



NATIONAL ASSOCIATION OF  
Community Health Centers

# Health Centers' Contributions to Training Tomorrow's Physicians

*Case Studies of FQHC-Based Residency Programs  
and Policy Recommendations for the Implementation of the  
Teaching Health Centers Program*

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## Executive Summary

Access to primary care has progressively weakened across the United States (U.S.) since the 1960's. The primary care physician shortage is due to several factors, including the growth and aging of the U.S. population. Additionally, the number of medical students accepting placements in primary care residency programs continues to decline, and many current physicians are nearing retirement. **Thus, the primary care workforce is shrinking as demand for primary care increases. As a means of recruiting primary care professionals to provide care for their patients, health centers participate in a variety of health professions training (HPT) programs at all levels.** Residents, for instance, provide care to health center patients; in turn, health centers offer valuable and unique training opportunities given their range of services and diverse, complex patient populations. Most recently, the Affordable Care Act (ACA) authorizes a new Teaching Health Center (THC) program that provides payments to eligible 'teaching health centers' to cover the direct and indirect costs of primary care residency training. While there is widespread involvement in residency programs among Community Health Centers (CHCs), there is very little published information on the programs themselves.

This report attempts to fill that gap by describing how four health centers across the nation have created and sustained physician residency programs: **Family Health Center of Worcester in Worcester, Massachusetts; Heart of Texas Community Health Center in Waco, Texas; La Familia Medical Center in Sante Fe, New Mexico; and Community Health of Central Washington in Yakima, Washington.**

Major findings of this report include:

- **CHC-run residency training programs can be extremely effective tools for the recruitment and retention of family medicine physicians into community-based practice.** Large proportions of graduates choose to practice either at their particular training site or other CHCs, strengthening the CHC primary care physician workforce.
- **Despite the positive impact that family medicine residency training programs have on those CHCs that initiate them, a multitude of challenges make it clear that many CHCs would have difficulty doing the same.** Common areas of difficulty among the interviewed CHCs include a lack of adequate financing, lack of access to adequate space, and the struggle to balance the teaching mission of residency training with the patient care mission of CHCs.
- **The enactment of ACA, with its direct teaching health centers funding, offers a new avenue of financial support for health centers interested in residency training.** The new program should provide as much flexibility as possible so a sufficient number of health centers are eligible. Policymakers should consider flexible arrangements that allow for non-profit entities to serve as the lead sponsors of programs, and the accrediting bodies should consider an expedited process that would allow health centers to acquire accreditation on a faster track. Also the new teaching health centers program should not underestimate the costs of residency training.

Policymakers should review the decades of experience of health center residency "pioneers" such as those featured in this report to determine how the resources provided through ACA can best enhance and expand residency training at health centers nationwide. Health centers should review these pioneers' experiences and work with their boards and outside experts in order to make an informed decision about whether adding a teaching mission to their center is economically and culturally-viable within their organization.

## Introduction

Access to primary care has progressively weakened across the United States (U.S.) since the 1960's. In 2007, the number of medically-disenfranchised people— those who lack access to primary care given local shortages of such physicians – rose to 60 million, up from 56 million in 2005.<sup>1</sup> The primary care physician shortage is due to several factors, including the growth and aging of the U.S. population.<sup>2</sup> Additionally, the number of medical students accepting placements in primary care residency programs continues to decline, and many current physicians are nearing retirement.<sup>2,3</sup> Thus, the primary care workforce is shrinking as demand for primary care increases. Practice location decisions of primary care providers also mean that underserved communities are particularly at risk for such workforce shortages.<sup>4</sup> This issue is especially problematic because access to primary care is associated with improved health outcomes and lower costs.<sup>5</sup>

Primary care physician recruitment and retention issues are especially important for Community, Migrant, Homeless, and Public Housing Health Centers (hereafter CHCs or health centers), which are located in resource-poor, medically underserved and at-risk communities. Health centers provide primary care and other preventive services to 20 million Americans regardless of their insurance status or ability to pay.<sup>6</sup> Nearly all patients are low income; 70% of health center patients have a family income at or below poverty. About 63% of health center patients are members of racial/ethnic minority groups, and over 70% are uninsured or Medicaid beneficiaries.<sup>6</sup> Nearly all physicians working in health centers are primary care providers, and most of them practice family medicine (hereafter family medicine or family practice).<sup>7</sup> And yet many health centers have primary care positions funded, but left unfilled.<sup>8</sup> They are understaffed compared to other providers, which creates a significant deficit in the number of primary care providers needed now and in the future.<sup>9</sup>

As the Health Centers program expands, this growing deficit of providers will become even more acute. The recently-enacted Patient Protection & Affordable Care Act (Affordable Care Act or ACA) and Budget Reconciliation Act of 2010—together considered the health reform package—contain provisions that will accelerate the growth of the Health Centers program even more dramatically over the coming years. Specifically, the package contains direct funding through a new Health Center Fund that will allow health centers to expand their capacity to add 20 million new patients over 5 years, doubling the capacity of the Health Centers program to 40 million patients in 2015.<sup>10</sup>

As a means of recruiting primary care professionals to provide care for their patients, health centers participate in a variety of health professions training (HPT) programs at all levels. In some instances, health centers take a leading role in physician residency training programs: the type of programs which are the focus of this report. Residents provide care to health center patients; in turn, health centers offer valuable and unique training opportunities given their range of services and diverse, complex patient populations. While there is widespread involvement in residency programs among CHCs, there is very little published information on the programs themselves. This report attempts to fill that gap by describing how four health centers across the nation have created and sustained physician residency programs.

Several studies have quantitatively and qualitatively demonstrated that residents trained in CHCs are more likely than their non-CHC trained counterparts to work in underserved areas post-residency.<sup>11</sup> Therefore, it is likely that increased residency training at CHCs will assist in strengthening the primary care workforce in health centers since these centers are located in underserved areas. These programs do have substantial costs, both direct and indirect, such as the need for added staff and space, and the costs of lost productivity. It follows that not every CHC will be able to create a residency program while maintaining the health center patient care mission. And while training the next generation of primary care providers fits within health centers' mission of improving access to care, the primary CHC mission is providing access to high-quality patient care.

The following case studies are focused on family medicine residency programs where the CHC is serving as the primary outpatient training site, often referred to as the continuity clinic. These four case studies are not intended to be representative of all CHCs and their family medicine physician residency programs; instead, they offer lessons learned for other health centers who may be considering developing similar programs, and offer insight to policymakers and researchers about the ground-level experience of running a residency program at a health center. While this report focuses on family medicine residency programs, CHCs participate in other kinds of HPT programs, including other primary care physician specialty training, nurse practitioner, physician assistant, and dental residency training.

In addition, this case study report was first undertaken in 2009 before ACA was signed into law. ACA creates a new "teaching health centers" program, which appropriates \$230 million over 5 years for payments to teaching health centers through a program established under Title III of the Public Health Service Act (PHSA). As of the writing of this report, it was unclear if the health centers featured in this issue brief would be eligible for payments through the new program as their residency programs are currently configured. Their ability to qualify for these payments is dependent on as-yet undetermined decisions about the implementation of the new program.

## **Background Information: Workforce Challenges in Community Health Centers**

The primary care physician shortage is expected to continue well into 2020 for several reasons, including a rapid rise in the U.S. population, particularly as the population ages, and the pending retirement of many primary care doctors. One-third (250,000) of active physicians are over age 55 and will likely retire in the near future.<sup>12</sup>

Health centers have experienced substantial growth since 2000, beginning with the bipartisan Health Centers Initiative spearheaded by President Bush and supported by Members of Congress from both parties.<sup>13</sup> This growth has continued under the current Obama Administration, with the largest one-time investment in the Health Centers program's history: \$2 billion through the American Recovery and Reinvestment Act (ARRA). Most recently, Congress and President Obama joined to support the doubling of health centers' capacity over the next five years through the establishment in health reform of the \$11 billion Health Center Fund. Between 2000 and 2006, the number of primary care physicians at CHCs grew 57%. Yet as CHCs look to expand operations and add new clinical sites to serve the medically

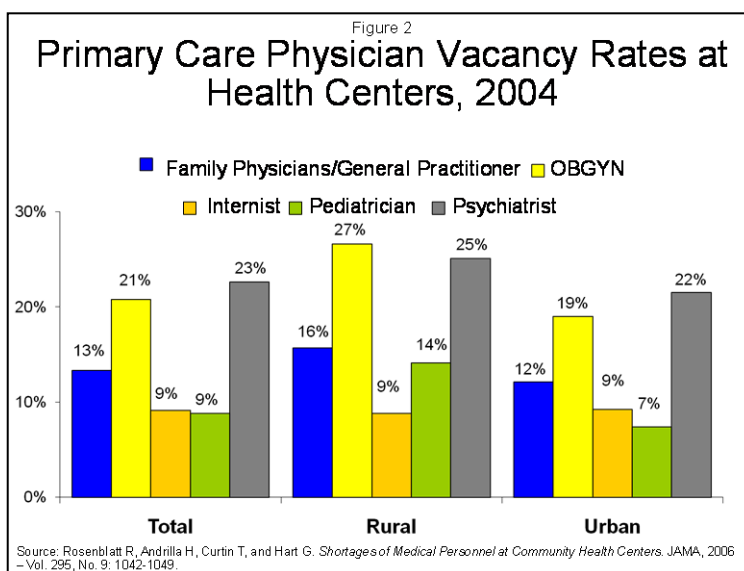
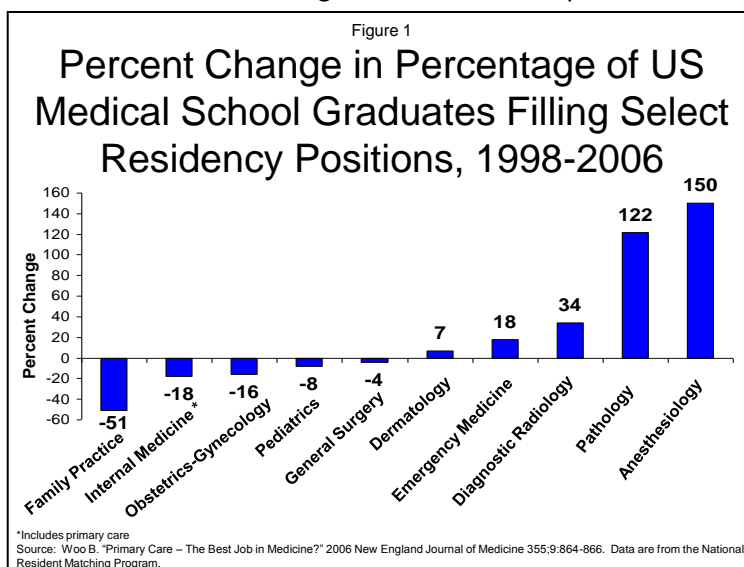
disenfranchised, difficulties in recruitment of staff are often made glaringly evident by their high rate of clinical vacancies and the fact that they are understaffed compared to other settings.<sup>13</sup>

### Origins of the National Primary Care Physician Shortage

Physician decisions regarding location of practice and populations to be served are important factors when explaining primary care physician shortages. Currently, most health professionals are concentrated in areas where there are already high levels of primary care resources. Beyond physical location, fewer private physician practices are accepting uninsured and publicly-insured patients, creating a deficit of access even in places appearing to have adequate numbers of providers.<sup>14</sup>

Declining interest among U.S. medical school students in primary care specialization is also a major contributor to these shortfalls.<sup>15</sup> Nationally, primary care physicians currently account for only 35% of practicing physicians; fewer than 20% of current U.S. medical school graduates choose to pursue primary care specialties.<sup>16</sup> Drastic declines in students choosing primary care fields are particularly notable in light of rapid increases in those choosing specialty fields (Fig. 1).

Family medicine has been particularly affected by this dwindling interest. The number of U.S. medical school graduates matching into family medicine residency positions fell by 51% between 1997 and 2005.<sup>17</sup> While the 2008 match showed an increase in the number of medical school seniors matching into family medicine, that number decreased again in 2009. This decline is notable for health centers because a large proportion of CHC physicians are family physicians. Stronger recruitment efforts at many stages of the workforce pipeline are needed to fully address these shortages. Even if the proportion of medical school graduates pursuing primary care specialties increases, the challenge of encouraging these physicians to work in medically underserved areas remains.



## Unfilled Clinical Positions at Community Health Centers

Vacancies for clinical staff at Community Health Centers extend across provider types to include physicians, nurse practitioners, physician assistants, certified nurse midwives and nurses, pharmacists, dentists, and other clinical staff. The highest number of vacancies is found in family medicine (Fig. 2). Survey data indicate that small rural CHCs are more acutely affected than their urban and other rural counterparts (not shown).<sup>17</sup>

## Primary Care Provider Targets at Community Health Centers

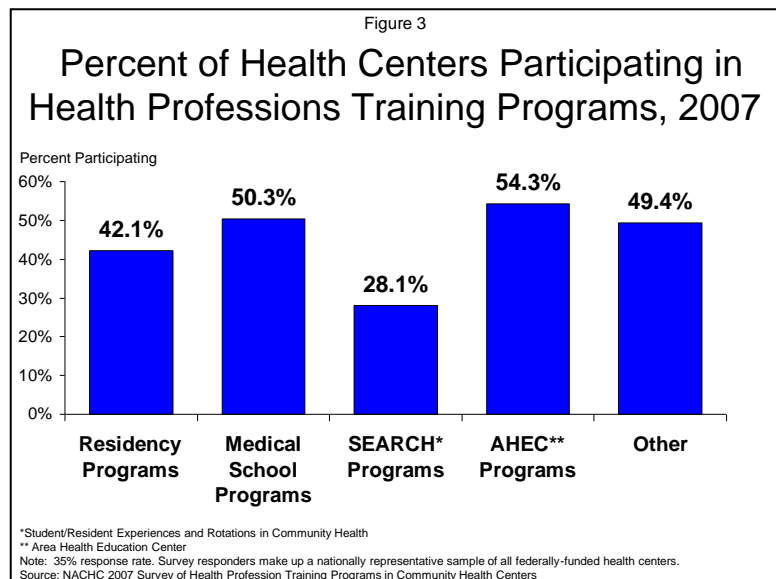
Even if vacancies are filled, the health center primary care workforce would still exhibit significant shortages when compared with that of other health care providers. The National Association of Community Health Centers (NACHC) estimated in 2006 that the health center workforce was in immediate need of 1,843 primary care providers, including physicians, nurse practitioners, physician's assistants, and certified nurse-midwives.<sup>18</sup>

## HPT Training in Community Health Centers

The Council on Graduate Medical Education (COGME) recently recommended increased funding for training at underserved and rural sites as a significant part of the effort to address U.S. primary care workforce needs;<sup>19</sup> this is a recommendation supported by many health centers. The majority of health centers have opted to participate in some form of HPT program as a means of recruiting and retaining primary care staff. A 2007 survey conducted by NACHC found that 87% of responding health centers participated in at least one HPT program. More than

half of responding health centers reported serving as a training site for medical students, physician residents, nurse practitioners, registered nurses, and physician assistants; clinical social workers, dentists, and psychologists were also among provider types receiving training in health centers.<sup>20</sup> Among health centers with HPT programs, 42% report that they host physician residents, though the length of time during which residents train at health centers is unclear.<sup>20</sup>

Both qualitative and quantitative evidence indicate that these and other models of community-based training offer important benefits for health centers, participating trainees, and existing residency programs in the case of academic-community partnerships. Research has shown that CHC-trained physicians are more than twice as likely as their non-CHC trained counterparts to work in an underserved area.<sup>21</sup> In the 2007 NACHC survey, 69% of responding health centers had hired a health professional trained at their health center within the previous five years.<sup>22</sup>



These national findings have been further supported by more in-depth study of specific school programs. Research published in 2008 from a survey of graduates of the WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) Family Medicine Residency Network reported that CHC-trained graduates were almost three times as likely as non-CHC-trained graduates to practice in underserved settings upon graduation.<sup>23</sup> Another recent project surveyed 350 physician graduates from the University of Massachusetts Medical School's family medicine residency program since its first graduating class in 1976. The survey demonstrated that residents who were CHC-trained were over five times more likely to have had their first practice in an underserved setting than those residents who were hospital-trained.<sup>24</sup>

The anecdotal experiences of health centers currently involved in health professional training further highlight the critical role that these programs play in the recruitment and retention of a robust primary care workforce. In a 2009 NACHC brief on legal issues related to health centers affiliating with residency training programs, three health centers found hosting residents to be a highly-successful recruitment tool, with several sites reporting large percentages of residents continuing to practice in underserved settings following training. Significantly, several sites noted that former residents specifically identified their community-based training as a major factor influencing their decision to remain in community-based primary care.<sup>25</sup>

The following in-depth case studies of health center-affiliated family medicine residency programs further investigate the impact of community-based residency training on local and national primary care workforce needs in underserved areas. Case studies were drawn from in-depth interviews with CEOs of the four featured health centers. The first interview consisted of 32 questions gathering information on the history of the residency program, the program's structure and organization, affiliations with other providers/medical schools, training structure and financing of the program. In many cases, the CEOs also invited their CFOs, Medical Directors and other staff to join the interview and more accurately answer specific questions about costs associated with and mechanics of their residency training programs. Each health center CEO provided the most detailed information possible regarding direct and indirect costs associated with their individual residency training program. Because the health centers did not have consistent views of what constituted "direct" and "indirect" costs, each case study lists what costs were associated with that particular health center's estimate of direct and indirect costs. The health centers' total costs were also calculated by adding self-reported direct and indirect costs.



## A Family Practice of Excellence at Family Health Center of Worcester

### About the Family Health Center of Worcester (FHCW)

The Family Health Center of Worcester (FHCW) located in Worcester (pronounced “Wister”), Massachusetts, serves approximately 30,000 patients per year in and around the inner-city neighborhoods of Piedmont, Elm Park, and Main South. FHCW was incorporated as a Family Health and Social Service Center in 1972. From its earliest days,



FHCW's first Family Nurse Practitioner resident, Michelle Barth, with Miguel Olmedo, DNP

FHCW provided services for both individuals and families through what was then a new model of care: “family practice”, which aimed to ensure continuity of care for both adults and children. FHCW continues to use the family practice model today, and the health center had 77,046 medical patient encounters in 2009 with an additional 15,000 dental encounters and 7,000 mental health encounters.

In 1974, FHCW became a teaching site in the newly-established Family Practice Residency Program at the University of Massachusetts Medical School (UMMS). Over the last 35 years, FHCW has trained over 130 physicians in family medicine. The residents of FHCW work with a diverse group of physicians with different areas of expertise, including women’s health, family medicine, chronic illness, and complementary and alternative medicine. The residents also see a wide spectrum of specialty care patients and receive research opportunities through the University of Massachusetts Memorial Health Care System (UMMHC).

### The Residency Program

UMMS has three community-based training sites associated with the University; each site offers a different clinical and educational experience. FHCW is one of the three residency training sites linked to UMMS. FHCW is the only health center of the three; the other two sites are hospital-owned.

Though UMMS is the sponsor of the residency program for accreditation purposes, each residency site, including FHCW, is responsible for recruiting its own residents. Each training site has separate match numbers and conducts interviews on separate days. This year, FHCW interviewed 70 residents for only four positions. FHCW has 12 residents in total, and there are 36 residents across all three of the residency training sites associated with UMMS.

First-year family medicine residents in the program must spend half a day per week in the health center; second-year residents spend three half-days per week in the health center and third-year residents

spend five half-days per week in the health center. The remainder of the residents' training time is spent training with medical faculty at UMMHC (the clinical system associated with UMMS). As per accreditation standards, FHCW's medical faculty must serve as preceptors while residents practice in the health center with the standard 4:1 resident-preceptor ratio.<sup>26</sup>

### **Program Costs and Funding**

Through contractual agreement, the program's residents are paid by UMMHC, and the continuity site faculty are paid by the health center. According to FHCW, the overall cost to the program of training 12 residents at the health center each year is \$2,800,500, including both direct and indirect costs—a per-resident cost of \$233,375 a year. Direct Graduate Medical Education (DGME) funding from UMMHC covers the direct costs of each resident at FHCW; direct costs are responsible for \$119,132 out of the \$233,375 total per resident costs. DGME compensates teaching hospitals through Medicare for costs directly related to residency training.<sup>27</sup> In addition to using DGME funding to directly finance training at FHCW, UMMHC passes through a portion of its DGME funding (approximately \$374,000) to FHCW to finance some of the direct costs borne by the health center such as FHCW's faculty salaries, support staff and the other direct teaching costs associated with the residents such as IT licensing.

There are many indirect costs associated with training residents in the health center—these indirect costs are responsible for \$114,243 per resident per year out of the total per resident cost of \$233,375. Indirect costs borne by the health center are not recouped. Indirect costs include an increased demand for space and faculty's lost productivity—FHCW encourages its faculty to meet a benchmark of 3,000 visits per year, but faculty sometimes average less than that amount due to teaching.

Lost productivity and the need for additional space are costly and related issues. The Accreditation Council for Graduate Medical Education (ACGME) requires a "resident work space and a separate private area for resident precepting," as well as two examining rooms for teaching and patient care activities, and space for individual and small group counseling.<sup>28</sup> In addition, residents and faculty work at a slower pace because of the additional time it takes to teach the resident during a patient's visit; therefore, patient visits take more time. This leads to two issues: lost productivity and a need for additional space. In order to keep up with the demands for care at the center, more space is needed for non-teaching physicians to see patients.

Other costs relate to the additional staff that is needed to support the residents. For example, more ancillary staff, both clinical (i.e. medical assistants) and non-clinical (i.e. translators) are needed. Additionally, the residents—with their demanding and fluctuating hospital call schedules—also require a separate scheduler, as do the faculty for the program.

### **Benefits and Challenges**

FHCW strongly believes that the opportunity for its providers to become teaching faculty members adds to its ability to recruit primary care providers and may encourage providers to spend their careers at the health center. In addition, as noted in the Ferguson study, residents who have trained at FHCW are more likely to work at health centers than those that trained at the other UMMHC residency sites.<sup>29</sup> Perhaps most interestingly—according to FHCW staff—is that exposure to the health center faculty,

even for the residents at the other two sites, seems to help with recruitment to the health center. Currently, FHCW has 39 primary care physicians who see patients in some capacity or precept. Twenty-three (59%) graduated from one of the UMMHC residency sites; ten (26%) graduated from the FHCW program site.

FHCW also reports receiving high quality ratings in its patient satisfaction surveys for its residency training program. Many patients tend to view the residency training program as innovative and FHCW reports its patients often enjoy the opportunity to act as teachers to the residents. Further, one of the benefits of having a residency training program is that specialists enjoy taking part in the teaching aspect of the health center and are, therefore, more willing to work at the health center as consultants. Because the residency program attracts specialists to the health centers, more specialty care takes place on site, and fewer formal referrals for offsite care are required.

However, there are challenges involved in running the residency program, including the space issues described in the previous section. The tension between patient care needs and teaching needs can be overwhelming and makes maintaining balance within the health center difficult. These issues can result in lost productivity and the potential overuse of training faculty. The resident-preceptor ratio requires more medical staff be on site at FHCW because the medical teaching faculty must oversee residents in addition to serving health center patients. As a result, significant physician faculty time is lost to teaching, and other providers need to make up for the lost time with patients.

As mentioned above, according to FHCW, scheduling the residents has become a very difficult feat. The residents must be scheduled around the needs of the health center as well as UMMHC. Under ACGME resident work rules, the residents' hours are limited, meaning that the faculty sometimes have to cover for them. This can be particularly challenging given FHCW's family medicine practice is responsible for a larger number of obstetrics-gynecology patients' deliveries. The scheduling staff work to coordinate the residents' schedules around the preceptors at FHCW as well as the medical teaching faculty at

UMMHC's primary hospital. The University staff changes the residents' schedules frequently, which further inconveniences the health center staff. These challenges also take place in the context of a family practice model environment where ensuring a strong patient-provider relationship and continuity of care are highly valued.

Teaching is a mission the health center has proudly embraced while still recognizing that there is a cost. The challenges above, however, mean that the health center's physicians' salaries do not stack up to health centers competing



**Melissa Rathmell, MD and Rajiv Balasuriya, Chief Resident at FHCW**

in the same marketplace, and—according to FHCW staff—some “extras” for the health center have to be sacrificed for the teaching mission.

### Looking Ahead

With increased resources as well as more space and teaching facilities, FHCW would consider expanding its medical residency program. The health center also sponsors a one-year dental residency with UMMHC and could expand this program beyond the current 3 residents. Additionally the health center is establishing its new nurse practitioner residency program. Once the nurse practitioner program is fully underway, FHCW would consider recruiting one additional medical resident per year and working to expand its teaching facilities.

Despite challenges, the Family Health Center of Worcester sees the residency program as an overall net positive for its center. The residency program has been an integral part of the health center over the past thirty years and continues to allow the Family Health Center of Worcester to follow its mission of improving the health and well-being of underserved and culturally-diverse Worcester area residents.

## Homegrown in the Heart of Texas: Residency Training in Waco

### About the Heart of Texas Community Health Center (HOTCHC)

Family Health Center of Waco, Texas, was established in 1969 to address the growing social needs of the Waco community, particularly in regards to health care for its vulnerable and minority populations. Family Health Center was originally a private, non-profit clinic, which was both physician-owned and operated, established by the local county medical society. These roots instilled the “heart and soul” support of the local primary care and specialist communities, which played a major role in establishing the clinic for the

community. In 1999 Family Health Center applied for and was granted Federally Qualified Health Center (FQHC) status, thus becoming the Heart of Texas Community Health Center (HOTCHC). Currently, HOTCHC is a thriving health center practice, having quadrupled its patient load since becoming an FQHC to now serve 50,000 patients annually, resulting in 215,090 patient visits per year. The family medicine



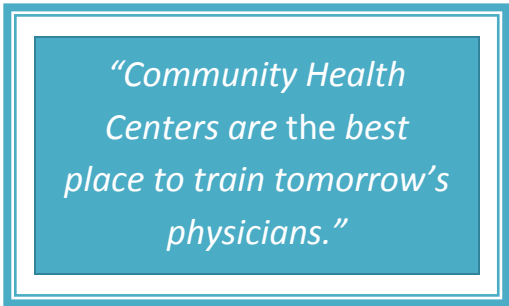
Residents are all smiles at HOTCHC. (Left to Right): Dustin Hawley, MD, Joel Mahan, MD, Didi Ebert-Blackburn, DO, Matt Blackburn, DO, April Calderon, DO, Rebecca Mahan, MD, John McClanahan, DO

residency program at HOTCHC takes on 30% of this care and serves as an integral part of the health center’s mission of teaching, caring, scholarship, and research.

### The Residency Program

Family Health Center of Waco began in response to the demands of the Waco community, which wanted to address the lack of access to hospital care and care for minority populations in the community. In hosting a residency program, the health center was able to address both of these needs by bringing more physicians to the center through residency training. HOTCHC’s residency program traces back to the health center’s earliest days; the health center—then a private, non-profit clinic—welcomed its first class of physicians in 1970. Since its inception, the program has graduated 309 family medicine physicians.

Each year HOTCHC hosts 36 residents that are split between the three years of the residency program. First-year residents are required to spend two half-days per week at HOTCHC, while second-year residents spend three half-days per week and third-year residents spend four half-days per week at the health center. The rest of their residency time reserved for work at two affiliated hospitals. These residents are split into four “teams,” with three residents from each year placed into each team. On any given half-day, 2-3 members of a team are at the health center, a system set in place to ensure continuity between patients and physicians within a team. In addition, the 14 faculty physicians are assigned to work with these team rotations to maintain the 4:1 resident to preceptor ratio required per ACGME accreditation standards.<sup>30</sup> Because of this team system, HOTCHC is able to report a 70% continuity rate between patients and their assigned physicians in spite of the variability of the residents’ schedules, which rotate every four weeks to meet accreditation requirements.



*“Community Health Centers are the best place to train tomorrow’s physicians.”*

In addition to seeing patients and receiving training from faculty, HOTCHC residents gain valuable experiences from participation in other activities at the health center. For instance, residents are trained on HOTCHC’s exceptional Electronic Health Records (EHR) system (a fourteen-year history of use), providing them with enhanced Health Information Technology (HIT) skills. Additionally, residents are asked to complete and present a quality improvement class project for the health center by the end of their third year. Residents also serve on compliance and performance review committees. Through such activities, the residents are encouraged to take an active role in the workings and mission of the health center. According to the health center, because of this engagement, many residents adopt the spirit of HOTCHC into their future style of practice within or outside of the health center setting (see Benefits and Challenges, below).

To fully understand the residency program, it is important to note that HOTCHC is the largest of three, independent nonprofits that work together to make the residency program and patient care model work as it does. The others are the McLennan County Medical Educational Research Foundation (MCMERF), which holds the residency program’s accreditation and contracts for research and teaching and the Waco Family Practice Foundation (WFPP), which owns almost all “hard” assets and leases them to

HOTCHC for operations. HOTCHC operates the residency program with MCMERF, handling employment, patient billing, teaching, clinical oversight and physician recruitment.

HOTCHC has several additional partners in conducting the residency program. First are a series of medical and academic institutions that assist in the support and facilitation of the program. Residents complete the hospital portion of their residency program at either Hillcrest Baptist Medical Center or Providence Health Center, spending approximately 68% of their residency time at these facilities. In return for the training completed at HOTCHC, the hospitals compensate HOTCHC with a share of their Graduate Medical Education (GME) funding. Additionally, HOTCHC partners with the University of Texas Southwestern at Dallas, which helps in the recruitment of medical school graduates into the program, and also sends four third-year medical students to HOTCHC each month for family medicine rotations. The students benefit from experiences with HOTCHC's faculty and in return, the University funds HOTCHC for the costs of the educational program.

### Program Costs and Funding

HOTCHC calculates that total costs are \$322,254 per resident per year to run the program at the health center (according to the Texas Higher Education Coordinating Board, which has tracked this data for many years, the average per resident costs in Texas ranged between \$96,000 and \$409,000 in 2009).<sup>31</sup> The annual cost per resident includes \$94,832 for faculty costs, \$93,207 for personnel salaries, \$68,224 for resident stipend and costs, and \$65,991 for other miscellaneous expenses. Several revenue sources serve to cover these expenses including \$50,765 per resident per year from the partner hospital's GME funding, \$12,500 per resident per year from the Texas Higher Education



Residents in action at HOTCHC. (Front left to right): Maria Crompton, DO, Allison Hulme, MD. (Back left to right): Jon Gonzalez, DO, Lora Plumlee, DO

Coordinating board and \$208,020 annually from patient revenues generated by the program. Remaining costs are covered by grants from various sources when available, and finally by HOTCHC's own subsidization of the program. In addition to financial costs, HOTCHC constantly struggles to keep a balance between service to patients and academics. Faculty, residents and staff in the program must all dedicate time toward academics and the reinforcement of learned skills, which takes time away from patient care. As a result, HOTCHC experiences a loss of productivity and patient revenue.

## Benefits and Challenges

HOTCHC believes “Community Health Centers are *the* best place to train tomorrow’s physicians.” In fact, over half of the physicians practicing in the county were residents at HOTCHC. Not surprisingly, HOTCHC considers both the financial and patient service costs of the program to be worth the benefits the program has brought to the Waco community. For one, the program has brought an influx of primary care physicians to the area, with 47 graduates currently practicing within 100 miles of HOTCHC—all in rural communities. Thirty one of the graduates have stayed in the community to practice since 2000. Seventeen of these physicians practice at HOTCHC; five were hired from 2008’s class of graduates and nine serve as residency faculty. Furthermore, the influx of primary care physicians has brought more specialists to the area. These physicians are grateful for the opportunity to practice their specialties without taking on the added burden of providing primary care, a common problem in areas that lack primary care providers. According to the health center, this results in the specialists’ donation of time and resources to HOTCHC and its patients. Moreover, the health center reports that patients of residents are very supportive of the resident program and that their satisfaction rates are on par or higher than other HOTCHC patients.

As HOTCHC continues its residency program, it must reconcile several challenges in order to ensure the future of the program. For one, an overall decline in primary care students has led to a decline in the residency pool from which HOTCHC can draw applicants. Each year HOTCHC must find ways to attract new applicants through promotion of assets like its EHR technology and its unique mission to ensure a high-quality residency class. Furthermore, state funding for residency training has declined in recent years, and HOTCHC struggles to maintain program funding.<sup>31</sup> However, in spite of these challenges, HOTCHC willingly continues to look for new ways to promote and support the program.

## Looking Ahead

HOTCHC believes so strongly in its residency program that it is planning to expand in the next few years. Currently the residency program trains 36 residents at a time, with 12 incoming residents a year. If HOTCHC is able to secure more funding for its residency program, it will consider expanding to 16 new residents a year, which will result in 48 residents present in the family medicine residency program at any given time.

## A True Commitment to Education and Training in Santa Fe, NM

### About La Familia Medical Center (LFMC)

La Familia Medical Center (LFMC) was founded in 1972 as a small community clinic and daycare center in Santa Fe, New Mexico. LFMC began receiving 330 funds in 1987 and has expanded to three clinical sites serving Santa Fe County, one of which specifically offers services to the homeless. LFMC serves 19,700 patients, with 64,000 patient visits per year. Over 5,000 of LFMC’s patients receive dental services, and 3,000 patients receive behavioral, nutrition or homeless-specific care. An integral part of

the Santa Fe County health care system, LFMC provided treatment to 20% of county residents in the past year.

### **The Residency Program**

LFMC got involved in residency training when the University of New Mexico School of Medicine (UNM) expanded its training opportunities. Given the tendency of UNM-trained residents to remain in Albuquerque following graduation, LFMC sought to increase recruitment and retention of family

physicians into rural, community-based settings through a change to the residency experience. LFMC viewed enhancement of the academic teaching experience for CHC physicians as an additional potential recruitment and retention benefit.

The Northern New Mexico Family Practice Residency Program graduated its first class of residents in 1997, and in total, the program has graduated 36 residents with a 100% medical board pass rate since its inception. The program includes three residents in each residency training year for a total of nine residents currently participating in the program. The residency program is run in partnership with UNM and St. Vincent Regional Medical Center, a community hospital in Albuquerque. Residents complete their first year of training at St. Vincent's, and LFMC serves as a site for two years of continuity training.

While UNM holds the accreditation for the residency program and formerly provided some program preceptors, LFMC currently provides all staff support and supervision for the residency program's continuity clinic. All LFMC staff members are involved in the residency program, with 9 physicians and 4 non-physician staff members (nurse practitioners and physician assistants) providing supervision. One physician preceptor is generally present for every 2-4 residents providing service to patients. Physician preceptor activities are an expected part of duties supported by LFMC salaries. Participating physicians are viewed as "volunteers" by Residency Review Committees, as they are employed by the health center as opposed to the residency program itself.



Recent graduate of the LFMC residency program, Dr. Ali Azizi, gives a morning report to the new class of residents and the attending physicians.



## Program Costs and Funding

LFMC reports difficulty in quantifying the range of direct and indirect costs associated with training its residents yet struggles with limited resources available to cover their expenses. LFMC has only begun to analyze the true cost of operating its residency program, but estimates total direct costs at \$600,000 per year, a cost of \$100,000 per resident. LFMC estimates that there is an additional \$25,000 per resident per year in indirect costs, including loss of productivity, scheduling inefficiencies and the need for additional equipment and space.

A grant from the Robert Wood Johnson Foundation of over \$10,000 was awarded to LFMC to support start-up costs at the outset of its residency training efforts. Currently, Medicare Graduate Medical Education (GME) funding is provided to St. Vincent's. The hospital pays resident salaries of approximately \$50,000 per year through the medical school and offers the health center some funds for non-billable costs. Indirect costs incurred by the health center include the additional space and extra time required of CHC staff to supervise and support the residents. LFMC estimates that it receives approximately \$200,000 for its residency training costs from the hospital's GME funding. The Health Services and Resources Administration (HRSA) recently awarded LFMC's residency program a grant under Title VII, Section 747 of the Public Health Service Act. This Section 747 grant of \$150,000 per year for three years is geared specifically towards training in family medicine and will aid in improved integration of training into the patient service operations of the health center. LFMC tentatively plans to use this funding to support a nurse coordinator, who will coordinate resident and non-physician provider staff schedules.

## Benefits and Challenges

LFMC finds that the CHC setting of their residency is what draws many residents to the program. The program reports no difficulty in recruiting enough residents to fill the program, and is only limited in their ability to accommodate more residents by lack of resources. Additionally, patients report satisfaction with care provided by the residents. Given the motivations for starting the program, another very significant benefit has been high rates of retention in New Mexico generally and community-based settings in particular. LFMC reports that 80% of residents trained in the program have remained in New Mexico, as compared with 25% of those trained at UNM. Those residents who leave the state often pursue community-based careers in other areas.

Despite these successes, LFMC faces many challenges in running the residency program, mostly related to strained resources. Following its inception, the program had originally expanded to accommodate four residents per training year but was compelled to scale back to three residents per year to ensure adequate space and staff support for all residents. Limited space continues to negatively affect the amount of clinic exposure received by residents, and the need for additional staff support strains LFMC's financial resources. Current plans to incorporate EHR and HIT into the health center are also challenged by limited financial resources; these updated functions are key components of resident education, given increasing use of such technology in the health care field.

*The residency program is the "single greatest reason for success our past 10 years."*

Several staff involved in running the program suggest that current GME funding provided to the CHC would need to at least double to truly cover all of the additional staff support and resources required to run the program.

Resources aside, LFMC also faces challenges in integrating the educational work of the residency program with patient care, the primary mission of the CHC. Continuity of patient care is a significant issue, as residents are only present for three to four afternoons within a given week. This poses a particular challenge for LFMC in the area of obstetrics; women at the latest stages of pregnancy require weekly visits, which are very difficult to coordinate with resident schedules. LFMC reports that at times the residents believe the health center's service mission receives more emphasis than its teaching mission. This potentially has negative consequences for the educational experience of residents and LFMC is constantly working to maintain a proper balance between patient care and the academic experience.

### **Looking Ahead**

In the next year, LFMC plans to take a close look at its residency training program's costs and determine whether or not it can afford to continue the program should no additional financial resources become available.

Should LFMC attain access to further space and financial resources, LFMC would seize the opportunity to expand the Northern New Mexico Family Residency Program. Despite the strain that running the residency program puts on CHC resources, LFMC is pleased with the positive impact it has had on recruitment and retention of family physicians and considers this benefit to be worth the costs of maintaining it. According to LFMC, the residency program is the "single greatest reason for success our past 10 years."

## **Learning, Serving and Enjoying It in Central Washington**

### **About Central Washington Family Medicine Residency (CWFM-R)**

Community Health of Central Washington (CHCW) began as a joint venture of two non-profit hospitals in an effort to provide access to medically underserved people in Yakima, Washington in 1992. Ten years later, more than 75% of CHCW's patients were either uninsured or on public insurance, and the clinic was at risk of financial collapse. Then in 2002, CHCW re-created itself as a new non-profit agency, purchased the clinic and the residency program from the two hospitals and applied to become an FQHC without federal health center grant funding (a so-called FQHC look-alike). This designation was granted in 2003. CHCW is now a "dual designee," meaning it operates FQHC sites both with and without federal funding; the residency program is located in the FQHC look-alike site. CHCW serves as the medical home for over 36,000 patients in Central Washington; services provided include primary care, pediatrics, obstetrics, pharmacy, dental care, dermatology and mental health. CHCW also operates a pediatric hospitalist service.

## The Residency Program

CHCW started its Central Washington Family Medicine Residency program in 1993, only one year after formally opening its doors, so teaching has practically always been a part of this health center's mission. The residency program is accredited by both ACGME and the American Osteopathic Association. Although a neighboring hospital holds the accreditation, CHCW owns the program and its operations, provides all staff support and supervision and coordinates all aspects of the training. The residency program is affiliated with both the University of Washington in Seattle and Pacific Northwest University of Health Sciences in Yakima. Students and residents come to CHCW from these institutions, as well as from medical schools around the nation and the world.



Like many other residency programs at CHCs, the Central Washington Family Medicine Residency at CHCW works collaboratively in the community with the Public Health Department, other community health clinics, local schools and service organizations to address community need.

Central Washington Family Medicine Residency takes in 6 residents per year, resulting in 18 residents present in the three-year program at any given time. The program will expand to 8 residents per year in 2011. New satellite and affiliated training programs are also on the drawing board. Residents work with health center staff, all of whom are faculty members of the program. Occasionally a community physician serves as preceptor for the residents, but CHCW keeps the vast majority of the work in-house.

CHCW includes formal training around cultural competency in the residency program because currently 45% of the Yakima Valley population is of Hispanic/Latino descent. Central Washington Family Medicine Residency works collaboratively with local health departments, other community health clinics and local schools in order to address community need. CHCW residents also receive a great deal of exposure to different specialties; a key aspect of the program that CHCW believes contributes to the residency's success is that there are 100 different specialty providers that work directly with CHCW residents.

## Program Costs and Funding

Primary financial support for the program comes from Yakima Valley Memorial Hospital and Yakima Regional Medical and Cardiac Center, which were CHCW's former hospital owners. While the hospitals no longer own the residency program, they pay a substantial portion of its costs. Direct costs of the residency program's outpatient training, including resident and faculty salaries and fringe benefits, add up to about \$2.7 million or \$150,000 per resident per year. CHCW receives funding to cover about 7% of these costs from the state of Washington. The rest of the cost is then paid by the partner hospitals' Medicare GME funding.

Indirect costs of the Central Washington Family Medicine Residency program are not recouped. Those costs include inefficiency due to maintenance of the residency infrastructure (scheduling, etc), reduced productivity, need for additional supplies for residents (laptops and other equipment) and the need for extra space to house residents' activities. CHCW estimates these indirect costs are approximately \$360,000 or \$20,000 per resident per year. These costs are in addition to the direct costs outlined above.

### Benefits and Challenges

CHCW believes that its dedication to teaching for so many years has benefits in recruitment. Potential residents are attracted to the fact that Central Washington Family Medicine Residency is a trusted, long-running model. Four former CHCW residents are now faculty of the residency program, and they are able to give an account of their own positive experiences when recruiting new residents. The residency program attracts providers as well as students; providers looking for the opportunity to teach are drawn

to the success of the residency program, and are eager to join CHCW as clinical staff.

CHCW also touts its residency program as a successful retention tool. The residents become very familiar with the service area during their tenure in the residency program and have a tendency to stay in the community and continue to provide primary care in Yakima.

CHCW values its residents' commitments to the community. Between 30 and 50% of graduates have remained in eastern Washington state; 28 graduate physicians still practice in Yakima Valley.



CHCW is thankful that patients recognize the importance of the residency training program and allow student participation during patient visits.

The residency program at CHCW is not by any means a revenue-raiser. Although resident salaries are substantially less than physician salaries, so too is their productivity; all charges for services are submitted under the credentials of the attending physician(s), who must supervise all aspects of billed services. CHCW has decided that it is somewhat less efficient in deploying the residents of the program as the clinic's workforce than it would be hiring full-time physicians to do the work. So CHCW's model does not rely on residents generating patient revenue.

CHCW notes that it has been very challenging to operate the program under the current funding mechanism. The GME payment system is oriented to the teaching hospital and is linked largely to the hospital's service to Medicare clients; applying that system to community-based training programs is challenging. CHCW has also faced the challenge of navigating the complexities of the current system's

rules. In particular, CHCW notes that the current rules seem subject to interpretation by the Medicare Administrative Contractors (MACs, previously Fiscal Intermediaries). In its brief life, CHCW's residency program has been faced with life and death determinations with regards to program viability on issues raised by MAC contractors. Two of these were successfully decided for CHCW. A third is in active litigation (pending for over 13 years). A fourth has recently surfaced, and action is pending. CHCW expresses frustration at doing what it sees as good work, including working hard to comply with the rules, only to have the rules be "clarified" or interpreted in a way that threatens the viability of the program.

### **Looking Ahead**

CHCW is also looking forward to expanding Central Washington Family Medicine Residency with satellite programs in smaller communities within a commutable distance from the partner hospitals. Making that dream a reality will require funds. CHCW is closely monitoring the implementation of several provisions from ACA that may provide opportunities to existing programs. In particular, CHCW is looking at Section 5508 of the Act which will directly fund Teaching Health Centers. CHCW expects this program will help to circumvent Medicare GME limitations. CHCW is also looking at Section 5503 of ACA which would allow teaching hospitals to apply to increase their GME "cap." The Centers for Medicare and Medicaid Services (CMS) currently caps the number of residents for which a teaching hospital may receive GME payments, including those residents training in primary care. ACA allows eligible teaching hospitals to apply for an increase in the number of primary care resident slots under that cap, and CHCW would like to be able to take advantage of these additional slots to train more primary care residents. Either way, if provided with the right opportunity, CHCW looks forward to expansion of its training mission.

## **Summary and Policy Recommendations**

### **Benefits**

The above case studies indicate that CHC-run residency programs can be extremely effective tools for the recruitment and retention of family medicine physicians into community-based practice. Residents-in-training supplement the physician workforce of their CHC sites, thereby possibly increasing CHC capacity to provide patient service. More significantly, large proportions of graduates choose to practice either at their particular training sites or other CHCs, strengthening the CHC primary care physician workforce. Patient satisfaction with CHC-based residency training programs is reportedly very high, with patients appreciating the service provided as well as the opportunity to contribute to resident education and experience. The CHC leadership involved in initiating and running these programs are also satisfied with the results. Most of the interviewed individuals indicated that the benefits reaped by running these programs outweighed financial difficulties and other challenges encountered in operating them. CHCs consistently reported that communities are supportive and appreciative of the work of the residency programs.

A further advantage is the increased access to specialty physicians that these residency programs foster. By recruiting more family physicians to meet the primary care needs of their surrounding communities,

the residency programs make their communities more attractive practice locations for specialty physicians. The opportunity to volunteer as instructors for CHC residents is an additional draw for specialty physicians. Finally, the health center-hospital partnerships involved in at least one of the programs led to improved specialty access at the hospitals for the health centers' patients.

## **Challenges**

Despite the positive impact that family medicine residency training programs have on those CHCs that initiate them, a multitude of challenges make it clear that many CHCs would have difficulty doing the same. Common areas of difficulty among the interviewed CHCs include a lack of adequate financing and the struggle to balance the teaching mission of residency training with the patient care mission of CHCs.

Adequate funding is especially critical for expanding existing CHC residency programs. As all of these case studies indicate, residency training results in direct net financial losses to CHCs. The reimbursement offered by partnering hospitals or medical schools and generated patient revenue do not offset the direct and indirect costs faced by CHCs participating in these programs. While some additional financing to cover the costs of training is provided by Medicare and Medicaid reimbursement from patients whose care is supervised by physician preceptors, unreimbursed indirect costs are particularly significant; while many residency programs cover substantial portions of the direct costs incurred by health centers, the health centers generally do not receive adequate resources to support the additional space, supplies and staff time commitments that residency training requires (indirect costs). Several CHCs describe loss of productivity as a negative consequence of conducting residency training. CHC physicians have less time to devote to patient care because of time spent as preceptors or instructors. Additionally, as residents cannot be present at the CHC during the majority of business hours, scheduling appointments for their patients becomes challenging, impacting efforts to maintain ideal patient care continuity.

While a lack of candidates to fill residency slots was not an issue for all of the CHCs in these case studies, it was a problem on the horizon highlighted by one CHC. Given the decrease in students choosing family medicine over the past few years, this will likely become a more prominent issue should more CHCs choose to run residency training programs. While family medicine residency training in CHCs makes important and significant contributions to workforce development, further interventions are necessary at earlier stages of the primary care workforce pipeline to ensure that these programs have an adequate number of residents.

## **Policy Recommendations**

These four case studies present a strong case for the important role of CHC family medicine residency programs in the effort to strengthen the primary care workforce in underserved areas. Many of the challenges limiting these programs could be addressed through increased funding and support. The new Teaching Health Centers provision passed as part of ACA is one program that has received funding—a total of \$230 million—with the specific intent of increasing residency training at health centers and other community-based settings. Implementation of this promising new program should take into account several factors highlighted in the reports above, which chronicle the experiences of successful health center residency pioneers.

First, family medicine residency training programs in CHCs are represented by many different models and **the new teaching health center program should provide as much flexibility as possible in order for a sufficient number of health centers to be eligible for this funding.** This is particularly notable given the program's initially limited five-year window.

Second, the health centers featured in this report all had relatively longstanding participation in residency programs at the continuity clinic level, and all described an ongoing challenge with balancing the patient care mission with the teaching mission. **Implementation of the new program should realistically assess how many health centers will be able to take on an even greater responsibility of being the sole sponsor of a new residency program, which is one eligibility requirement being considered.** Policymakers should instead consider flexible arrangements that allow for non-profit entities, such as foundations or consortia, to serve as the lead sponsor of programs - as long as health centers have a leadership role in the entity's governance. This type of arrangement would also allow health centers to focus on the patient care and teaching missions, while sharing some of the administrative burden with another entity.

Third, as the case studies above have indicated, assessing the direct and indirect costs of residency training in community-based settings such as CHCs is challenging, and costs can vary significantly from one program to another. **Policymakers should ensure that the new teaching health centers program does not underestimate the costs of this training, which could prove detrimental to programs, especially those that are newly established.** Issues such as the need for space and the resulting capital costs can be particularly acute at health centers and were prominently mentioned by the interviewees. It is also important to note that costs described in this report account only for the health centers' incurred expenses as continuity clinics and not the administrative costs of sponsoring a program or for any time the resident spends in the hospital.

Fourth, starting new residency programs will take several years based on current standards and processes at the two accrediting bodies for residency programs. **The accrediting bodies should consider an expedited process that would allow health centers interested in sponsoring a residency program to acquire accreditation on a faster track.** If funded, the new Title VII Sec. 749A development grants could help health centers to establish residency programs.

Lastly, while the new teaching health centers program offers significant opportunity given its dedicated funding, there are other existing programs that are positioned to help health center-based residency programs. Title VII Sec. 747 and the SEARCH program are two programs that policymakers can use to support increased residency training in health centers. Accordingly, the largest funder of GME is Medicare, through the CMS. Although Medicare GME is paid to teaching hospitals, health center-based residency programs may receive Medicare GME directly or through partnerships with teaching hospitals.

## Conclusion

Based on these case studies, health center residency programs have been very successful in achieving increased recruitment and improved retention and can positively impact patients' access to care. The

enactment of ACA with its teaching health centers funding offers a new avenue of financial support for health centers interested in residency training. Policymakers should review the decades of experience of health center residency “pioneers” such as those featured in this report to determine how the resources provided through ACA can best enhance and expand residency training at health centers nationwide. Health centers should review these pioneers’ experiences and working with their boards and outside partners, make an informed decision about whether adding a teaching mission to their centers is economically and culturally-viable within their organizations.

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<sup>1</sup> NACHC. “Primary care access: an essential building block of health reform.” March 2009.

<http://www.nachc.com/client/documents/pressreleases/PrimaryCareAccessRPT.pdf>

<sup>2</sup> Salsberg et al. Physician workforce shortages: implications and issues for academic health centers and policymakers. *Acad Med* 2006;81(9):782-7

<sup>3</sup> Wayne et al. Medical students’ attitudes towards underserved populations: changing associations with choice of primary care versus non-primary care residency. *J Health Care Poor Underserved* 2010;21(2):438-47

<sup>4</sup> NACHC, Robert Graham Center. “Access Denied: A Look At America’s Medically Disenfranchised.” March 2007.

[www.nachc.com/access-reports.cfm](http://www.nachc.com/access-reports.cfm).

<sup>5</sup> Starfield et al. Contribution of primary care to health systems and to health. *Millbank Q.* 2005;83(3):457-502  
Starfield & Shi. The medical home, access to care and insurance: a review of evidence. *Pediatrics* 2004;113(5 Supp):1493-8.

<sup>6</sup> NACHC. “America’s Health Centers.” Fact sheet #0309. August 2010.

<sup>7</sup> NACHC. “United States: At A Glance.” 2009.

<http://www.nachc.com/client/documents/United%20States%20FSv2.pdf>.

<sup>8</sup> Rosenblatt et al. Shortages of Medical Personnel at Community Health Centers: Implications for Planned Expansion. *JAMA* March 2006; 295(9): 1042-9.

<sup>9</sup> “Access Denied.”

<sup>10</sup> NACHC and Capital Link. “Community Health Centers Lead the Primary Care Revolution.” August 2010.

[http://nachc.org/client/documents/Primary\\_Care\\_Revolution\\_Final\\_8\\_16.pdf](http://nachc.org/client/documents/Primary_Care_Revolution_Final_8_16.pdf)

<sup>11</sup> Rittenhouse et al. Impact of Title VII training programs on community health center staffing and national health service corps participation. *Ann Fam Med* 2008; 6(5):397-405.

<sup>12</sup> Salsberg et al. Physician workforce shortages: implications and issues for academic health centers and policymakers. *Acad Med* 2006;81(9):782-7.

<sup>13</sup> NACHC, Robert Graham Center and the George Washington University School of Public Health and Health Services. “Access Transformed: Building a Primary Care Workforce for the 21<sup>st</sup> Century.” August 2008.

<http://nachc.org/client/documents/ACCESS%20Transformed%20full%20report.pdf>

<sup>14</sup> Rosenblatt et al.

<sup>15</sup> Morra et al. Medical students, money, and career selection: students’ perception of financial factors... *Fam Med*; 41(2):105-10.

<sup>16</sup> Letter from the Council on Graduate Medical Education, May 2009. Accessed 24 November, 2009. Available at <http://www.cogme.gov/cogmeletter.htm>

<sup>17</sup> Rosenblatt et al.

<sup>18</sup> “Access Transformed.”

<sup>19</sup> Letter from the Council on Graduate Medical Education.

<sup>20</sup> NACHC. “Health profession training opportunities at Community Health Centers.” Fact Sheet #0708. July 2008.

<http://www.nachc.com/research-factsheets.cfm>

<sup>21</sup> Morris et al. Resident training in community health centers: a health workforce solution. *Fam Med* 2008;40(4):271-6

<sup>22</sup> “Health profession training opportunities at Community Health Centers.”

<sup>23</sup> Morris et al.



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<sup>24</sup> Ferguson et al. Family medicine residency characteristics associated with practice in a health professions shortage area. *Fam Med* 2009;41(6):405-10.

<sup>25</sup> NACHC. "Using Affiliations with Residency Training Programs to Increase Your Health Center's Clinical Capacity." Information Bulletin #12. June 2009. <http://www.nachc.com/pressrelease-detail.cfm?pressreleaseID=471>

<sup>26</sup> Accreditation Council for Graduate Medical Education (ACGME). "Family Medicine Program Requirements." Accessed 27 July 2010. [http://www.acgme.org/acWebsite/downloads/RRC\\_progReq/120pr07012007.pdf](http://www.acgme.org/acWebsite/downloads/RRC_progReq/120pr07012007.pdf)

<sup>27</sup> American Association of Medical Colleges (AAMC). "Medicare Direct Graduate Medical Education (DGME) Payments." Accessed 11 June 2010. Available at <http://www.aamc.org/advocacy/library/gme/gme0001.htm>

<sup>28</sup> Accreditation Council for Graduate Medical Education (ACGME)

<sup>29</sup> Ferguson et al.

<sup>30</sup> Accreditation Council for Graduate Medical Education (ACGME)

<sup>31</sup> Texas Higher Education Coordinating Board. "2009 Annual Financial Report for Family Practice Residency Program." 2009. Available at <http://thechb.state.tx.us>.