %	22 %	16 %	26 %	15 %	25 %		
Inpatient care	17 %	9 %	29 % ***	29 % ***	26 %	25 %	13 %	10 % *	10 % *	19 %	11 %	28 % **	17 %	18 %		
VA and non-VA providers	56 %	60 %	50 %	50 %	51 %	48 %	67 %	60 %	60 %	73 %	39 %	66 % **	55 %	57 %		

Table 1. (continued)

Challenge to primary care practice:	Total		Facility Type				Facility Size in Thousands				Region								
	Sample n=229	n=133	VAMC n=96		CBOC p†		LT 10 n=43	10-20 n=61	20-30 n=39	30+ n=86	p‡	NE n=37	MW n=57	S n=88	W n=47	p‡	Urban n=92	Rural n=137	p†
			VAMC n=133	CBOC n=96	p†	p†													
Clinical Informatics:	75 %	80 %	69 %	77 %	77 %	78 %	79 %	74 %	77 %	77 %	78 %	65 %	77 %	81 %	81 %	70 %	79 %		
Volume of CPRS alerts	80 %	82 %	77 %	82 %	78 %	81 %	82 %	85 %	78 %	80 %	81 %	72 %	80 %	89 %	89 %	76 %	82 %		
Volume of clinical reminders	60 %	58 %	63 %	66 %	58 %	62 %	66 %	67 %	58 %	63 %	62 %	54 %	63 %	60 %	60 %	54 %	64 %		
Time and effort to input notes	43 %	42 %	44 %	44 %	36 %	54 %	51 %	49 %	36 %	37 %	54 %	37 %	38 %	51 %	51 %	41 %	44 %		
Clinical informatics support	18 %	18 %	19 %	19 %	10 %	14 %	26 %	23 %	10 %	16 %	14 %	16 %	23 %	17 %	17 %	11 %	23 %	*	
Availability of consultant reports	5 %	5 %	6 %	6 %	3 %	5 %	3 %	13 %	3 %	4 %	5 %	5 %	3 %	6 %	6 %	7 %	4 %		
Availability of VA inpatient information	5 %	4 %	7 %	7 %	5 %	8 %	5 %	8 %	5 %	6 %	8 %	5 %	6 %	4 %	4 %	3 %	7 %		
Availability of VA ER information	3 %	5 %	0 %	0 %	2 %	8 %	3 %	5 %	2 %	2 %	8 %	2 %	1 %	2 %	1 %	1 %	4 %		
Availability of laboratory test results	3 %	5 %	2 %	2 %	5 %	0 %	2 %	5 %	5 %	4 %	0 %	4 %	5 %	4 %	4 %	4 %	3 %		
Availability of diagnostic imaging reports	10 %	9 %	10 %	10 %	6 %	3 %	10 %	15 %	6 %	7 %	3 %	18 %	7 %	11 %	11 %	5 %	12 %		
Processing & transmission time for CPRS data	10 %	14 %	3 %	3 %	10 %	19 %	8 %	15 %	10 %	7 %	19 %	12 %	7 %	4 %	4 %	8 %	11 %		
Availability of historic pharmacy data	16 %	17 %	15 %	15 %	17 %	24 %	13 %	18 %	17 %	14 %	24 %	9 %	14 %	21 %	21 %	16 %	15 %		
Availability of data from other VAs																			

OEF/OIF Operation Enduring Freedom/Operation Iraqi Freedom; CPRS Computerized Patient Record System; ER Emergency Room

†Chi Square for Facility Type and Urban/Rural

‡Logistic regression for Facility Size and Region

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 2. Description of Sites in Sample (n=229 Sites)

	Number of Sites	Mean (Range) or Percent
Facility Characteristics		
Facility Type: VAMC	133	58 %
CBOC	96	42 %
Facility Size: Mean Number of Primary Care Patients (Range)	229	27,495 (3,041-102,185)
Facility Size: < 10,000 patients	43	19 %
10,000 – 20,000 patients	61	27 %
20,001 – 30,000 patients	39	17 %
30,001 or more patients	86	38 %
Area-level Characteristics		
U.S. Census Region		
Northeast	37	16 %
Midwest	57	25 %
South	88	38 %
West	47	21 %
Urban:*	92	40 %
Other/Rural	137	60 %

VAMC VA Medical Center; CBOC Community-Based Outpatient Clinic  
\*Urban: Metropolitan w/population 1 million or more

were in large urban areas. As a national system, respondent facilities were roughly equally dispersed by region.

### Top Ranked VA PC Challenges

The top 20 challenges reported by VA PC directors reflected moderate-to-extremely challenging issues for 23 % to 80 % of VA PC practices and spanned all eight management domains (Fig. 1). The percentages of VA PC practices reporting each challenge nationally (all 48 issues) are shown in Table 1 by domain (Column 1). The distribution of the total count of VA PC challenges (rated moderate-to-extreme) is shown in Fig. 2. Only 3 % of VA PC directors (n=6) reported that none of the management issues were moderately-to-extremely challenging, while 6 % reported 25 or more of the issues. On average, VA PC directors reported 16 moderate-to-extreme challenges.

Four of the top 20 challenges reflected *clinical informatics*, including three of the four highest-ranked challenges, each of which affected over half of all VA PC practices. Specifically, clinical reminder volume, electronic medical record (EMR) alerts and time and effort to input notes were moderately-to-extremely challenging in 80 %, 75 % and 60 % of VA PC practices, respectively, while 43 % reported gaps in clinical informatics support (e.g., technical support for addressing EMR reminders or templates). In contrast, many other clinical informatics areas were not rated as particularly challenging (e.g., data availability on VA inpatient stays, other VA visits, lab test or diagnostic imaging results, EMR data processing time, etc.), with only 3–18 % of practices rating them as moderately-to-extremely challenging.

While we only asked about three *challenging medical conditions* (Table 1), management of chronic non-malig-

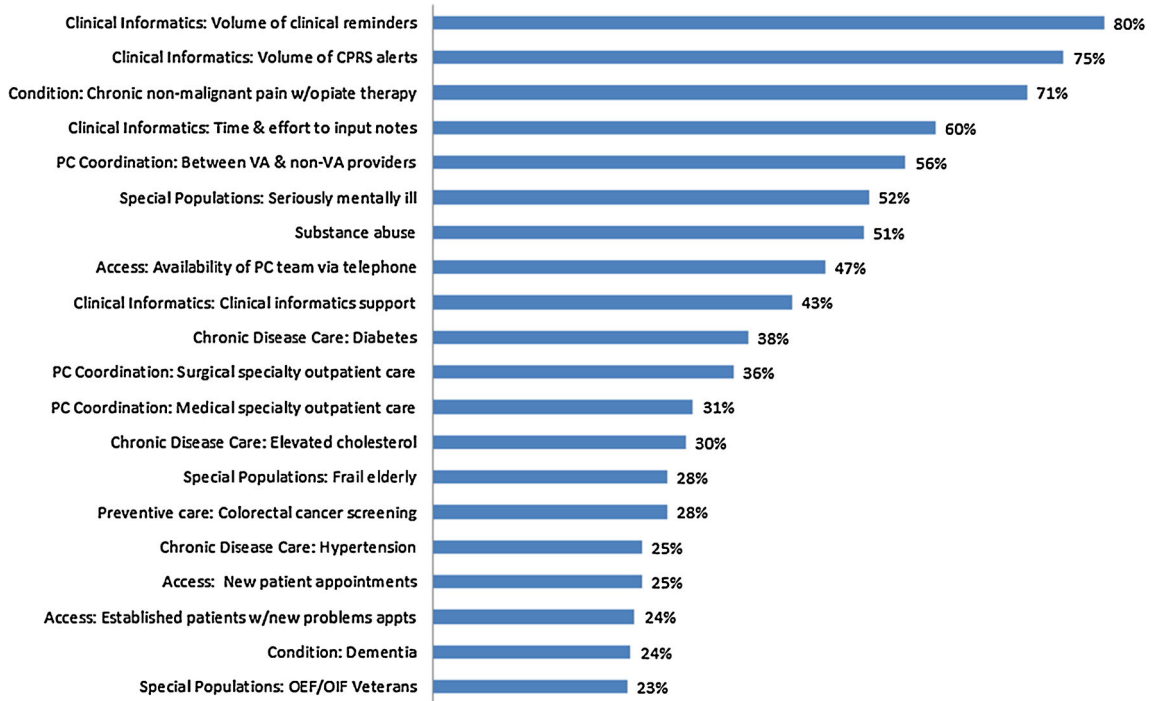


Figure 1. Top 20 challenges for primary care percent of directors reporting moderately-to-extremely challenging.

nant pain requiring opiate therapy was the third most-reported challenge nationwide, with 71 % of directors reporting it as moderately-to-extremely challenging. Caring for patients with dementia was reported as moderately-to-extremely challenging by nearly one-quarter of PC directors. Of the four *special patient populations* we asked about, three were in the top 20, with PC management of patients with serious mental illness (SMI) rated as moderately-to-extremely challenging by 52 % of VA PC directors, and about one-quarter each reporting that caring for frail elderly and returning Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) Veterans were very challenging. Only one of the four *MH/substance abuse* items—substance abuse—was among the top 20 challenges, with 51 % of directors reporting their PC management as moderately-to-extremely challenging. Fewer than 20 % reported that posttraumatic stress disorder (PTSD), depression or anxiety were major challenges.

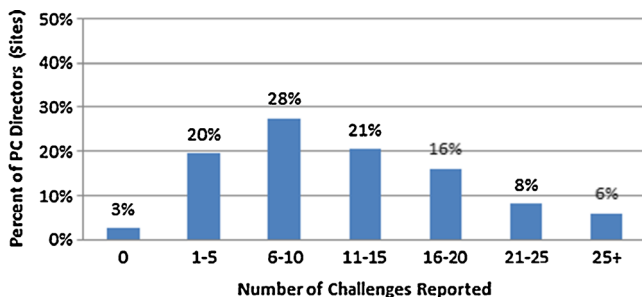


Figure 2. Percent of directors reporting total count of challenges (range 0–48).

Three of four *access* items were represented in the top 20 challenges noted by VA PC directors, including telephone access to the PC team (47 %), and appointment availability for new patients (25 %) and for new problems for established patients (24 %). Three of the six *PC coordination of care* items were reflected in the top 20 challenges, with VA/non-VA care coordination being moderately-to-extremely challenging in 56 % of VA PC practices. About a third reported PC coordination with surgical (36 %) and medical (31 %) specialty outpatient care as moderately-to-extremely challenging.

For *chronic disease care*, caring for diabetes (38 %), elevated cholesterol (30 %) and hypertension (25 %) were among the top 20 challenges. Yet, PC management of coronary artery disease, chronic obstructive pulmonary disease (COPD) and degenerative joint disease were reported to be challenging by 10 % or less. For *preventive care*, only colorectal cancer screening (CRC) was among the top challenges (28 %).

### Organizational and Area Variations in VA PC Challenges

We noted significant variations ( $p < 0.05$ ) in reported challenges by organizational and area level characteristics (Table 1).

**Type of VA Facility.** VAMC-based PC directors reported more challenges managing elevated cholesterol compared to CBOCs. Care coordination at CBOCs represented greater



challenges than VAMCs for inpatient and emergency care, and outpatient specialty MH care. In contrast, VAMCs reported greater challenges with availability of lab test results and historical pharmacy data compared to CBOCs.

**Facility Size.** Small sites (<10,000 patients) reported fewer challenges for CRC screening than the large practices and fewer than all other sites for elevated cholesterol and chronic pain. Small sites were less likely than medium sites (10,000–20,000) to report challenges with peripheral vascular disease (PVD) and HIV, while they reported more challenges with PTSD. Medium sites reported more challenges than small sites in PC coordination with medical and surgical specialty care, while small sites' coordination challenges were with inpatient and MH outpatient care.

**Region.** Western sites were more likely to report challenges compared to other regions. For example, Western sites were more likely to report challenges with PC management of SMI patients than all other regions; greater challenges in breast cancer screening, clinical reminder volume, and VA/non-VA care coordination than sites in the Midwest; and greater challenges in PC management of hypertension or substance abuse than sites in the Midwest or South.

**Urban/Rural Location.** Overall, rural practices faced more management challenges than large urban practices. For example, rural sites reported significantly more challenges than urban sites with PC management of COPD, PVD and HIV; PC coordination with any specialty outpatient care (medical, surgical, MH) and consult reports; as well as appointment availability for new problems for established patients.

**Total Count of Challenges.** The total count of challenges did not vary significantly by facility type or size. Rural sites were more likely to report challenges than urban ( $p=0.025$ ) and sites in the West compared to those in the Midwest ( $p=0.002$ ) (results not shown).

## DISCUSSION

Prior to implementation of PACT in the VA, the nation's largest integrated health system, PC directors reported serious challenges in key domains central to PCMH. Nationally, 30 % of the VA PC directors reported 16 or more PC management issues related to PCMH—some considered foundational to PCMH—were moderately-to-extremely challenging for their PC practices. Also, at least one challenge from every PCMH-related domain (access, preventive care, chronic diseases requiring care in PC, challenging medical conditions, MH/substance abuse, spe-

cial populations, PC coordination of care, and clinical informatics) was included among the top 20 challenges nationwide. Understanding these challenges is critical context for the national roll-out of PACT.

The VA has had a fully implemented EMR for more than a decade, and has seen dramatic improvements in clinical quality attributed to its functionality.<sup>21</sup> The Institute of Medicine has also independently rated VA's EMR as among the best in the U.S. (IOM 2002). Yet, three of the top four challenges reported by VA PC directors nationally were focused on clinical informatics, with almost three out of four reporting clinical informatics as a moderate-extreme challenge across facility types, sizes, regions, and urban/rural locations. Outside the VA, great hope has been placed in the potential of health information technology (HIT), especially EMRs, to enable, if not drive, improvements in quality, efficiency, safety<sup>22,23</sup> and cost reductions,<sup>22,24</sup> and as an essential tool in day-to-day PCMH functioning, if not one of its core principles.<sup>22,25,26</sup> Green has further identified HIT as a key strategy for helping to alleviate the PC physician shortage.<sup>27</sup> However, HIT has also been associated with interrupted work and increased provider burden.<sup>28</sup> Given VA's long HIT track record, VA PC experience with the overwhelming volume of EMR-based reminders and alerts in the context of inadequate clinical informatics support should raise caution for those assuming that "plugging in" an EMR will be a "fix all" for healthcare delivery challenges. More research is needed to improve PCMH-centric HIT functions supporting team-based care, care transitions, chronic disease management,<sup>29</sup> and patient-centered care.<sup>25</sup>

Given that the VA provides care for a high volume of patients with multiple chronic conditions,<sup>30</sup> the complexity of VA patients may invoke special challenges during PCMH implementation. Caring for complex patients in VA's medical home context places special burdens on PC-based care management. For example, pain is the most commonly reported symptom in PC, and providers report difficulties in caring for patients with chronic pain,<sup>31</sup> including pressure to prescribe and concerns with opioid treatment.<sup>32</sup> We found that difficulties in caring for PC patients' chronic pain are significant and national in scope, highlighting the need for PC-based innovations in chronic pain management,<sup>31</sup> and raising questions about whether having some patients' medical homes not based in PC could be more expedient.<sup>33</sup> Also, given the much higher average age of VA users, challenges in management of PC needs among the many Veterans with dementia also presages challenges that non-VA PC providers are only just starting to experience.

These conditions, among others, accentuate the importance of strengthening links between PC and the medical home neighborhood. Regardless of PC's ability to manage complex care needs, the need for specialty care services

requires effective coordination. System integration, including that envisioned for accountable care organizations, may support the tenets of generalist-specialist coordination, but clearly requires explicit mechanisms to accomplish coordination goals. Despite the VA's longstanding history as an integrated healthcare system, PC directors reported major challenges coordinating with medical, surgical, and MH outpatient specialty care, which were even worse among small VAMCs, rural practices and CBOCs, many of which are located anywhere from 30 to over 200 miles away from the nearest large VAMC. Challenges coordinating with non-VA providers is also of concern, as more than 30 % of Veterans use non-VA providers (e.g., Medicare providers, community providers delivering services not available in local VAs).<sup>34</sup>

Improving access is also a key component of PCMH, and has been central to a series of VA advanced clinic access initiatives for over a decade.<sup>35</sup> Yet, one quarter of PC directors reported significant challenges with appointment availability for new patients and new problems for existing patients, and almost half reported major challenges with routine telephone access. Not surprisingly, pilot teams for PACT have given particular emphasis on improving access.<sup>36</sup>

Substantial gains in VA preventive care delivery predated VA's PACT initiative,<sup>21</sup> reflecting prior investments in PC, at least in part.<sup>37</sup> We were therefore not entirely surprised that VA PC directors reported the least amount of frustration with preventive care delivery, and even then, only with CRC screening, which requires iterative steps and specialty collaboration.<sup>17,38</sup> To date, medical home improvements in the delivery of preventive services, including cancer screening, has received limited attention,<sup>39</sup> suggesting VA's successes in these areas warrant attention.

The VA is already addressing a number of the challenges identified here through different initiatives. For example, in clinical informatics, the VA has issued a toolkit on lab test results that includes guidance for managing alerts. There are also a number of efforts underway to help with pain management, including a PC Pain Champions Group and a PC Pain Community of Practice call. The VA is in the process of starting pilots for PACT Intensive Management for patients with complex and serious medical conditions. For coordination, electronic consultations and clinical tele-videoconferencing are being tested to help support delivery of care across specialties and sites.

This project has a few limitations. As a key informant survey, our findings reflect the views of PC directors, not all PC providers. Many of the VA PC directors provide clinical care in addition to their administrative duties, and we have no a priori reason to believe other frontline PC providers would report substantially fewer challenges. We also targeted VAMC-based and large CBOC-based PC directors, excluding a large number of very small CBOCs (typically 1–4 PC providers). Given that many of these smaller practices have

fewer resources and are often even farther away from parent facilities, we do not expect them to reflect substantially different challenges—if anything, their challenges may be greater. Future research is needed to better understand the challenges faced by smaller PC practices. In addition, we are unable to explain why Western sites were more likely to report challenges than sites in other regions. In supplemental analyses (not shown), we found no statistically significant site-level differences in terms of facility type, facility size, or urban/rural location, suggesting that other unmeasured factors may account for regional differences.

Even with the VA's many strengths, these PC management challenges heading into a national healthcare transformation initiative are critical to recognize. If PACT succeeds in the face of these challenges, then the VA's experience will give insight into how to implement medical homes, especially in view of the clinical complexity of Veteran patients and site level differences that may require implementation adaptations. If, however, PACT's early results are less than what was hoped for, these early challenges may provide important formative context for needed mid-course corrections. Regardless of the outcome, these challenges highlight the plight of PC providers, and the VA's PACT initiative will shed critical insights into PCMH implementation outside the VA.

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