Expanding Primary Care Experiences With Novel Rotations for Residents at a VA Medical Center

Stefanie A. Deeds, MD
Kelli A. Corning, BA
Joyce E. Wipf, MD, MACP
Traci A. Takahashi, MD, MPH

ABSTRACT

Background The number of graduating primary care physicians will not meet the demands of the growing and aging US population. In 2011, the Veterans Affairs (VA) Office of Academic Affiliations established 5 Centers of Excellence in Primary Care Education (CoEPCE) to transform primary care training.

Objective We created an innovative training model with immersive primary care experiences to foster careers in primary care for residents.

Methods As a CoEPCE, the Seattle VA partnered with the University of Washington internal medicine residency program to form a Center of Excellence (CoE) pathway with increased outpatient training time. The CoEPCE created a longitudinal curriculum of continuity clinic immersion and new thematically based rotations (eg, Homeless Health) for CoE residents. These rotations expanded primary care experiences and allowed for in-depth opportunities to care for the unique needs of veterans. Resident feedback was solicited through program evaluations, and career choices were tracked.

Results Eighty-five of 102 (83%) possible rotation evaluations from 2014 to 2017 were reviewed. Residents reported that CoEPCE rotations had a positive effect on their care of patients and career choice, and provided opportunities to interface with faculty role models. Seventy-five percent of Seattle VA CoE residents selected primary care careers compared to 36% of historical controls.

Conclusions The CoEPCE rotation curriculum offers in-depth primary care training and may contribute to trainees maintaining interest in primary care careers.

Introduction

In the United States, there are not enough primary care physicians to meet patient demand. With the US population growing and aging, the workload for primary care clinicians will increase by an estimated 25% from 2015 to 2025, while the number of primary care clinicians is estimated to grow only 2% to 7%.[1] Several factors have been shown to influence resident selection of a primary care career, including strong faculty role models,[2–4] variety of outpatient experiences,[3] and relationships and continuity with patients.[4] Reviews of the ambulatory learning environment recommend improving training through increased continuity and longitudinal care of patients, regular contact with faculty, self-directed learning, and resident-centered education beyond the internal medicine core.[5,6] Results from a survey of residents and program directors show that many preferred having more than one-third of training in the outpatient setting, and this was particularly true for residents in primary care tracks.[7] Despite participation in primary care tracks, a study showed many residents lose interest in a career in primary care during training.[8]

To transform primary care education and better prepare trainees for interprofessional team-based practice, the Veterans Affairs (VA) Office of Academic Affiliations established 5 Centers of Excellence in Primary Care Education (CoEPCE) in 2011. In CoEPCE, residents must spend 30% of their internal medicine training in VA primary care. Each CoEPCE site determined how to meet this 30% requirement.

As a CoEPCE, the Seattle VA designed an innovative curriculum with the goal to better prepare residents for primary care careers. The curriculum has 3 major aims: (1) improve continuity with primary care patients and clinic staff; (2) meet the individual learning needs of trainees, emphasizing skills needed to work in primary care after graduation; and (3) increase exposure to expert faculty and multidisciplinary teams. In this article we describe the novel ambulatory rotation curriculum created in the Seattle CoEPCE and its impact on primary care skill development and career selection.

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Editor's Note: The online version of this article contains end-of-rotation evaluation questions.

Methods

Program Description

The VA Puget Sound is affiliated with the University of Washington (UW) and trains residents from the UW internal medicine residency program (IMRP). To meet the 30% requirement for VA-based primary care training, the Seattle VA CoEPCE created a Center of Excellence (CoE) pathway within the primary care track of the University of Washington IMRP. This pathway reduced inpatient time and increased outpatient time through expanded immersion in continuity clinic and new ambulatory rotations.

What was known and gap
With an increasingly aging population, the United States faces a shortage of primary care physicians. Many residents lose interest in primary care, despite participation in primary care tracks.

What is new
An innovative training model with immersive primary care experiences.

Limitations
The curriculum was implemented in a single training program at a single site, with a limited number of resident participants.

Bottom line
A curriculum that includes increased time in primary care and foundational, theme-based ambulatory rotations can increase the number of residents who chose a career in primary care.

Setting and Participants

Every year, 3 to 5 primary care track postgraduate year 1 residents from the UW IMRP join the 3-year CoE pathway. Between 2011 and 2017, 33 UW IMRP residents have trained in the Seattle VA CoE pathway.

Program Implementation

It was necessary to modify the UW IMRP rotation schedule to meet the 30% requirement for primary care training (TABLE 1). In collaboration with UW IMRP leadership, Seattle VA CoE residents' inpatient time was reduced from 49% to 36%, while preserving electives and adding VA primary care time. There were 2 additional major changes between 2011 and 2012 when the Seattle VA CoE designed and implemented its curriculum. First, the Accreditation Council for Graduate Medical Education (ACGME) duty hour changes necessitated an overhaul of the UW IMRP inpatient admitting structure. In addition, the UW IMRP eliminated its Seattle/Boise Track, resulting in a redistribution of residents across the remaining 3 tracks (3-year categorical and primary care tracks and 1-year preliminary track). These changes allowed the UW IMRP and VA Seattle CoE leadership to creatively distribute admitting assignments among residents and minimize the impact to anyone not participating in the Seattle VA CoE.

To determine the inpatient curriculum for the Seattle VA CoE trainees, UW IMRP created a work group comprised of faculty, residents, and administrators to develop the "optimal" inpatient experience in terms of disease mix, patient populations, quality of available teaching, and relevance to a primary care career. The group used this idealized 3-year curriculum and layered the reality of hospital needs and ACGME experiential requirements over the CoE's mission. Ultimately, the UW IMRP requested 2.0 full-time equivalent (FTE) of additional resident salary/benefits from VA Puget Sound to accommodate the increased time in VA primary care. Currently, 6.0 FTE for IM residents at VA are attributable to CoE experiences.

Novel Ambulatory Rotation Descriptions

Since 2014, all Seattle VA CoE residents have participated in 2 core ambulatory rotations during the first year and 2 thematically based or self-designed rotations in the second and third years, respectively (TABLE 2). The new rotations were chosen by program leadership to (1) increase understanding of the unique VA patient population; (2) address specific knowledge and skills needed for primary care practice; and (3) provide experience working on interprofessional teams.

During their first year, Seattle VA CoE residents are required to participate in the Deployment Health and Homeless Health rotation (TABLE 2). These are foundational experiences that allow trainees to understand the unique health care issues of veterans due to their military service and homelessness, which affects a large number of veterans in our region. During the second and third years, rotations address topics identified as training gaps on surveys of former residents or align with residents' specific career plans. Rotations are typically thematic and interprofessional. For example, graduates indicated a need for more exposure to musculoskeletal complaints, so a rehabilitation medicine rotation was designed. On this rotation, residents spend time in spine and musculoskeletal clinic with physical medicine and rehabilitation physicians, podiatry clinic, and one-on-one with physical and occupational therapists (TABLE 2).

Each rotation has a clinical faculty lead who participates in the design of the rotation, provides

TABLE 1
Example of 3-Year CoE Primary Care Resident Schedule (4-Week Blocks)

Block	Year 1	Year 2	Year 3
1	Primary Care Immersion Care of the Patient[a,b]	Emergency Medicine	CoE Clinician Teacher[a,b]
2	Inpatient General Medicine	Ambulatory Musculoskeletal[a]	Inpatient MICU
3	Inpatient MICU	Inpatient Cardiology	Ambulatory Elective[a]
4	CoE Deployment Health[a,b]	Community-Based Primary Care Elective[a]	Elective (Ambulatory or Consults)[a]
5	Inpatient General Medicine	Primary Care Immersion Care of the Panel[a]	Inpatient Cardiology
6	Consult/Ambulatory Cardiology	Inpatient General Medicine	Elective & Risk (2 weeks each)
7	Primary Care Immersion The Art of Clinic[a]	Ambulatory Geriatrics[a]	Inpatient Hematology/Oncology
8	Inpatient General Medicine	CoE Leadership[a,b]	CoE Rehab[a,b]
9	CoE Homeless Health[a,b]	Inpatient General Medicine	Primary Care Immersion Care of the Population[a]
10	Inpatient Neurology	Ambulatory Elective[a]	Ambulatory Elective[a]
11	Elective & Risk[c] (2 weeks each)	Elective (Ambulatory or Consults)[a]	Inpatient General Medicine
12	Ambulatory Pre-Op Medicine Consults[a]	CoE Quality Improvement[a,b]	Consults Elective
13	Ambulatory Dermatology[a]	Elective & Risk (2 weeks each)	Ambulatory Elective[a]

Abbreviations: CoE, Center of Excellence; MICU, medical intensive care unit.
[a] Ambulatory rotation.
[b] Thematic or self-designed Center of Excellence block.
[c] Residents on call for sick coverage (aka "jeopardy").

mentorship and teaching, and orients residents to the block. Faculty are selected because they are clinical experts in their areas or identified as expert teachers by peers and trainees. Resident self-designed blocks are developed ad hoc with CoE faculty input and do not have a set orientation or structure. All CoE rotations include 1 to 2 full days of VA continuity clinic per week.

Evaluation

During the first 3 years of the curriculum, residents provided primarily informal feedback about the VA CoE ambulatory rotations. These discussions shaped further development of clinical and nonclinical experiences. Since 2014, UW IMRP residents complete end-of-rotation evaluations, which include 7 free text response questions (provided as online supplemental material). Career choice of residents was obtained from the UW IMRP, which actively tracks this information for all graduates. An internet search and personal e-mail contact was used when updated career information was needed. Primary care careers are defined as community or academic-based primary care practice, general medicine fellowship, primary care chief year, geriatric fellowship or practice, and those currently applying for primary care positions. Inpatient-based practice (ie, palliative care, hospital medicine) was excluded.

The authors performed qualitative thematic analysis of responses to the open-ended evaluation questions. They independently categorized and coded the responses and met to compare themes. A codebook was created that contained code names and definitions. Using the codebook, authors coded responses, met to review each coding decision, and discussed until consensus was achieved.

Evaluation of CoEPCE was considered exempt by the VA Puget Sound Institutional Review Board.

Results

From July 2014 through June 2017, 33 Seattle VA CoE residents participated in 102 CoE ambulatory rotations and were asked to complete end-of-rotation evaluations. There were 31 evaluations completed in 2014–2015, 26 in 2015–2016, and 28 in 2016–2017, totaling 85 completed evaluations out of a possible 102 (83%).

There were 4 major themes identified from the resident evaluations (TABLE 3).

TABLE 2
Description of CoEPCE Ambulatory Rotations

Rotations	Clinics	Objective(s) and Description
Required Rotations		
Deployment Health	Deployment, environmental exposures	▪ Need for foundational understanding of the effect of military service on veteran patients' health ▪ Residents see patients who are returning from active duty and learn about military deployment and exposure-related illnesses specific to veterans
Homeless Veteran Health	Homeless primary care, outreach	▪ Need for foundational understanding of the effect of homelessness on veteran patients' health ▪ Time is spent with the interdisciplinary Homeless-PACT team seeing patients and doing outreach in the community
Thematic Elective Rotations[a]		
Addiction Medicine	Pain clinic, addiction therapy	▪ Evaluate and treat chronic pain and opioid use disorder in practice ▪ Residents work with providers who evaluate chronic pain and substance addiction, and learn about management, including use of medications such as methadone and buprenorphine
Advanced Women's Health	Gynecology	▪ Evaluate and treat complex women's health concerns and increase comfort in performing women's health procedures ▪ Immersion in gynecology clinic with exposure to procedures such as IUD placement
Quality Improvement	N/A	▪ Know how to conduct and lead an interprofessional QI project in the primary care clinic ▪ Independent time to develop QI research projects
Clinician Educator	Student clinic, primary care	▪ Improve teaching skills and understand curriculum design theory to apply in academic-based primary care settings ▪ Focus on teaching experiences, including precepting with medical students and interns in primary care clinic, leading didactic sessions with students, and working with core teaching faculty ▪ Residents work with faculty on preclinical medical student curriculum design
Homecare-Leadership	Home-based primary care	▪ Need for physician leaders in primary care; residents will observe different styles of leadership and problem solving ▪ Trainees spend time with VA leaders and attend meetings to gain a better understanding of facility level decision-making ▪ Residents work with the director and multidisciplinary team providing home-based primary care for the region ▪ Residents gain experience in caring for elderly and high-risk patient populations
Rehab Medicine	Rehab clinic, podiatry, physical therapy, occupational therapy	▪ Be comfortable with the evaluation and treatment of common and complex MSK complaints ▪ Residents work in various clinical settings with multidisciplinary providers to enhance to enhance musculoskeletal-related assessment and treatment skills
Selective	Hepatitis C treatment, hematology, chronic disease management, etc	▪ Fill knowledge or skill gaps of the individual learner needed for independent practice ▪ A mix of electives combined to meet the unique needs of the trainee ▪ These are elective opportunities that are unavailable within the residency program

Abbreviations: CoEPCE, Center of Excellence in Primary Care Education; PACT, patient aligned care team; IUD, intrauterine device; N/A, not available; QI, quality improvement; VA, Veterans Affairs; MSK, Memorial Sloan Kettering.
[a] Residents are required to do 2 of these thematic rotations in each of their second and third years.

TABLE 3
Themes From End-of-Rotation Resident Evaluations

Major Theme	Exemplar Quotes
Clinical Development	"The brief exposure that I had working with the palliative care will deeply impact my practice. . .." (Homecare-Leadership) "The history taking skills that I developed in Deployment Clinic have been the most useful for applying to my patient panel. . ." (Deployment Health)
Career Choice	"This rotation helped affirm my career choices." (Homeless Health) ". . .it helped me understand what kinds of opportunities there are in a career at the VA or in academic medicine in general." (Deployment Health)
Mentorship	"[I] appreciated her support specifically in motivating me to be steadfast, making the 'impossible' happen. . ." (Primary Care Clinic) ". . .He is a model for compassionate, patient-centered care as well as for career development." (Deployment Health)
Process and Rotation Structure	"It would be helpful to get an intro lecture or teaching. . ." "I wish I had a higher census of patients. . .."

Abbreviation: VA, Veterans Affairs.

1. Enhanced Clinical Development

Residents reported gaining clinical knowledge and skills on their CoE elective blocks and frequently using the skills they learned on CoE rotations to care for other patients, especially those in their primary care panels.

2. Career Choice

Residents stated that participation in CoE elective rotations helped confirm primary care career choices. This sentiment was explicit in evaluations for the CoE Homeless Health Block.

3. Role of Faculty Mentorship

Residents reported that VA preceptors were inspiring and strong role models for their practice. Residents also reported that they had new opportunities to connect with interdisciplinary providers outside of the core faculty.

4. Rotation Structure and Scheduling

Residents identified several areas for improvement. Some residents gave feedback on the potential restructuring of the schedule and asked for enhanced introductions to the CoE thematic blocks. Concerns included ensuring adequate clinical census and minimizing time spent observing preceptors

Post-Residency Career Selection

Since 2014, 75% of VA CoE primary care track graduates selected primary care careers (TABLE 4) as compared to 36% of the pre-CoE primary care graduates with VA continuity clinic.

Discussion

With the addition of 2.0 FTE resident support, the 3-year CoE curriculum, with immersive experiences in primary care and foundational theme-based ambulatory rotations, was feasible and highly acceptable to internal medicine residents who elected the primary care track. Three quarters of CoE residents chose primary care careers after graduation, which represents a 100% increase over historical controls.

The CoE rotation curriculum met our aims of: (1) improved continuity within clinic; (2) addressing knowledge gaps and individual learning needs of residents; and (3) increased faculty and multidisciplinary team exposure. Evaluations revealed that residents interested in primary care valued experiences in the clinic and in leadership, quality, and education. Residents reported utilizing skills acquired on CoE

TABLE 4
Primary Care Career Choices of UW Primary Care Track Graduates Before and After CoEPCE

Graduation Year(s)[a]	% (n) in Primary Care Career/ VA-Based Residents	% (n) in Primary Care Career/ Non-VA[b] Residents
2011–2013	36% (4/11)	57% (12/21)
2014–2019	75% (25/33)	68% (34/50)

Abbreviations: UW, University of Washington; CoE, Center of Excellence; VA, Veterans Affairs.
[a] 2011–2013: primary care track residents before CoE implementation; 2014–2019: graduates of CoE program.
[b] Non-VA: continuity clinic sites include university-affiliated, county hospital-affiliated, urban community-based, urban community-based, international clinic, HIV clinic, and women's health.

rotations with patients in their primary care clinic. Additionally, working with expert faculty across disciplines expanded residents' perspectives on primary care careers. Challenges of implementation included logistics of scheduling and variability in rotation orientation and structure. The rotations would benefit from clearly stating goals and expectations.

A key success of the Seattle VA CoE program is resident retention in primary care. Most internal medicine residency programs graduate more specialists than primary care providers. Although graduates from primary care tracks are more than twice as likely to work in the outpatient setting than their categorical track peers, nearly one-third lose interest in primary care during residency.[8] A prior evaluation at our institution showed a decade-long decline in primary care residents entering primary care careers.[9] There has been a promising increase in the number of CoE graduates entering primary care since 2014 as compared to the pre-CoE cohort. We feel the increased retention in primary care careers corresponded to the implementation of and iterative improvements to the CoE program.

The study findings are limited in that the curriculum was implemented in a single training program at a single site and a limited number of residents have participated in the CoE pathway. Funding support for increased primary care time came from the VA and CoEPCE, which may have contributed to the success of the pathway. We acknowledge that other programs may not have similar support available at their institution. We are unable to account for changes to the UW IMRP outside of the CoE curriculum that may have affected our trainees or for changes in primary care recruitment. Evaluation data include self-reported attainment of knowledge and skills, which may introduce self-assessment bias.

Future directions include improving orientation materials and revising evaluations for the CoE rotations to allow for formal knowledge and skills assessment. In addition, an evaluation of the aspects of the CoE curriculum that correlate with career choice is needed.

Conclusions

The CoE curriculum, including increased time in primary care and foundational, theme-based ambulatory rotations, is feasible with additional VA funding and residency program leadership support. Residents in CoE reported high satisfaction with the ambulatory rotations and the number of VA-based primary care residents choosing a primary care career has doubled compared to prior non-CoE historical cohorts.

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Stefanie A. Deeds, MD, is Acting Instructor, Division of General Internal Medicine, University of Washington, and Medical Director, Women Veterans Program, VA Puget Sound Health Care System; **Kelli A. Corning, BA,** is Associate Director, Internal Medicine Residency Program, University of Washington; **Joyce E. Wipf, MD, MACP,** is Professor of Medicine and Section Head, VA

Puget Sound Health Care System, Division of General Internal Medicine, University of Washington, and Director, Primary Care Education, Seattle VA Center of Excellence; and **Traci A. Takahashi, MD, MPH,** is Associate Professor, Department of Medicine, University of Washington, and Medical Director, Seattle VA Women Veterans' Clinic, VA Puget Sound Health Care System.

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Corresponding author: Stefanie A. Deeds, MD, VA Puget Sound Health Care System, S-123-PCC, 1660 South Columbian Way, Seattle, WA 98108, 206.277.2960, fax 206.764.2936, sdeeds@uw.edu

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