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Trends in Admissions and Costs of Veterans Healthcare Delivered in Non-VHA Facilities

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TRENDS IN ADMISSIONS AND COSTS OF VETERANS HEALTHCARE DELIVERED IN NON-VHA FACILITIES

BY

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A Doctoral project submitted to the faculty of the Medical University of South Carolina in partial fulfillment of the requirements for the degree Doctor of Health Administration in the College of Health Professions

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Abstract

The purpose of this study is to identify admissions and costs of Veterans receiving care in non-VHA facilities. This study will focus on Veteran inpatient admissions in North Carolina (NC) during 2016. This study is an exploratory, quantitative work using historical archival data from HCUP. This study will give a detailed analysis of veteran demographics (age, gender, race), admission characteristics (admitting dx, total charges, length of stay (LOS), ICD 10 codes, and patient location (state, county). This study will guide VHA leadership in restructuring the Veterans Community Care Program.

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CHAPTER 1 INTRODUCTION

1.1 Background and Need

The Department of Veterans Affairs (VA) has an enthralling and robust history. The Department of VA provides services to individuals that have served in one of the seven military services: the United States Air Force, United States Army, United States Marine Corps, United States Navy, United States Coast Guard, United States Public Health Service Commissioned Corps, and the National Oceanic and Atmospheric Administration Commissioned Officer Corps. These individuals are our nation's Veterans. President Abraham Lincoln made a promise in 1865, "To care for him who shall have borne the battle and for his widow, and his orphan" (Department of Veterans Affairs, n.d.). This mission still stands the same today, and the Department of the VA is still serving the men and women who have served. The Department of VA operates three agencies to provide benefits to military Veterans. These agencies are the Veterans Benefits Administration (VBA), National Cemetery Administration (NCA), and Veterans Health Administration (VHA).

In 1866 under President Lincoln's administration, the first VHA medical facility was established. It was a soldier's and sailor's refuge that served honorably discharged, volunteer soldiers. This refuge served soldiers until 1918 when World War I ended. At that time, a significant change took place in Veterans healthcare services. The Public Health Service "specifically leased hundreds of private hospitals and hotels for the rush of returning injured war Veterans and began a program of building new hospitals" (Department of Veterans Affairs, n.d.). Since inception almost two centuries ago, the VHA has evolved. "The Executive in Charge, Office of the Under Secretary for Health, directs a healthcare system with an annual budget of approximately $68 billion, overseeing the delivery of care to more than 9 million enrolled

Veterans. VHA, the nation's largest healthcare system, employs more than 322,030 full-time health care professionals and support staff at 1,255 healthcare facilities, including 170 VA Medical Centers and 1,074 outpatient sites of care of varying complexity" (Veterans Health Administration, n.d.). Present-day, the Department of Veterans Affairs notes that "VHA is the nation's largest provider of graduate medical education and a major contributor to medical and scientific research. More than 73,000 active volunteers, 127,000 health professions trainees, and approximately 15,000 affiliated medical faculty are also an integral part of the VHA community" (n.d).

It has been exciting to watch how the VHA has evolved over the years in the care they provide the Veteran. Although the largest and most comprehensive healthcare system in the world, VHA is not without challenges. In 2014, it was alleged at least 35 Veterans died while awaiting appointments at the Phoenix, VA. Veterans were not able to obtain medical appointments within the VA Directive mandated 14-day scheduling window. It was found that VHA employees falsified documents and used unofficial wait lists to make it look as if Veterans were being scheduled on time.

Further investigation revealed that this was not just an issue at the Phoenix VA, but at VHA facilities nationwide. Over 120,000 Veterans were identified as not receiving appointments within allowable wait times. This aspersion led to the resignation of Secretary of Veterans Affairs Eric Shinseki, and legislation for a revamp and funding of the VA occurred. The exact cause of Veterans being unable to obtain care within the VHA system is still uncertain.

1.2 Problem Statement

There is a population of 22 million United States Veterans worldwide. At present, the VHA has a total of 9.17M Veterans enrolled in care. Of those enrolled in care, 6.34M Veterans are treated annually. The demand for care is expected to increase, specifically for specialty care. The "near-term increase in demand for care may outpace the VA's capacity to provide timely care to all veterans" (Farmer et al., 2016, p. 5). It has been hard to determine if the current legislation will improve the access issues for Veterans. A 2016 Inspector General (IG) report makes it clear that despite the media and congressional attention and the additional funding provided, the VA continues to struggle (Wilensky, p.1). The VA has reported increased demand, but the causes and solutions are still unknown (Wilensky, 2016, p. 452). Within the VHA system's limited capabilities to provide adequate healthcare access for the Veteran, questions asked are:

- What is the cost of providing care to veterans in non-VHA facilities?
- What does the demographic of that cost look like within the VHA population?
- What type of care is the Veteran receiving in non-VHA facilities?
- Are there any trends in admissions and costs in Veterans healthcare delivered in Non-VHA facilities?

1.3 Research Question and Research Hypothesis

This is an exploratory, descriptive study that does not include an initial hypothesis but will generate research questions for future research. There will be no hypothesis to be tested, just a detailed look at what is occurring in Veterans healthcare. This study may give VHA leadership insight to pinpoint where the monies are spent in non-VHA care, so the efforts for access improvement are more focused. The information presented will provide a visual on where

resources are specifically expended. This may provide a good starting point for VHA health administrators to address how to improve access issues and bring Veteran care back in-house or streamline the non-VHA care program. Healthcare provided in a VHA facility may make it easier to control quality and costs.

1.4 Population

The population will study Veterans of different ethnic backgrounds. These Veterans were discharged from an NC hospital in 2016. Women represent 10% of the total Veteran population. In addition to the women, the Veteran population is 81% White, 12% Black, 1% Asian, 7% Hispanic, 0.7% American Indian/Alaska Natives, and 3% fall into other categories (VA Benefits and Healthcare Utilization, 2019, p.1).

CHAPTER 2 LITERATURE REVIEW

2.1 Overview

A review of the literature was performed using all primary resources obtained through Google Scholar. A keyword search using words such as "cost of va care," "VA access to care," "VA as payer," "veterans admissions in non-VHA facilities, "VA healthcare costs," "Veterans Health Administration," "VA Mission Act," "VA Choice Act," and "non-VHA care for Veterans. The period researched was 2009-2019. The literature review and research support that access problems for the Veteran can be attributed to geographic location and provider shortages.

2.2 Access

While access to care has always been an enduring problem in the VHA, it has gained a bigger spotlight in the past six years. The problem with access arises from varying factors, "inadequate numbers of primary care providers, aged facilities, and overly complicated scheduling processes have thwarted the VA's efforts to meet soaring demand for services" (Kizer et al., 2014, p. 295). Access to health care means having "the timely use of personal health services to achieve the best health outcomes" (IOM, 1993). Access to health care consists of three steps:

- Gaining entry into the health care system (usually through insurance coverage)
- Accessing a location where needed health care services are provided (geographic availability)
- Finding a health care provider whom the patient trusts and can communicate with a personal relationship (HealthyPeople, 2020).

The literature supports that the VHA has struggled in providing Veteran geographic availability and sufficient providers to meet their unique care needs. Geographic barriers are a constant and

consistent issue with Veterans accessing services at VHA facilities. Rural Veterans travel further to VHA hospitals than local hospitals as the VHA, "reflected in the fact that of 153 VHA hospitals less than one-fourth are located in rural or highly rural areas" (Buzza et al., 2011, p. S649). A University of Southern Maine longitudinal study on rural Veterans addressed "barriers to health care access included travel issues (involving time, distance, and cost), lack of transportation, limited availability of VA services, lack of behavioral health and other specialty services, and inadequate provider supply" (Gale et al., 2013, p. 50). The National Rural Health Association noted that up to four million Veterans faced geographic issues that delayed their medical care (Nayar et al., 2012, p. 71). Geographic barriers are occurring nationwide and bring different problems for Veterans' access to care, depending on their region. Even still, the highest concentrations of veterans are found in rural and nonmetropolitan US counties" (Buzza et al., 2011, p. S648). Veterans in the Midwestern areas can travel anywhere from 1 to 200 miles for a VHA primary care appointment. These distance barriers continue to cause delayed care or no care at all, and Veterans experience a lower health quality of life. In this region, Veterans' travel distance was found to be the strongest predictor of poor retention in treatment of serious mental illness" (ibid).

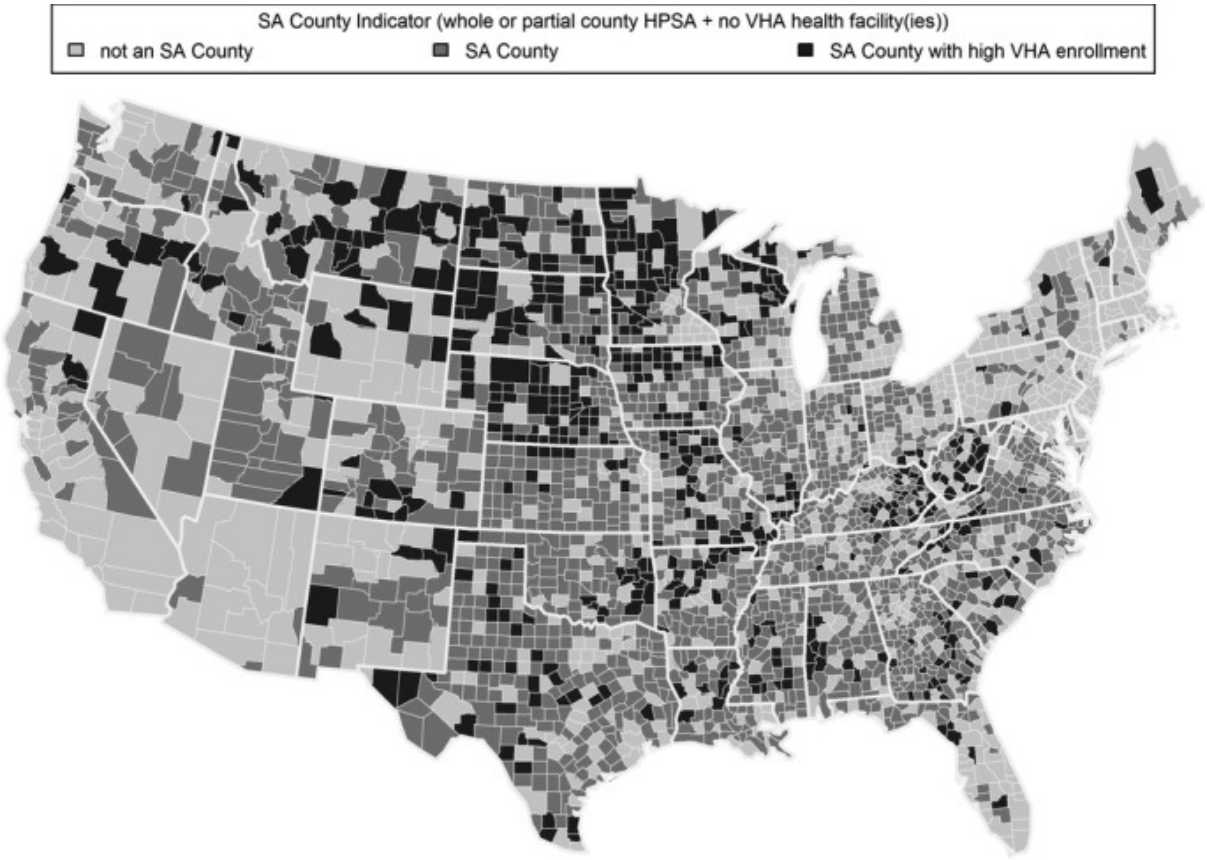
Geographic availability can vary from state to state. Some states may or may not have a geographic hurdle as high as in other areas, but a barrier, nonetheless. In the state of NC, the access challenge continues. The “limited number of VA sites of care within the state has created an environment where NC Veterans have experienced increased wait times” (Hoffman, 2015, p. 309). In NC, 31 facilities are servicing 100 counties. Rural Veterans face extreme challenges accessing care from a VHA facility. "Only 25 percent of Veterans live within a 60-minute transit time from a VA medical facility" (Balancing Demand and Supply for Veteran's Healthcare,

2016, p. 7). Not included is the percentage of Veterans that need specialty care. Only half of Veterans live within 40 miles of cardiology or oncology services (ibid).

2.3 Provider Shortages

Provider availability has contributed to the problem with access. Access to care is a national issue in America and affects all healthcare organizations to include the VHA. Dr. John Geyman (2014) states, "we can draw two parallels between the VA system and our civilian counterpart. Both are challenged by increasing demands for primary care at a time when we have a national shortage. Both are encouraged by various financial incentives to misrepresent performance and actual services delivered to increase funding" (p. 1). A systematic review of the determinants of geographic choices providers make found that "less 12% of US physicians practice in rural areas" (MacQueen et al., 2017, p.1). In a Health Service Research study on Veterans Location in Health Professional Shortage Areas, it was identified that "of the 644 rural counties in the United States, 627 are considered Shortage area counties and 232 counties-or 36 percent- are rural shortage areas with high VHA enrollment" (Doyle et al., 2017, p.474.).

Figure 1. Provider Shortage Areas by US County



HPSA: HRSA-designated health professional shortage area (primary care or mental health or both)
High VHA Enrollment: proportion of enrolled Veterans > 0.493 (3rd quartile)
Not shown: Alaska (24 SA Counties), District of Columbia (0 SA Counties), and Hawaii (1 SA County)

(Doyle et al., 2017, p. 474)

A retrospective study identified provider availability as a concern stating that" a challenge will be to identify and contract with non-VHA providers in communities where Veterans live. This may be particularly difficult in communities that are already underserved by healthcare providers" (Ohl et al., 2018, p.2).

The state of Georgia (GA) recognizes provider shortages as an access problem and is looking for ways to remedy this problem in their state. It is indicated that "nearly two-thirds of GA's counties fall below the statewide average number for each professional category of nurses, physician assistants, total doctors, and primary care doctors per 100 residents" (Sweeney, 2016,

p. 1). The VHA consistently has the challenge of recruiting and maintaining staff in all geographic locations. The providers contracted must be able to handle the complex needs of Veteran patients. Non-VHA providers usually have a limited understanding of the military culture, service-connected health issues, and the post-deployment health and behavioral healthcare needs of rural veterans (Gale et al., 2013, p. 50). Providers are just not available in these locations to handle the number of Veterans needing healthcare. Among geographic availability and provider shortages, there are other causes access problems for Veterans exist.

Problems with access could be attached to the wars on terrorism the US has faced the past two decades. This has caused an increased number of Veterans using VHA services. Recent wars in Iraq and Afghanistan have brought home an abundance of military members with various medical problems. These problems include complex diseases such as Post Traumatic Stress Disorders (PTSD), Traumatic Brain Injury (TBI), depression, and multiple other comorbidities. Veterans suffer from illnesses such as cancer, diabetes, and significant mental health issues (Farmer et al., 2016, p. 3). Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF)Veterans have reported distance and location as a barrier to accessing VHA healthcare services as well (Elnitsky et al., 2013, p. 7).

This influx of Veterans has brought women Veterans to the forefront with special needs to be addressed. A study performed at the University of Massachusetts revealed that "the number of women Veterans using VHA has nearly doubled in the past decade, from 175,698 in FY 01 to 316,903 in FY 10" (Frayne & Mattocks, 2012, p.2). Women Veterans pose a unique population within the VHA health system as they have specific health needs that cannot always be treated in a VHA facility. There has been extensive reform with the VHA programs to include more services and resources for women veterans to decrease their access to care issues. "Women

veterans still under-utilize VA healthcare relative to men, with 15% overall market penetration in women veterans contrasted to 22% market penetration for men Veterans" (Washington et al., 2011, p. S655). The underutilization may be attributed to the VHA's inability to handle "specific healthcare needs of women from gynecological health to pregnancy issues to ovarian and cervical cancers" (Reveal, 2012, p.2). Other reasons for delayed care for women are socioeconomic to include not being able to afford care, childcare issues, and not being able to take time off work.

2.4 VA Capabilities to address access issues

When the VHA is unable to provide care to Veterans, they reimburse other providers to provide care. This care is provided under Non-VA care or, Fee Basis care. It is now called the Veterans Community Care Program. Non-VA care (*Fee Basis*) care started in 1945. VA Chief Medical Director at the time recognized that the VHA would need help with World War II Veterans care. He created what was called the Hometown Program. Veterans could be treated by community providers for medical and dental care and obtain medications from the local pharmacy (non-VA medical program). The Veterans could receive care in the community by a provider of their choice. Although there has always been some form of non-VHA care for Veterans, legislation has reshaped it. Non-VHA care has changed in two ways, "first, appointment wait times are now used as an eligibility standard, and second, the Veteran rather than the VHA now makes the determination of need" (Kelley et al., 2019, p.

2.5 Legislation

Historically, the “VHA has always supplemented the care it delivers with services purchased from the private sector through a series of local individual arrangements managed by VA Medical Centers” (Farmer & Tanielian, 2019, p. 1). The Phoenix VA scandal catapulted

specific legislation to address the access problems specifically. Congress gave the VA 90 days to implement a solution after the Phoenix scandal. This solution was the VA Choice Act of 2014. This Act was enacted on August 7, 2014. The VA Choice Act expanded access for veterans to obtain healthcare outside of a VHA facility. Criteria to seek care outside the VHA under the VA Choice Act include:

- The Veteran is told by his/her local VA medical facility that he/she needs to wait more than 30 days from his/her preferred date or the date medically determined by his/her physician.
- The Veterans' current residence is more than 40 miles from the closest VA health care facility.
- The Veteran resides in a location other than Guam, American Samoa, or the Republic of the Philippines and needs to travel by plane or boat to the VA medical facility closest to his/her home.
- The Veteran faces a geographic challenge, such as extensive distances around water or other geologic formations, such as mountains, that presents a significant travel hardship. (Veterans Access, Choice and Accountability Act, 2014)

With access still bearing a significant problem for Veterans, policymakers had to dive deeper into the issue and further expand access. The VA Choice program ended in 2019, and the VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (VA MISSION) Act of 2018 was created. The Act was designed to set up a Veterans Community Care Program to provide care in the community to veterans enrolled in the VA healthcare system or otherwise entitled to VA care. The difference with this Act and the Choice Act is that the

Veteran has more options to claim eligibility to receive care outside of a VHA facility. It was enacted on June 6, 2018. Criteria to seek outside the VHA under the MISSION Act include:

- The Veteran needs a service not available at a VA medical facility.
- Veteran Lives in a US Territory Without a Full-Service VA Medical Facility.
- Veteran Qualifies under the "Grandfather" Provision Related to Distance Eligibility for the Veterans Choice Program.
- VA Cannot Furnish Care within Certain Designated Access Standards.
- Is it in The Veteran's Best Medical Interest?
- A VA Service Line Does Not Meet Certain Quality Standards. (VA MISSION ACT of 2018, 2019)

Healthcare provided in VHA facilities are funded by Veterans Equitable Resources Allocation (VERA) dollars. The VHA uses information combined from nine databases to decide how to allocate resources to each VHA facility. The data is summarized by each facility based on their hospitalizations and patient visits from the previous year. Each VHA facility receives a unique amount. With the passing of new legislation, VA Choice Act, and VA MISSION Act, non-VHA care, monetary resources have been specifically allocated to pay for outside care. According to a RAND assessment, "cost and demand for purchased care have increased almost three-fold over the past decade, and this trend will likely continue" (Balancing Demand and Supply for Veteran's Healthcare, 2016, p. 16). In 2002, $890 million was spent serving 7.8% of VA patients, $3.03 billion allocated to serve 16.2% of VA patients, and $5.57 spent billions to serve 21.2% of VA patients (ibid). There has been a consistent increase of money spent. In the FY 2020 budget request, VA estimated purchased care costs of $15.3 billion. With the documented cost increases since 2002, it would not be a stretch to expect that purchased care

will continue to increase. The monies have been designated. There seems to be no shortage of funds to address the issue of access with the VHA. It will be fascinating to see how the money is utilized in terms of the Veteran accessing the expanded non-VHA services available to them. More specifically, what type of care and what type of other healthcare facilities are servicing our Veterans.

2.6 Population

Under the current legislation, VA MISSION Act, Veterans can receive all comprehensive care the VHA cannot provide within an established criterion. This list is not all-inclusive, but it includes outpatient care, inpatient care, specialty care, and emergency care. The veteran population is a unique population with an abundance of ailments. There is a mixture of Veteran types and the kind of care they receive both within the VHA and outside of the VHA. Rural Veterans "get more than half of their care through non-VA sources, relying mostly on the VA for prescription drugs and inpatients visits associated with surgery" (Farmer et al., 2016, p. 3). The VA population is older, with more than half of the population being 65 years old or older and located in rural areas. There is also a younger, working-age population that relies on VA care as well. It is not surprising that "veterans who are enrolled in VA have higher rates of chronic, disabling conditions, many of which are due to their military service or aging" (Farmer & Tanielian, 2019, p. 12). "The relatively high rates of these conditions for VA patients-combines with otherwise rare conditions related to combat, such as limb loss, traumatic brain injury, blindness, and severe burns-mean that VA providers handle a patient mix that differs from community providers "Veterans enrolled tend to be poorer than non-enrolled Veterans, located in rural areas, and do not have access to other healthcare coverage" (Farmer et al., 2016, p. 3). Women Veterans are relying more on the VHA for their health needs to be met. They represent

10% of the total veteran population. In addition to the female Veteran, the Veteran population racial makeup is 81% White, 12.7% Black, 1.8% Asian, 7.7% Hispanic, and 0.7% American Indian/Alaska Natives, and 3.7% fall into other categories (VA Benefits and Healthcare Utilization, 2019, p.1).

CHAPTER 3 METHODOLOGY

3.1 Research Design

This is a quantitative exploratory, and descriptive study is to identify and describe the trends and costs of healthcare delivered to Veterans in non-VHA facilities. This study will help determine if the resources being expended for non-VHA care under the VA MISSION Act are correctly addressing the access issues the VHA is facing. This descriptive study will use retrospective archival data to document the specifics to which the VHA uses non-VHA care. The data will be used to analyze if access to care for Veterans is increasing or decreasing. There is no hypothesis to be tested at the time, as this is a hypothesis-generating study.

3.2 Sample Selection

This study will identify all adult inpatient non-VHA Veteran admissions, aged 0-99, during 2016. This study will focus on Veterans seen in the state of NC, where VA is listed as the primary payer for healthcare. It will exclude Veterans that have used other methods for payments or commercial insurances.

3.3 Instrumentation

This study will analyze non-VHA healthcare from the Healthcare Cost and Utilization Project (HCUP) sponsored by the Agency for Healthcare Research and Quality (AHRQ). HCUP has the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information. These databases allow exploration on a wide range of health policy issues, to include cost and quality of health services, medical practice patterns, access to healthcare programs, and outcomes of treatments at the national, state, and local market levels (Healthcare Cost and Utilization Project (HCUP), 2020). HCUP uses various databases to obtain the data available. The specific data used in this study will be obtained from the State Inpatient

Database (SID). SID will include inpatient stays in a given state. This database documents principal and secondary diagnosis and procedures, admission and discharge status, payment source, total charges, and length of stay (LOS) (SID database documentation, 2019). This data is vital to present accurate information on how monies resourced for Veterans non-VHA care are utilized. The type of care received will be identified using the International Classification of Diseases 10th Revision (ICD-10) codes. The data will be presented in tables. The tables will include population-based demographics such as age, race, and gender. Diagnoses and procedures, geographic location, comorbidity burden as measured by the Elixhauser index (Elixhauser et al. 1998), Length of Stay (LOS), and total charges will be shown.

3.4 Data Analysis

The use of descriptive statistics in Statistical Products and Service Solutions (SPSS) was used to explore the findings of the inpatient Veterans admitted for Non-VHA care. An overview of demographics, such as gender, race, and age, was investigated. Specific admission characteristics such as LOS, Total charges, Admission types, discharge disposition, and admitting diagnosis were analyzed. The analysis uncovered any trends, patterns, and relationships between the demographics and admission characteristics. Chi-square testing reveals statistical significance in the NC population versus NC VHA inpatient population. Statistical analysis of the data will provide a comprehensive evaluation of the demographics, type of care, and cost the Veteran across geographic locations.

CHAPTER 4 RESULTS

4.1 Results/Findings

Table 1 expresses a total of 3,833 patients, 46 of whom were newborn born to Veteran mothers. These newborns are described later in Table 2, then subsequently removed from further analysis. The Veterans were between the ages of 0-99 and had an inpatient non-VHA admission in the state of NC in 2016. They were admitted into 57 hospitals throughout NC. Comparisons between all NC Veterans and those receiving non-VHA care were made using Chi-square testing. Male Veterans were more commonly seen for inpatient care than female Veterans (92% vs. 8%). When comparing the sex distribution between NC Veterans as a whole and those seen for non-VHA inpatient care, men were more likely to receive non-VHA care than females (89% vs. 92%, respectively; $p<0.001$).

The age group 60-69 (42%) had the highest admission rate. When comparing the age distribution between the NC Veterans as a whole and those seen for non-VHA inpatient care, older Veterans were most likely to be admitted (42% vs. 2%, respectively; $p<0.001$). Racial distribution showed Whites, non-Hispanic (65%) were admitted above other racial groups. Blacks (31%), Other (2.7%), Native American (1%), and Hispanic (0.90%). The Other category includes Asians, other races, and Unknown. Blacks had a higher percentage of non-VHA admissions than the blacks in the NC VHA population (31% vs. 21%).

Table 2 represents the Newborns included in the admissions. There were 46 newborns. Half were male (50%), and half were female (50%). Racial distribution showed Whites, non-Hispanic (56%), are the highest racial group. Black (26%) and the Other category held <11 patients and thus are suppressed per the Data Use Agreement. The newborn's total charges are $167,841±$32,352. They had an average LOS of 3.82±6.32. The maximum days was 34.

As shown in Table 3, 122 Veterans died. Emergencies (65%) accounted for more than half of the admission type. Elective (20%), Urgent (12%), and Trauma (1%) patients. The average LOS was 5.32±6.26. More than half of the Veterans discharged were Routine (67%), discharged to home or self-care. There are ten most frequent diagnoses upon admission. Abnormal breathing was the most common at 7%. The most common admission diagnosis accounted for 35% of the Veterans admitted. The total charges for these admissions were $179,318,441±52,541. The median was $28,828, Quartile 1, $15,137, Quartile 3, $59,365. The mean charges were $46,782.

The Charlson comorbidity scale scores are expressed in Table 3. Over half (62%) of the Veterans admitted held one or more comorbidities. Table 4 displays the comorbidities associated with the Charlson Scale. Veterans admitted with 17 of the 22 possible comorbidities categories. Chronic Pulmonary Disease (21%), Diabetes (28%), and Congestive Heart Failure (21%) were the top three comorbidities that accounted for over half of the admissions.

Table 5 represents the Patient Location divided into Metropolitan, Urban, and Rural areas. Rural areas held the smallest total at 2%. Urban areas held a total of 24%, and the metropolitan regions held the highest total at 73%.

Figure 2 represents the Veterans residence by state. Veterans resided in 25 states other than NC, and NC Veterans accounted for 94% of the admissions. The bordering states of South Carolina (SC) at 2%, Virginia (VA), at 1%. Figure 3 showcases the top ten counties in NC that are considered rural. According to the DVA, a rural area has a population of 2500 or less (VA.gov Veterans Affairs, n.d). Table 5 is the Veteran Location divided into Metropolitan, Urban, and Rural areas. Only 2% of the Veterans resided in a Rural area. Urban Veterans were 24%, and Metropolitan area Veterans held the highest total at 73%.

Table 1: North Carolina (NC) Veteran Demographics and Non-VHA Inpatient Demographics

Demographic	NC Veteran Population n=718,481	NC Veterans who received Non-VHA Inpatient Care n=3,833	p-value
Gender:			
Male	638,962 (89)	3,537 (92.3)	< 0.0001
Female	79,519 (11)	293 (7.7)	
Age:			
0-29	39,366 (5)	99 (2.5)	< 0.0001
30-39	76,522 (11)	192 (5)	
40-49	93,904 (13)	277 (7.2)	
50-59	132,066 (18)	741 (19.3)	
60-69	140,709 (20)	1,642 (42.8)	
70-79	149,172 (21)	628 (16.3)	
80+	86,751 (12)	254 (6.6)	
Race:			
White, non-Hispanic	533,090 (74)	2476 (65)	< 0.0001
Black	152,882 (21)	1168 (31)	
Hispanic	13,234 (1.8)	34 (.90)	
Native American	6,140 (0.85)	51 (1.3)	
Other	13,135 (1.8)	104 (2.7)	
All values expressed as n (%). All columns may not sum to column total due to missing/suppressed data			

Table 2: North Carolina (NC) Newborns born to Veteran mothers in 2016

Demographic	n=44
Gender:	
Male	22 (50.0)
Female	22 (50.0)
Race:	
White, non-Hispanic	26 (56.5)
Black	12 (26)
Other	< 11
Total Charges:	$167,841 ± 32,352
Length of Stay:	3.8 ± 6.3
All values expressed as n (%) or mean ±SD. All columns may not sum to column total due to missing/suppressed data	

Table 3: Characteristics of Veterans who received Non-VHA Inpatient Care in North Carolina (NC) in 2016

Characteristic	NC Veterans who received Non-VHA Inpatient Care n=3,833
Admission Type:	
Emergency	2513 (65.5)
Urgent	469 (12.2)
Elective	779 (20.3)
Trauma	69 (1.8)
Other	< 11
Types of Care:	
Medical Care	2508 (65.4)
Surgery Cases	1325 (34.5)
Disposition	
Routine (Discharged to home or self-care)	2,553 (67.6)
Home Health Care	530 (13.8)
Transfer to SNF, ICF	439 (11.1)
Transfer to short-term hospital	154 (4.0)
Died	122 (3.2)
Against Medical Advice	45 (1.1)
Most Common Admitting Diagnoses	
Abnormal Breathing	289 (7.5)
Osteoarthritis of knee	192 (5.0)
Pain in throat and chest	191 (4.9)
Abdominal and Pelvic Pain	149 (3.8)
Cognitive Function and Impairments	104 (2.7)
Other Sepsis	103 (2.6)
Malaise and Fatigue	89 (2.3)
Heart Failure	86 (2.2)
Acute Myocardial Infarction	82 (2.1)
Other COPD	78 (2.0)
CharlScore	
0	1428 (37.2)
1	619 (16.1)
2	584 (15.2)
3	498 (12.9)
4	311 (8.1)
5+	393 (10.2)
Outcomes:	
Length of Stay (LOS)	5.3 ± 6.2
Mean Total Charges	$46,782
Total Charges Median [Q1-Q3]	$28,828 [15,137-59,365]
All values expressed as n (%) or mean ±S. D, or as otherwise noted. All columns may not sum to column total due to missing/suppressed data	

Table 4: Prevalence of Comorbidities among Veterans receiving inpatient Non-VHA Care in North Carolina (NC) in 2016

Comorbidity	n (%)
Chronic Pulmonary Disease	1,143 (21.7)
Diabetes	1,106 (28.9)
Congestive Heart Failure (CHF)	823 (21.7)
Renal	737 (19.2)
Myocardial Infarction (MI)	548 (14.3)
Any Malignancy	475 (12.3)
Peripheral Vascular Disease	414 (10.8)
Diabetes w/ Chronic Complications	362 (9.4)
Cerebrovascular Disease	298 (7.7)
Mild Liver Disease	272 (7.1
Solid Tumor w/ Mets	194 (5.0)
Dementia	137 (3.5)
Hemiplegia or Paraplegia	100(2.6)
Severe Liver Disease	83 (2.1)
Peptic Ulcer Disease	61 (1.5)
Rheumatic Disease	61 (1.5)
HIV	< 11
All values expressed as n (%). Many patients had multiple comorbid conditions.	

Table 5: Veteran residential location: Metropolitan-Rural-Urban Continuum Codes (RUCC)

Characteristic	n=3,833
Metropolitan	2,804 (73.0)
Urban	949 (25.6)
Rural	75 (2.2)
Missing	< 11
All values expressed as n (%). All columns may not sum to column total due to missing/suppressed data	

Figure 2: Map of Residential Location by State of Veterans who received non-VHA care in 2016

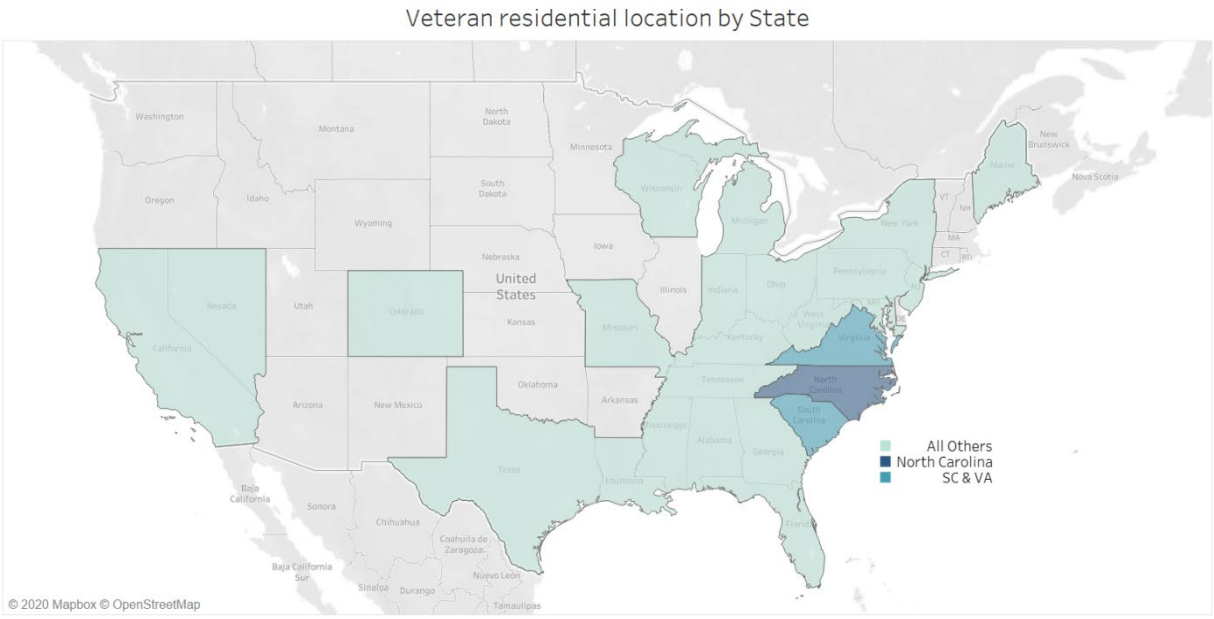
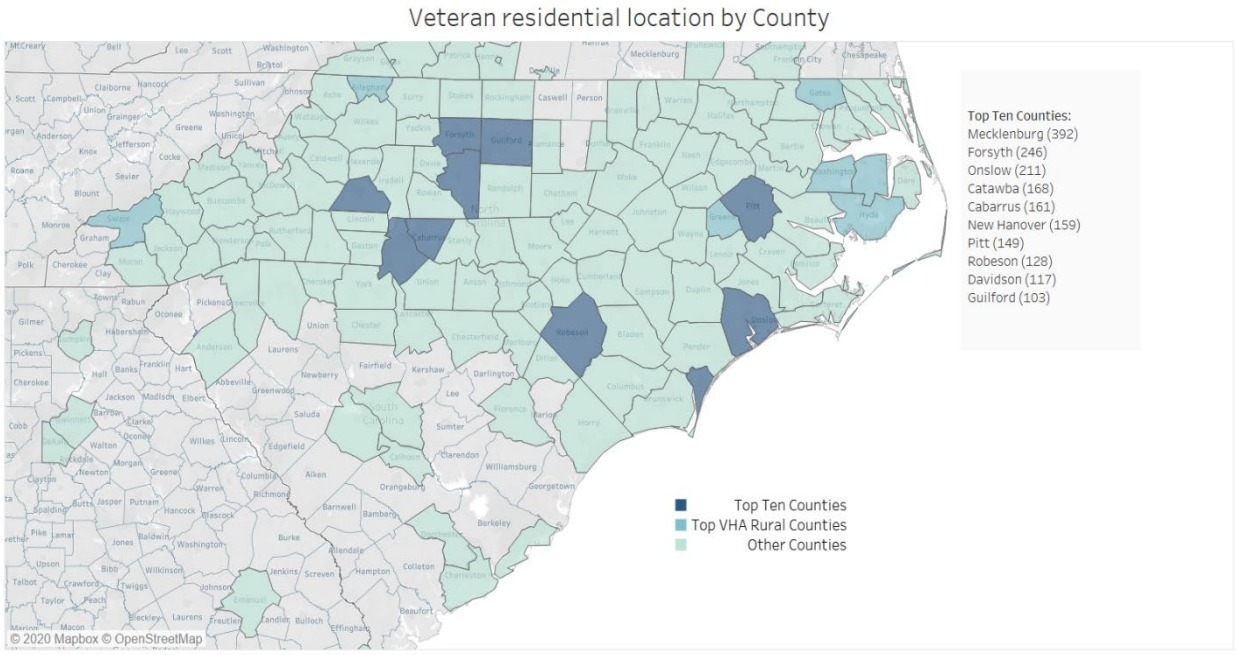


Figure 3: Map of Veteran Residential Location by County of Veterans that received non-VHA care in 2016



CHAPTER 5 DISCUSSION

5.1 Discussion of Results

This study presented a retrospective analysis of Veterans that received non-VHA healthcare in NC during 2016. Several research questions are answered through data analysis.

Are the Veterans more male or female obtaining non-VHA care? There were 335,505 Veterans enrolled in the VHA healthcare system in 2016 in NC. Of those, 235,308 unique patients were treated (National Center for Veteran Analysis and Statistics, 2018). There were more male Veterans admitted for care than female Veterans. Female Veterans continue to take up a smaller number when it comes to receiving care. Females Veterans are behind male Veterans in the overall national Veteran Population when it comes to enrolling and receiving VHA care (89% vs. 11%). This result supports the evidence in the literature review. Female Veterans did receive less treatment at a lower rate than male Veterans and seemed to have more barriers than males when accessing care. They faced obstacles with childcare, such as taking time off work to obtain care. White males overall received more care than all other races. This is reflective of the overall NC population, where white males Veterans had the highest population.

Are the Veterans older or younger? The majority of the admission types were Emergent, but there was a high number of elective admissions. The elective admissions coincide with the objective of the VA Choice Act of 2014 and the VA MISSION Act of 2018. Under these laws, Veterans are eligible to receive coordinated care at a non-VHA facility to meet access standards. Older Veterans accounted for more admissions than younger Veterans, in particular older Veterans aged 60-69. Older Veterans do tend to suffer more from chronic illnesses such as CHF, CPD, and Diabetes. Over half of the Veterans admitted had one or more comorbidities that included these illnesses.

How many Veterans used non-VHA care? The 3,833 admissions accounted for 1% of the Veterans eligible for VHA care. This statistic implies that only a small number of Veterans are seen in a non-VHA facility. This may not be a significant amount to indicate an access problem, but does garner an investigation to see of this care could stay within the VHA. Other factors such as admission type that may show that care received was not due to access problems. The black race population received a higher percentage of care vs. the black population enrolled in NC for VHA care (31 vs. 21%). A more in-depth look into the reason for this is needed.

What geographic areas is the care located? This look at the data did not support previous literature that the access problem is primarily attributed to the Veterans residing in a rural area. Veterans who accessed care outside of a non-VHA facility were located in more metropolitan areas than rural areas. The top ten counties the VHA considers rural in NC did not account for any hospital discharges. It was interesting to see that all the Veterans who received care in North Carolina did not reside in NC. Veterans were from different parts of the United States. Most of the Veterans lived in NC, but the neighboring states of VA and SC had a significant amount of their residents admitted.

What type of care is Veteran receiving? The Veterans are admitted as different admission types with a variety of admission diagnoses and diseases. Over half of the Veterans admitted had multiple comorbidities. Older Veterans do tend to suffer more from chronic illnesses such as CHF, CPD, and Diabetes. Over half of the Veterans admitted had one or more comorbidities that included these illnesses. Less than half of the admissions (34%) were for surgery. When surgery was obtained, the most common surgery was major joint replacement of a lower extremity. Overall, there was a wide breadth of care received was too sporadic to determine trends, patterns, or relationships. This could imply that access problems are not just a

matter of Veterans being located in rural areas. The type of care received may be an important factor in accessing care at a VHA facility.

What are the total charges for non-VHA care? The average LOS was five days, and the cost average cost of care for each Veteran was $46,782. The total charges for care are close to $180 million. This knowledge will be valuable in budget planning to determine what resources will be needed to deliver future healthcare.

Has the care received changed access issues in specific geographic locations? The results do not indicate if the care obtained helped with the access problems within the VHA, as described in the literature review. We have not been able to gauge if the Veteran admission into the non-VHA facility has changed the access problem with the VHA or, at least, NC. This is due to not having the access numbers before the start of the study to measure.

5.2 Limitations

First, the analysis in this study only examined inpatient care. The legislation allows for funding for all comprehensive care to include inpatient, outpatient, specialty, and emergent care. The data does not cover outpatient or specialty care received. Second, the administrative information is just a snapshot in time in North Carolina during 2016. The legislation for the access problems within the VHA started in 2014, and funding continues today. It may be impossible to recognize trends and patterns and connect relationships within the data with only one year of inpatient data. Third, there could be inconsistencies in what is considered a rural area. Four different organizations calculated rural areas in four different ways. The VHA has its definition of a rural area as well. The use of RUCC rural criteria was used in this study because the VHA used their standards to determine their rural areas. Both use a population of 2500 or less, whereas the other two organizations did not.

5.3 Future Research

This study provided an overview of how the resources given towards the VA Choice Act of 2014 and the VA MISSION Act of 2018 are being utilized to address access problems. The limitations of the study discussed above leave room for future research into VHA's community care program. Future studies examining the outpatient care received over a period of time would provide a total picture of the care received, spending, and trends/patterns. A comparison of access before care and after care obtained each year should be examined to find trends increasing or decreasing access issues. Future research on specific access numbers and focus study efforts on tracking how the legislation passed helps solve the problem.

Further studies that address the definition of access within the VHA is needed. There is an abundance of quantitative literature addressing the access problem for female Veterans. The barriers for female veterans can be looked at from a qualitative perspective through focus groups and surveys. The results of those studies may be applied to specific performance improvement and quality initiatives within the VHA. Cross-sectional and longitudinal studies using SID data could provide a better analysis recognizing trends, patterns, and relationships to make changes within the VHA. The VHA considers not meeting wait times as a reason for access standards not being met. Further studies on wait times comparison within the VHA and non-VHA providers could be helpful. Future research would be valuable to implement evidence-based changes within the VHA.

5.4 Conclusion

The Veteran Community Care Program is the current solution to VHA access problems. This exploratory study may be too small to address the access problems within the VHA, but open the conversation for more research. This study was just the tip of the iceberg on VHA

access problems. As the VHA works to improve access, conducting further studies will help implement strategic changes.

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