

Hypertension and Health Equity in an FQHC Setting

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Abstract

Hypertension (HTN) in the United States (US) is prevalent with African Americans suffering from increased disease burden and negative health sequelae when compared to other racial/ethnic groups. A team-based approach to HTN care has been found in literature to support BP control among the African American population. This Quality Improvement (QI) project took place at a Federally Qualified Health Center (FQHC) healthcare system in a suburb of Portland, OR, where African Americans have been shown to have decreased rates of BP control when compared to other racial/ethnic groups. A cross-sectional retrospective review (RR) of Uniform Data System (UDS) data from 2021 of adult patients with HTN within the organization was performed to examine factors that may contribute to poor blood pressure (BP) among the African American patients. This RR showed that similar to current literature findings, patients with increased contact with clinic staff helps to increase their HTN control. The FQHC's standard of care (SOC) was updated to reflect these findings and promoted among organizational leadership and staff. The aim of this QI project was to increase knowledge among healthcare providers and organizational leadership of factors that may contribute to poor BP control in African Americans at this organization in order to close racial/ethnic gaps in health status and promote health equity.

Hypertension and Health Equity in an FQHC Setting

Introduction

Problem Description

Hypertension (HTN) is the foremost cause for patients to present for care at healthcare clinics in the United States (US) (Basile & Block, 2022). Between 2011-2014, 54.7 million US adults took antihypertensive medications with almost half not meeting their blood pressure (BP) goal according to 2017 ACC/AHA guidelines (Munter et al., 2018; Whelton et al., 2018). Uncontrolled HTN puts patients at increased risk of developing cardiovascular disease which can lead to heart disease, stroke, chronic kidney disease, heart failure, and an overall increase in all-cause mortality (Anstey et al., 2019; Eck et al., 2021). In the US, HTN is more common in older adults, males, African Americans, and people living in rural areas. Up to 55 percent of African American/Black adults have HTN, with the disease often more severe and less controlled when compared to Caucasian adults with HTN (Egan, 2022a; Whelton et al., 2018). African Americans also have increased morbidity and mortality due to HTN with almost two times higher risk of fatal stroke, one and a half times greater risk of heart failure, and over four times risk of developing end stage renal disease from HTN (American Heart Association, 2022; Whelton et al., 2018). In Oregon, of all racial groups, African Americans are noted to have the highest rates of HTN, with almost 39 percent having this disease compared to 27 percent of whites and 29 percent of Latinos with HTN (Oregon Health Authority, 2018).

This project took place at a Federally Qualified Health Center (FQHC) healthcare system in a suburb of Portland, OR, where African Americans have been shown to have poorer BP control when compared to other racial and ethnic groups. This project was a cross-sectional retrospective review of Uniform Data System (UDS) data from 2021 of patients who have HTN.

The review evaluated for factors that could contribute to poor BP control based on literature findings to increase knowledge among clinic leadership and healthcare providers regarding these potential contributing factors and to propose guidance on how to best support African American/Black patients with HTN at these clinics.

Available Knowledge

A literature review was conducted from July 25, 2022 to August 11, 2022. PubMed and Scopus databases were searched for English-language articles published between 2017 and the present. PubMed MeSH terms included: *Hypertension, Hypertension/ diagnosis, African American, Antihypertensive Agents/therapeutic use, social determinants of health, socioeconomic factors, United States, and community health workers*. Keywords included: *African Americans, Black, hypertension, high blood pressure, health equity, ethnic groups, minority health, and primary health care*. Reviews and meta-analysis were identified. A total of 3 guidelines were reviewed, over 270 journal articles were found and 30 were reviewed based on relevance. References were additionally obtained from Centers for Disease Control and Prevention, health.gov, and heart.org. The term African American/Black is used throughout this paper to represent a person identifying as African American, Black, or having African ancestry living in the US.

HTN in African Americans

Researchers have tried to find a genetic factor that explains why African Americans have higher rates of HTN when compared to other racial and ethnic groups. There have been multiple hypotheses regarding genetic predisposition and cellular differences causing African Americans to have higher risk of and more severe HTN; however, to date none of these hypotheses have been proven (Maraboto & Ferdinand, 2020). More likely, the underlying mechanism of HTN in

African Americans is multifaceted with socioeconomic and environmental factors playing a vital role in the impact of HTN and its sequelae in African Americans (Maraboto & Ferdinand, 2020). Holt et al. (2022) found that patients who saw their primary care provider (PCP) more frequently had better BP control and note that socioeconomic and environmental factors influence a person's health and ability to care for themselves.

Interventions for HTN management in African Americans

A systematic review evaluated randomized controlled trials and observational studies from 2010-2020 regarding hypertension management in community health center settings in the US caring for underserved populations. This systematic review found that team-based approaches were the most effective method of reducing HTN in African Americans (Pasha et al., 2021). Integrating pharmacists, nurses, and/or community health workers (CHW) effectively reduce BP and improve patient satisfaction (Pasha et al., 2021). CHWs are effective at reducing care disparities among vulnerable communities by facilitating movement within the healthcare system and helping patients access community supports. Studies show that utilization of CHWs leads to decreased missed patient appointments, increased adherence to medications, improved patient outcomes related to chronic disease management, and decreased overall patient mortality (Boulware et al., 2020; Centers for Disease Control and Prevention, 2015; Ibe et al., 2021). In addition to the use of CHWs, multiple studies have shown that overall increased provider and clinic contact with patients, as well as pharmacist-led engagement and collaboration, improves BP in patients with low incomes. The addition of pharmacists to an interdisciplinary care team for patients with HTN further improves BP control (Eck et al., 2020; Ferdinand et al., 2017; Nguyen-Huynh et al., 2022; Pasha et al., 2021; Svarstad et al., 2022; Victor et al., 2018).

One example of a successful program to eliminate differences in BP control between African American/Black and white adults is within the Kaiser Permanente Health System in Southern California. Their culturally tailored program uses a coordinated team-based approach involving primary care providers and support staff, increasing provider-patient communication, decreasing the cost of medications, and focusing on personalized patient education to effectively address health behavior and improve adherence (Nguyen-Huynh et al., 2022). Evidence supports a team-based approach to HTN care as well as screening and addressing needs regarding SDOH.

Additional Barriers to BP control

Addressing social determinants of health (SDOH) and health equity is another way to support BP control. Health equity is defined as every person and community having an equal and fair opportunity to attain their highest level of health, while taking into consideration historical and current social injustices that have led to health inequities. Data shows SDOH impact over 50 percent of health outcomes while only 20 percent of outcomes are related to clinical care impact (U.S. Department of Health and Human Services, n.d; Whitman et al., 2022)

Multiple studies show that screening for unmet needs related to SDOH, coupled with referrals to community resources, improve blood pressure control (Berkowitz et al., 2017; Byhoff et al., 2022; McClintock & Bogner, 2017; Pourat et al., 2022; Shahu et al., 2019). Disenfranchised black communities living in neighborhoods with increased poverty rates are also associated with higher BPs. For example, in a longitudinal cohort study of African American/Black females and their children, Ibrahim et al., (2021), showed that females who are more socially vulnerable with decreased SES have a threefold increase in the likelihood of developing HTN. Racial segregation and discrimination simultaneously occur, and studies show that patients with HTN who experience discrimination are less likely to engage in the medical

system, underutilize preventative care, have poorer communication with their medical provider, and have an overall lower quality of care due to higher level of medical mistrust (Cockerman et al., 2017). Many studies have shown the relationship between stress, lifetime discrimination, and increased risk of HTN (Alvarez et al., 2021; Forde et al., 2021; Forsythe et al., 2014; Spikes et al., 2020). Without addressing the core of structural racism these health inequities will continue to exist; however, as society moves towards a more equitable system, screening for and meeting SDOH needs can help diminish this gap.

Rationale

This project investigated potential factors that may be contributing to poor BP outcomes in African American/Black patients at community FQHC clinics in Yamhill and Washington county and was guided by the Six Sigma methodology. Developed in 1986 by Bill Smith for Motorola, it is a methodology that aims to allow business leaders better understand how processes work in order to optimize processes and increase consistency while decreasing variations and defects in outcomes (products/health outcomes). This framework is often used in the healthcare setting and has been shown to improve patient outcomes, reduce errors and improve overall patient safety. DMAIC is a process that is used for existing processes and stands for *Define, Measure, Analyze, Improve, and Control* (Niñerola et al., 2020).

Specific Aims

- In November 2022, a cross-sectional retrospective review of data was done evaluating for contributing factors that may influence African Americans with poor BP control.
- In December 2022, this data was analyzed and formulated into a presentation with the data analysis and available evidence-based interventions. On December 12, 2022, this presentation was shared with organizational leadership via a formal presentation. It was

shared with healthcare providers and clinic staff via two additional presentations in February 2023.

- The overall goal was to increase knowledge among healthcare providers and organizational leadership of factors that may contribute to poor BP control in African Americans at this organization in order to close racial/ethnic gaps in health status, thereby working towards more equitable care.

Methods

Context

- a) The clinics are part of a non-profit organization that provides primary health care in Washington and Yamhill counties in Oregon through Federally Qualified Health Centers (FQHCs). Originally founded in 1975 to provide medical care to migrant and farm workers, this organization now serves a diverse population with a focus on communities with barriers to receiving care, serving over 52,000 patients a year. This organization has five primary care medical clinics and pharmacies, six dental clinics, one Women's clinic and 5 school based health centers (Virginia Garcia Memorial Health Center [VGMHC], 2022). This organization values health equity and prides itself on its focus on social justice, advocacy work, and community outreach. They value process improvement throughout its clinics in order to provide the highest quality and affordable services to its clients (VGMHC, 2022). A DNP student, Director of Quality Improvement, and healthcare data scientist were part of the team that collected data and assisted with the retrospective review of data.
- b) A total of 6,214 charts were reviewed and 6,148 charts were used in the final analysis. Inclusion criteria required a patient to be at least 18 years of age, have a diagnosis of

HTN and have had at least one visit from January 2021- December 2021 at a clinic within the organization.

Interventions/Study of Interventions

Phase I: The first two steps of DMAIC have been carried out by previous QI projects at this organization and *Defined* the opportunity for improvement for BP control in African American/Black patients at this organization. Performance of existing processes was *Measured* by finding a statistical difference in BP control in African American/Black patients when compared to other racial/ethnic groups served at this organization. The next two steps were carried out in this DNP project, with *Analysis* being done via a cross-sectional retrospective review of data to find potential factors for this health disparity and recommending changes to *Improve* practices in order to improve BP outcomes. If improvements are successful, the last step of *Control* can sustain these practices to maintain improved BP outcomes and health outcomes in this setting.

Phase II: We performed a cross-sectional retrospective review of data (RR) of patients with a diagnosis of HTN and received care in 2021 at these clinics. This RR analyzed data from Uniform Data System (UDS) 2021 data to look for associations between uncontrolled HTN and independent variables related to demographics discussed in measures section. Both data analyzed from RR and information gathered in the literature review informed the formal guidance proposed to staff and clinic leadership.

Phase III: A PPT presentation (see Appendix A) was created with updated SOC guidelines and data supporting a potential practice change for improving HTN control among African American/Black patients at these clinics. Clinic Standard of Care (SOC)

guidelines for hypertension were updated (see Appendix B) with guidance from literature review and RR results.

Phase IV: Organizational leadership were present for the first education intervention on December 12, 2022. This educational intervention reviewed the PowerPoint presentation mentioned in Phase II. Providers and all clinic staff were invited to two additional education interventions which occurred at staff meetings in February 2023.

Measures

The variables collected from the RR were chosen due to their association with increased risk of HTN in African Americans and increased morbidity and mortality based on literature (Eck et al., 2020; Ferdinand et al., 2017; Nguyen-Huynh et al., 2022; Pasha et al., 2021; Svarstad et al., 2022; Victor et al., 2018). Many of these measures are directly or indirectly related to barriers associated with SDOH, which are known to greatly affect health outcomes (Alvarez et al., 2021; Angier et al., 2020; Berkowitz et al., 2017; Byhoff et al., 2022; Cockerman et al., 2017; Forde et al., 2021; Forsythe et al., 2014; Kershaw et al., 2017; McClintock & Bogner et al., 2017; Pourat et al., 2022; Shahu et al., 2019; Spikes et al., 2020; Spruill et al., 2019). Demographic variables such as age, gender, race, ethnicity, primary language spoken, payor group, poverty level percentage (FPL)/income, BMI, MyChart activation status, and SDOH screening status were collected. Other disease-specific data were collected such as history of diabetes, PHQ-9 results, number of overall provider visits and non-provider visits, number of virtual encounters with provider, and presence of interdisciplinary visits with RN, pharmacy, CHW (known as Primary Care Community Care Coordination Outreach Worker [PCCCOW] in this clinical setting), dental, and behavioral health.

- Outcome measure: Percentage of patients who sought care in 2021 with well-controlled HTN according to ACC/AHA 2017 guidelines
- Process Measures: Percentage of patients and sought care in 2021 with well-controlled HTN according to ACC/AHA 2017 guidelines who received interdisciplinary visits in 2021.
- Balancing Measures: For increasing interdisciplinary visits among patients with HTN, this may increase work burden for staff (clinical pharmacists, nursing staff, etc..) and may uncover staff shortages among the interdisciplinary team.

Analysis

- a) Chart data were obtained from the UDS data for visits occurring in 2021. Deidentified retrospective review (RR) data were collected and organized via a password protected Microsoft Word Excel spreadsheet and stored in organizational encrypted platform.
- b) The binary outcome of controlled hypertension was defined as having systolic blood pressure (BP) ≤ 140 and diastolic BP ≤ 90 during the last measurement visit in 2021. When BP was measured multiple times in the same visit, the later measurement was used to determine hypertension control. Descriptive statistics were provided for the outcome and independent variables; binary variables are summarized by estimated proportion and Wald 95% confidence interval (CI) and continuous or count variables are summarized by mean and standard deviation (SD). Associations between the outcome and binary independent variables were evaluated using two-sample tests for equality of proportions with continuity correction; associations between categorical variables were evaluated using Pearson's Chi-squared tests; and for continuous variables, associations were evaluated using paired t-tests. Type I error rate α was 0.05 for all statistical tests, and p-values < 0.05 were considered statistically significant; no adjustments were made for

multiple comparisons. Analyses were conducted using R (version 4.1.2) within the RStudio (version 2021.9.1.372) platform.

Ethical Considerations

The information gathered from RR was done in a HIPAA compliant manner and information gathered from the RR was incorporated into the educational intervention. There was no involvement of patients or direct contact with patients. This project was not deemed as research involving human subjects by the Oregon Health and Sciences University Institutional Review Board (IRB: STUDY00024811). Key stakeholders, organizational leadership, clinicians, and other players in HTN management are the target demographic for this project due to their ability to implement and incorporate change.

Results/Discussion

Results

The retrospective review of data (RR) included patients who sought care in 2021 with a diagnosis of HTN at the clinics of study. Out of the 6,148 patients' data reviewed, 64.6% were noted to have controlled hypertension, according to ACC/AHA 2017 guidelines, with HTN control significantly higher among females compared to males. An unexpected result of the RR was finding that the proportion of HTN control among Spanish speakers compared to English speakers was significantly higher with 66.4% control in the Spanish-speaking group compared to 63.6% in the English-speaking cohort. Primary Care Community Care Coordination Outreach Worker (PCCCOW) encounters, race, gender, preferred language, payor group, clinic visits with provider, all non-provider visits and BMI were factors that were found to be significantly associated with HTN control. A team-based approach with African American/Black patients alone was not found to be statically significant, but when looking at the entire set of data,

including all races and ethnicities, greater involvement with the care team is shown to lead to greater rates of control. Each provider visit was associated with 3.7% increased odds of BP control and each non-provider visit was associated with 1.6% increased odds of control. Patients who were screened for SDOH, had a diagnosis of diabetes, and had RN encounters had a higher rate of controlled HTN but did not meet statistical significance. There were no significant variations in HTN control when looking age, FPL/income, virtual encounters with provider, depression diagnosis, ethnicity, Clinical Pharmacy Services (CPS) encounters, behavioral health encounters, dental visits, or MyChart activation. However, numerically, patients who had CPS encounters and RN encounters had greater BP control. Patients with PCCCOW visits had a higher rate of control at 70.4% compared to 64.9% for those without a visit. And, when solely looking at PCCCOW visits, patients who had an encounter were 33% more likely to have controlled HTN.

The rate of HTN control for all patients in this study was 64.6%, and when focusing on African American/Black patients, which make up 2.13% of patients at the clinics, there is a decreased rate of control of 53.4%. Further subdividing this group, non-English-speaking African American/Black patients have the lowest rates of HTN control at 28.6%. English-speaking African American/Black patients had controlled HTN at about two times the rate of non-English-speaking African American/Black patients at 60.4% control. In an adjusted model, non-English-speaking African American/Black patients were estimated to be three times more likely to have uncontrolled HTN when compared to White English-speaking patients at the clinics. It was also noted that non-English-speaking African American/Black patients have a difference in access to care and utilization of ancillary services. When reviewing payor statuses, 85.7% of non-English-speaking African American/Black patients had public insurance while

14.3% had self-pay and 0% had private insurance. This group also was noted to have lower SDOH screening rates, 3.57% compared to 6.8% of all patients and not one of these patients had a PCCCOW visit with very few having had behavioral health or CPS visits.

The data found in the RR echoes data in current literature and the Standard of Care document (SOC) for HTN was updated to reflect this. More assertive and direct language was incorporated in the SOC to encourage providers to utilize an interdisciplinary approach in HTN control and address social determinants of health. New literature from Holt et al. (2022), which challenges using race as a proxy for medicine in HTN guidelines, was cited in the SOC. This was done to share this recent literature with providers, to remind them to treat patients with individual targeted interventions, and to shed light on the increased risk of chronic kidney disease in African American/Black patients.

Interpretation

This RR showed that similar to aforementioned literature findings, patients with increased contact with clinic staff helps to increase their HTN control. Pasha et al., (2021) found through a systematic review that utilizing a team-based approach which includes pharmacists, nurses, and/or community health workers (CHW) helped to reduce BP and improved patient satisfaction.

Data showed that African American/Black patients who speak a language other than English have very low of HTN control at 28.6%. Despite the small number of patients this includes, it is valuable information as it exemplifies an area where improvement is needed in a population with multiple barriers to healthcare. The clinics in this organization have had immense success in promoting HTN control among Spanish-speaking patients, with this group having better HTN control than English-speaking patients. Therefore, there is an opportunity to

utilize similar patient centered and culturally appropriate methods of care to reach this additional group that does not speak English. The potential to impact this vulnerable group is immense thereby helping to close the gap of health inequities and promoting more equitable care. There were no costs associated with this study.

Limitations

Initially, inclusion criteria for the RR incorporated patients identifying as African American/Black. However, this population was too small to determine statistical significance and therefore a pivot was implemented to include all races and ethnic groups in the RR. An unintended benefit of the RR highlighted the successes of the clinic in increased HTN control among Spanish-speaking patients when compared to English-speaking patients. It was found that repeat BP checks after an initial high BP were not done consistently, thereby showing room for improvement related to reviewing best practices with clinic staff. Also, 14.2% of patients in the RR had “unreported/refused to report” race which illuminates the need for growth in data collection.

Despite the large sample size of patients included in this RR, one must note that this data was collected via a convenience sample. Generalizability of this data is poor with data conclusions only safely applied to similar patient populations in suburban FQHCs (Andrade, 2021). In addition, the terms African American and Black may mean different things to individuals and may affect how a person reports their race or ethnicity. The lack of universally accepted terms of race and ethnicity may also affect the data. Despite these limitations, the data is valuable and can inform practice changes, which was the goal of this project. Efforts were made to minimize limitations by basing the project design on literature. To ensure viability, the data was reviewed at various stages by the team to make sure it was adequate and complete.

Conclusions

This study supported the efforts of the organization in promoting health equity. There was a known disparity in HTN control among African American/Black patients at this organization and this project successfully examined numerous factors that could contribute to this health inequity. The clinic's Standard of Care (SOC) for Hypertension document was updated to align with current research and the RR which promotes an interdisciplinary team approach to HTN management. In addition, an educational PowerPoint was presented to clinic leadership and other staff to share the findings of the study, review SOC changes, and provide guidance regarding how to best support patients who have the poorest HTN outcomes. This RR data echoes what the literature supports, that an interdisciplinary team approach helps support HTN management in patients in a suburban FQHC setting. This information can be disseminated to other suburban FQHCs to support practice changes that promote a multidisciplinary model of care for HTN management. The leadership and clinical team members are invested in promoting health equity and their support will help solidify the sustainability of this project's efforts. The SOC is used organization-wide; therefore, it also supports the goal to maintain these efforts. Further study could include gathering qualitative data regarding perceived barriers to care in the most vulnerable populations at the clinics. For example, interviews could be conducted with African American/Black patients who do not speak English and their care team to examine their perceived barriers to HTN control. There is more work to be done to support this vulnerable population and these clinics have the dedicated and caring staff to continue the fight for health equity.

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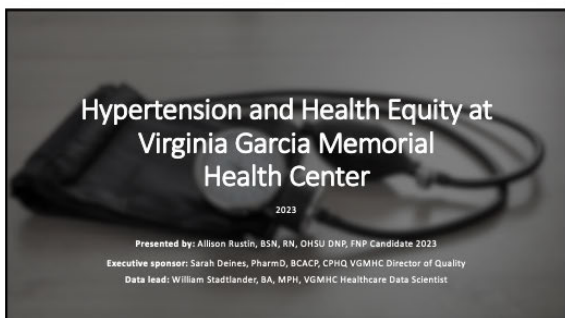
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Appendix A

Educational Intervention



1

Context of this project

- Previous research from pharmacy residents**
 - Found that African American patients have lower rates of BP control
- Where are we getting our data?**
 - HRSA UDS 2021 data set; Race and ethnicity are fixed categories and patients are self-identifying

2

Objectives

- Review burden of HTN
- Share current literature regarding HTN control
- Share knowledge gathered in review of data
- Recommend changes to VGMHC's Standard of Care for HTN
- Provide clinical pearls for potential practice change

3

Burden of Hypertension

Location	World	United States	Oregon	VGMHC
Rate of HTN	31%	47%	30.6%	20.5%*

Virginia Garcia Memorial Health Center (VGMHC) has a lower rate of hypertension *diagnosis* compared to Oregon, the US and the World.

Within the VGMHC patient population, data from previous research show that Black/African American patients have a *lower rate* of blood pressure *control* compared to other racial and ethnic groups.

Centers for Disease Control, 2022; Oregon Health Authority, 2018; World Health Organization, 2021

4

Health Equity and HTN

In the US, up to 55 % of African Americans have HTN¹

- 1.5x Heart Failure
- 2x Fatal Stroke
- 4x End Stage Renal Disease

(Egim, 2022)

5

Current knowledge

- HTN in African Americans**
 - No specific genetic component¹²
 - Socioeconomic and environmental are large factors^{10,12}
- Interventions for HTN management in African Americans**
 - Team-based approach^{6,8,9,10,14,16,18,22}
 - Integration of pharmacists (7.3-26 mm Hg), nurses (1-7 mm Hg), and/or community health workers (4.7-13.2 mm Hg)¹⁶
- Additional barriers to BP control**
 - Social determinants of health (SDOH)^{3,4,13,17}
 - Data shows SDOH impact over 50 percent of health outcomes while only 20 percent of outcomes are related to clinical care impact^{10,21}

6

SDOH impact > 50 percent of health outcomes while only 20 percent of outcomes are related to clinical care impact ^{20,21}

7

IMPROVING BLOOD PRESSURE CONTROL FOR AMERICAN AMERICANS ROADMAP **GOAL STRATEGIES**

INCREASE TOUCHPOINTS

- Establish frequent follow-up protocol for patients with uncontrolled hypertension (e.g., 2-4 weeks), including use of telemedicine
- Establish frequent follow-up protocol for patients with uncontrolled hypertension (e.g., 2-4 weeks), including use of telemedicine

GOALS

- 1. Increase the number of patients with uncontrolled hypertension who receive a follow-up visit within 2-4 weeks.
- 2. Increase the number of patients with uncontrolled hypertension who receive a telemedicine visit within 2-4 weeks.
- 3. Increase the number of patients with uncontrolled hypertension who receive a home blood pressure reading within 2-4 weeks.

STRATEGIES

- 1. Implement a patient-centered care model that includes a focus on patient education and self-management.
- 2. Implement a patient-centered care model that includes a focus on patient education and self-management.
- 3. Implement a patient-centered care model that includes a focus on patient education and self-management.

MEASUREMENTS

- 1. Number of patients with uncontrolled hypertension who receive a follow-up visit within 2-4 weeks.
- 2. Number of patients with uncontrolled hypertension who receive a telemedicine visit within 2-4 weeks.
- 3. Number of patients with uncontrolled hypertension who receive a home blood pressure reading within 2-4 weeks.

IMPLEMENTATION

- 1. Develop a patient-centered care model that includes a focus on patient education and self-management.
- 2. Develop a patient-centered care model that includes a focus on patient education and self-management.
- 3. Develop a patient-centered care model that includes a focus on patient education and self-management.

MONITORING

- 1. Monitor the number of patients with uncontrolled hypertension who receive a follow-up visit within 2-4 weeks.
- 2. Monitor the number of patients with uncontrolled hypertension who receive a telemedicine visit within 2-4 weeks.
- 3. Monitor the number of patients with uncontrolled hypertension who receive a home blood pressure reading within 2-4 weeks.

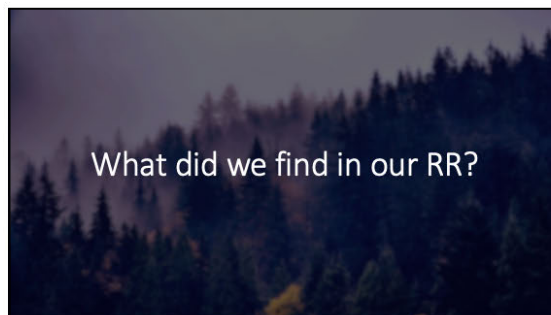
<https://www.vgmc.org/press-releases/2020/09/23/2020-09-23-vgmc-announces-new-blood-pressure-control-roadmap-for-american-americans>

8

Retrospective Review (RR)

Goal: Investigate factors associated with poor blood pressure control among Black/African American patients at VGMHC

9



10

Retrospective Review (RR)

Population: 6,148 patients in final analysis

Inclusion criteria:

- 18 years of age
- Diagnosis of HTN
- 1 visit in 2021 at a Virginia Garcia clinic
- BP reading in 2021

Data report was based with UDS Hypertension report for 2021.

Categorical Variables	Continuous or Count Variables
PCCOW encounters***	Clinic visits with provider***
Race***	All non-provider visits***
Gender***	BMI***
Preferred Language***	RN encounters*
Payor Group***	Virtual encounters with provider
SDOH screened*	FPI/Income
Diabetes Diagnosis*	Age
Depression Diagnosis	
Ethnicity	
CPS encounters	
Behavioral Health encounters	
Dental visits	
MyChart activation status	

***Significantly associated with HTN control
*Statistically higher rate of control, did not meet statistical significance

11

Statistics Methods

- Percent of patients with controlled HTN estimated for subgroups of each categorical variable; associations tested using chi-squared tests ($p < 0.05$)
- Mean and SD values of continuous variables were estimated for controlled and uncontrolled patients; assn. tested using t-tests ($p < 0.05$)
- Multivariable regression model fit using purposeful selection; find the "best" model using fewest explanatory variables
- Model estimates the adjusted effects of explanatory variables (ie: controlling for other variables in the model)

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General results

- 64.6% of patients had controlled hypertension
- 14.2% of patients had “unreported/refused to report” race
- Only 43% of those with high initial BP had a 2nd BP measured that day
- Patients screened for SDOH had a higher rate of controlled HTN
- Mean BMI was higher among patients with uncontrolled HTN

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Team-based approach results

Visits	Provider visit	Clinical Pharmacy Services (CPS) visit	Nurse visit	PCCCOV visit	Non-provider visit
	Each provider clinic visit is associated with 3.7% increased odds of HTN control.	9.8% with at least 1 CPS visit	55.4% with at least 1 RN visit	6.7% with at least 1 PCCCOV visit	Each non-provider visit was associated with increased odds of HTN control by 1.6%
HTN Control		With visit: 67% rate of control No visit: 64% rate of control	With visit: 65% rate of control No visit: 64.1% rate of control	With visit: 70.4% rate of control No visit: 64.9% rate of control	

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BRAVOI

LANGUAGE SPOKEN	HTN CONTROL
Spanish speaking	66.4%
English speaking	63.6%

15

Other discoveries

Race	Rate of HTN Control	
African American / Black (2.13% VGMHC patients)	English Speaking	Non-English Speaking
	60.4%	28.6%

Language	# Pts
Arabic	1
Haitian Creole	1
Hindi	1
Oromo	1
Swahili	2
Amharic	3
Mai Mai	8
Somali	11

16

African American / Black Non-English speaking patients → **3x** UNCONTROLLED HTN → White, English-speaking patients

17

Non-English speaking African American/Black patients

Category	Rate	
Insurance	Public	85.7%
	Self-Pay	14.3%
	Private	0%
SDOH screening		3.57%
PCCCOV visit		0%

18

Appendix B

Standard of Care for HTN Updates

Approach to Treatment: After diagnosis, recommend/initiate appropriate non-pharmacological and pharmacological treatment options. After 1-2 weeks, re-evaluate BP and assess necessary lab values, safety, and adherence. Adjust/start/stop medication, as indicated, to achieve BP goal. May consider starting two medications if initial BP is >160/100 mmHg at diagnosis. Utilize team-based approach with nurse visits for BP monitoring and medication titration per provider plan. Refer to clinical pharmacist if patient above BP goal and with complex comorbidities or complex social determinants of health (SDOH), on maximum effective doses of at least three medications, and/or with multiple medication intolerances. Refer to Behavioral Health if a patient is struggling with management of HTN for assessment of barriers and patient goals. Refer to Community Health Workers (PCCCOWs) to evaluate social determinants of health and to assess barriers and resource needs.

Treatment Goals per 2014 JNC8 Guidelines

- BP <140/90 for all adults <60 years of age
- BP <150/90 for adults ≥60 years of age without diabetes (DM) or chronic kidney disease (CKD)

Table 1: Medication therapy options

Patient Population	No DM or CKD	WITH DM or CKD
Non-black, < 60 years old	Thiazide Diuretic ACE-I/ARB CCB	ACE-I/ARB
Black, > 60 years old	Thiazide CCB **ACE-I/ARB	ACE-I/ARB
Female of childbearing age	Thiazide CCB	ACE-I/ARB*

* Only with use of highly effective birth control

** Holt et al., (2022) state race is a poor proxy for medicine, and early use of ACE-I/ARB in Black patients could be renal protective in a population that is 4 times more likely to develop kidney failure compared to White adults (<https://www.jabfm.org/content/jabfp/35/1/26.full.pdf>; <https://www.niddk.nih.gov/health-information/kidney-disease/race-ethnicity>)

3) Approach to treatment

a) Patient Navigation

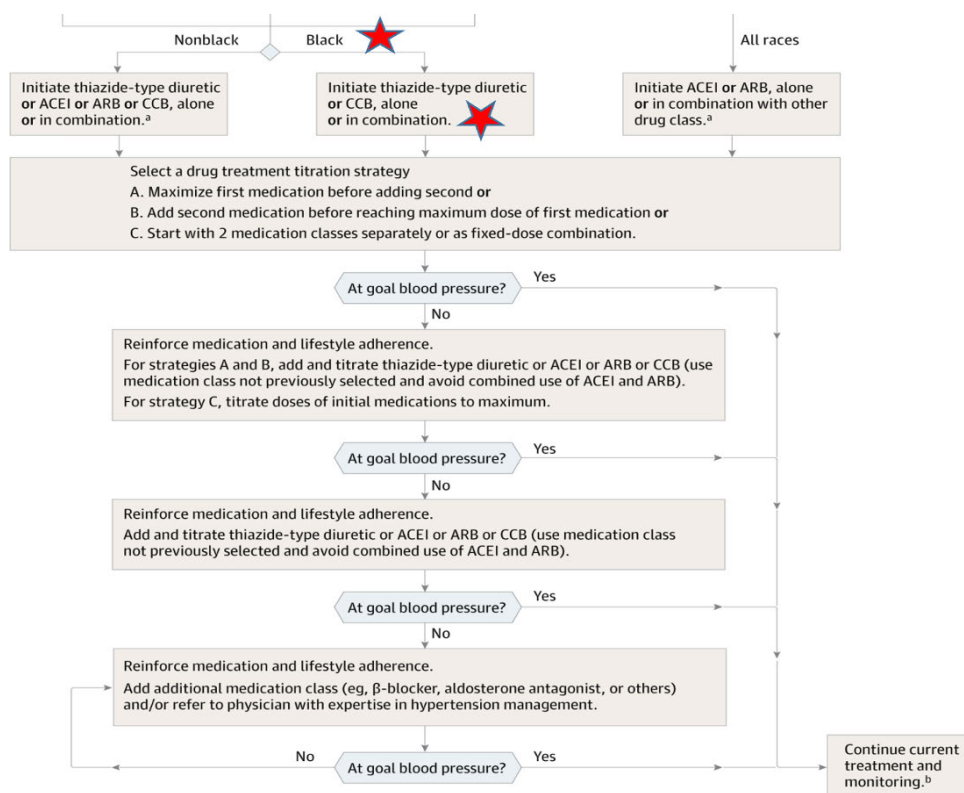
- Primary care provider
 - Ensure routine BP evaluation occurs at every visit
 - Follow-up 1-2 weeks after any medication changes, consider utilizing nurse visits for this purpose
 - Utilize team-based approach, refer for ancillary services for uncontrolled HTN and/or complex co-morbidities and social determinants of health

b) Ancillary Services/Referrals

- **Behavioral Health:** Medical providers should refer/coordinate a warm hand off for patients with HTN to a Behavioral Health Provider for an assessment of barriers and patient goals, and especially for patients struggling with management of HTN.
- **Clinical Pharmacy:** Refer for medication management under pharmacy protocols:
 - Adult patients (age ≥ 18) with uncontrolled BP.
 - Pharmacists can adjust medication under protocol and can order labs as needed.
- **Nurses:** Schedule patients with high BP for follow-up to assess impact of therapy changes if no additional changes are anticipated, if a clear plan of medication titration is documented by the provider, or if CPS not available.
- **Community Health Workers (PCCOWs):** Refer to evaluate social determinants of health and assess barriers and resource needs.

c) Additional Resources

- Consider referral to cardiology or nephrology for suspected secondary HTN (see Appendix A.) or for patients with co-morbid CV or renal disease.



★ Holt et al., (2022) state race is a poor proxy for medicine, and early use of ACE-I/ARB in Black patients could be renal protective in a population that is 4 times more likely to develop kidney failure compared to White adults (<https://www.jabfm.org/content/jabfp/35/1/26.full.pdf> ; <https://www.niddk.nih.gov/health-information/kidney-disease/race-ethnicity>)

6) Management of HTN in Special Populations

Population	BP Goal	Preferred Pharmacotherapy	Considerations
<u>Identify as African American/Black</u>	<u>Same as 2014 JNC8 guidelines</u>	<u>Thiazide diuretic and/or CCB as per 2014 JNC8 guidelines, Consider use of ACE-I/ARB for renal protective benefit.</u>	<u>Use of multidisciplinary approach with early referrals to CPS, RN, PCCCOW, BH and dietician as appropriate</u>
Pediatrics	Goals based on age, weight, and percentile rankings	Same as for general population	Consider referral to pediatric specialist in nephrology or cardiology
Female of Childbearing Age	Same as general population	Thiazide diuretic or CCB preferred. ACEI/ARB may be used if indicated, but patient must be on a highly effective form of birth control due to its teratogenicity.	
HTN in Pregnancy	< 160/105 mmHg (per ACOG)	Refer to prenatal provider	No clinical trials to confirm optimal BP goal.
Postpartum HTN	< 160/100 mmHg (per ACOG)	Refer to prenatal provider if < 6 weeks post-partum	Postpartum BP is generally elevated for about ~2 weeks.
Lactation	Same as 2014 JNC8 guidelines	Refer to prenatal provider if < 6 weeks post-partum Preferred agents for > 6 weeks postpartum: Methyldopa CCB Propranolol Metoprolol	No clinical trials exist that assess maternal or infant outcomes.

Other Documents

Project Timeline

	Aug	Sept/Oct	Nov	Dec	Jan-Mar
Finalize project design and approach (703A)	X	X			
Complete IRB determination or approval (703A)	X				
RCR 1 (703B)		X			
RCR 2 (703B)			X		
Educational Intervention				X	
Final data analysis (703B)			X	X	
Write sections 13-17 of final paper (703B)				X	
Prepare for project dissemination (703B)					X

IRB Letter of Determination



Notification of Not Human Research Determination

To: Rebecca Martinez

Link: [STUDY00024811](#)

P.I.: Rebecca Martinez

Title: Improving BP Control in African Americans in the FQHC Setting: A QI Project

Description: The committee reviewed this submission and assigned a determination of Not Human Research. For additional details, click on the link above to access the project workspace.

<p>Oregon Health & Science University Research Integrity Office 3181 SW Sam Jackson Park Road - L106RI Portland, Oregon 97239-3098 (503)494-7887 irb@ohsu.edu</p>		<p>VA Portland Health Care System Research and Development Service 3710 SW U.S. Veterans Hospital Road - R&D Portland, Oregon 97239-2999 (503)273-5125 pvamc-irb@va.gov</p>
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Letter of Support from Clinical Agency

Letter of Support from Clinical Agency

Date: *July 8, 2022*

Dear *Allison Rustin*

This letter confirms that I, *Sarah Dienes*, allow *Allison Rustin* (OHSU Doctor of Nursing Practice Student) access to complete his/her DNP Final Project at our clinical site. The project will take place from approximately *September 26, 2022 to December 31, 2022*.

This letter summarizes the core elements of the project proposal, already reviewed by the DNP Project Preceptor and clinical liaison (if applicable):

- **Project Site(s):** *Virginia Garcia Memorial Health Center (VGMHC)*
- **Project Plan:**
 - *African Americans at Virginia Garcia Memorial Health Center have poorer blood pressure control when compared to other ethnic/racial groups served at this organization. A retrospective review of deidentified data will be completed to evaluate factors that may be contributing to this difference in blood pressure control including demographic data and social determinants of health. Guided by the Six Sigma methodology, results of this review will inform an educational intervention that will provide recommendations for clinical practice changes or clinic procedural changes that could help close this healthcare gap. By the end of November 2022, a retrospective review (RR) of data will be done evaluating for contributing factors that may influence African Americans and poor BP control. By mid-December 2022, this data will be analyzed in order to provide a formal recommendation that will be presented to organizational leadership by the end of December. Two additional presentations will occur in January and February of 2023 for healthcare providers and clinic staff and in an all staff meeting. The overall goal of this project is to increase knowledge among healthcare providers and organizational leadership regarding factors that may contribute to poor BP control in African Americans at this clinic in order to close racial/ethnic gaps in health status thereby working towards more equitable care.*
 - *A total of 6,214 charts will be reviewed and 6,148 will be used in the final analysis. Inclusion criteria required a patient to be at least 18 years of age, have a diagnosis of HTN and had at least one visit from January, 2021- December, 2021 at a Virginia Garcia clinic. Director of Quality and clinical pharmacist at VGMHC, Sarah Dienes as well as William Stadlander, VGMHC healthcare data scientist will be part of the team that collects data and assists with the RR. Deidentified RR data will be collected and organized via a password protected Microsoft Word Excel spreadsheet and stored in organizational encrypted platform.*

During the project implementation and evaluation, *Allison Rustin* will provide regular updates and communicate any necessary changes to the DNP Project Preceptor.

Our organization looks forward to working with this student to complete their DNP project. If we have any concerns related to this project, we will contact *Allison Rustin* and *Rebecca Martinez* (student's DNP Project Chairperson).

Regards,

Sarah Dienes, PharmD, BCACP, CPHQ Director of Quality sdienes@vgmhc.org 503-536-5827

DNP Project Preceptor (Name, Job Title, Email, Phone): _____

Signature

12/23/2022

Date Signed