SPECIAL ARTICLES

A Formalized Teaching, Practice, and Research Partnership with the Veterans Affairs North Texas Health Care System: A Model for Advancing Academic Partnerships

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In 1999, the Texas Tech University Health Sciences Center School of Pharmacy expanded its Dallas/Fort Worth presence by creating a regional campus for pharmacy students in their third and fourth years (P3 and P4 years) of the program. This expansion was driven by the need for additional practice sites. The VANTHCS was an obvious choice for the school due to the similarity of missions for clinical practice, education, and research. The VANTHCS and pharmacy school renovated a 4,000 square foot building, which includes classrooms, conference rooms, a student lounge, and faculty offices (expanded to 8,000 square feet in 2003). To date, the school has invested \$1 million in the building. From a practice perspective, VANTHCS purchases faculty professional services from the school to augment its clinical specialist staff. These professional practice contracts provide VANTHCS with 12 additional clinical pharmacy specialists serving 50% of their time in multiple specialty areas. The collaboration has also allowed for expansion of clinical teaching, benefitting both institutions. In addition to the pharmacy student interns on P3 and P4 practice experiences, the collaboration allows for 8 to 10 postgraduate pharmacy residents to train with VANTHCS clinical specialists and school faculty members each year. The VANTHCS/pharmacy school collaboration has clearly enhanced the ability of both institutions to exceed their teaching, research, and practice goals in a cost-effective manner.

Keywords: veterans affairs health system, partnership, practice experiences

INTRODUCTION

The Department of Veterans Affairs (VA) has been an important partner to many pharmacy schools because of its progressive clinical pharmacy practice model and its similar tri-part mission of practice, teaching, and research. Many schools utilize the VA as a site to precept students and for a few faculty members to practice. Most schools of pharmacy have failed to take full advantage of the opportunities offered by the VA. The major, intentional intertwining of the Veterans Affairs North Texas Health Care System (VANTHCS) and the Texas Tech school of pharmacy has resulted in the Dallas school of pharmacy campus being located on VANTHCS campus, 12 faculty members fulfilling practice contracts with VANTHCS, 8-10 residents at the VANTHCS in postgrad-

uate year (PGY) 1 and PGY 2 programs, and 90 pharmacy students training at the VANTHCS campus.

The purpose of this paper is to describe the implementation of the unique collaboration between the pharmacy school and VANTHCS in order to address the varied challenges of both institutions with an integrative practice collaboration model. This type of collaboration may serve as a framework for other pharmacy schools, VA medical centers, or health systems to manage these same challenges.

Issues Facing the VA and Academia

The VA continues to experience a demand for its medical services due to ongoing military conflicts with increasingly complex combat injuries, coupled with the aging of the existing veteran population. In addition, VA has had a shortage of pharmacists. In FY 2006, VA pharmacists had an attrition rate of 7% from resignations, retirements, and other separations.¹ Based on anticipated

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vacancies and the VA's future mission needs, pharmacy has been identified as one of the top 10 priority occupations for recruitment and retention efforts.¹ Because VA pharmacy residents are excellent candidates for VA employment, VA plans to expand its existing pharmacy residency programs to assist with recruitment of these young health care professionals.

The VA uses several development models for pharmacy residency programs: (1) directly sponsoring the accredited pharmacy residency; (2) participating in integrated pharmacy residency programs sponsored through educational institutions; and (3) the educational consortium sponsoring the pharmacy residency. Every year, the VA allocates approximately \$19 million to provide training stipends for 400 pharmacy residents.

Colleges and schools of pharmacy are also challenged to meet the increased need for pharmacists. Some of the challenges facing schools in addressing this problem include the faculty shortage as well as the capacity of practice sites to accommodate healthcare professionals in training.^{2,3} The VA represents an excellent practice setting to train both doctor of pharmacy (PharmD) candidates and postgraduate pharmacy residents and represents an important partner in alleviating both pharmacist and faculty shortages.

History and Organization

In 1998, the VANTHCS administrative director recognized the opportunities afforded by a collaborative relationship with a school of pharmacy. As a result, the school and VANTHCS entered into an agreement to renovate physical facilities on the VANTHCS campus and to use the hospital and clinics as its primary teaching sites. In 1999, the school expanded its Dallas/Fort Worth presence by creating a regional campus for P3 and P4 students. This expansion decision was driven by the need for additional practice sites in anticipation of expanding class size. The VANTHCS was an obvious choice for the school's regional campus due to the similarity of missions. A timeline of the significant events in the partnership between the VANTHCS and school is outlined in Table 1.

School of Pharmacy Campus. The Dallas VANTHCS and school renovated a 4,000 square foot building that included classrooms, small group conference rooms, a student lounge, and faculty offices. While the school campus could have been located anywhere in the Dallas/Fort Worth metroplex, there were distinct advantages to both the school and VANTHCS having the campus located on VANTHCS grounds. Locating the Dallas campus on VANTHCS grounds has resulted in the free flow of students, residents, and faculty members across both institutions and has increased opportunities for collaboration. Being able to walk

Table 1. Timeline of the Department of Veterans Affairs/ Texas Tech School of Pharmacy Partnership

Year	Significant Events
2001 (Spring)	<ul style="list-style-type: none"> ● First Texas Tech School of Pharmacy faculty member contracted to provide clinical services at Dallas VA Medical Center. ● 2 pharmacy residents
2001 (Fall)	<ul style="list-style-type: none"> ● Number of faculty contracted to provide clinical services increased to 5 (critical care, geriatrics, ambulatory care = 3)
2002	<ul style="list-style-type: none"> ● Faculty contracted to provide clinical services increased by 3 (internal medicine, infectious diseases, hematology/oncology) ● 4 pharmacy residents
2003	<ul style="list-style-type: none"> ● Faculty member added for psychiatry (n = 1) coverage ● Co-leasing of building on Dallas VA Medical Center grounds to serve as the Dallas/Fort Worth regional campus of the School of Pharmacy ● 6 pharmacy residents
2004	<ul style="list-style-type: none"> ● First Texas Tech School of Pharmacy faculty member contracted to provide coverage for Fort Worth Outpatient Clinics ● 5 pharmacy residents
2005	<ul style="list-style-type: none"> ● Expansion of the co-leased Dallas/Fort Worth regional campus building on the Dallas VA Medical Center campus ● Second geriatrics faculty added ● Second ambulatory care faculty added to Fort Worth Outpatient Clinics ● 6 pharmacy residents
2006	<ul style="list-style-type: none"> ● Ambulatory care faculty member added to Dallas VA Medical Center ● 10 pharmacy residents
2007	<ul style="list-style-type: none"> ● First Crystal Apple Award for Ambulatory Care practice at the Dallas VA ● 8 pharmacy residents
2008	<ul style="list-style-type: none"> ● Second Crystal Apple Award for Geriatrics practice at the Dallas VA ● 9 pharmacy residents

from VANTHCS clinical buildings to the school provides faculty members, residents, and candidates increased work time by eliminating the drive to the school campus. Any other suitable campus location in the Dallas/Fort Worth metroplex would have required a 30-minute or longer drive to and from VANTHCS. Faculty members' offices are equipped with VANTHCS computers, allowing faculty access to VANTHCS's electronic medical records, providing multiple advantages to both the school and VANTHCS. The school is able to maximize faculty members' work time by allowing them to work on clinical care activities at the school

and easily transition between clinical consults and other faculty duties. The VANTHCS is also able to maximize use of its clinical buildings to see patients with school faculty having VANTHCS computers in their offices. This also helps to minimize any negative effect of education on clinical care because in-depth academic discussions of patient issues can occur in school faculty offices outside of rounds and typical patient care.

Again as a collaborative effort between VANTHCS and the school, the building was expanded to 8,000 square feet in 2003. This expansion was in response to the increased class size of the school as well as the increased number of faculty members that were also fulfilling professional service contracts at VANTHCS. The financial arrangements require the school to lease the building from VANTHCS. To date, the school has invested \$1 million in the building through lease improvements and payments.

Professional Service Contracts. VANTHCS contracts faculty professional services from the school to augment its clinical specialist staff. While this augmentation began with 1 faculty member, it has grown to 12 faculty members and currently represents a 50% increase in the number of clinical specialist staff available to VANTHCS. School faculty members are 100% funded by the school and are responsible for fulfilling VANTHCS's school contracts as determined by VANTHCS and school administration. These professional practice contracts provide VANTHCS with 12 additional clinical pharmacy specialists serving 50% of their time in multiple specialty areas including ambulatory care, cardiology/critical care, geriatrics, hematology/oncology, internal medicine, and psychiatry (Table 2). School faculty members fulfilling practice contracts at VANTHCS undergo the same credentialing processes as VANTHCS clinical pharmacy specialists, including submitting a record of education/employment history and professional qualifications, undergoing a criminal background check, providing 3 character references, and submitting fingerprints. School faculty members have level 3 pharmacist privileges, which include the opportunity to submit a scope of practice that includes the ability to independently prescribe medications and order laboratory tests. All school faculty members in the outpatient setting have a scope of practice and independently see patients in anticoagulation, cardiology, hematology/oncology, infectious diseases, or pharmacotherapy clinics. School faculty members in the inpatient setting have scopes of practice if needed to conduct their practice activities.

The professional service contracts provide a significant source of income to enhance educational programs and build infrastructure for the school through the Pharmacy Income Plan. The Pharmacy Income Plan, approved

by the University's Board of Regents, allocates portions of income from pharmacy practice contracts to the Health Sciences Center as well as school program and development funds. Professional service contracts also supplement faculty members' salaries in order to be competitive with the private sector.

School faculty members are required by the VANTHCS contract to submit online every 2 weeks the number of hours worked. The hours must be electronically approved by the school faculty members, VANTHCS pharmacy administration, and school administration to count toward the contract requirements.

The regional dean is charged with minimizing conflicts between VANTHCS and the school of pharmacy. Conflicts do occur from time to time and are managed on a case-by-case basis. Any issues that cannot be resolved between the regional dean and VANTHCS pharmacy administration are elevated to the pharmacy practice department chair for faculty matters and to the dean of the school for administrative issues. The clinical education coordinator for VANTHCS pharmacy services collaborates with the regional dean and school administration to resolve any issues that arise. Issues that cannot be resolved by the clinical education coordinator are elevated first to the VANTHCS director of pharmacy services, and then to VANTHCS hospital administration only if necessary.

The clinical specialist collaboration between school faculty members and VANTHCS staff members allows for the development of practice teams in specialty areas that help ensure continuity of patient care. All clinical pharmacy specialists (VANTHCS staff and school faculty members) attend pharmacy meetings to ensure consistency in complying with VA clinical care directives, policies, and procedures. These meetings also provide time for faculty members and VANTHCS staff members to discuss practice strategies that have worked well and discuss other areas needing improvement. School faculty members must also inform VANTHCS of upcoming leave, professional events, and other school commitments in order to ensure that continuity of care will be maintained. VANTHCS reserves the right to refuse leave requests by school faculty members with conflicts being handled through the aforementioned methods.

Teaching. The VANTHCS collaboration has allowed for expansion of clinical teaching, benefitting both the school and VANTHCS. In addition to the pharmacy students on P3 and P4 practical experiences, the VANTHCS collaboration allows postgraduate pharmacy residents to train with VANTHCS clinical specialists and school faculty members each year. The number of postgraduate residents has grown from 1 initially to 8 to 10 in recent years. This number of residencies at VANTHCS is

Table 2. Summary of Clinical Pharmacy Services Provided at Dallas VA Medical Center

Practice Area	Services Provided
Ambulatory Care	<ul style="list-style-type: none"> ● Responsible for maintaining a patient populated Pharmacotherapy Clinic focusing on drug therapy management. ● Maintain an ambulatory care practice experience site for P-3, P-4 students as well as rotations in primary care for the residency program. ● Source for drug information questions and drug refill information for the clinic. ● Database design for maintaining patient workload statistics and clinical outcomes.
Critical Care	<ul style="list-style-type: none"> ● Provide a medication review for each inpatient admitted to medical team. ● Daily inpatient rounds with team. ● Provide education to pharmacy and medical residents and students. ● Provide medication therapy management for cardiology patients assigned to the outpatient clinic.
Geriatrics	<ul style="list-style-type: none"> ● Provide inpatient clinical services on transitional care unit (TCU) of the Dallas VAMC. Services include admission notes on each patient admitted to TCU service, monthly chart reviews, discharge education of patients and family members/caregivers upon discharge, processing of pharmacist's section (Section 0) of Minimum Data Sets (MDS). ● Patient education (ex. Insulin teaching, inhaler training, etc.) is provided as needed, as well as patient medication administration assessments prior to patient discharge. ● TCU staff education is provided by in-services for nursing staff. ● Provide drug information and patient assessment.
Hematology/Oncology	<ul style="list-style-type: none"> ● <u>Inpatient</u>: Provides drug therapy recommendation and drug therapy monitoring as part of an interdisciplinary team. ● <u>Outpatient</u>: Provide all types of patient services under physician supervision.
Home-Based Primary Care	<ul style="list-style-type: none"> ● Medication regimen review, provide drug information and patient education as consulted and on all patients seen on home visits. ● Arrange and conduct/supervise home visits to obtain detailed medication histories, evaluate the patient's complete medication management and therapeutic plan, and provide medication counseling/information. ● Management of anticoagulation therapy for HBPC patients on warfarin. ● Provision of inservices to HBPC staff. ● Participation in weekly Care Plan Interdisciplinary team meetings. ● Pharmacy consult to the HBPC Emergency Preparedness Team.
Internal Medicine	<ul style="list-style-type: none"> ● Provide a medication review for each inpatient admitted to medical team ● Daily inpatient rounds with team ● Provide discharge medication counseling ● Provide education to pharmacy and medical residents and students
Psychiatry	<ul style="list-style-type: none"> ● Provide a medication review for each inpatient admitted to the Silver Team. ● Daily inpatient rounds with team. ● Provide discharge medication counseling. ● Provide medication therapy management for mental health patients assigned to the outpatient clinic. ● Provide topic discussion to MD residents.

more than either institution would be willing to support financially or have the manpower to train alone.

The number of advanced pharmacy practice experience (APPE) sites available to schools of pharmacy to train pharmacy students and residents is only 1 aspect of maximizing clinical training. Others have discussed the importance of evaluating the duration of the APPE, documenting workload during the APPE using an algorithm, longitudinal vs. block APPEs, student to preceptor ratios, and limited partnerships for directed programs in community and hospital settings.⁴⁻⁷ While these aspects are not

the focus of this review, they should be considered in a global assessment of APPE resources.

Service. VANTHCS utilizes professional services from the school to augment the number of clinical specialists on its staff. This collaboration helps ensure continuity of care with a VANTHCS clinical specialist and faculty member available to provide coverage for each clinical area staffed with clinical specialists. Services (also known as departments) in VANTHCS can be recognized by Courtesy in Action (CIA) stars or "speak to the director" comment cards submitted by patients and

visitors. CIA stars are indicative of positive customer service provided by pharmacy. During fiscal year 2007, pharmacy services at VANTHCS received 36 CIA stars or “speak to the director” comments (September 2006 to September 2007).

Postgraduate Pharmacy Residency Programs.

The VA’s Office of Academic Affiliations oversees all clinical health professions training programs in the VA, including the pharmacy residency programs. There are typically 8-10 pharmacy residents at VANTHCS in the areas of pharmacy practice, ambulatory care, critical care, and hematology/oncology. Future expansion of residency programs at VANTHCS is expected to include programs in pharmacy management as well as pharmacoeconomics. Of the previously noted 8 to 10 resident positions, the VANTHCS system funds 4 to 5 of the pharmacy practice positions as well as 2 to 3 of the specialty residency positions. The other specialty residencies are funded by the school. Regardless of the funding source, the residencies are managed as a collaborative effort between VANTHCS pharmacy staff and faculty members. VANTHCS clinical specialists and faculty specialty residency program directors are members of VANTHCS’s Residency Advisory Council. They review resident progress and identify opportunities to improve the residency programs through resident and preceptor feedback. The School Residency Advisory Committee (RAC) addresses broad residency issues and policy for all school funded and affiliated programs including VANTHCS.

VANTHCS pharmacy leadership directs the pharmacy practice residency program, providing a broad array of experiences for residents through VANTHCS and school preceptors. Faculty members serve as program directors for the currently offered specialty residency programs.

Both institutions have been able to benefit from the academic-practice partnership to recruit pharmacists for their respective institutions. Table 3 shows the current positions held by graduates of the shared VANTHCS/school postgraduate pharmacy residencies. VANTHCS currently employs 9 clinical pharmacy specialists on its

staff who graduated from VA pharmacy residencies (5 from VANTHCS residencies). The Dallas School regional campus of Texas Tech employs 7 faculty members who have graduated from VA pharmacy residencies (2 from VANTHCS residencies).

Research. Increased research activity has been a significant advantage to both VANTHCS and the school. Faculty members are expected to publish at least 1 peer-reviewed manuscript every year. Pharmacy residents must present a research poster for residency certification and are encouraged to submit their work for publication. Thus, the partnership has created an environment for productive research collaborations, resulting in the receipt of National Lipid Association Young Investigator’s Award in 2007 and 2008 for work conducted at VANTHCS.

Research collaborations have utilized both the VANTHCS electronic medical record for retrospective chart reviews and the Clinical Research Unit for prospective pharmacokinetic work. One of the focus areas has been the management of dyslipidemias in patients infected with human immunodeficiency virus (HIV).⁹⁻¹⁵ These studies have helped provide guidance for the best practices to utilize when caring for HIV-positive patients with dyslipidemias. The inclusion of VANTHCS in a multicenter evaluation of vancomycin that focused on dosing for obese patients led to the development of a vancomycin dosing and monitoring team at VANTHCS.¹⁶ Cardiology and oncology have been other focus areas for research collaboration.¹⁷⁻²² These collaborations have increased the numbers of grants, research posters, platform presentations, and publications for both institutions.

The VA has a rich history of collaborating with schools of pharmacy which can be attributed to a similar tri-part mission of clinical practice, education, and research. The VANTHCS/school of pharmacy collaboration is an example of how an intentional, global approach can maximize the benefit of the relationship for both parties. VANTHCS has been able to augment its clinical pharmacy specialist staff with 12 school of pharmacy faculty members to help ensure continuity of care for veterans. The professional service contracts have given the school a greater ability to enhance educational programs and build infrastructure. Both parties have benefited from the school campus being located on VANTHCS grounds since this allows for increased faculty efficiency with both academic and clinical practice activities. In addition, more postgraduate residents have been able to train at VANTHCS than either institution could support alone. We hope our experiences encourage other hospitals and schools of pharmacy to work together to provide the best patient care possible while training the next generation of health care professionals.

Table 3. Types of Current Positions Held by Graduates of Dallas Veterans Affairs Medical Center/Texas Tech School of Pharmacy’s Postgraduate Residency Program^a

Practice Setting	Percent (%)
Institutional	25/36 (69)
Academic	6/36 (17)
Community	5/36 (14)
Industry	5/36 (14)

^aResidents who entered academia with a clinical practice site are counted in all applicable rows.

SUMMARY

The VANTHCS/school of pharmacy collaboration has clearly enhanced the ability of both institutions to exceed their practice, teaching, and research goals in a cost-effective manner. As previously described, the outcomes from this collaboration have been exemplary. The VANTHCS/school collaboration fosters an integrated, interdisciplinary approach to caring for patients with health conditions that are unique to veterans and the general population. Comparable collaboration between other schools of pharmacy and Veterans Affairs Medical Centers should be seriously examined and pursued to enhance missions of the collaborating partners. We believe the VANTHCS/school of pharmacy collaboration has been beneficial to both parties and advanced pharmacy education toward fulfilling ACCP's vision of pharmacists who will provide direct patient care in all patient care settings by 2020.²³

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